

Better Crops

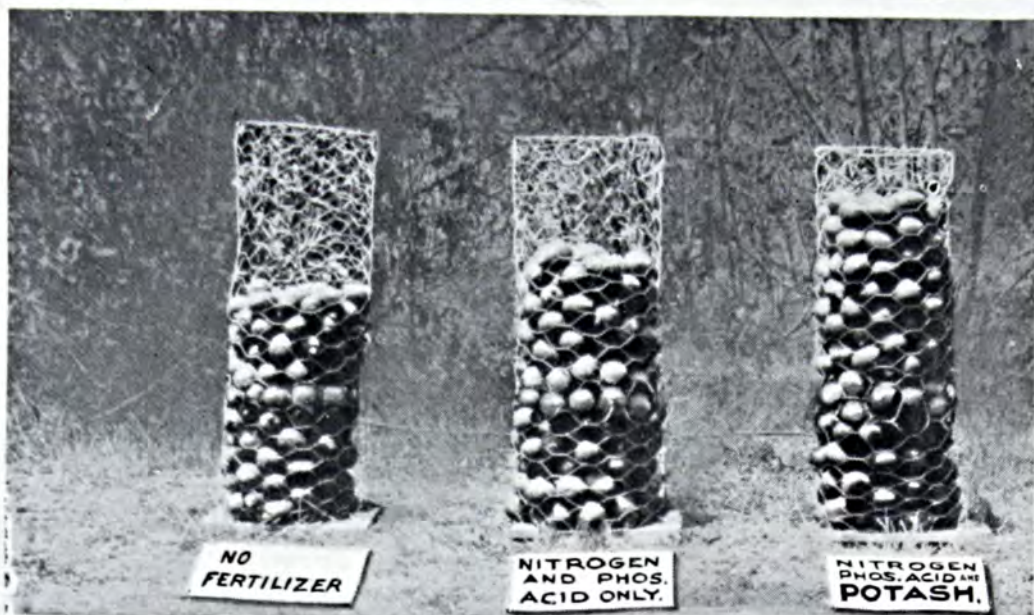
The Pocket Book of Agriculture.

September 1925

10 Cents



miums for Protein -- Why Upset the Export Apple Cart? --
Agricultural Developments -- in this issue.



Photographed of lemons grown by J. C. Davidson of Chula Vista, California

81 extra boxes *per acre* by using a complete mixed fertilizer

THE application of plant foods to your soil is just as essential as the application of food to your body. In each case, sound common sense must be used.

J. C. Davidson of Chula Vista, California, applied a complete mixed fertilizer containing 3% nitrogen, 8% phosphoric acid, and 12% potash to his lemon trees, at the rate of 1000 lbs. per acre. Soil was sandy loam.

The result was, an extra yield of 81 boxes per acre.

This extra yield was entirely due to potash, for on an adjoining plot, Mr. Davidson applied the same quantity of nitrogen and phosphoric acid, but no potash; and his yield was 81 boxes less per acre.

The above photograph taken in Mr. Davidson's grove, shows you the proportionate yields—but it doesn't show you the big improvement in quality. Remember that potash in a balanced ration helps to produce smooth, firm fruit of good size.

Try a well-balanced fertilizer on your lemon trees this Fall—use a mixture which gives each tree about 2 lbs. of potash. Or, experiment with different mixtures as Mr. Davidson did, in this way, you can prove to yourself that Potash Pays.

POTASH IMPORTING CORPORATION OF AMERICA
General Office: Dept. BC, 10 Bridge Street, New York City
Atlanta, Ga. 554 Market St., San Francisco, Cal. Baltimore, Md.

Genuine  German
POTASH

Better Crops

The Pocket Book of Agriculture

VOLUME V.

NUMBER ONE

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R. H. Stinchfield
Looks *you* in the eye



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VOL. V

NEW YORK, SEPTEMBER, 1925

No. 1

Gentlemen— Meet the Editor

WITH this issue a new editor comes to BETTER CROPS. We feel most fortunate in having been able to prevail upon R. H. Stinchfield to fill the chair of honor on our editorial staff. He comes to us from the Middle West—a real farmer, born and raised on a dairy farm in Wisconsin.

Stinchfield is thoroughly trained in agriculture and in agricultural journalism. He has handled the press services of the Wisconsin College of Agriculture, has contributed feature material for the farm pages of the Milwaukee Journal, and has done considerable writing for the Breeder's Gazette and other representative farm publications. He has a clear understanding of the problems confronting the farmer and the extension worker.

After service in the World War, Stinchfield graduated from the four year course in agriculture at the University of Wisconsin. This scientific training gives him a contact with the research men, while his journalism

experiences have had a broadening influence, giving him a sympathetic understanding of the purely commercial side of agriculture.

He is a member of Alpha Gamma Rho, Sigma Delta Chi—national honorary journalistic, and Alpha Zeta—national honorary agricultural fraternities.

Stinchfield knows that his job is no sinecure, but he feels that with the wholehearted support and cooperation of you who read BETTER CROPS the work will be pleasant, and your constructive criticism will stimulate him to make each succeeding issue of the magazine more helpful and more interesting.

Premiums

¶ Mr. Chew tells why they often slip through the farmer's fingers.

WHAT does the average farmer know about the "protein content" of wheat? Probably just about enough to make him mad. He is likely to be aware that protein in wheat is what makes this grain the chief source of supply for bread, that bakers demand a definite protein proportion in flour, and that millers in consequence when buying wheat on sample in the large grain markets often pay a premium for protein which the farmer does not get. What the average farmer does not know is that the problem of getting the protein value of wheat fairly reflected in the price paid to the grower is an extraordinarily difficult one, which has vainly taxed the resourcefulness and ingenuity of marketing experts for many years.

Because no way has yet been found for guaranteeing to the farmer a price for his wheat corresponding to its protein content, it is sometimes urged that the less said in print about the matter the better. Why get the farmer all stirred up about a problem unless it can be solved, it is asked? It has been suggested that it will be time enough to make farmers discontented with the present method of marketing wheat without measuring its protein content when the technical obstacles to doing so have been overcome.

Two answers to this objection are ready to hand, both amply sufficient. The first is the familiar general principle that the first step toward solving any problem is to state it. Of course this particular problem of how to get the protein value of wheat reflected in the price paid to the grower is clear enough in the minds of millers and bakers and chemists and technical experts. But it is not clear in the minds of farmers. And since farmers have the strongest motive for wanting it solved, it may be that when they understand what is necessary they will beat the technicians and the marketing experts to a solution.

THE other reply to doubts as to the wisdom of ventilating the problem is that thousands of farmers are already excited about it and for lack of information are seeing it in a wrong light. Every meeting of wheat growers is an occasion for discussion of the "protein content" problem. Much of the criticism directed against the Federal wheat grades in the last few years has been based on the fact that these grades do not include protein content in their requirements. Farmers are not ignorant of the fact that while terminal prices for wheat reflect quite accurately variations in the quality of wheat, local

For Protein

By Arthur P. Chew

U. S. Department of Agriculture.

prices often do not. They fully understand that unless they know the milling value of their wheat, they can not successfully bargain to get the best price for it. More rather than less discussion of the question seems to be the real need.

This, at any rate, is the position officially taken by the Department of Agriculture. In its 1923 Year Book, in an article on The Wheat Situation, (page 129) the department has the following to say about the protein problem: "In recent years wheats of high gluten (or protein) content and quality have commanded special premiums. On the Kansas City market car lots of hard winter wheat grading No. 2, 3, or 4, but of high gluten content or quality, often sell above No. 1 for the same day. Even car lots grading No. 5 occasionally bring the highest price for the subclass. For a recent day on that market when No. 1 Hard Winter was quoted at \$1.18, the highest quotation for No. 4 was \$1.16 and for No. 5 \$1.19. The producer as a rule does not know the gluten content of his wheat, and may hence be at a considerable disadvantage in making his sale to the local buyer. Special efforts should be made by producers to acquaint themselves better with the market value of their wheat."

Naturally the injury suffered

by the farmer because wheat is not appraised for its protein value at country shipping points has been exaggerated. Millers buy wheat largely on the basis of its protein content as well as on the basis of its commercial grade. But it is not usual for them to buy direct from the farmer. Their purchases are mostly made after wheat has arrived at terminal markets and has been tested for protein. When farmers learn that wheat of the same grade as their own but of high protein content is commanding a premium of 3 or 4 cents, which is pocketed by the dealer, they suppose that such cases are typical. Such price spreads are in fact exceptional. Nevertheless the farmer undeniably has warrant for desiring better means of appraising the protein value of his wheat.

WHERE the trouble lies is in the fact that testing wheat for protein requires the use of highly technical chemical methods and expensive complicated apparatus. Farmers therefore can not readily test wheat for themselves. Moreover, it is apparently not practicable at this stage for country grain buyers to determine the protein content of wheat. Indeed, country buying of wheat is usually not even done on a basis of a strict determination of its

commercial grade. Wheat buyers purchase wheat on a basis of what they think it will grade at the terminal markets. If their estimate is too favorable, they lose; if it is too unfavorable, the farmer loses. Competition among buyers for supplies of wheat tends to bring about an approximation between its value at country shipping points and its value at terminal markets, but the agreement is not exact. It is therefore obvious that much improvement in buying methods is necessary before a factor so hard to estimate as protein content will play its due part in determining the price of each load of wheat delivered at the country elevator.

Many farm papers and grain trade publications have suggested that the protein content of wheat should be incorporated as a factor in the Federal wheat grades. Though the Department of Agriculture believes the farmer is entitled to the premiums that his wheat brings on the score of quality in the terminal markets, it is not as yet prepared to make the protein content a grading factor. "It would not be in the interest of producers to do this," says H. J. Besley, head of the department's grain standards division, "because country buyers could not determine the amount of protein in wheat which individual farmers deliver for sale and consequently could not reflect terminal market prices to farmers on a protein basis." Yet the department has not given up the problem as one that can not be solved. On the contrary there is no wheat marketing problem which it is more diligently studying.

Meantime, it should not be supposed that the protein content of wheat plays no part in the price paid for it at country shipping stations. "Map buying" by millers has done something to correct the difficulty. Since protein came to be highly prized in

flour, millers have taken to sending scouts into various wheat producing regions in harvest time to prospect as it were for high protein wheat. These scouts furnish reports that enable millers to "map" the country for protein, and as a result the bidding for wheat is brisker in the good protein districts. But this proceeding has its limitations. The only way actually to know the protein content of wheat is to test each lot. Millers will not pay a premium for all the wheat delivered at a certain elevator, merely because some of the wheat obtained there has tested high in protein. To do that would be to establish a premium at that shipping point which would infallibly attract to it considerable supplies of wheat of inferior protein content. "Scouting" reveals the protein value of the wheat crop only in a very general way. Since an individual farmer may produce high protein wheat in a district where the general average is low, and vice versa, it is clear that "map buying" does not come very close to solving the real problem, which is to give the individual farmer the milling value of his own wheat.

A BETTER help to the farmer in obtaining a price for his wheat corresponding to its protein content is the Federal grain grading system, despite its acknowledged shortcomings in this respect. The Federal grain grades do not wholly ignore the protein content of wheat. In these grades the various classes of wheat are divided into subclasses, and the subclasses are divided into numerical grades. This division is based on the percentage contained of "hard and vitreous" kernels. Kernels of wheat that are hard and vitreous are higher in protein content than kernels that are soft

(Turn to page 36)

*¶ In which Jeff tells us the
whens, wheres and whys of
waiting.*

Waiting

By *Jeff McIlernid*

WAITING calls for patience. And patience is anxiety turned wrongside out.

Man is an impatient animal—always anxious to see the end of the furrow before setting hand to the plow. Much progress has been made, I admit, by those who because they refused to wait have trod on to heights which more patient men fail to reach.

BUT there is much merit in merely waiting.

The cat who sits by the mouse-hole all night, every nerve tense, gets the mouse eventually. In quiet assurance, yet ready to spring at the psychological moment, she sits, sits, sits. The mouse must come out. It is *only* a question of time.

What could she learn of mouse-catching from the noisy terrier who excitedly scratches and yelps at the hole, warning the mouse of his presence?

Many marvelous maxims adorn this idea of patience. "Everything comes to him who waits," "Contain thyself," "Patience and fortitude conquer all things," to mention but a few.

ROSSEAU said, "All good literature is a confession," and I must confess that at least twice in my lifetime the inability to wait has cost me a million dollars.

Lest this sound like braggadocio mixed with remorse let me hasten to add that I do not use the word "million" in a figurative, but in a strictly literal sense. Twice have I owned businesses or property worth a cold million real dollars which anxiety, impatience and exasperation tore from my hands and threw into another's lap.

YOU can learn more about honesty from a poacher than from a preacher—the poacher has seen its seamy side, has viewed it in reverse and in remorse. Caught, he can adorn a tale which points a moral clearer than any expounded by pulpit-pounding preacher. He knows, too late, the value of honesty.

From the actor you can learn more about drama than from him who occupies Seat 143, Row B, Parquet. The thespian sees the scenery from the rear.

And so you can learn more of

the merits of waiting from one who has not waited.

WE hear much about that unlovely, modern philological monstrosity, "stick-to-it-ive-ness." I think that one of the reasons I have several times failed to get the *granum salus* on the tail of The Bird is that the very sound of this wordy concoction was repulsive, repugnant, and pifflicus.

"Stick-to-it-ive-ness" is a word invented to define the art of working and waiting. To its inventor there seemed to exist no word which covered the thought he had in mind, so like some others including myself he invented one! As a philolo-inventor he is strictly Class D, Bum-in-ordinary and *Contra bonos mores*.

But the thought is good; and, as they say in Mental Science, "Anything is possible if you will just hold the thought!"

The idea of waiting—and while you wait, work—is not new.

There is nothing new in the mental world, though there are, I am told, a few new things in the physical world,—including the radio. But the device which will be invented ten years from now, I had in mind ten years ago! Everything that is to be is now in mind—all that remains is to work it out.

The thought is good—but old.

Don't mind waiting—and while you are waiting keep busy.

"To know how to wait is the great secret of success," claimed De Maestra, after a life which proved it.

And, Westinghouse, inventor of the automatic air-brake, sitting patiently in the anterooms of the money barons of his day, only to have them pass word down the line of secretaries, clerks and bufferinos that they were busy, knew how to wait.

He "contained himself," we now know, for seven years, feeling in his heart that he bore in his grip-sack the very thing that the money barons needed to add quick success to the railroad idea.

Too busy they were to realize that a train which won't start only induces grumbling on the part of a public prone to grumble anyway, that it causes little trouble, and no deaths; but that a train which cannot be stopped is like a Kansas cyclone, carrying death and destruction to all in its wake and unspeakable annihilation to those caught in its insatiable maw!

Too busy were they to investigate—to see that the bright-eyed Westinghouse had in his bag the death-knell of the hand brake and the birth certificate of rapid transit.

So, still patient, though not too much so, believing in moderation in all things, Westinghouse packed his idea and his ambition, and with tongue in cheek took it on the wing for England. Even a dog has sense enough to leave when ill-treated.

In England he was met with open arms. His wait was over, his patience rewarded, his troubles vanished.

IN our later generation, Knight, inventor of the sleeve-valve automobile engine, faced with the descendants of the money barons who were too busy to see poor Westinghouse, found that the breed had not improved with the decades—in fact that it was worse. Not only were they too busy but they added a sneer, a chuckle and a snort. The bug of modern intolerance had bitten them deeply—how they hated a new and revolutionary idea!

(Turn to page 47)

The Use of Fertilizers in Indiana and Iowa

¶A short review of two important Agricultural bulletins by G. J. Callister.

A RECENT publication by the Agricultural Experiment Station, Lafayette, Indiana, gives some interesting results on the use of fertilizers in 1924. It shows that more plant food per ton was purchased by Indiana farmers in 1924 than in any previous year.

In 1921, for instance, the average amount of plant food in every ton of fertilizer sold was 349 pounds, but by 1924 the 349 pounds had increased to 484 pounds per ton.

This increase in the amount of plant food per ton decreased the cost from 9.1 cents per pound to 7.2 cents per pound.

An interesting illustration is shown under the heading—"MR. BUYER, DO YOU BUY OR ARE YOU SOLD FERTILIZER?" It is shown without any doubt that the careful buying of fertilizers by Indiana farmers will save them thousands of dollars.

Why not send for this bulletin? It is number 292, published in May, 1925, and written by O. S. Roberts, acting state chemist, O. W. Ford, M. H. Thornton, and L. E. Horat.

THE profitable use of commercial fertilizer is gradually spreading westward from the more intensive producing areas of the East.

It is interesting to note in this connection that the Agricultural Experiment Station of Iowa in March of this year issued a circular on the use of fertilizers. As stated by the authors, W. H. Stevenson and P. E. Brown, certain commercial fertilizers are needed on many Iowa soils and can be applied with profit. This statement is the conclusion reached as the result of extensive field work.

Ninety-four cooperative soil experiments are now being carried out by the soils section of the Agricultural Experiment Station in cooperation with farmers. These fields are located in counties where soil surveys have been completed.

One of the main ideas brought out by the authors is that field tests are the only sure way to learn soil needs. Apply a certain fertilizer and determine its effect on the crop. Full directions are given for selecting the location of the field test and the location of the plots, the fertilizers to be tested, and how and when to apply the fertilizers.

There is also a great deal of other valuable information on the nature of commercial fertilizers and their function in crop production under Iowa conditions. We feel that every farmer using fertilizer should obtain this circular, No. 97, read it and keep it for reference.

Crawford Directs Agricultural Information

By P. M. Farmer

ONE of the early moves of Secretary of Agriculture Jardine was the appointment of Nelson Antrim Crawford as Director of the Office of Information, which Office the Secretary reestablished in the Department as a more convenient and effective means for handling the information and publication work. For ten years Mr. Crawford has been connected with journalism and printing work at the Kansas State Agricultural College, and Dr. Jardine, who was President of the Institution much of that time, knew that he possessed the qualities necessary to improve these lines of work in the Department of Agriculture.

Mr. Crawford took up his new position under his old chief on May 1st, and has under his supervision all publication and printing work and the press service. Plans are that he shall give considerable attention to developing radio outlets for Department information. The radio method of distribution has been highly developed at the Kansas college and is greatly favored by the Secretary and Mr. Crawford.

The recreated Office of Information will also take in the coordination of informational activities of the various bureaus and offices, and the Director will conduct the business of the Department with the public printer and the Congressional Joint Committee on Printing, the Permanent Joint Conference on Printing and the

administration of the regulations of the Department with respect to publication of articles.

The selection of Mr. Crawford to head this work for the Department of Agriculture is an indication of the consideration now given to the importance of proper preparation and distribution of the results of the Department's work. It was not many years ago when persons desiring information on the results of experimental work and other activities were expected to burrow industriously for it through the heavy clay of technical language and statistical tables. The method now in favor is the one which provides a mellow soil for the reader to work in for new scientific facts. The new organization also is designed to handle this phase of the Department's work with greater economy.

DIRECTOR Crawford came to the Department with a good background of successful work in teaching journalism and in carrying on information and publicity work. He has done much magazine and newspaper writing, including contributions to national magazines and is an active member of many journalistic organizations.

Mr. Crawford was born in South Dakota, received his B.A. degree at the State University of

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Better Crops' ART GALLERY *of the month*



Nelson Antrim Crawford is known as one of the foremost agricultural journalists of the country. When Secretary of Agriculture William H. Jardine wanted someone to direct information, Crawford was his first choice.



¶A drainage ditch was needed here.

Missouri County Drains its Mire

By Charles E. Brown

Farm Bureau, Carroll County, Missouri

CARROLL county, Missouri, recently showed its farmers how to make a drainage ditch on gumbo, a soil which would not hold up dredge boat or teams.

A ditch approximately 1,000 feet long, 8 feet wide at the top, and 3 feet deep was made at the demonstration meeting. Three hundred and eighty pounds of 60 per cent nitro-glycerine dynamite was used and approximately 500 cubic yards of dirt was moved. The total cost of making this ditch was \$104.50, or slightly less than 21 cents per cubic yard.

This cost was distributed as follows: dynamite, \$87.50; transporting dynamite to ditch, \$2.50; caps and fuse, \$1.00; labor, \$13.50. There was really no labor charge on making the

ditch because the farmers attending the demonstration meeting furnished the labor needed. We estimated what the labor would have actually cost an individual farmer in making the ditch on his farm.

In placing the dynamite one-half sticks were used in a double row. The one-half sticks were placed 14 inches apart in each row and the two rows ran parallel and were 16 inches apart. The dynamite was placed down in the ground about 15 inches. A two-inch piece of gas pipe with a pointed plug in the end of it was used for making the holes. After the dynamite was placed in the holes the holes were filled with water which took the place of tamping the holes with dirt.



¶ *Dynamite did the work.*

The one-half sticks of dynamite were set close enough together so that the concussion from the explosion of one whole stick was sufficient to set off all the dynamite placed. The ditch was made in three different sections. Only one cap and one fuse were required to set off the dynamite used in making each section.

The ditch made at this demonstration was a section of a drainage ditch which could not be opened at the time the balance of the drainage ditch was made be-

cause the ground was not solid enough to prevent the dredge boat from miring down. An attempt to open it with teams was also abandoned because the teams mired down.

The cost of moving the dirt in the balance of drainage ditch where the dredge boat and teams were used was approximately 40 cents per cubic yard. The ditch was made in soil classed as Wabash Clay and commonly called gumbo.



¶ *The ditch was completed in two hours.*

A Sermon That Impressed Me

B y E . W . H o w e



KNOW of nothing more wonderful than the story of the bee; nothing in fiction equals it.

I was most impressed lately, while reading a book on the subject, by a statement made by A. I. Root, an accepted authority. This worthy old veteran says the greatest enemies of the bee business are agents, propagandists, "p e p" gentlemen, "live wires," etc. Mr. Root says that so far as his experience goes patent-hive men are worse enemies of the bee business than ants, bee-moths, birds, mice, parasites, wasps, toads and skunks.

All the natural enemies of the bee are here enumerated by a practical man, and then he declares that men with short cuts to prosperity are more harmful than all the natural enemies combined. Mr. Root further says he does not know a single patented feature of bee hives and implements (and there are hundreds of them) that would come into general use if the patent were removed.

And then Mr. Root makes the strongest and most surprising statement of all. "We have little to fear," he says, "from natural enemies of the bee, and it is an easy task to keep them down, but from unprincipled men we have much to fear."

Life is much like the bee business. Its natural ills may

usually be met and overcome, but we have much to fear from agents with patent contrivances for making it easier. One of the most pitiful stories in print to-day concerns the great amount of money wasted every day on short cuts to fortune. Perhaps a third or half our savings are wasted in foolish investments. Agents have become so numerous that they are a pronounced nuisance, and most of their schemes are dangerous. In Miami, Florida, 18 agents were arrested lately in an hour, for street soliciting, and the police believed all of them to be dishonest men. It is becoming nearly that bad in every other part of the country.

Meanwhile those who attend to their business naturally, as the bees do, prosper in the United States as nowhere else. Those who feed their land, instead of agents; those who improve their own premises, instead of the premises of others, and work hard and behave, have no trouble in getting along, particularly if they mix a little common sense with their industry.

There is a very good moral in this reference to the bee business by A. I. Root, a worthy and intelligent man who became an accepted authority in the profession.

Mr. Root's sermon greatly impressed me, and I here attempt to pass it on; in the future agents will find me less easy.

Why Upset the Export Apple Cart?

By Frank George

United States Department of Agriculture.

An interesting account of American apples abroad.

A VIRGINIA apple grower back in 1841 sent a gift package of Albermarle Pippins to Queen Victoria. The Royal Lady liked the fruit so well that similar gifts were made annually to the Court of England, and a commercial demand for American apples spread throughout the Kingdom.

This demand increased steadily to the extent that Great Britain now buys some 1,500,000 barrels of American apples a year. Shipments last year, in terms of barrels, reached the record total of nearly 3,000,000 barrels. The Continental markets also take large quantities of the fruit.

The volume of business is large, but the financial returns are not always satisfactory. Sizeable profits have been made by some American growers and shippers, but losses are frequently shown. The losses are attributed to glutted markets, failure to take account of foreign competition, disregard for consumer preferences, and the arrival of apples in damaged conditions due to bad packing.

Why upset this export apple cart, declare the Department of Agriculture foreign investigators, when it can be kept to the road and made invariably to return a profit? Why not, they ask, supply the market with regular shipments as indicated by the demands of the trade, and use other good marketing practices?

American growers and shippers until recently have had slight means of knowing the extent of the foreign demand and competition for apples, and the best marketing practices to pursue. Now, however, they have the services of experienced apple men, sent abroad by Uncle Sam to keep continuous watch over the foreign situation, and to report regularly on the markets.

The first step, according to these experts, should be the elimination of slack barrels, which represents one of the greatest wastes connected with the export marketing of barreled apples. Apples in such barrels are penalized with a heavy discount even when the market is under-supplied, and some Liverpool buyers will not take slack barrels at any price.

EXAMINATION of arrivals of York Imperials over a 2½ months' period showed that 37 per cent of the barrels were slack. These barrels are detected in the British markets by the brokers' "selectors," who are on the quay when the cargo is discharged, and who sound the barrels by tapping the heads of the barrels with a hatchet.

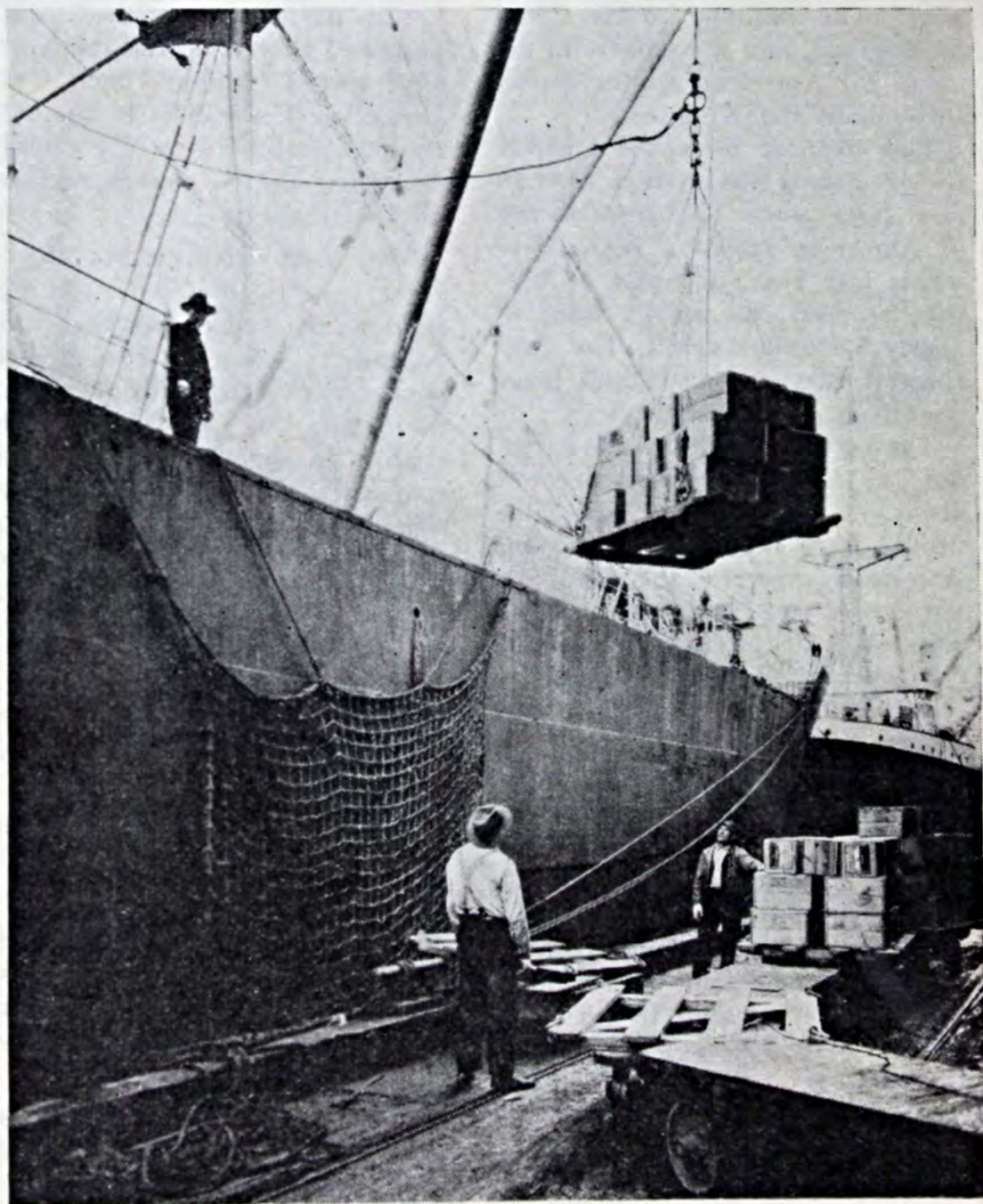
The causes of slack barrels are poor or weak barrels; poor packing; rough handling in the United

States; poor storing on board ship; rough handling by European stevedores, and weak or overripe fruit. Barrels with hoops that break or slip are certain to arrive slack. Virginia barrels are said to be the poorest that arrive on the Liverpool market.

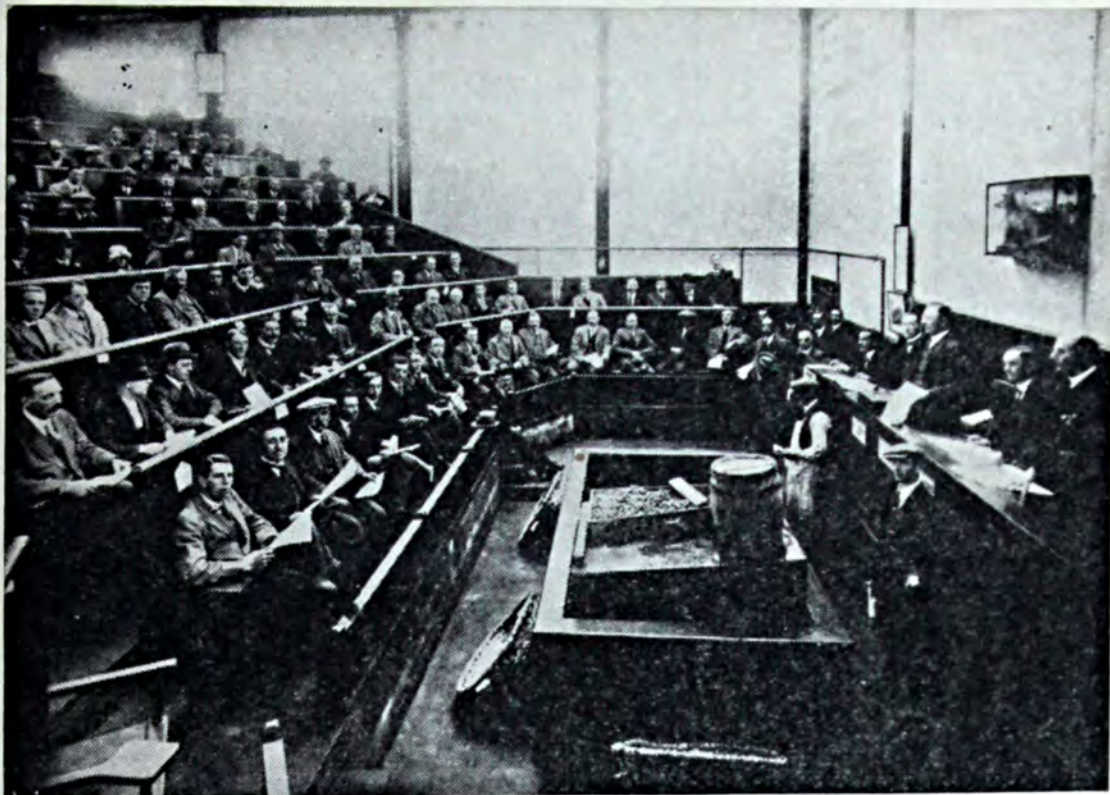
GREATER care in selecting sound barrels is urged. Many slacks plainly indicate that not enough apples were put in the barrel. Special care is necessary also in shaking down barrels in which shredded oiled paper is

used, because the paper may cause bridging. Refrigeration in transit is also recommended because this keeps the fruit firm and eliminates some slack barrels.

Most of the fruit sent to Great Britain is handled on consignment through auctions at Glasgow, Liverpool, Manchester, London, Hull and Southampton. Storage facilities at these places are inadequate, there is no disposition to re-sort the fruit, and the auction system has been necessary to provide a quick sales medium for handling the irregular volume of shipments.



¶ *Loading the Export Apple Cart.*



¶ *The Southampton auction is popular.*

There is no preference for boxed apples as against barreled fruit in the British markets, the main requirement being large apples for cooking purposes, and medium sizes such as 150s and 175s for dessert. The northern markets in Great Britain want both large apples and apples of the bright red varieties. Jonathans, York Imperials, Yellow Newtowns, Spitzenbergs, Baldwins, and Ben Davis are all in demand.

The Glasgow and Southampton auctions are regarded as the best outlets, and the auction at London as being the least satisfactory. Glasgow has direct shipping connections with the United States, and the prices realized there are often better than those in the other markets. The auction does a business of around \$10,000,000 a year, of which 85 per cent is in apples.

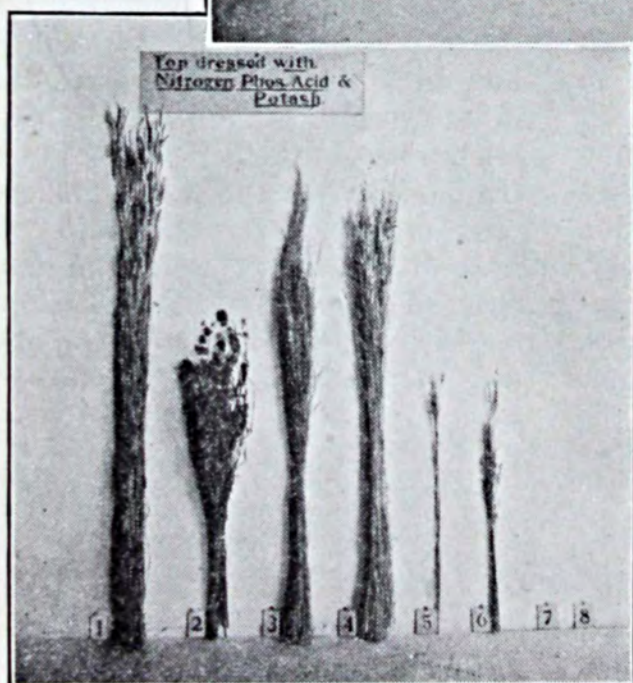
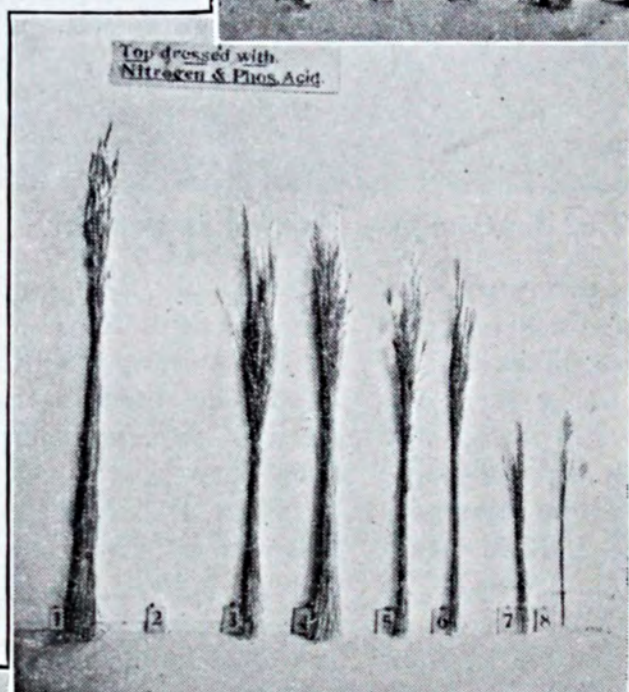
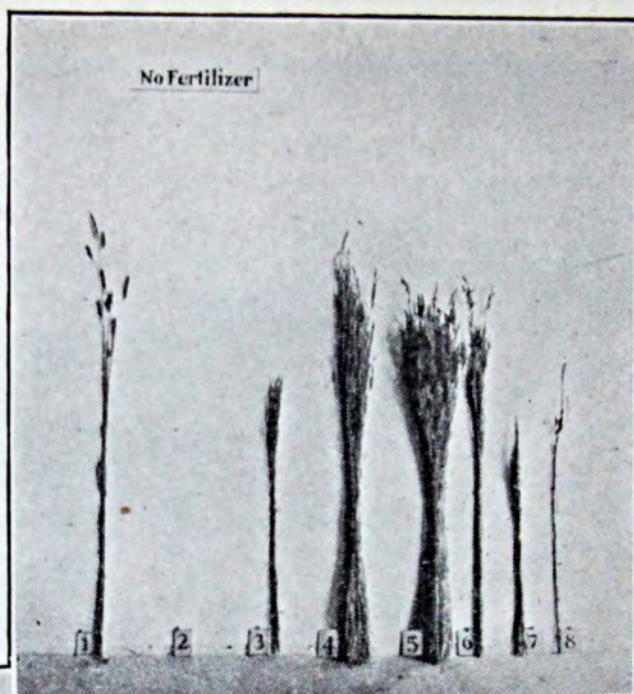
The Southampton auction is the newest of the English auctions and is now a distributing point for southern and southwestern Great Britain which were formerly supplied through either London or

Liverpool. This auction is popular because there is no discounting, handling facilities are good, and the auction prices are the prices which are returned to shippers.

Both the Liverpool and Manchester auctions are closed auctions, sales being made only through members. The business at Liverpool runs close to \$20,000,000 a year. Manchester is located close to Liverpool in the heart of the manufacturing district, and has direct shipping via the Manchester Canal. The large passenger ships on which a great deal of fruit is carried are discharged at Liverpool, the shipments to Manchester going by way of the canal.

THE London market is considered dangerous to the uninitiated shipper, careful investigation of the integrity and standing of consignees being necessary. There are many firms of good repute on this market, but the number which must be closely watched is larger

(Turn to page 31)



Fertilizers Crowd Out Undesirable Grasses

¶ An experiment conducted by the Soil and Crop Service of the Potash Syndicate, 1913-1916.

THE improvement of hay and pasture lands is becoming increasingly important. In 1923 demonstrations or experiments in pasture improvement were carried on in 45 states. This work included studies in fertilization, cultivation, and reseeding. Probably the most intensive work of this nature is now done in eastern Ohio, where 709 pasture improvement demonstrations were held.*

It is a well-known fact that under certain conditions top dressing with commercial fertilizers will entirely change the flora of hay and pasture fields.

Working along these lines, we conducted an experiment on an old timothy sod which had been seeded for some years. The clover had entirely run out. The soil was a heavy loam with clay sub-soil, located at West Brookfield, Massachusetts. Fertilizers were applied to two plots for four years. One of them was left without any fertilizer at all. At the end of the four years an equal area from each plot was cut, the grasses were sorted and weighed, and the percentage of each obtained.

Photograph No. 1 shows the

*U. S. Dept. of Agriculture, Department Circular 343, Washington, D. C., July, 1925.

grasses found on the plot without any fertilizer. They were chiefly oat grasses and sweet vernal grass, with a little Kentucky blue grass—numbers 4, 5, and 6 in the photograph. There was very little timothy, and no clover.

To the next plot 500 lbs. of an incomplete fertilizer containing 3% ammonia and 8% available phosphate acid was applied. This treatment changed the character of the grasses. The growth of the timothy was increased from 4.33 to 28.2%. Red top was increased from 2.2 to 12.2%. The sweet vernal was very much reduced—from 37 to 7%. The oat grass was about the same in each case.

On the third plot 500 lbs. of the same fertilizer was applied, with potash in addition, thus making a complete fertilizer. The effect of the added potash was to bring in the clover. This is shown in photograph No. 3. Another striking feature was the almost total elimination of the sweet vernal. Only a small quantity was found on the plot where the complete fertilizer was added.

This shows that when fertilizers are used continuously on hay or pasture lands, the value of the hay or pasture is often radically changed.

(Turn to page 48)

ARKANSAS

HOLDS A

IT IS A GENERALLY accepted fact that the bankers, business men and dealers in materials that the farmer buys and sells exercise a tremendous influence in determining many farm practices. Especially is this true with a product like commercial fertilizers which are purchased from such dealers or financed by the business men.

The College of Agriculture of the University of Arkansas believes that it is helpful to farmers to give information to these men with whom farmers are in close business contact. This aids them in giving the farmers helpful advice as well as enables them to keep available for farmers the kind of material which will be best for them to use. With this in mind a number of fertilizer schools have been held in Arkansas, the first of such schools having been held at the College of Agriculture at Fayetteville on July 16 and 17, 1924.

ANOTHER school was held at Texarkana in cooperation with the A. & M. College of Texas on December 2 and 3. These schools were very successful, about 150 persons attending each of the

schools. Other schools equally as successful, though of only one day in length, were held at Jonesboro, Helena, Pine Bluff, Arkadelphia, and Conway in Arkansas under the direction of the Arkansas Extension Service during the last week in January.

IN announcing the first school to be held at the College of Agriculture, University of Arkansas, Dean Dan T. Gray said: "The Fertilizer School for Business Men and Fertilizer Salesmen is being given by the University of Arkansas in cooperation with business men and business men's organizations of the State, with the view of getting the growing fertilizer business of the State before business men, bankers, and fertilizer salesmen in a safe and comprehensive manner. It is felt that the program will appeal to the business interests of Arkansas. It is hoped that many business men may attend. Farmers and planters are welcome also."

Splendid cooperation in these schools was given by fertilizer manufacturers and dealers as well as by farmers and business men's organizations. A full and com-

¶When business men, scientific workers, and farmers can get together, shake hands and rub shoulders with each other, better agriculture is on the way. The "Bear" State has found one means of establishing this common ground.

FERTILIZER SCHOOL

prehensive program was given covering the subject of fertilizers in a way that was of interest to all who attended the schools.

Among the talks given were: "How Plants Feed and What They Need," "Soil Types of Arkansas," "Selling Service with Fertilizer," "The Application of Commercial Fertilizer," "The County Agent's Place in the Business of a County," "Results of Commercial Fertilizer Work in Alabama," "The Banker's Interest in the Use of Commercial Fertilizer," "Conditions Affecting the Profitable Use of Commercial Fertilizer," and "The Dealer's Place in the Distribution of Commercial Fertilizer."

Reels showing the use of commercial fertilizer and practices in boll weevil control were shown.

These schools have been very popular with farmers as shown by a large attendance of farmers at each school. It is felt that information has been given through these schools which will be invaluable to those who are interested in the use of fertilizers in Arkansas. There is a growing interest in the use of fertilizers and 12,446 more tons of commercial fertilizers were sold from October to April 1923-24 than

were sold during the same period in 1922-23, the total sales for 1923-24 being 81,339.55 tons according to the Commissioner of Agriculture who has charge of the fertilizer inspection service of Arkansas.

THE point of saturation in the use of fertilizers on farms in the State is yet a long way off and a much larger quantity of fertilizers can be used to advantage if high grade fertilizers are used and properly applied. These fertilizer schools have been a supplement to the fine work which county agents of Arkansas have been doing in giving information to farmers regarding the proper use of commercial fertilizers. Fertilizers when properly applied are giving profits to the users and these schools and the work of the county agents is not designed so much to stimulate the use of fertilizers as it is to help those who are using them or who are expecting to use them to get information which will enable them to get the greatest possible returns from the money and labor expended in the purchase and application of the fertilizers used.

Reducing the High Cost of Garlic

By Albert A. Hansen

Purdue University Agricultural Experiment Station.

FOR many years the largest crop raised on the Turpin farm near Princeton, Indiana, was wild garlic. One field was so badly infested that, to borrow the proprietor's expression, the garlic was as thick as the hair on a dog's back.

DESTROYING wild garlic on that field looked like a pretty hopeless proposition, but despair bred courage and so during November, 1922, the land was plowed in such a manner that the garlic was turned almost upside down, burying the tips so they couldn't grow any more while at the same time exposing the bulbs to frost. The following April the land was again plowed and later planted to corn. This was followed in turn by fall plowing, spring plowing and another cultivated crop, which left the land so free of the garlic that the enthusiastic owner told the story to every-



body who would listen.

Was it by mere chance that the garlic disappeared? Hardly, because the same method has been successfully used by many other Hoosier farmers. Nolan McClure of Knox County so completely vanquished the garlicky pest by two bouts of fall plowing, spring plowing and summer cultivation that he was afraid to tell his neighbors how it was done for fear that they would laugh at him or that the plan wouldn't work well the second time. Edgar Wood, who manages the farms of the Southeastern Hospital for the Insane

near Madison, Indiana, eradicated a solid patch of garlic in three years by using a similar scheme, although he substituted potatoes for corn during two years of the process. Jake Aleon, the genial president of the Vanderburg, Indiana, Farm Bureau, delivered his land from the clutches of wild garlic by practicing three years of fall plowing, but during the spring he plowed twice while cowpeas were used as a summer crop.

WHAT is the secret of success behind this three-year system of cultivation to destroy the wild brethren of the Italian national dish? To unravel the puzzle, let us peer into the habits of wild garlic. A study of the reproductive methods will reveal that garlic reproduces from both ends and that the basal end has a double-barreled system of perpetuation. On the top of the plant are the bulblets, the pesky little "seeds" that are the same size and shape as kernels of wheat, in consequence of which they get into the harvested grain and impart their disagreeable flavor and odor to the flour. On the other end a large bulb is located, but when the covering is removed the chances are that about a half dozen bulbs will be exposed. To make matters worse, one of them is large and soft-coated, while the remainder are smaller, somewhat resembling tiny chestnuts, and each is equipped with a hard winter overcoat that brings it safely through the rigors of the cold season and enables it to sprout the following spring.

Now, here is the secret. The November plowing not only destroys the weak little plants that originate from the aerial bulblets, but it also is death to the larger plants that spring from the soft-jacketed basal bulbs, which

must either sprout during the fall or perish of cold. The spring plowing exterminates the shoots from the winter overcoated bulblets, while the summer cultivation almost finishes the job. Three years of work are usually neces-



¶ Reproduces from both ends

sary, however, because some of the hard coated bulbs may delay germination for that period. If all of this is combined with the use of garlic-free seed the pest will be no more at the end of the three years. But there is always a catch to take the joy out of life in the best of schemes. This time it is the fencerow plants that will eventually work their way back into the clean field if allowed to grow unmolested. What of them? An oil spray applied three years in succession during the latter part of April will solve this problem. Use a heavy oil, such as waste motor oil, crude oil, or orchard heating oil, and soak the plants so thoroughly with the spray that the heavy oil will gradually work its way into the basal bulbs and destroy them. Do not put the job

(Turn to page 35)



FOR A BETTER BETTER CROPS This magazine has now been published for more than two years. During that time it has covered a wide range of subjects referring to soils and crops, both from the view of the farmer, the research worker, and the "go between"—the extension man.

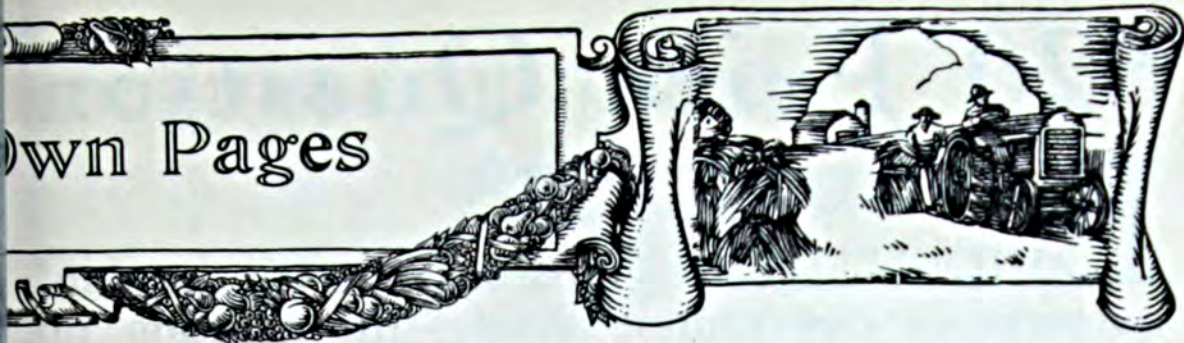
In its editorial policy every liberty has been allowed our writers to express the whole truth as they see it. Articles of a broad human interest have also been included. The readers have come to look regularly for some of our contributors, and we appreciate indeed the interest that has been shown. The magazine has, we think, served a useful purpose in covering a field for which there are few such publications.

With October's issue, **BETTER CROPS** will come to you with improvements towards developing a publication which we hope to make the best in its field. The editorial staff has been enlarged. R. H. Stinchfield, who has been added, comes to us with a thorough, general farm and scientific agricultural training. On top of this Stinchfield is thoroughly versed and experienced in agricultural journalism. His chief work will be to maintain a high standard for **BETTER CROPS**.

Jeff McDermid's articles will continue every month. Jeff has many friends, and we are glad to have his contributions.

In addition we feel that the agricultural business viewpoints should be more prominently included. Capital in large amounts is invested in business that deals solely with the farmer. We are including a section for those interests. The manufacture and sale of fertilizer, for instance, is a basic industry in American agriculture. As land values and population increase, it must become more and more important. We shall keep our readers informed of the developments in this phase of agriculture.

Other improvements are planned, giving news of the latest agricultural research from the United States Department of Agriculture in Washington, a brief review on the more important bulletins published by the state agricultural experiment stations, and the discussion of international agricultural work.



As before, the policy of the magazine will be to discuss such problems on the basis of the whole truth. There is no more dangerous or insidious policy than selecting the truth to support preconceived ideas or for the purpose of making sales. Often, we regret to say, truth is carefully selected.

The policy of **BETTER CROPS** will be **ALL THE TRUTH AND NOT SELECTED TRUTH**. This policy is adopted for the simple reason that it is the only sound policy upon which agricultural business or agricultural progress can be founded.

On this basis we are asking the cooperation of agricultural business men, the agricultural research groups, county agents, extension men, and farmers. We want articles that deal with better soils, better crops, and better economic conditions for agriculture as a whole.

The Better Crops Publishing Corporation is now a subsidiary of the Potash Importing Corporation of America. The magazine will be published at 10 Bridge Street, New York City, and its editors hope to continue in increasing the magazine's big family of contributors and friends.

VACATIONS

We do not know whether Secretary Jardine was vacationing on his recent eight weeks' trip through the West. Anyway he came back with the happy, fresh viewpoint with which one generally plunges into his work after a vacation.

"I found farmers greatly encouraged in practically every section of the country I visited," he says. "Over the country as a whole the outlook is for as good or better incomes than last year and the sentiment is one of moderate optimism."

Mr. Jardine sees stronger evidence of the approach of good times for agriculture than he has seen since 1920. Farmers are getting out of the shadow of bankruptcy. Farms are selling once more. Long-standing debts are being liquidated. In short, agriculture appears to be gradually getting its house in order after the post-war disruption, according to him.

\$20 Prize Question

EVIDENTLY we "missed fire" with the third question in our contest series—the question on taxation. Not one of you readers saw fit to send us an answer. Upon reconsideration, we do not know as we blame you very much. Taxation opens a big field of discussion. Let's forget it and leave it to the politicians.

Here is our last question. We think it should prove easy to write on and every answer is bound to be interesting to our readers:

WHAT IS THE MOST SUCCESSFUL CO-OPERATIVE EFFORT WHICH YOU HAVE OBSERVED?

Judging will be based on the success of the cooperative effort and the interesting way in which it is described. Do not forget pictures if you can get them. Answers must not exceed 800 words in length and the best answer will receive a prize of \$20.

They must be mailed before midnight October 6 and the winning answer will be published in our November issue. The judges will be the editors of BETTER CROPS. In the event of a tie, the full amount of the prize will be awarded to both contestants.

The judges reserve the right to withhold the award in the event that none of the answers is deemed worthy of publication in BETTER CROPS. BETTER CROPS also reserves the right to publish any manuscript submitted in this contest at the regular rate of one cent a word. No manuscripts will be returned.

Send your answer before October 6 to:

R. H. STINCHFIELD
Better Crops Publishing Corporation
10 BRIDGE STREET NEW YORK CITY

Selling Improved Agriculture

¶ This County Agent describes his personal contacts.

By R. F. Fricke

County Agricultural Agent, Erie Co., N. Y.

TO my readers, especially the county agents who are interested in the "Better Crops" articles dealing with Farm Bureau and extension work, let me state that in New York State the Farm Bureau is primarily an extension organization and the Farm Bureau Manager is the County Agricultural Agent.

Further that this plan has been used in its present form for two years and is the gradual outgrowth of an attempt to make more intimate contact with the entire membership than I have been able to make under any other system. Incidentally let me state that I have been in county agent work, with the exception of a year and a half, since April 1917 and the plan is therefore not the plan of an over-zealous new recruit, but of one who is growing old and weary in the work.

Inasmuch as the Farm Bureau is the Extension Organization, we do this individual work only with Farm Bureau members. Farmers who are not members do not receive this personal service. Our membership dues are \$5.00 per year and our membership the last two years has been slightly over 900 members. An assistant is employed.

In this county, before we began the personal service work, only 30 per cent of our previous year's membership renewed their mem-

bership. Now over 60 per cent of our previous year's membership renew. Apparently the members approve of the plan.

In the fall previous to the membership campaign, a service sheet is sent to each member. This service sheet is the basis of our personal service plan. It is changed somewhat from year to year. The service sheet used last year is reproduced here (or reproduced in part). As these come in, a list of men checking each question is made according to the question. For example: Each farm checking No. 1A—I desire information on determining the cost of plant food in fertilizers, is put on a sheet headed No. 1A. Then early in the spring, about the

HOW TO GET SERVICE



A FARM BUREAU exists to furnish agriculturists with a country headquarters where there is available either the information or the source of the information on all sorts of technical agricultural problems.

A new hog, shoves up in your orchard, you decide to try it. But your axes, you want to know how to grade, a hog does of children, you have some trouble with the railroad, a community problem requires discussion, dangerous legislation is contemplated. Where do you turn? To the Farm Bureau.

Your part is to keep the Farm Bureau. Your part is to make it more valuable.

Use Your Farm Bureau

ERIE COUNTY FARM BUREAU

41 ROOT BUILDING, BUFFALO, N. Y.

time that men are thinking of buying their fertilizer, a letter is sent out giving them information on the advantage of buying high analysis fertilizers and the actual saving that they can make based on current fertilizer prices for low analysis goods compared with a high analysis goods that contains the same proportion of the different plant food elements. And so on with the other 59 questions on the service sheet, each one being sent out when timely. We attempt to boil down this information on an eight by ten sheet of paper as farmers often will not take the time to read bulletins and lengthy papers.

THE next thing that is done is to place these records in a field book. A loose leaf Lefax book is made in triplicate, one for the agent, one for the assistant and one for the office. In the front of the book is a key to the service sheet. The book is indexed with tabs by communities arranged alphabetically, and every member is listed by school districts in his respective community. Below his name are listed the numbers he checked on his service sheet. Some of the questions call for personal visits while others are taken care of entirely by mail. Those asking for poultry culling, lime tests, alfalfa and potato seed plot, drainage, and raspberry mosaic are called on personally. Last year 385 men asked to have soil tested for lime and 1800 soil samples were tested. Two hundred and fifty men asked for poultry culling and over 30,000 hens were culled, we insisting that the farmer himself cull a part of the flock under our supervision.

Of course, all of the men do not fill out their service sheets. We ask the committeemen to follow up delinquents and we follow up the service sheet with letters on particular projects. For

instance, in the spring we send a letter to all of our members enclosing a return card, telling them that we are ready to make soil tests for lime and asking them to fill in the date by which they want the test if they have already applied for it on the service sheet, or to indicate on the card that they want a lime test if they have not already applied. Similar cards are sent out on other projects.

Our aim is to see every member at least once during the year. Those who do not fill out a service sheet or a card we call on when we are nearby, explaining the service sheet to them and usually rendering timely service at the same time. Those who have filled out a service sheet and who have not asked for any service requiring a personal visit, we check up with regarding the information asked for and sent by mail, trying to make it clearer and finding out what use has been made of the information. Last year 90 per cent of the membership asked for service and received it.

WITH two men working in the field the question of a record of the work done is of course important to prevent duplication. An office conference is held every Monday morning, and a weekly schedule of the communities to be covered is worked out. A record is made of each farm visit on a separate slip for each man which is later filed. Before they are filed and once or twice a month each Lefax field record book is checked up from the slips of both men and the requests taken care of checked off recorded by placing a C under the number of the service. In that way we know just what service each man has received and what he is still to

(Turn to page 43)



H EAVY buying of fish scrap, blood, tankage, and hoof and bone meals, attributed to manufacturers of stock and other feeds, has resulted in numerous advances in fertilizer materials quotations during the past month and the present market situation indicates that as a result of this condition, fertilizer manufacturers will have to pay higher prices for many of their raw materials this season than was the case last year.

U P to the present time, most of the fertilizer mixers have remained out of the materials market to a great extent, doubtless in the belief that lower market values might reasonably be looked for as soon as the feedstuffs manufacturers have covered on their season's needs. To date, however, this belief has not been justified by the market movement, although a little evidence of weakening values has been seen on a few items.

From present indications, it appears that the fertilizer industry generally has emerged from its long period of depression, and that loose credits, price cutting, and the other evils which have demoralized the business, practically since the post-war deflation period, are a thing of the past.

One of the largest manufacturers of fertilizer has just emerged from a 17 months' receivership as a full-fledged fertilizer company, having abandoned its cotton oil and foreign potash interests to give its undivided attention to the manufacture of fertilizer.

The general sentiment of the business world regarding conditions in the fertilizer industry was recently summed up by the Wall

Street Journal, the country's leading financial newspaper, which said, "The fertilizer business, fortunately, has turned the corner and bids fair to offer some encouragement to all hands interested in the industry."

Although nothing official has yet been forthcoming from the fertilizer manufacturers regarding prices and terms for the new season, it is believed that this season will witness a repetition of last year in the matter of short terms extended to consumers of fertilizer. One of the glaring evils of the industry during its long period of depression was the looseness of credits and the difficulty which the companies experienced in making collections. The present policy of the leading producers, that of selling for cash or on short terms, is better not only for the companies themselves, but what is more important, is beneficial to the great majority of consumers as well. Under former conditions, the overhead of the manufacturers was necessarily much greater than normal, and this was no doubt reflected in the prices for mixtures in many instances. Under such circumstances, it is conceivable

that the farmer who paid his bills promptly was in some measure, at least, helping to pay the way for the backward customers of the fertilizer makers. Under the new policy of the manufacturers, overhead is held down and the farmer and distributor who is "good" for the payment of his fertilizer bill within a reasonable period is not being forced to help shoulder the burden created by the slow payers.

Consumption of mixed fertilizers showed a marked gain during the past year, particularly in the cotton states, and it is generally expected in the industry that further expansion will be seen this year. Efforts of the manufacturers to increase the use of high test fertilizers have met with great success, and an increase in the consumption of the high test plant foods is in sight for the new season.

Early sales of potash in Amer-

ican markets this year are of record-breaking proportions, and heavy imports are scheduled for the next few months.

Efforts to have the Chilean Government reduce the export duty on nitrate of soda have proved unavailing thus far, and the increase in sterling exchange rates has put the market on a higher basis than was the case last year.

Domestic sulphate of ammonia has sold in a large way on contracts for the new season, and the market has advanced since the naming of contract prices several weeks ago.

German synthetic sulphate of ammonia, which was placed on the American market in a large way last year, has been rather quiet for the new season thus far, owing to the difference in price between the German and the domestic sulphate, favoring the latter.

PRICE TREND IN FERTILIZER MATERIALS

THE FOLLOWING PRICES ARE THE AVERAGE PRICES PER 100 POUNDS FOR FIVE SELECTED* POTASHES, AMMONIATES, AND PHOSPHATES. THE COMPARISONS ARE MADE AGAINST JANUARY 1, 1914, AS REPRESENTING PRE-WAR MARKET VALUES:

Material	Current	Month ago	Six months ago	Year ago	Pre-war Jan. 1, 1914
Potashes.....	\$1.30	\$1.30	\$1.29	\$1.13	\$1.35
Ammoniates.....	2.58	2.49	2.61	2.50	2.14
Phosphates.....	.6180	.6160	.60	.5950	.57

* The five selections under each heading are:

POTASHES	AMMONIATES	PHOSPHATES
Kainit, bulk	Sulphate of ammonia	Acid phosphate, 16 per cent
Manure salts, bulk	Blood, dried, New York	Bones, rough, hard, Chicago
Muriate, bulk	Fish scrap, dried, works	Bones, ground steamer, Chicago
Sulphate, bulk	Soda nitrate, spot	Rock, Florida, 68 p.c. works
Magnesia, bags	Tankage ground, New York	Rock, Tennessee, 75 p.c. works

Why Upset The Export Apple Cart?

(From page 17)

than at other markets. The auctions are located in Covent Garden and Pudding Lane in the heart of the business section. Great confusion attends the sales, but the prices are about the same as in the other markets.

Germany, before the war, took as many as 500,000 barrels of Canadian and American apples each year, and in some seasons 200,000 boxes of apples from Washington and California, the Hamburg auction being a distributing point for Germany, Scandinavia, and Russia. Now, however, the Scandinavian countries receive most of their shipments direct, Russia is out of the market, and Hamburg must depend largely on the German demand.

Another change is that whereas the demand was formerly for barreled apples, boxed apples are now preferred. This has been due to the imposition of high freight rates and import taxes which enable European growers to meet the demand for inexpensive fruit. The same situation prevails at Bremen, and at Rotterdam which furnishes supplies to the Netherlands and the Rhineland. Germany also has quarantine regulations against diseased or infected fruit, and these conditions can be detected easier in boxed rather than in barreled apples.

The demand in Germany is for red apples such as Jonathans, Spitzenbergs and Winesaps during the Christmas season, and after the middle of January Yellow Newtowns are wanted. The Rome Beauty and Arkansas Black in good condition and bright color are favored. Preferred sizes range from 150s to 200s, a small quantity of sizes up to 125s, but larger apples are discounted.

Shipments to both Rotterdam and Hamburg by way of the

Panama Canal have been in great favor the past two years, because the fruit arrives in good condition and reships well to interior points. The fruit is fresh and firm, and the packages practically free from breakage. The apples bring higher prices than shipments from London and New York on account of their superior condition.

THE Scandinavian countries including Sweden, Norway and Denmark, have shown a steadily increasing demand for American apples in recent years. Direct exports of boxed and barreled apples from the United States to these markets during the year ended June 30, 1924 totaled 294,000 barrels. The auctions at Hull on the East Coast of England, also does a considerable apple business with the Scandinavian countries.

Sweden is the leading Scandinavian consumer of American apples, the demand being for barreled apples rather than boxed fruit. Competition comes mainly from domestic apples which appear on the markets from late summer to early winter, but by January 1 these are mostly out of the way. Preference, however, is given the American apples, the smaller sizes being in demand, such as 2¼ inch to 2½ inch barreled stock, and not larger than 163s in boxes.

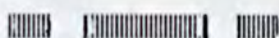
Apples for both Norway and Sweden are bought on order, most of the fruit being sold to importers on an f. o. b. New York basis, cash against documents, Gothenburg. The shippers are represented by local brokers or agents who canvass the buying trade. Purchases are made direct by all three countries because there is

damage from breakage and theft in reshipments from Great Britain.

Norway wants barreled varieties such as York Imperial, Ben Davis, and Baldwin. The boxed varieties preferred are Jonathan, Spitzenberg, Winesap, and some Yellow Newtowns. There are more Tyrolian apples in the Stockholm shops in mid-winter than Canadian and American apples combined. Supplies from southern Europe during the autumn are augmented by domestic fruit, and by supplies from the Netherlands and Denmark.

Danish apples early in the season in Denmark restrict the demand for American shipments. The demand is for York Imperials, Jonathans and Spitzenbergs prior to the New Year, after which the demand is for Winesaps and Newtowns. The sizes of Newtowns preferred are 138s to 175s, and of red apples from 150s to 200s. Pacific Coast ships have recently started to call at Copenhagen, which is expected to reduce freight costs on boxed apples.

Note: Detailed reports on foreign apple markets may be obtained upon request to the Bureau of Agricultural Economics, Department of Agriculture, Washington, D. C.



Crawford Directs Agricultural Information

(From page 10)

Iowa and his M.A. from the University of Kansas. From 1910-1914 he was instructor at the Kansas State Agricultural College and since 1924 was head of the Department of Journalism there. During short periods of leave from the College he has done a variety of editorial and writing work in many places. While at the Kansas Agricultural College he was managing editor of the Kansas Industrialist, an outstanding college publication. In an article published in this paper on the occasion of Mr. Crawford's appointment by Secretary Jardine, the following is said about his work:

"Professor Crawford is nationally known as a teacher of and an authority on journalism. His Book, 'Ethics of Journalism,' published last year, has been praised in various quarters as a sound exposition

of the code of the newspaper worker and publisher. He is the author of 'The Carrying of the Ghost,' a book of verse, and has contributed poems and criticism to the New Republic, The Dial, Poetry, The Midland, and other magazines and newspapers. He is associate editor of The Midland and has edited several anthologies and other books. From 1922 to 1924 he was president of the Kansas Authors' club and now is its critic. He has written much agricultural copy for magazines, farm journals, and newspapers. He established here the first series of bulletins on agricultural journalism published by any educational institution.

"He also has served as president of the American Association of Agricultural College Editors and now is president of the American Association of Teachers of Journalism."



A Pertinent Question ?

Say, Jeff:—

Did your stenographer dope out that article on "Laziness" last January and are you out at Coney Island on a merry-go-round to avoid the effort of fanning yourself? 'Fess up.

But if you are really on the job I want to commend you for devoting hot July down in stuffy New York to this editorial which is sure going to keep me on the job the rest of August and by the hot spell. Now that was really a great effort on your part to have accomplished such a result. For the last 15 years I have watched the rest go and had at last arrived at the effete stage myself, due of course to environment, where a vacation hove in sight. Now you've spoiled it all. I'll stick, but how my ideals would tumble should I learn that you are down at Coney Island on a merry-go-round cooling off, too tired to do it by hand.

"Better Crops" is getting better'n ever. I am glad that it

sizzled through August. Make it hot this winter.

Yours very truly,

E. L. LUTHER,

The University of Wisconsin
Dept. of Farmer's Institutes.

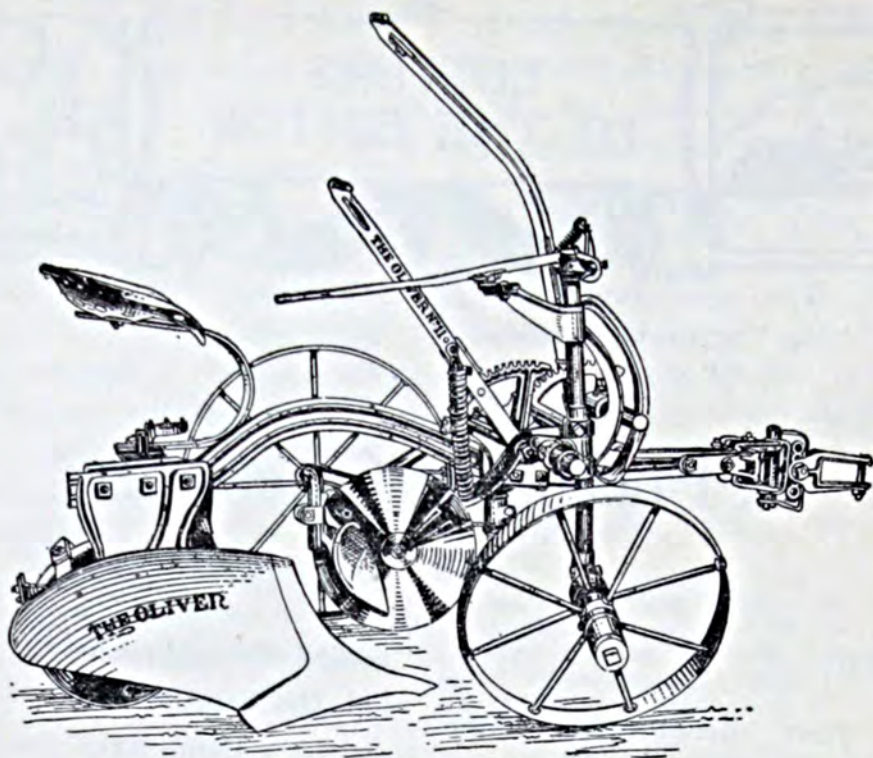
So as to keep up Mr. Luther's morale, I wish to state right here that "Laziness" was written just two days before the magazine went to press, but the real sweating was done by your managing editor in running around after Jeff to get the story finished.— By the way, Jeff hasn't been the same since.

A Correction

We are very pleased to acknowledge the following correction as called to our attention by Mr. P. A. Young, County Agent of Gallopis, Ohio.

Dear Jeff:

In July BETTER CROPS Edition I note in my article on drainage of Mr. Robinson's Farm on Page 43. "The tile had been laid too shallow only 4 to 6 ft. from the surface." This should read 4 to 6 inches from the surface.



A POPULAR FAVORITE *on Tens of Thousands of Farms*

Clean cut, even depth furrows with all weeds and trash completely buried in the bottom of the furrow are indications of the right kind of plowing. It is the type of plowing which thousands of owners have come to expect from the James Oliver No. 11 sulky.

As the most popular sulky plow ever built, it has been widely imitated, but is still without an equal in simplicity, in lightness of draft, in ease of operation, and above all, in quality work.

Three features—the extra short wheel base, the rolling landslide and pivoting front furrow wheel make possible short turns without lifting the bottom. Every owner appreciates this additional advantage.

OLIVER CHILLED PLOW WORKS

Plow Makers for the World

SOUTH BEND

INDIANA

Dress Them Up

¶An investment in good appearance to increase high interest.

NEBRASKA will dress up its youngsters to provide one of the features of this year's state fair at Lincoln, September 6-11. Boys and girls who exhibit baby beeves and other calves in club classes will appear in white furnished by the fair officials. The boys are to have white overalls and jumpers and the girls white knicker suits.

The showing of baby beeves has been a growing attraction of the Nebraska state fairs of recent years, according to L. I. Frisbie, state extension agent in club work. The white suits, adding to the youthful wholesomeness of the young exhibitors is expected to make the club show eclipse every

other feature of this year's livestock area. More than 150 boys and girls—between the ages of 10 and 18 will exhibit the pets which they have been fattening so carefully.

Arrangements have been made for the exhibitors to wear their suits while showing in competition, at the public auction, at the livestock parade before the grandstand, and at the showman's contest. The livestock parade is a traditional feature of the program before the grandstand, and the white suits on the youngsters will draw more than ever to club work the interested attention of several thousand spectators.



Reducing the High Cost of Garlic

(From page 23)

off, however, because after mid-May the below-ground bulbs separate and cannot then be reached by the deadly oil. This was the scheme used with complete success by B. F. Nesbit, a good Knox County, Indiana, farmer in cleaning out a number of patches of garlic scattered over a ten-acre field of rich soil.

The taming of wild garlic will mean millions of dollars annually in the pockets of American farmers. This weed decreases yields, taints the odor and flavor of flour, creamery products, eggs and meat, entails heavy milling losses by contaminating the machinery, causes serious firing injury in stored grain and is one of our

foremost lawn weeds. In nine southern Indiana counties a survey conducted by the Agricultural Extension Department of Purdue University revealed that wild garlic infests nearly a half million acres of cultivated land, entailing an estimated annual loss of over \$2,000,000 and similar conditions exist throughout a large portion of the winter wheat area of the United States. The amount of garlicky wheat received in St. Louis has increased from less than four per cent to over 20 per cent during recent years.

Fortunately, when the three-year cultivation method is faithfully practised, the wild garlic ceases to be wild.

Premiums for Protein

(From page 6)

and starchy. Experts are accordingly able to judge of the protein strength of wheat from the hardness and vitreosity of the kernels.

IT is true that this is merely an external measure of quality which indicates only very roughly the internal nature of the wheat berry. Yet it is not to be despised. Proof that the hardness and vitreosity of wheat kernels is in a general way a true index of their protein content or strength is given by the fact that wheat falling into the subclass "Dark Northern Spring" brings several cents a bushel more than wheat falling into the subclass "Northern Spring." Quality and protein content therefore do play an important part in determining the price paid for wheat at country stations. The Federal wheat grades do effectively separate

wheat into grades roughly corresponding with their milling value. What the farmer demands of course is a more exact measure of the protein content of his wheat. It is in the interest not only of the farmer but of the country that this demand should be satisfied as far as possible. When a producer is without assurance that a superior product will command a superior price, he has no incentive to try for quality production. This is as true of wheat as of eggs or fruit or vegetables, or any other commodity in which differences of quality are an important market factor. The Department of Agriculture is doing what it can to find a solution for the problem, and there is no reason to despair of finding one. Perhaps in this matter, as in so many other problems of marketing, the remedy will be found by the farmers themselves.



THE RIGHT MAN IN THE RIGHT JOB

The Soil Improvement Committee of the National Fertilizer Association has elected H. R. Smalley director of its work in the northern states.

Mr. Smalley, a native of Indiana and a graduate of Purdue University, has been actively engaged in soils and crops work for nearly 15 years. He has a wealth of experience to lend to the cooperation of the Soil Improvement Committee with agricultural colleges, experiment stations, the United States Department of Agriculture, county agents and agricultural agencies throughout the country.

The purpose of his work will be to promote a more intelligent use of commercial fertilizers, better systems of soil management, and hence a more profitable agriculture.

We wish Mr. Smalley success with his work and compliment the Soil Improvement Committee in their choice of the man for this important position.

¶ *Puts into practice what he preached.*

County Agent Becomes Corn Breeder

By H. E. McCartney

County Agent, Shelby County, Iowa

Ao. WILSON, of (Harlan) Shelby County, Iowa, has made an enviable record as a breeder of high yielding corn. He has accomplished this in the four years that have intervened since he retired from the position of County Agent in the County where he is now farming.

IT was at the close of the season of 1923 that the public became aware of the success that Mr. Wilson had attained. It happened that in Shelby County five corn yield contests had been conducted that year. Wilson had led in securing the highest yield which was $116\frac{2}{3}$ bushels per acre. The average yield of his corn was 86.4 bushels on the five plots and was many bushels per acre above the average yield of all other varieties. His yield was the highest in the State of



Iowa as shown by the reports from the local corn contests as held in nearly one-half the counties of the State.

When the yields were published, Wilson's fame was broadcast. How had he produced corn that would yield so heavily? To this question Wilson explained the method he had followed. He said, "When I went to the farm in 1921, I had 60 ears of seed corn which I had selected rather carefully and which appeared to be good. These ears were of several different types and I had selected

them with a view of finding the highest yielding type as well as finding the highest yielding ears. I shelled two rows from each ear and planted the kernels from those two rows retaining the balance of the ear for future use. The two rows of kernels were planted in single rows of 25 hills each and the crop from each row was husked and weighed separately. The resulting yields varied from 53 bushels per acre to 113 bushels.

"Fifteen ears that yielded at the rate of 96 bushels per acre or more were retained and the other 45 were discarded. I planted the seed from those 15 high yielding ears on a plot containing about two-thirds of an acre, keeping the three highest yielding ears separate and planting them in my garden. At pollinating time I cross fertilized by hand the hills planted from the three highest yielding ears.

THE seed I furnished for the five corn yield contests in Shelby County in 1923 was produced as follows: 20% from the three rows from my highest yielding ears and 80% from the other 12, all of which had yielded at the rate of above 96 bushels per acre." Wilson had furnished corn with a definite yield record back of it and deserved to win.

In 1923 on his own farm, he followed the same general plan of selection and cross fertilization and was able to gather several bushels of seed from his high yielding strain. Calls for seed came from far and wide, but he had none for sale. Many who were disappointed in this, immediately booked orders for seed from the 1924 crop.

In 1924, he again stood highest in the local yield competition. His average in the five contests in Shelby County was $9\frac{1}{2}$ bushels above the average of all others.


Again his yield was the highest reported from any entry in any county contest in the state. His corn was entered in a yield contest conducted for farmers in four counties. In this he led the field of 39 entries with a yield that was 10 bushels above the average of the other 38.

During the season of 1924 his whole corn crop had been planted to seed from his high yielding strain. This made it possible for him to gather 400 bushels of seed. The farm upon which he was located did not have a seed house. But, practical man that Wilson is, he cleared out the old central hog house and literally filled it with seed corn, hanging it on twine strings from the ceiling.

His fame has spread so that his seed corn is sold to many of the best farmers in his own county and state and quite a number of men outside of the state.

WILSON is well equipped educationally for his corn breeding. He is a graduate of a medical college. He has the degrees B.S. and M.S., both in Agriculture. He has done work in genetics toward securing a Ph.D. He is wonderfully versed in all the scientific technique surrounding the work in which he is now making so pronounced a success.

When he started farming at the time when prices were at the worst there were many who predicted that Wilson would eventually regret the venture. Now those same men see in him one of the outstanding successes of the farming game. They expect much of him and hope that he will turn his attention to developing a variety well adapted to climatic conditions and one which contains the greatest possible feeding value as well as one showing outstanding yield.



AGRICULTURAL DEVELOPMENTS

By P. M. Farmer

New Facts on Pear Blight

Pear blight, a disease caused by a specific bacillus, ordinarily does not attack the mature fruits of summer apples and pears. It can occasionally attack summer apples clear up to maturity, according to M. B. Waite of the Bureau of Plant Industry, U. S. Department of Agriculture, and he says that probably the same thing is true of summer pears. This disease has never been found on mature winter apples and pears at harvest time in the autumn or in storage during the winter. Under ordinary inoculation conditions the disease will not attack these fruits. It has been proved, however, that under forced conditions the pear blight germ can attack the tissues of a mature winter apple.

Triumph in Apple Shipment

Speaking of diseases attacking fruits is a reminder of the great progress that has been made through the medium of refrigeration in overcoming deterioration caused by bacteria and fungi. Recently a triumph was scored in the scientific handling, storing and transporting of apples when a carload of 1924 Winesaps from the Pacific Northwest were sold in Glasgow, Scotland on July 28. This shipment arrived on the market after the 1925 apple crop from Australia and New Zealand was practically out of the way. The prices for these Winesaps were higher than the average received for fresh crop apples and were nearly four times as much as the price paid for 1924 Portu-

guese apples sold at the same time.

These Winesaps were grown on a ranch at Yakima, Washington. They reached their final destination, nearly a year after their harvest, in excellent condition largely because of scientific handling from picking time to arrival at Glasgow, nearly 8,000 miles away. The way these apples were handled should prove a good lesson in scientific marketing. They were first wrapped in oiled paper, placed immediately in cold storage at 30 to 32 degrees and held there until time of shipment. When they were moved out of storage they were laid in a fully iced refrigerator car in which the best refrigeration possible was obtained by applying salt to the ice. At New York the fruit was transferred to refrigeration chambers on the steamship. The apples were held in the original storage plant until the middle of the summer and shipped across country during the hottest season.

According to Edwin Smith, specialist in foreign marketing for the U. S. Department of Agriculture, efforts devoted to improving handling, storage and transportation of apples is the one best means to hold and extend foreign markets against aggressive competition from all parts of the world.

Crop Meter in New Use

The crop meter which has been used for some time to assist in making estimates of acreages by crop estimators using automobiles has now been adapted for use in

railway trains. The meter is hooked up with one of the wheels of a passenger car so that the estimator riding on the train can make a record of the lengths of fields devoted to different crops alongside the right of way. When the train comes to the edge of a cotton field the operator pushes the cotton button and the machine records until shut off by the pushing of another button when the end of the field is reached. If the next field is corn the corn button is pushed, and so on. The machine was tried out satisfactorily recently on a Southern railroad, the operator taking a trip of about 200 miles recording the crop acreages on either side of the track. These records give an excellent means of estimating the changes in acreage that go on from year to year.

Water Kills Sugar Cane Moth Borer

A successful and simple means of fighting the destructive sugar cane borer has recently been worked out by T. E. Holloway of the Bureau of Entomology, U. S. D. A. The sugar cane "seed" consists of pieces of stalks and if the plants have been infested by the borer a new crop runs the risk of great damage from the insect. Previously it has been difficult to combat the insects which were imbedded in the stalks. It has been found, however, that simply immersing the "seed" stalks in water of ordinary temperature for 72 hours does away with the pest. General adoption of this simple remedy in the sugar cane section would obviate heavy losses.

More Ammunition to Fight TB.

The rising tide of battle against animal tuberculosis is one of the conspicuous developments in the livestock industry. That the

country as a whole is convinced of the economic and other advantages of getting rid of this arch enemy of the livestock industry is shown by the increase in the number of modified accredited areas and in the appropriations being made for eradication. There are now 89 counties in the United States which are known as modified accredited areas, that is, areas having less than one-half of one per cent of the disease. At the beginning of the year there were only 53 such counties. Appropriations made in the various States for the present fiscal year, together with the Federal funds, amount to approximately \$13,175,000. This is double the amount available for the year ended June 30, 1925. In addition there have been many amendments to State laws making their operation more effective. Illinois has passed a new law which provides for the testing of all herds in counties wherein at least 75 per cent of the herds of breeding and dairy cattle have been voluntarily tuberculin tested as provided by law. In other words, Illinois is not going to let the progressive farmers who have made an honest effort to get rid of TB suffer because of backwardness in neighbors who have not felt the urge to have their cattle tested. This State also repealed the famous "Shurtleff Law," enacted in 1911, which prohibited cities and towns in the State from enacting ordinances requiring the tuberculin test of cattle furnishing dairy products for consumption within their municipalities.

Better Sires Gain

The campaign for better sires and better stock, being fostered by the Bureau of Animal Industry with the assistance of agricultural colleges and county agents, continues to have a strong and steady

(Turn to page 44)

A New Day for Poultry in Dixie

By J. Lewis Merritt

IN the "Cow, Hog, and Hen" program the "Ole Hen" is certainly holding her own along with the other two members of this famous trio. Every day we have brought to our attention outstanding examples of what can be done with a small flock—where a little time and effort are expended in the proper way.

Many of our farm folks think that we must all be poultry experts in order to succeed in the poultry business. However, such is not the case, because if information and personal help is necessary, it can be had only for the asking. The farm demonstration agent and home demonstration agent as well as the specialist of the extension service always stand ready to help the man or woman that is interested in raising poultry.

It used to be that chickens were not much of a factor on the farm. In other words most every farmer

had a few chickens, and as long as they furnished enough eggs for the family use and enough fryers to go around when the preacher made a visit, it was all right. In those days—and it wasn't many years ago—the farm flock was only a family affair, furnishing the family table. Only occasionally a few chickens were disposed of on the local market, when the farmer went to town on Saturday.

IN some sections of the South it was a common thing for the traveling pedler to go around through the country and trade general merchandise for the farmer's surplus chickens. It was good business for the traveling pedler—because he sold his merchandise and at the same time gathered enough chickens together on his rounds to get a premium either



¶ Dixie's surplus on the way to market.

on the local market or a more distant market. At that time the farmers did not know the true value of the farm flock, but even under those conditions the flock seldom showed a loss. On an average they just about broke even.

HOWEVER, the last few years have brought about a magic change in the poultry industry of Dixie. The change has come in all departments of poultry raising. We now find on the farms in the South better equipment, better ranges, better feeding methods, better stock, better care and management and vastly improved marketing methods. As someone has said, "the chicken money is no longer 'pocket change' among Southern farmers; it's big business."

The following report of the poultry work done by the Extension Poultry Specialist of South Carolina, is typical of other Southern states and will show just what progress is being made in poultry raising in the Southland. It will show that the interest in poultry is growing by leaps and bounds. And instead of selling poultry in small lots as it was formerly done, we now sell in carload lots. The report summarizes the work of 1924 as follows:

Poultry is one type of livestock that seems to be coming into its own in South Carolina. The census of 1910 shows that the average farm flock of poultry in the state consisted of 16 head of all kinds of poultry; in 1920 the average was 22 head. There was little encouragement to farmers to increase the number beyond home needs on account of the lack of a dependable market. However, the nine carloads of live poultry shipped out of the state through extension efforts in 1923, followed by the 24 carloads in 1924, served

to convince the people that there is an outlet, and there has been a corresponding increase in the size of the average farm flocks. Probably it would be an economic arrangement if the majority of farmers would eventually carry from 50 to 100 birds per farm as a feature of a diversified system.

During 1924 demonstrations and other work were conducted as follows:

Number of demonstrations in culling, caponizing, poultry house constructions	1,223
Number of flock demonstrations started or under way	960
Number of flock demonstrations completed or carried through the year.....	838
Number birds involved in these complete demonstrations	55,506
Number community poultry associations organized....	8
Number county poultry associations organized.....	5

AN outstanding example of what can be done with a small farm flock in Dixie, is demonstrated by V. M. Faircloth of Andrews, S. C., which shows that a neat profit can be made where a little time and effort are put into the business.

Aside from his work as a rural mail carrier, Mr. Faircloth finds poultry a most interesting and profitable business, according to Miss Juanita Neeley, Winthrop College Poultry Specialist. In 1924, he bought about 500 baby chicks from which he kept 100 selected layers during the winter of 1924 and 1925.

Advantages were taken of the opportunities offered him in securing the services and aid of the home demonstration and poultry

department of Winthrop College. The agent and specialist visited Mr. Faircloth's home several times in order to help select his breeding stock, lay off the yards, and advise about the building of the houses. He always asked advice as to feeding, brooding, and selecting eggs for he said, "I know absolutely nothing about chickens, but I am going to learn everything I can and expect to do exactly what I am told by those who know more than I do. Experience, I know, is the greatest teacher but also the dearest, and I do not believe in going through everything in an experimental way if others can save you the time, trouble and expense." He believes that growing into the work is the only way to succeed.

Mr. Faircloth is a member of the Georgetown Poultry Association and is doing a great deal towards boosting the poultry industry of Georgetown County and South Carolina. He is interested in the junior poultry clubs and gives special reduced prices to the members for eggs and breeding stock, in addition to offering some splendid prizes for exhibits at fairs.

One visiting this little poultry farm will find a most inviting appearance around the place and a most hospitable host and hostess. The poultry yards and houses are kept in very sanitary condition and the birds will impress you with the idea that they are enjoying good management, comfortable houses, and well-balanced rations.



Selling Improved Agriculture

(From page 28)

receive. The service on the questions handled by correspondence is not checked individually but by the service number. In this way we make a personal contact with every member.

It is natural under any other system to call on a relatively few progressive men who ask you to call and with whom you become personally acquainted. Under this system you call on every member and you get a larger number of men to actually put into practice the things you are trying to teach, and you make them realize that you can be of real service to them and willing to give them that service. After all personal contact is the most effective agent and if you know

and believe in your work you can sell your improved practices and methods to the farmer in no other way as effectively as by personal contact.

In my enthusiasm I don't want to forget the committeemen who do valiant work without pay and with often too little recognition. We advise with the committeemen in our work, who tell us how to approach our men. They get the other fellow interested in receiving service and are invaluable in the carrying on of an extension program, and can be used in this program as well as in any other program for carrying on extension work.

Agricultural Developments

(From page 40)

growth. The campaign is now in its sixth year and the report for the 23rd quarter, which ended June 30th, shows that 15,818 livestock raisers throughout the United States have signed the pledge to use nothing but purebred sires for any kind of stock kept on their farms. These farmers own approximately 550,000 four-footed animals and more than 1,185,000 head of poultry. The campaign to date has supporters in 46 States and there are now 41 counties having more than 100 each of men who have made this pledge for livestock improvement.

Kentucky, with 3,235 persons enrolled is the leader in number of participants, followed by Ohio with 2,971, Virginia with 2,419, Nebraska with 1,522 and Vermont with 1,461. Ohio is the leader in number of animals listed, having 103,321 animals and 296,229 head of poultry.

During the last quarter from April 1 to June 30, 335 new persons enrolled from 16 counties in five states. Outstanding work was carried on in four counties—Grayson, Va., which enrolled 95 new members; New Haven, Conn., which contributed 78; and Shelby and Union Counties, Ky., with 48 and 39 enrollments. In the previ-

ous quarter Mr. Wayland Rhodes and his co-workers in Kentucky won the State Championship and the most recent report shows more progress. This State, however, has not yet been able to wrest the county championship from Pulaski County, Va., where E. G. Grigsby, county agent has held the lead ever since this country-wide campaign started. The work in Union County, Ky., under County Agent R. O. Wilson shows that these Kentuckians are hot on the trail of the championship. With an enrollment of 496 this county is now less than 100 behind Pulaski with 592. Agents Charles W. Wampler of Rockingham County, Va., and Ford S. Prince of Greene County, Ohio, are close together in third and fourth race. Rockingham has 384 and Greene 359.

It is interesting to note that in Pulaski County, Va., 70 per cent of the farms reporting livestock are listed as using nothing but purebred sires. There are, of course, a large number of persons not farmers owning some livestock in this county and if they were included the percentage would be much less. In Union County, Ky., the percentage of farms enrolled is but 32 which gives this county great opportunity for gains in the future.



Youngsters Raise Good Cotton

By Canon C. Hearne

State Extension Agent, University of Missouri

IN that portion of Missouri that has received the trade-mark "Where North Meets South" is Pemiscot County where the North represented by town interests has met the South, represented by cotton farmers. These two interests have met on the common ground of Boys' and Girls' Club work, led by County Agent, M. D. Amburgey. He broached his club ideas to R. H. French, Manager of several cotton gins in this county, who agreed to put up \$450 in prizes, Amburgey to supervise and furnish the rules.

The county was divided into four groups with \$50 prizes for each group, divided into five places. This was so each club member would compete against other members with similar types of soil. The factors used to determine the awarding of this first set of prizes were agricultural practice, records kept, earliest bales, grade, yield, and economical production.

Each member was to plant two acres of ground planted with seed furnished by Mr. French of the E. St. Louis Cotton Oil Company, do all the work attached to preparing the land, planting, cultivating and harvesting, and keep records on the same. To the

club making the highest number of points as a whole the grand prize of \$50 was offered.

The club members getting in the earliest bale weighing not less than 400 pounds a first prize of \$30 and a second of \$20 were to be awarded. Best yield of seed cotton and best lint percentage were cared for with a first prize of \$30 and a second of \$20.

Best bales in point of grade and staple received a \$30 and \$20 for first and second respectively.

Best agricultural practice was equally well represented.

EVERY club member who faithfully and fully complied with the terms of his contract was to have the ginning charges paid on one bale of cotton.

Eighty-eight members between the ages of 10 and 18 years entered the 1923 clubs and of this number 34 finished the work in spite of 193 being the most unfavorable cotton season in years.

January 10, 1924 was set for the Achievement Day though many members still had some cotton in the field. The Caruthersville

Chamber of Commerce, where the meeting was to be held made arrangements for a noon banquet for the club members and their families and in the afternoon, in addition to the awarding of the prizes, a free moving picture of club activities was to be shown. Despite heavy rains on this date 19 of the 34 members were present.

While the town of Caruthersville seemed to be entirely behind French and Amburgey in this cotton club move, I asked J. J. Long, Cashier of the First National Bank what he thought about the cotton club idea of promoting a better type of cotton farming. Mr. Long replied, "Amburgey has paid for himself with this one piece of work. If each one of these club members is not

a better citizen from having been in club work, I miss my guess. We business men in Caruthersville are behind such work to the limit."

Other men expressed themselves as favorably. S. E. Juden, editor of the Democrat, Argus said, "I see hopes for agriculture if we continue to work through the coming generation. Though these club members have in many cases produced more cotton at less cost to the acre than any of our best farmers of the county, we have touched another side of their lives through their club associations, the side of social contact and how to get along with their neighbors. This probably is of more importance than learning how to grow more cotton to the acre.



Tell The World About It

By Mark Havenhill

The writer recently had the pleasure of a day's work in Lincoln County, Kansas, with County Agent S. D. Capper.

When I arrived at Lincoln Center I looked around for the customary khaki clad man and the ever present Ford, but they were missing. I noted a well dressed man with a white collar, creased trousers, and shined shoes, alight from a large Essex Coach—I took him for an oil promoter. He came direct to me, however, and introduced himself as County Agent Capper. I accused him of being an oil promoter and he only remarked "No, just a promoter of Better Agriculture; a *bigger* and *better* job."

After a trip to the office, Capper said, "I want you to look at some signs which I am having made. I want to take the first

one out with us today, if it is dry." We drove a few blocks to a shop where there were about 15 new signs drying in the sunshine. Capper looked them over, picked out one and said, "This is the one I want to take out and set today. What do you think of it?" It met with my approval.

We tied it on the running board of the Coach and rolled to the country. We stopped at the farm of Mr. Runge and did some work, and then we set the sign.

Capper says he has about 30 demonstrators like Mr. Runge and each one is going to have his sign up just as soon as possible. What is the use of putting on a demonstration and let no one know that it is a demonstration?

Capper has the right idea. Tell the world about it.

Waiting

(From page 8)

So with a sigh Knight decided to wait, thought that perhaps he was a man ahead of his day; and be it known it is as great a fault to be ahead of the times as to be behind.

He waited. Then he waited.

But placing little stock in the Emersonian creed about the rat-trap in the woods he did not expect the world to beat a path to his door. He and his little working model became familiar sights in the Haunts of Money—as familiar as Blind Tim with his hat full of leadless lead-pencils, tapping his slow, sightless way 'midst the throng.

At last Success met Knight coming around the corner and asked, "Where have you been all my life?"

To which Knight replied, I am told—and it sounds reasonable—"Don't ask a lot of fool questions! Get busy and shine my shoes!"

All of which proves that he was, like some of us, human—that his long wait had frayed the edges of his cosmic entity and wilted his courtesy.

HISTORY is replete with examples of The Wait that Won. Columbus, I am informed, waited—and won.

And as I write there sits in a little village a musket shot from Boston Common a man, his chin on his hands, thinking—and waiting, waiting.

He is an inventor. Not the wild and feverish, glaring-eyed type of inventor popular with fiction audiences, but as different from that popular conception as the fiction detective is from the real "fly cop." He is quiet, assured, patient. He is a skilled mechanic. There is a sincerity in his voice that calms all query and

silences all doubt.

To two of his former inventions the world owes something it may never repay—and a certain group of eastern capitalists owe a great part of their fortune—their business is founded upon the ideas sprung from his brain. They made the money—he gets the credit, gets it where Nellie wears the beads and the bottle gets the cork.

Seven years ago this quiet man evolved, fructified and produced a new automobile engine that works—that eliminates all valves, carburetors, vacuum tanks, and piston rings. It is simpler than Watt's simple steam engine, which revolutionized transportation.

Models were made and operated—run in the busy offices of Wall Street money-bags without contaminating the air and without disturbing the *eclat* of the gilded dens.

The members of the moneybund said, "Why, the thing actually runs! How cute! Well!" then gazed out of the window.

To which the inventor retorted, "What did you expect it to do—give off perfumed gas, then explode into a pretty formation of stars like Payne's Fire Works!" And, grabbing the model, left. Who blames him?

Seven years served Joseph for Rachel; and seven years has this quiet man waited for his reward. He has invented the final, ultimate engine which will without doubt operate the world's cars a decade hence. Compared to it the motors of today are a complicated mess of flipping, flapping, moving, noisy, intricate parts.

His motor has all the complexity of a milk bottle. And yet the world raises its hands and says, Not yet. Wait a while. Be patient. You are too early.

THE trouble is, as Marie Ebner-Eschenbach pointed out, "We usually learn to wait only when we have no longer anything to wait for."

And those of us who yearn for some of the world's favors; who offer on bended knee to an unappreciative race of fellow men the best that is in us—brought to perfection—we swallow hard and tears fill our eyes when bidden, Wait.

The world wants what every man has—providing it is better and more valuable, more time-saving and energy-saving—that it makes two praties grow where but one spud grew before. Eventually all good things come to be accepted—often after the men who evolved them are ashes, worms and regrets.

But one thing is sure, patience is better than anxiety, waiting more productive than wailing under the weeping willows.

I remember a chap who once not long ago threatened me disaster, who promised me that his every working moment would be spent planning ways and means to upturn me, to "expose" me before the world, and generally to set me by the ears—a first grade, Class

A, Number Ten, Stage-villain threat.

I laughed.

"I'll wait—and see," I retorted.

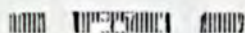
He went to the task with a vim—but overlooked two things, the first of which is, Every Knock is a Boost; and the second of which is this: That, in life, even as in the stage drama Virtue is rewarded and the Villain punished.

Knowing that I had the Virtue and he the Villainy I let him run riot. When the sediment formed in the fracas, and things had settled down, I was stronger than arsenic and he was weak as water. He lost friends—I gained them.

AND so, waiting and patience have value even as hand-maidens to vengeance. It pays to wait, contain your soul, and wonder, as you wait, what will wobble along next.

If you have something the world needs, you can afford to wait for recognition; if you have not you will have to wait anyway, and it won't make much difference a thousand years from now, either way.

One of the lessons man learns from life is this: Sit tight, let success come out of its hole, then grab it.



Fertilizers Crowd Out Undesirable Grasses

(From page 19)

Many factors other than the fertilizers have an effect. Our purpose here is chiefly to show how important it is to study the question of fertilizing hay and pasture lands. The best material to use, the amount per acre, and the results that can be expected from them, is a matter for local study. In general, however, if the growth of clover is unsatisfactory, we would recommend that some

consideration be given the question of liming and the amount of potash that has been applied to the land; and if this has been insufficient, then it might well pay to make a test with fertilizers containing more potash. This is especially necessary if farmyard manure has not been used, and when farmyard manure is not available in sufficient quantities.

HAVE YOU REACHED THE TOP EDGE ON PROFIT FROM CELERY?

When you find a grower who isn't making all the profit he is entitled to—you generally find him plugging along in the same old way.

Successful growers of celery—those who are reaching the top edge on profit—are men who watch their markets, their crop problems and especially their soil.

You will see from the crop record below how Mr. Violet of Oklahoma County, Oklahoma, made \$131.50 extra profit per acre. You will see that the extra profit was due to 10% potash used in a well-balanced mixed fertilizer.

But don't be satisfied with just reading these facts. Get more money in return for your work. Use high analysis fertilizer containing plenty of potash. Increase the earning-power of your soil.

Crop records of J. W. VIOLET, Oklahoma County, Okla.

Soil: Clay loam with clay subsoil	Yield per acre	Crop value at 50c. dozen stalks	Increase for fertilizer	Net increase for potash costing \$6
Plot No. 1 not fertilized	1350 dozen stalks	\$675	None	No potash used
Plot No. 2 fertilized <i>without</i> potash. 1000 lbs. per acre 8 per cent phosphoric acid, 5 per cent ammonia. (8-5-0)	1375 dozen stalks	\$687.50	\$12.50	No potash used
Plot No. 3 fertilized <i>with</i> potash. 1000 lbs. per acre 8 per cent phosphoric acid, 5 per cent ammonia, 10 per cent potash. (8-5-10)	1650 doz. Stalks	\$825	\$150	\$131.50 10 per cent potash used.

Crop notes. Good stand on all plots. Plot No. 3 best in general appearance all through season.

FREE: A booklet called "Better Truck Crops" is now being mailed to growers. You'll find good information in it. Just write to the address below for it.

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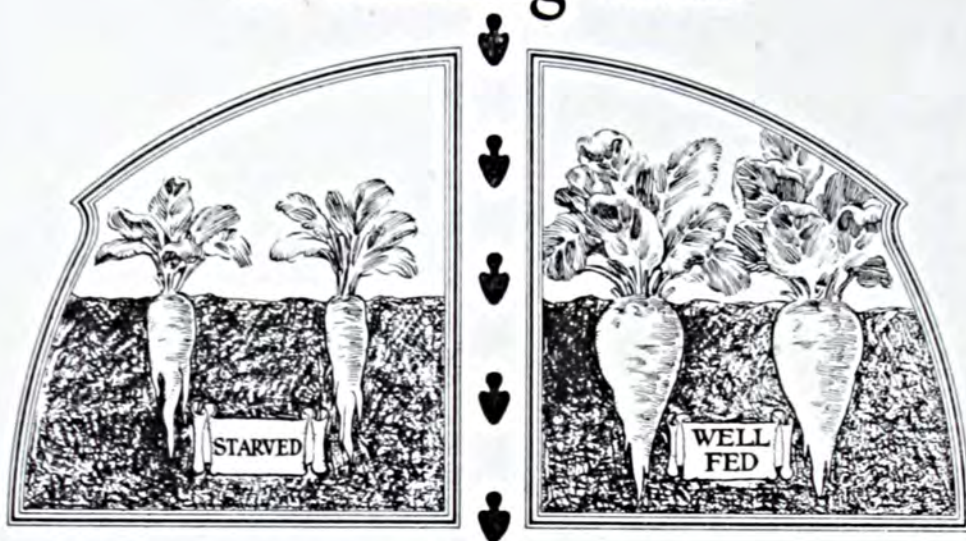
October 1925

10 Cents



THIS TIME : Motorists — Yellow Means Look Out ! — Big
Business Apple Advertising — Foreign and International Agriculture

at lifting time



WATCH for the starved beet

If you were too busy last month to watch for signs of the starved beet, then you can quickly and easily make your check-up now. Notice the shape and size of the roots at lifting time. If the roots are distorted, split and scraggly, and puny and small in size, then you know they are suffering from potash-starvation. Starved beets pay you no profit. They don't even repay you for the time, work, and money you spend in raising them. And the loss you suffer is caused by lack of available potash in your soil.

Potash is very essential to the formation of sugar. Every healthy beet root uses *more potash* than nitrogen and phosphoric acid combined. A successful agriculturist for one of the largest sugar-beet factories recommends — with very few exceptions — the use of 300 to 600 lbs. per acre of a high analysis fertilizer which contains more potash than phosphoric acid. *For muck soils* 500 to 1200 lbs. per acre of 0-8-24, or 150 to 200 lbs. per acre of 0-0-50, is often recommended for profitable results.

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The Pocket Book of Agriculture

VOLUME V

NUMBER TWO

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Editorial Office: 10 Bridge Street, New York



Gastronomically Speaking—we wish we might have attended this Better Biscuit Contest conducted by the County Agent of Anson County, North Carolina. The young lady, of course, was one of the winners.



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VOL. V

NEW YORK, OCTOBER, 1925

No. 2

On the Reasons for Striving

By *Jeff McIlernid*

A CAPTAIN of a ship, tired, weary and worn with the rigors of a long, hard trip, and weak from countless mental conflicts with a band of hopeless *homos* who called themselves sailors, peered over his bridge dodger.

He was passing through the Panama Canal, and off the star-board about a quarter of a mile he saw a beautiful inland lake set like a turquoise in a field of green.

A charming place, thought the harassed Captain, so cool looking, clear, and peaceful. Soft-shaded trees dropped their fronds over the edge of its deep blue waters, softening its outlines. How different from his noisy, busy, ill-organized ship!

On the lake floated a single craft—a small, wooden dugout bearing a lone fisherman. The captain peered beneath cupped palm to sharpen his vision against the sun. The quiet fisherman was pulling in a fish.

"There's his supper!" chuckled the captain, then sat down, his mind a whirl of speculation and contemplation.

"There goes his supper!" he thought.

"Yes he will be as well fed tonight as I, and tomorrow too. A little fruit, some vegetables, and the crisp, brown, fried fish; tomorrow some small game, maybe a quail."

"No uniform to wear; quiet peaceful days and nights. Too lonesome? Probably has some

friends around the lake," he mused.

The captain, his mind already worn and torn with the exasperation of his ship and the futile attempt to man it with a crew of muddleheads, suddenly leaped to his feet with a cry.

"What's it all about!" he yelled to the emptiness of the bridge.

"Bah, that man lives as well as I—nay, better! Here I am 52; worked like a slave all my life; busy from dawn to dark; driven, driven, driven with cares and details and the press of existence! I eat, so does he. I sleep, so does he. Probably he sleeps better than I. He can only wear one suit of clothes at a time and that's all I can wear though I have twelve in the cabin below."

"And he, who dresses only to please himself, parades before no one, and needs but one comfortable suit regardless of style. On his back it goes until it wears out. Look at me in my gaudy uniform! The time I use to dress he utilizes in mild contemplation of this world—and in laughing at the rest of us madly struggling to get what he already has—happiness, peace, and quiet!"

THE captain, an intelligent man, now caught in the whirling images of his own thought, and entangled in the jungle of amazing ideas that raced through his brain slapped his thigh in bitterness.

"Bah!" he swore again.

"What good is this ship! Why do I rave and tear and try to organize these muddleheads? Of what use to carry tea and toys and furs and gewgaws across the seas? What is civilization anyway, and why? How are men any better off today than in the days of Pericles and Aspasia. How am I any better off than that lone fisherman in his dugout? Why all this striving?"

"That's it!" he exclaimed enraptured with the intensity of what, to him, were new and entrancing visions. "That's it! What is all this striving about?" At this point in his soliloquy the mate reported that they were nearing the locks. Muscles and brain-cells, trained through years of seamanship, snapped him back into a full, cold realization of where he was and what he was.

And with a sigh he became again the captain, 52, married, "successful"—gone his purple moment of violent reaction and struggle against 'things as they are.'



AFTER a particularly pressing problem is solved, or at the end of an especially weary day, don't you often pause for a moment, sort of catch your breath and wonder what it is all about?

You do? So do I! We are brothers—souls in tune.

All of us are struggling, hurrying, pushing, jostling—elbowing rudely aside those who stand in our way. We are all going somewhere—but where? You and I, born against our will, and never to leave this world alive, should be friends. We *are* friends *now*. We have a common thought, a ground upon which our mortal minds meet.

We both are tied to the Wheel of Things.

But why do we struggle and strive? Why must we be forever pressing, boring, pushing on?

Why do we not rest content? Where and what is the heaven-born urge—that inward motor—which drives us forward so unceasingly?

Like the captain I sometimes become lost in speculation on this point.

After a day of amusedly watching the antics of petty mortals
(Turn to page 45)

Potash Starvation Symptoms In Alfalfa and Clover

By Emil Truog, Professor of Soils
University of Wisconsin.

¶ *This Badger Scientist has found unfailing symptoms of the lack of this plant, food in these legumes.*

THE signs or symptoms which definitely indicate potash hunger in alfalfa and clover have been found. For many years efforts have been made by investigators to find the various symptoms in plants which might indicate the fertilizer needs of soils. These efforts have, as yet, been only partially successful.

While investigating the fertilizer needs of a large number of soils for growing alfalfa and clover by means of pot tests in the greenhouse, the writer noticed that wherever potash was the limiting element or factor, definite and characteristic white spots, the size of small pin heads, appeared on some of the alfalfa leaves. These white spots first develop around the border of the leaf and usually form a more or less definite pattern-like marking as shown in the picture. Later on, spots develop towards the center and the border becomes yellow, curls down, and dries up. The portion along the mid-rib is the last to be affected, as the picture clearly shows. Irregular white or gray blotches due to insects and diseases, that often appear anywhere on alfalfa leaves, should not be confused with these white spots which always appear on the border, first, more or less regularly placed. When potash star-

vation exists, it is always possible to find some leaves which show the symptoms so characteristically that mistakes should not occur.

The spots always appear on the older leaves. At first only a few leaves are affected. When potash deficiency occurs as the plant develops, the plant removes some of the potash from the older leaves and sends it to the newer growing portions. This is nature's provision in trying to make it possible for the plant to reach maturity and produce seed even though something is lacking.

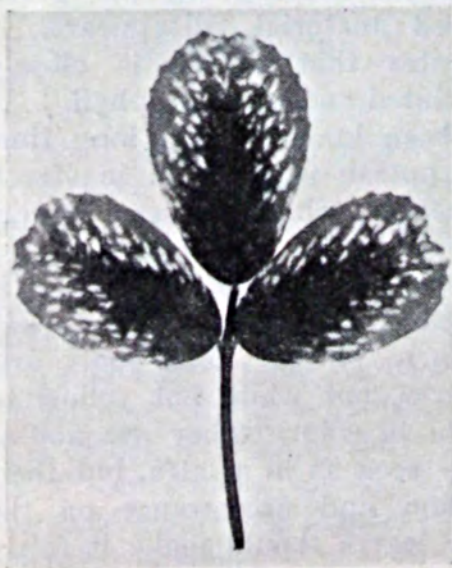
When these white spots are examined with a hand lens, there appears to be a depression wherever a spot exists. Evidently some of the plant tissue has broken down with the removal of the potash. Since the chlorophyll, the green colored material, disappears, it indicates that potash is closely associated with chlorophyll. It has been known for a long time that potash is essential in starch formation, which process is carried on by the chlorophyll.

Potash starvation in clover is indicated by spots which appear similarly placed. The spots are, however, not white but yellow to brown in color. They are not as easily seen as in alfalfa, but their position and appearance on the older leaves should make it fairly



¶ *First Stage.*—White spots appear around the border of older leaves in pattern-like arrangement.

¶ *Second Stage.*—The white spots invade towards the center but never appear on the midrib.



¶ *Third Stage.*—The border of the leaves turns yellow, dries up, and turns under.

easy to distinguish them.

Wherever potash was applied to potash deficient soils in the greenhouse tests, these spots did not appear. The fertilization of affected plants with potash, also caused the spots to disappear. Upon investigation, these same symptoms were found in the field, and here, as in the greenhouse, potash fertilization caused the spots to disappear and the crop to improve.

It should be noted that these symptoms only appear when potash is the limiting factor in plant growth. If, for example, a soil needs both phosphate and potash, but needs phosphate more badly than potash, then symptoms of potash starvation will not make their appearance until phosphate has been added to the soil. After adding the phosphate, potash becomes the limiting factor, but before this there is ample potash to supply what growth the plant can make with the limited phosphate supply. This is just what one would expect after thinking about the matter. It makes possible a beautiful class-room demonstration of the operation of limiting factors in plant growth.

The importance of potash fertilization for alfalfa, clover and other legumes is, as yet, not fully appreciated in this country. Many failures with alfalfa and clover are due to a lack of available potash. The importance of lime and phosphate has been quite fully emphasized. The same cannot, however, be said in regard to potash. Few people realize that alfalfa and clover hay contain as much potash as they do lime. A ton of alfalfa or clover hay requires as much potash as there is in 75 pounds of muriate of potash. Is it any wonder that alfalfa and clover often suffer because of a lack of available potash? It should be emphasized

that alfalfa, clover, and most legumes, are "potash loving," as well as "lime loving."

One reason why farm manure has won favor in starting alfalfa and clover is because of its content of readily available potash as well as phosphate. A ton of farm manure contains about 10 pounds of potash. It takes about four tons of farm manure to supply the potash needed by a ton of alfalfa or clover hay. A dressing of farm manure supplies sufficient potash to start the alfalfa, but unless the application is repeated, the crop soon suffers. When potash is needed for alfalfa and clover, it is more economical to use a potash fertilizer than farm manure. The farm manure contains considerable nitrogen, which is largely wasted when applied to alfalfa or clover, but which is of great value when applied to corn and other non-legumes. It is well known that clover no longer grows as it should, and that alfalfa is not a success on some fields.

TO find how generally alfalfa is benefited by potash fertilization on typical Wisconsin soils, tests were carried on in the greenhouse with 20 soils from various parts of the State. On 15 of these soils the alfalfa responded to potash fertilizer, and on all of the soils it responded to phosphate fertilization.

That clover no longer grows as it should, and that alfalfa is a failure on many fields, is well known. The four big reasons why this is the case are as follows: (1) A lack of lime. (2) A lack of phosphate. (3) A lack of potash. (4) A lack of inoculation.

Silt loam and clay soils, if comparatively new or if farmed under a good rotation and treated regularly with farm manure, are least

(Turn to page 35)

¶A coming event of interest
to all agricultural workers.

World Soil Experts Will Gather Here

THE United States has been picked to entertain the First International Congress of Soil Science. In May, 1927, delegates from every country in the world, which has made a scientific study of its soils, will meet in Washington, D. C.

Growing out of a movement which started in 1909, this meeting assumes considerable importance in the light of the growing necessity for studying soils from an international viewpoint.

The first meeting ever attempted along this line was held in Budapest in 1909. It brought together a number of technical experts from different nations who were interested in the scientific and practical side of field geology. The following year a second conference was held at Stockholm. One hundred and seventy delegates representing 19 nations met to consider geological conditions and studies made on the subject in the various countries, the preparation of soil extracts for chemical analysis, and questions of nomenclature.

The third conference had been scheduled for St. Petersburg in 1914, but because of the war it was not held until 1922 in Prague. At this meeting, in addition to the subjects and commissions appointed at Stockholm, the matter of mechanical and physical analysis of soil, and soil mapping was taken up and respective commissions appointed.

It was decided to hold the

fourth conference in Rome in 1924. Some 22 states and 60 Scientific Institutes announced their intention of sending their official representatives to the Congress which was supported by about 400 soil experts from all parts of the world.

This meeting had the patronage of the International Institute of Agriculture and became an important international scientific assembly, famous because of the scientific reputation of its members. The Congress opened in the presence of the King and other political and scientific personalities and the American, Belgian, Czechoslovakian, Danish, Egyptian, Finnish, French, Georgian, Japanese, English, Irish, Indian, Yugoslavia, Lettish, Norwegian, Dutch, Polish, Rumanian, Russian, Spanish, South African, Swedish, Swiss, German and Hungarian delegates.

Lectures were given and the various commissions reported. On the last day of the meetings, the foundation of the International Society of Soil Science was definitely laid.

The object of the Society as outlined is to promote the study and progress of the fertility of a soil in connection with its formation and environment. This is to be accomplished through the organization of congresses and meetings, the constitution of special sections and commissions, the publication of a review and the

(Turn to page 41)

¶ Uncle Sam makes it easy
to find your way home.

MOTORISTS:

Yellow Means Look Out!

By Ted Butlar

Washington Correspondent

ON THE United States highways from now on, if the various States adopt the suggestions of the Joint Board on Interstate Highways, yellow will be a dangerous signal. The board, which was appointed last winter by the Secretary of Agriculture from State highway departments and the Bureau of Public Roads, recently made its recommendations which are intended to add to the safety and convenience of interstate travel by motor car. It is recommended that the various signs which have been decided upon by the Board be adopted by all the States for these interstate roads.

In addition to words, letters, figures and symbols and the distinctive color, signs will be of such shapes that even a person who is color blind or who cannot read will soon learn the meaning of all the danger signals.

There will be two classes of signs, one warning of dangers of various sorts, and the other giving directional and other information. The danger signs will have a yellow background with black letters and symbols; the signs in the other group will have a white background with black letters and in most cases will be rectangular in shape. The standard route marker is in the form of a U. S. shield.

Practically all persons know the cross which indicates a railroad crossing. This sign has been used by the board on a round plate twenty-four inches in diameter. The letters, RR, will appear in the upper quadrants of





the design. In places where there is great danger on the highway a stop sign will be placed. This sign is twenty-four inches in diameter and will have the word, Stop, in black letters on the yellow background. Its characteristic shape, which is easily recognized, is octagonal.

The diamond shaped yellow sign will be used to indicate narrow bridges, curves, steep hills, and other places requiring considerable caution. The nature of the danger will be described in black letters on a yellow background. The sign

will be twenty-four inches on each side. Signs twenty-four inches square with a yellow background will be used to call attention of motorists approaching schools, hospitals, and churches.



The standard route marker, the shield, will be sixteen inches vertical from tip to tip. In the top section with a white background will be the name of the State in black letters. In the lower section will be the initials U. S. and the route number.

When such signs are erected before forks or junctions with other roads a smaller shield, nine inches from tip to tip vertical, will be placed just below the larger route marker to indicate whether the route follows the left one or the

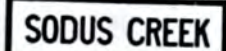


right one. The small shield will bear either an R or an L. The

distance to places on the route will be indicated by rectangular white signs with the names, distances



and arrows in black. Towns on side roads with the distances to them will be indicated by signs placed at the branching points but no arrows will be used as the position of the sign will indicate the direction.

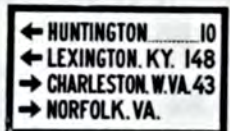


Other rectangular signs will carry the names of prominent features crossed or passed by the road, such as creeks, rivers, lakes, etc. There will be notification signs in black and white wherever the speed limit changes.



These road signs were the result of discussions held by the Joint Board on Interstate Highways at

cities in all sections of the country and the final session at Washington, D. C. A committee of the board is now working on a numbering scheme and it is expected that maps of the routes selected with the numbers indicated will be available in a relatively short



time. Thomas H. MacDonald, Chief of the Bureau of Public Roads, is Chairman of the board.

These suggestions tie up closely with the growing sense of regarding highways in more than a local, state or even national light. In addressing the delegates about to leave for the Pan American Council of Highways at Buenos Aires, October 3-13, Secretary of

(Turn to page 36)

A Round-up On Peat Soils

¶ *The Editor reports a real get-together of scientists, farmers, and agricultural business men.*

THE American Peat Society held their nineteenth annual convention in joint session with the Michigan Muck Farmers' Association at East Lansing, Michigan, September 8-12.

Before a goodly representation of scientific research workers, commercial men, and farmers, the latest problems in securing good yields on muck soils were generously discussed. There are in the United States some 75,000,000 acres of these dark colored organic soils. From 2-3,000,000 acres are found within the boundaries of the "Wolverene" state, many of which are playing a tremendous part in the state's agricultural program.

It was in this light and in the light of the use to which many more acres will be put as increasing population demands that interesting talks and field trips were given.

The convention was opened by Dean Robert S. Shaw of the Michigan Agricultural College and Experiment Station. After welcoming the visitors, Dean Shaw told something of the work being carried on by the station and the \$250,000 which is being spent on research work.

Dr. R. M. Snyder, bacteriologist of the Michigan State College, was the next speaker and showed the use of manures in introducing

bacteria into peat to hasten the decomposition and consequent liberation of considerable plant food. Peat must be well decomposed before it can be used for producing crops. Fine work in this connection is being done at Michigan by using a series of cylinders.

Yellows, a permanent soil sickness of celery and other muck soil crops, was described by Professor R. Nelson of the botany department. He explained that growers in Ohio, Indiana, New York, New Jersey, Canada, Colorado, and California, as well as Michigan were experiencing difficulties with this disease spread by an organism which lives indefinitely in the soil and is carried about by floods and various other ways. Disease-resistant varieties are being developed as one means of control.

ANOTHER pest in the shape of the mint flea-beetle was the subject of Professor L. G. Gentner's talk. This Michigan entomologist has done some important work in studying the habits of the tiny insect which has wiped out mint fields in some sections of the state. Because of the orderly way in which the beetles go about their invasion of a new field of mint, Mr. Gentner has found the use of an insecticide

around the edges of a field a very satisfactory control.

Dr. J. W. Crist of the horticulture department showed as the result of experimental work in the greenhouses that soil acidity in itself is not necessarily harmful to plant growth. The harmful effect is undoubtedly due to toxic properties in many acid soils—that when these toxins are removed normal crop growth is again obtained.

The use of phosphates was shown to be effective in precipitating the toxins. The use of lime, especially in excess, reduced the permeability of the membranes of the plants.

It was brought out in a subsequent discussion by Dr. H. J. Wheeler that this work confirmed the researches of the Rhode Island Agricultural Extension Station and also that the most economical method of treating many acid soils is to use both phosphates and lime in the rotation in preference to large amounts of lime and no phosphates.

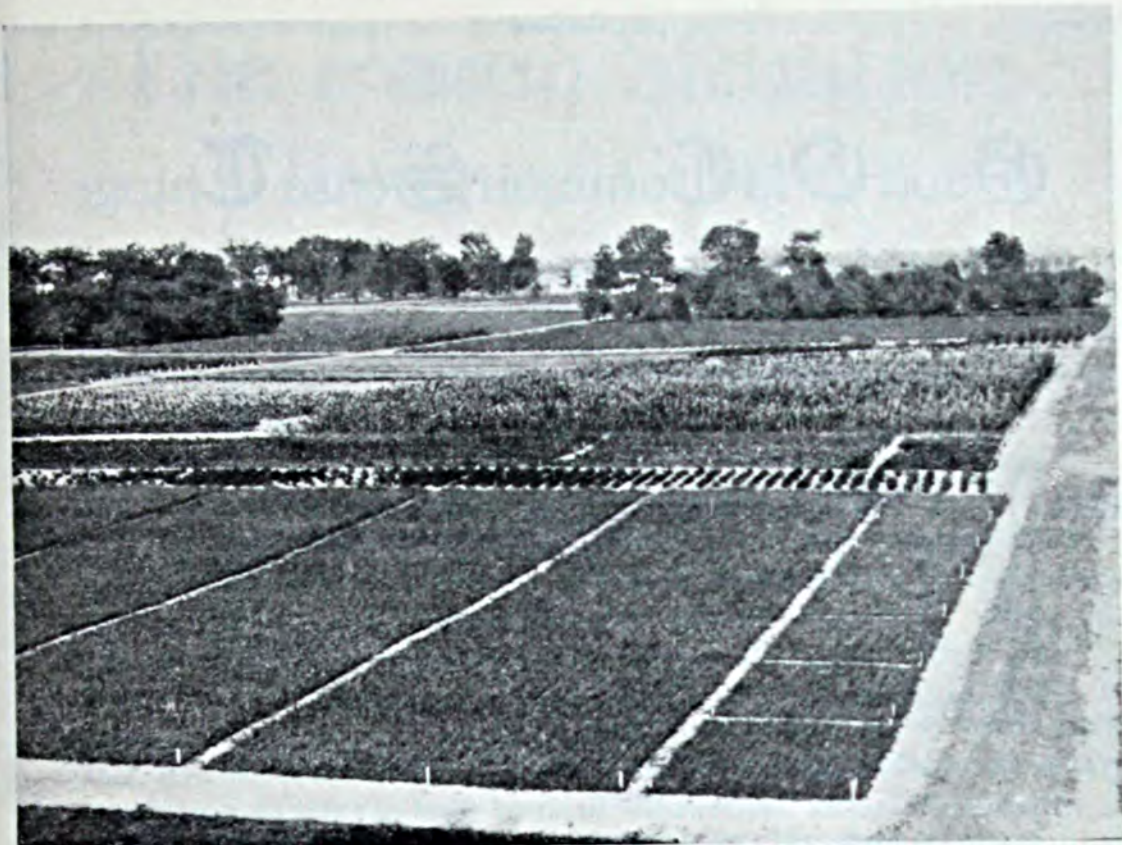
Dr. H. J. Wheeler of the American Agricultural Chemical Company, Boston, was called upon but said that he came to discuss the papers rather than to make speeches. In commenting upon Dr. Crist's investigations, he expressed his interest and declared that we have only scratched the surface as far as the relation of plant feeding to plant diseases is concerned.

General fertilizer recommendations for muck soils were discussed by Ove F. Jenson of the Soil Improvement Committee, National Fertilizer Association, Chicago. He mentioned the formulas recommended and brought out the importance of further study to find the best amounts of fertilizers to apply.

In his opinion there is the tendency to use less than the amount which will give the maximum returns. In 1919 in Michigan there were 121 fertilizers grades being sold by various companies. The movement was started to standardize these fertilizers and re-



Commercial fertilizer spoke for itself here



Michigan experiments on plots like these

duce the number. Now there are only 12 or 14 being used. These reductions operated to reduce manufacturing costs and ultimately the costs to the consumers.

He also pointed out other peat problems which might be profitably worked out, touching upon the tendency in plant health work to solve the problem from a nutritional viewpoint rather than from plant breeding alone. The question of environment is becoming more important and scientists are paying more attention to it.

In his address, President J. H. Beattie, Bureau of Plant Industry, Washington, D. C., outlined the purpose of the society as investigational work and the dissemination of the knowledge to people interested in peat. This work has in mind only the use of peat for producing crops, since peat as a fuel in this country is not to have any particular importance while oil and coal are so cheap.

He touched upon the accomplishments and needs of the industry and the fact that what

has been accomplished is nothing in comparison to what there is to be done. However, until some farmers take a greater interest in their peat and learn how to farm it, he believes that much of the peat land now being used would be much better under water to preserve it for the coming generations.

Dr. Paul M. Harmer of the Michigan Soils department showed from a historical viewpoint that we have made progress with muck soils. For instance in 1900 comparisons of stable manure and commercial fertilizers showed that the manure was more profitable. That was because commercial fertilizers high in phosphorus and low in potash were used. Now they have profitably substituted commercial fertilizers for manure.

With tables, Mr. Harmer then showed the results of numerous experiments with different fertilizer treatments having a marked effect upon the quality, as for instance with sugar beets where

(Turn to page 38)

Good Old Common Sense Things

B y E . W . H o w e



HERE are so many true and important things to learn in fighting for a worthy place in life that I sometimes believe the Old Classics may be safely neglected.

Who has not heard vaguely of the Hall of Valhalla? It is one of the things the old classics tell about. Valhalla was a special heaven provided for rowdy heroes: those who died peaceful and natural lives were excluded. In Valhalla the heroes lived on the flesh of the boar Schumuir, always abundant for all, for although this boar was cooked every morning, he became whole again over night.

When the heroes of Valhalla were not feasting, they engaged in fighting. Every day they rode out into court or field, and fought until they cut each other to pieces. This was the Joy of Valhalla of which you hear. But when meal time came, the heroes recovered from their wounds, and again feasted on the flesh of that wonderful boar.

Another favorite quotation from the old classics is: "To Pile Ossa on Pelion." In the ancient times of which only poets know about, there were giants: it is related one of them was so big that when he lay down to rest, he covered nine acres. These giants became jealous of the gods who lived in the sky, and determined to climb up to destroy them. For this purpose they piled the mountain called Ossa on the mountain called Pelion.

To speak of the Riddle of the Sphinx sounds as though the riddle is life. But it is not. In the old classical days the city of Thebes was afflicted with a monster which infested the highroad. It was called the Sphinx, and arrested all travelers who came that way, proposing to them a riddle, with the condition that those who could answer it should pass safe, but those who could not should be killed. Many were slain before Edipus guessed it. The Sphinx was so mortified at the solving of the riddle that she cast herself down from the rock, and perished. The great stone sphinx near the pyramids at Cairo, in Egypt, celebrates the foolish story.

Let's learn the good old common sense first: if we neglect anything, let it be foolish tales we can get along without. The invented stories in "The Arabian Nights" are poor stuff compared with the true things in life.

The Potash Situation

By George J. Callister

¶A talk given at the Annual Convention of the American Peat Society.

IN general this talk will be divided into two main sections—first, the potash situation from the scientific viewpoint, and second, from the production and sales end.

The latter viewpoint, after all, is probably of more practical interest, at least to the farmer because it is a big factor in his profit, which is the final object in the use of potash.

Going to the scientific viewpoint first, it has been my privilege to study experiments on the use of potash in northern Europe as well as in this country. I have met a great many men who are doing experimental work on peat and muck soils. From that experience one idea stands out and that is that now we have definitely started a new era in agricultural research and experimentation.

In the past we have done experimental work to find differences which we can see with the eye. We measured the gross yield only. That day is past. We now realize that there are differences which cannot be seen with the eye. They must be determined by the aid of the balance, chemical analysis, microscopic work, and other means.

The outcome is that we are developing a mathematical viewpoint. We are doing this not because we elect to, but because economic pressure is compelling it. The increase of land values and the general increasing cost of

production are not only forcing higher yields but better quality.

In this connection potash has a very important part to play. Its function in the formation and distribution of the carbohydrates in the plant, its role in producing greater feeding values of many crops, and the building of a plant's resistance to disease have all to be worked out to a much finer degree.

Because there may be at the present time an over-production in some places on mineral soils, there is, perhaps, a feeling that there is less necessity to work on muck soil problems. We think we can go on and on and when we finally need to use all of our muck soils, all we have to do is go out, spread around a bag of fertilizer, and get a bumper crop.

But this is a dangerous attitude. In it we are apt to lose sight of the time which it takes to determine the best systems of management of the great variety of the muck and peat soils of the United States. The first point, therefore, which I wish to make is the urgent necessity for supporting all experiments with fertilizers on these soils.

There are numerous formulas recommended for peat and muck soils of various types. The four most popular formulas are:

0—8—24

0—12—12

0—10—10

2—8—16

(Turn to page 42)

Big Business Apple Advertising

By C. L. Burkholder

Purdue University, Lafayette, Indiana

¶ *A Hoosier farmer makes advertising pay*

HUNDREDS of orchardists are failing to utilize, to the fullest extent, the dooryard trade possibilities of their own communities. A few years ago local trade was limited to the radius which Old Dobbin could conveniently trot in an hour. Now, apple advertising has been shown to pay over a 50 mile radius.

It is very true that the locality in which an orchard is situated to a considerable extent governs the possible volume of business that may be developed by proper publicity. On the other hand, the possibilities in this type of marketing are seldom made the most of.

The story of what one Indiana grower was able to do in the way of marketing his entire crop of apples at the packing shed last year is well worth careful study and suggests many possibilities and variations that might be financially worth while to other growers.

Gafin Berg of Newcastle, Indiana, purchased an orchard several years ago, which was composed of some 25 different varieties of apples. At first the crop was harvested, barreled and stored, and very little attention was paid to developing a local trade for his fruit. As the orchard was in a somewhat neglected condition to begin with,

there was a rather high percentage of cull apples to be disposed of. This in the end proved to be very



Wise advertising

fortunate as it led to the purchase of a small hydraulic cider press, and some sweet cider was sold and the rest made into vinegar. The vinegar brought 25 to 50 cents a gallon, while the fresh cider sold at 50 cents to a dollar a gallon net.

It was evident from the first that it was much more profitable to sell fresh cider and a moderate advertising campaign was initiated to increase cider sales. Cider customers wanted apples as well

and a good trade was gradually developed, which increased almost directly in proportion to the extent and effectiveness of this advertising campaign.

MR. BERG did not have the good fortune to be located on a main State highway, so one of the first steps was to put up a net work of signs telling what he had to sell and how to reach his side-road orchard. These signs were painted all in one color and some were of very unique design. One of the most effective types was a batch of old stove-in row boats picked up at a town park in the county. These boats were painted yellow, mounted on stilts along main travelled highways, and pointed in the direction of his orchard. On the side was painted in large letters, "Sail to Berg's for Apples and Cider."

Who could pass that kind of advertising without remembering that the Berg Fruit Farm was

located in a certain direction and was the place to lay in a supply of cider and apples? Several large arrows 35 feet long were built at the turns in state highways where auto lights made them jump out of the night with the same cider and apple suggestion and direction. Every road for miles around was placarded with smaller signs of many designs all painted one color. This type of advertising lasts the year around.

The expense is not a big item, as much of the work can be done inside during bad weather and put up at odd times during the year.

Of course, about the time the fall crop of apples was ready to harvest and plenty of good high quality cider was available came the time to make the big advertising drive on the mass of possible local trade within a 50 mile radius. The question was how to tell this apple and cider story to every single family in this big circle.

(Turn to page 42)



Mr. Berg uses signs which demand attention

¶It has been a real task to pick a winner for the contest this month. Almost every manuscript submitted had an idea or two worthy of consideration. We wish that we might make up a composite article. In choosing E. R. McIntyre to receive the prize, the judges felt that perhaps this farm paper editor saw the county agent in a little different light than the agent sometimes sees himself. It helps to see ourselves as others see us. While Mr. McIntyre has never been a county agent, he knows personally every county agent in the Badger state and a great many in the adjoining states. In addition he has a wide acquaintance with farmers and their problems. Honorable mention must be given the answers of Wm. W. Bathlot, H. E. McCartney, Mrs. Margaret H. Stone, J. Lewis Merritt, Paul Tabor, T. L. Britton, B. M. Drake and H. W. Fristoe.

How Can County Agent Work Be Improved?

PRIZE-WINNING ARTICLE

By E. R. McIntyre

Editor, Wisconsin Farmer

THESE is a county agent of my acquaintance who makes his work take instant effect and gets action out of his farmers because he is six feet and six inches tall and weighs 300 pounds. Farmers of his county get one glimpse of his mighty bulk, see his engaging smile, and get his deadly iron grip—and then promptly bury any prejudice or objection. This giant county agent has brains and common sense, however, and so he follows up force with reason, and hence his programs are valuable.

There is another county agent in my state who is small of stature, fine-boned as a woman, and modest in approach. He may

not “sell well” at first acquaintance, but he is “all wool” and wears like iron. Why? Because he is one of the best informed and most broadly educated and appreciative of any county agent here. He neither bluffs nor dodges. He knows his stuff. He does not try to make up for a lack of concrete knowledge by using either “bull” or bulletins.

No county agent in a general farming section can succeed if he is too much of a technical talking man or too much of an educated specialist. I know two potato specialists, two orchard specialists, and three expert cattle judges who have failed as county agents.

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Seeds from all parts of Texas and from Egypt grow side by side under same conditions

Twenty Varieties of Cotton on One Farm

By Hubert N. Cooper, Texas

¶ *This Texas farmer means to find the best variety for his section.*

TWENTY varieties of cotton have been planted on one farm in the western part of Texas by a farmer who is desirous of helping his fellow farmer in raising the best kind of staple. The test is being made near Abilene, Texas, and the farmer who is making the test is Felix Y. Little.

Mr. Little has been very successful in the raising of cotton, even in the years when there is a shortage of moisture. His experiments have been made with the cotton which grows best in the parts of the state where there is much moisture and where there is more or less of a shortage each year.

By this means Mr. Little expects to determine the best variety of cotton for the section in which he lives and also for other portions of Texas.

"The reason I am planting these 20 varieties is this: I have observed that from year to year farmers continue to plant the same two or three varieties of cotton and it has been hard to convince them to try just one kind that they had not planted before. They did not seem to care to plant any cotton except the varieties they had always planted.

"I have always been in search of something to better my condition and to help my brother farmer. Two years ago I ordered eight varieties of cotton and began to experiment to see if I could find a variety that would beat the old kinds that I had always planted. My first year I planted the eight varieties side by side and made daily observations and noted the difference in the different varieties, such as the fruiting of the cotton, and also the period of the first blooms.

(Turn to page 43)



Mr. Little carefully watches each variety in its competitive growth to win his favor

Fertilizers for The ORCHARD

By A. F. Farley

Pomologist, New Jersey State College of Agriculture

¶ *A word in advance
on the orchard diet.*

HIT and miss methods of using fertilizers on orchards are generally a waste of money. One should know the kind and amount of wood growth made each year, the color and general condition of the foliage, the age of the trees, and the behavior of any cover crops that may be planted.

Furthermore, the type, general condition and previous treatment of the soil all have a direct bearing on orchard fertilization. For example, an orchard on rich truck soil requires an entirely different fertilizer treatment than one on poor, worn-out soil.

General fertilizer recommendations for orchards are not very satisfactory for they do not always meet the requirements of the individual orchard. However, the following recommendations are made for the average apple orchard: Nitrate of soda or sulphate of ammonia—trees one to six years old, one-half to one and one-half pounds per tree; trees seven to fifteen years old, 100 to 200 pounds per acre; trees over fifteen years old, 150 to 500 pounds per acre; for peach trees, one to three years old, one to one and one-half pounds per tree; for peach trees over four years old

150 to 250 pounds per acre.

Acid phosphate is the most economical source of phosphoric acid for orchards and should be used at the rate of 400 to 600 pounds per acre. On light ground, muriate of potash at the rate of 100 to 150 pounds per acre may be beneficial.

Generally speaking, fertilizer applications should be made early in the season. This applies particularly to nitrogenous fertilizers used in orchards of low vigor, but is not as important in orchards where the trees are vigorous or when acid phosphate and potash are used. All applications of acid phosphate and potash, together with at least half of the nitrate of soda or sulphate of ammonia, should be broadcast over the entire area occupied by the trees.

THIS tends to improve all of the soil and make possible the growing of better cover crops during the early life of the orchard. Applications to a limited area around each tree are advisable only with young non-bearing trees or where heavily fertilized cultivated crops are being grown between the trees.

Farm Economics Gets a New Chief

By C. E. Gapen

Chief, Press Service, U. S. D. A.

BECAUSE of the great importance of a thorough understanding of economic problems in their application to agriculture and the rapidly increasing interest of farmers and others in the results of economic investigations, the selection of a new chief for the Bureau of Agricultural Economics of the Department of Agriculture is of interest to all readers of *BETTER CROPS*. The last week in August Secretary Jardine announced that Thomas P. Cooper, Dean of the College of Agriculture, University of Kentucky, had been picked to take the place of Henry C. Taylor. The new chief took up his duties at Washington on September first.

Dean Cooper came to the Department of Agriculture with an excellent record as an investigator, organizer, and executive. He is a lean, keen-eyed, effective-looking leader who gives the impression that he can soon get a grip on one of the largest bureaus in the Government with connections in all parts of the country and in many parts of the world. So far he has had nothing to say about any particular ideas he may have regarding the operation of the bureau, preferring to wait until he becomes well acquainted with the machine. Its complexity is indicated by a list of some of the subjects covered by its activities: costs of production and marketing, farm organizations, agricultural finance, farm labor, agricultural history and geography, land economics, marketing and

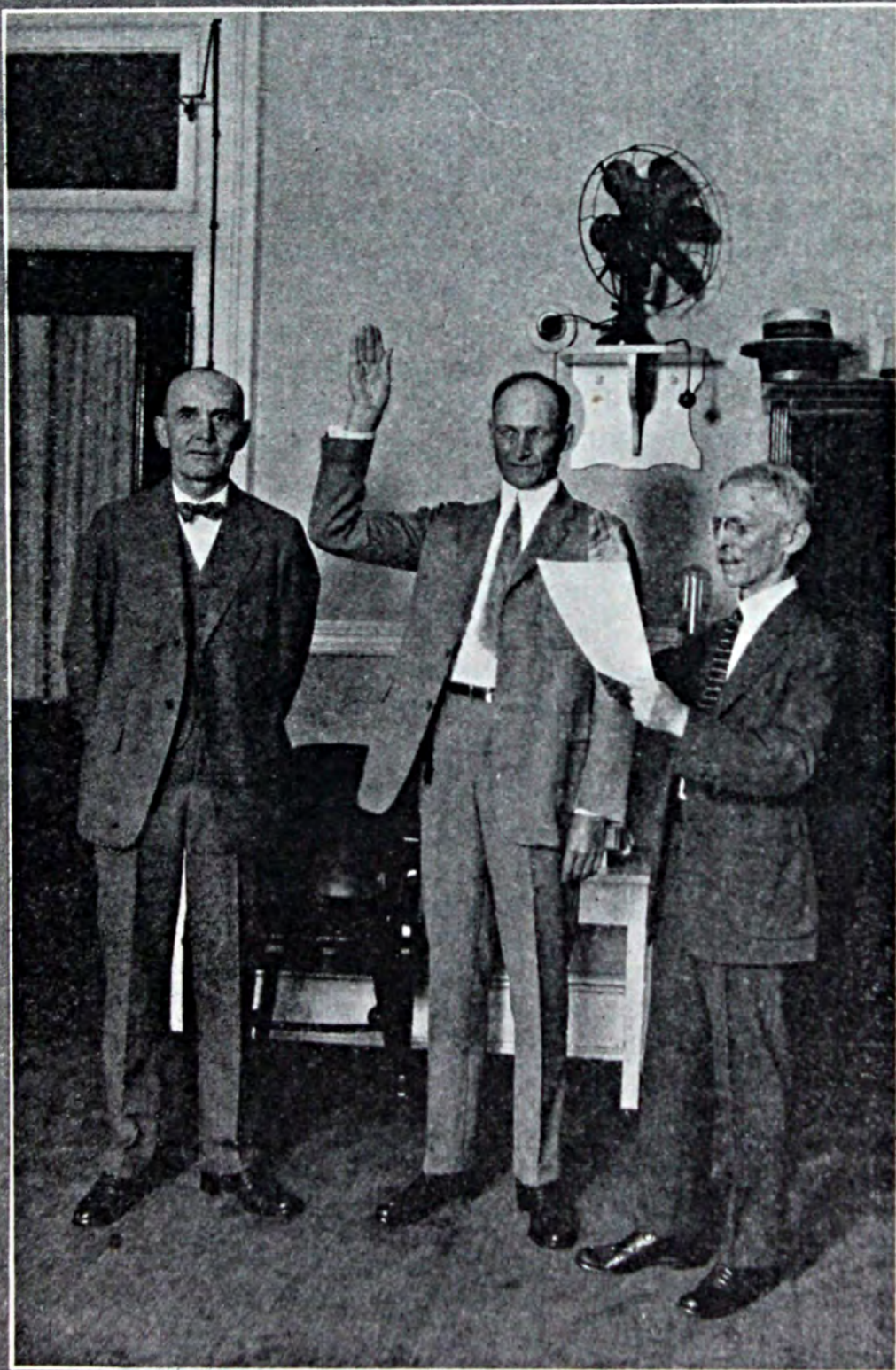
distribution, insurance, rural life problems, crop statistics, food products inspection, crop reports and forecasts, and the enforcement of a number of important laws.

Thomas Cooper started making his own way as a farm hand in western Minnesota and in North Dakota. He was born at Pekin, Illinois, in 1881. He was a graduate of an agricultural school in Minnesota by 1902, and six years later had the degree B. S. A. from the University of Minnesota. In 1914 he was made Director of the North Dakota Agricultural Experiment Station. In 1918 he went to Kentucky as dean of the College of Agriculture of the University.

This is not the first time Dean Cooper has been invited to come to the Department of Agriculture. Four years ago Secretary Wallace asked him to head the Bureau of Markets which later was merged with Crop Estimates and the Office of Farm management to form the present Bureau of Agricultural Economics. Still earlier Secretary Houston had asked for his services when the Bureau of Markets was formed. He refused in both instances.

Dean Cooper has given much of his attention to problems of farm management, farm organizations, and agricultural economics. He is, of course, particularly well acquainted with these problems in the Northwest and the Upper South.

Better Crops' ART GALLERY *of the month*



*Thomas P. Cooper swearing a little aided by Secretary
Jardine and Chief Clerk R. M. Reese*



FOREIGN AND INTERNATIONAL AGRICULTURE

With this issue we are starting a new section. It is to be devoted to news and articles on foreign and international agriculture.

This section is not introduced solely because we think it is a good feature to add but because readers have suggested it. We often too, receive requests from people going abroad for information on how to see places of interest, especially the potash mines and works.

And the fact that many more agricultural workers are going abroad every year is of the greatest importance. The movement is changing the meaning of the word "foreign," giving it a more friendly sound.

The more we meet each other — and the more accurate the information we have, the more friendly foreign will become, because it is based on knowledge and not sentiment only.

A big step in this direction is the International Congress of Soil Science to be held in Washington. Delegates will be here from many foreign countries — from across the Atlantic and the Pacific. Many of them will see and study American agricultural conditions for the first and perhaps only time.

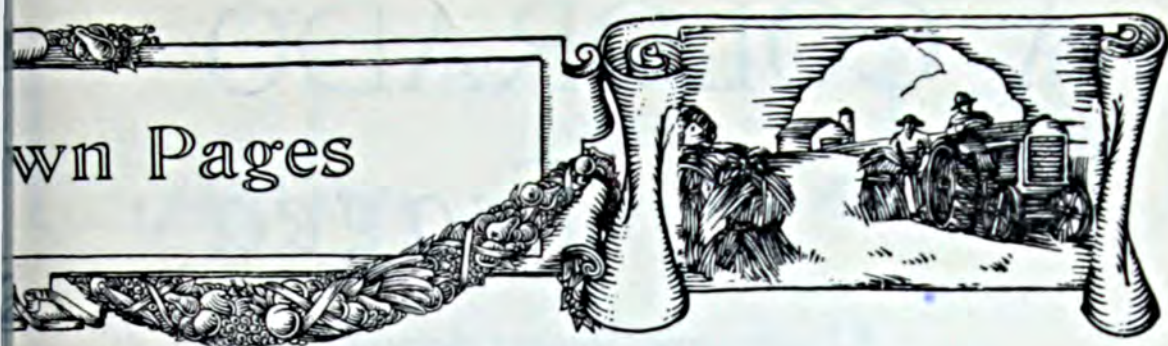
Let us make sure, so far as we can, that the knowledge and impressions of our agriculture that they carry back with them be sympathetic and accurate.

We have discussed the purpose of this congress in this issue. And it will be our purpose to give this congress all the space necessary for a proper account of its activities.

BETTER MUCK LANDS

One of the most important of our national societies devoted to the progress of agriculture is the American Peat Society. In the Middle West there is a Sister Society — the Michigan Muck Farmers Association. Both these organizations are doing excellent work. They are devoted to the conservation and profitable use of one of our national assets — some 75,000,000 acres of muck and peat soils.

These two societies have just held their 19th annual convention. An account of the meetings and the tours which followed will be found on other pages of this issue.



It will be observed that many important problems in the management of peat and muck soils were discussed. The addresses showed that many workers are faithfully studying these problems for us and that we know a great deal about crop production on muck soils.

If, however, the value of this vast acreage of valuable land is to be conserved and brought to profitable use, there is yet a great deal of research work to be done. There is a danger in thinking the problems have all been solved — that we know all we need to know about muck soils.

But what do we really know of systems of management — the time and frequency of plowing, rolling and cultivation, and especially the most profitable amounts of commercial fertilizer per acre to use?

We do not know enough about drainage, frost occurrence, the best mixtures of grasses and clovers for feeding values and many other matters.

There are no short-cuts to solving these problems. Their solution will require time and hard work. And on the solution of such problems depends the prosperity of farmers in muck soils and the proper use of a national asset.

Because one of the most important purposes of these Peat and Muck Societies is to cooperate in solving these problems — their work deserves our continual interest and strongest support.

DEEP PLOWING Merely scratching the surface — whether it be the surface of our job, our friendships or our land — will never get any of us very far.

Deep plowing for Better Crops receives this interesting comment from Arthur Brisbane in the San Francisco Examiner:

“A valuable bust of George Washington is turned up by the plow of a New Jersey farmer plowing deep. Even more valuable things, namely, better crops could be turned up if the plows could go deeper into the soil. The old German law, as you read in the second part of Faust, gave the farmer any treasure turned over by his plow. If he dug and found treasure it belonged to the emperor. But whatever his plow turned up was his. That was wisely planned to encourage deep plowing.”

A COLORADO *Tragedy*

¶ *Youth comes smiling through*

ALYN H. TEDMON, county agent Arapahoe county, Colorado, sent us this good picture together with a little story about the boys. It seems that they are real hustlers, meeting their setbacks and forging ahead in a manner which might become more of us grown-ups.

The boys live with their father B. G. D. Bishopp on the Mile High Jersey Ranch located on Dale Creek at Livermore, Colorado. The ranch is 7500 feet above sea level, a beauty spot with its fine scenery and climate.

Mr. Bishopp believes in having

his boys in the business too. They own some of the cows.

In the pastures up among the clouds, the wild deer of the Rockies run with the fawn colored Jerseys. Last season a hunter mistook Melrose Golden Grace, a little cow belonging to the boys, for a deer. When they went to drive her home they found her dead.

Heartbroken, because after all these youngsters are only six and seven years of age, they shed bitter tears. They have forgotten about it now in their hustle for caring for the rest of the herd and are carrying on like real progressive farmers.



Hitting on all four
Milking machine manufacturers will have to go some to compete with efficiency such as this. George and Robert Bishopp milking Mile High Merry Maiden at Livermore, Colorado.



FERTILIZER NOTES



ADVANCING markets for practically all materials have featured the fertilizer material business during the month of September, and the average prices of the ammoniates, potash and phosphates, outlined on the following page, all show increases for the month. Potashes show a gain of 1 cent per 100 pounds on the average, this being due to the increased scale of prices which went into effect October 1. Ammoniates have advanced 8 cents per 100 pounds on the average price for five representative materials, much of the strength being the result of advances in soda nitrate and ammonia sulphate. The average price of five representative phosphates is up from 61.80 cents to 66.75 cents per 100 pounds, due to advances in bone materials at Chicago.

With price developments mainly of a bullish nature, fertilizer manufacturers have been entering the markets for increasing quantities of materials during the month of September, and trading had livened up on the entire list of materials.

The increase in potash prices, announced to take effect October 1, had generally been anticipated by the trade, and many of the larger buyers had covered to a great extent during the early part of the season, having taken advantage of the special terms made by the producers. Shipments have been coming through promptly on schedule, and the increase in selling prices was not as much of a disturbing factor in the situation as would have otherwise proved to be the case.

Unusually heavy buying of ammonia sulphate has been witnessed this fall. The situation has become so acute in regard to supplies that the leading American producers have virtually withdrawn from the export mar-

ket, in addition to having advanced their prices to domestic consumers. Prices for sulphate have now reached the point where the German synthetic material, which came on the market in a large way last year, is once again forging steadily to the front as a competitor of the domestic article. Sales of the synthetic sulphate have been showing a notable improvement during the past two weeks, particularly in the South, the imported now being available at less than the figure asked for the domestic.

Increases in ocean freight rates from Chile to Atlantic ports were given as the chief causes of the advances in nitrate prices put into effect late in September. The strong market for sulphate of ammonia, however, was a contributing factor, importers being of the belief that considerable tonnage would be diverted to nitrate through the shortage of sulphate. The possibility of the coal strike spreading to the bituminous fields and thus cutting the output of

sulphate was likewise taken into consideration as a factor affecting the market price. As far as is known now, no real headway has been made in the efforts to have the Chilean Government reduce the export tax on nitrate of soda. Reports from England indicate that nitrate has lost a good deal of its market in Great Britain to sulphate of ammonia, with market authorities stressing the belief that only by a sharp cut in the price of nitrate can the lost ground be regained.

Shortage of tankage and bone has continued to hold up the prices of these materials, and aside from the market aspect of the situation, has furnished the cause for considerable discussion in trade circles. The opinion has been expressed that the American people are eating less meat than formerly, and that consequently slaughtering has fallen off. Recent increases in hide and skin

quotations would indicate that this theory might explain the shortage, to some extent. The real cause for the shortage this year, however, is believed to lie in the heavy buying of these materials by makers of mixed stock feeds, who have been unusually active this year.

The prolonged drought in the Northeastern section of the cotton belt, which has attained record-breaking proportions in many sections, has given rise to some concern in fertilizer trade circles over the outlook for fall fertilizer business in the South. Advices from usually well-posted sources, however, would tend to indicate that the remainder of the South is in a prosperous condition and a "buying mood," insofar as fertilizers are concerned, and it is not believed that tonnage will suffer in the aggregate for the season. Early-season consumption of mix-

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PRICE TREND IN FERTILIZER MATERIALS

THE FOLLOWING PRICES ARE THE AVERAGE PRICES PER 100 POUNDS FOR FIVE SELECTED* POTASHES, AMMONIATES, AND PHOSPHATES. THE COMPARISONS ARE MADE AGAINST JANUARY 1, 1914, AS REPRESENTING PRE-WAR MARKET VALUES:

Material	Current	Month ago	Six months ago	Year ago	Pre-war Jan. 1, 1914
Potashes.....	\$1.31	\$1.30	\$1.29	\$1.23	\$1.35
Ammoniates.....	2.66	2.58	2.55	2.27	2.14
Phosphates.....	.6675	.6180	.585	.5755	.57

* The five selections under each heading are:

POTASHES	AMMONIATES	PHOSPHATES
Kainit, bulk	Sulphate of ammonia	Acid phosphate, 16 per cent
Manure salts, bulk	Blood, dried, New York	Bones, rough, hard, Chicago
Muriate, bulk	Fish scrap, dried, works	Bones, ground steamed, Chicago
Sulphate, bulk	Soda nitrate, spot	Rock, Florida, 68 p.c. works
Magnesia, bags	Tankage ground, New York	Rock, Tennessee, 75 p.c. works



Foreign and International Agriculture.



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy — both of facts and their interpretation.

What could be more fitting in starting this department than an article by Dr. Jacob G. Lipman, Director of the New Jersey Agricultural Experiment Station, and President of the International Society of Soil Science. He gives us here some significant reasons for the international study of soils.

DIFFERENT countries are more or less self-sufficient as to the supply of food. In many instances the domestic production of food staples is not only sufficient for meeting the maximum demands of the home population, but also allows the exporting of a more or less considerable surplus. Less densely populated countries like North and South America, Australia, Eastern Europe and Siberia, as well as certain portions of Africa, are the territory from which other countries may obtain a portion of their food needs. This applies also to fiber and oil crops used in the industries. Moreover, the exports and imports of forest products, of rubber and spices may properly be regarded as a part of the agricultural problem when considered in its international relations.

The relation between the production of agricultural commodities and their use in any given country has a direct effect on its national policies. Measures relating to tariffs, taxation, bounties, subsidies, technical and vo-

cational education, unemployment insurance, old age pensions, etc., are more or less directly influenced by the status of agriculture in any given country. Countries like Great Britain, being essentially industrial and importing a large proportion of their food and fiber crops, would develop different policies as to tariffs, unemployment insurance or education than would a country like Canada where the major economic factors are agricultural rather than industrial.

As a corollary to the relations just noted, agricultural production and the national policies which it influences must be determined not only by the extent of the agricultural areas but also by the intensity of agricultural practice. The latter again is influenced by the intelligence and skill of the farmer.

Thanks to the improved methods of communication and transportation, the international contacts are constantly growing more intimate. This, in turn, allows a greater degree of specialization not only in the industries, but also in agriculture. The purchasing power of the average family is, under normal conditions, bound to rise. This offers an opportunity to the manufacturer, merchant and exporter in that suitable publicity and advertising may help to dispose of larger quantities of any particular commodity or group of commodities. Manufacturing, merchandising and trans-

portation are thus stimulated. We must reckon also with the development of more effective means of exploiting natural resources and of more efficient methods for increasing the output of manufactured articles. All of these directly or indirectly affect agricultural production which, in the long run, means soil and crop practices.

Under the conditions described, curious trends and tendencies have developed. For instance, Belgium, agriculturally one of the most progressive of the European countries, is far from being self-sufficient in respect to the food supply. Nevertheless, Belgium exports grapes and melons not only to other European countries but also to the United States and Canada. These countries, on their part, export enormous quantities of cereals, meat products, fats and fibers, but must import large quantities of rubber, coffee, tea hemp, spices, sugar, etc. Strictly speaking,

therefore, no country is agriculturally self-sufficient.

The agricultural exports and imports of any country are determined primarily by the magnitude of their soil resources. These consist of the extent of the land areas, the depth and composition of the soils, the amount and distribution of rainfall, the extremes and means of summer and winter temperatures and the use of natural and artificial manures for maintaining the productive power of the land.

When we speak of the wheat belt or corn belt we have in mind zones that, from the standpoint of soils and climate, are suitable for the economical production of these crops. But the limits of the corn, wheat or cotton belts, while they are more or less fixed by climate, are more flexible from the point of view of soil type. Moreover, it should be remembered that the composition of the crop is variable and this implies

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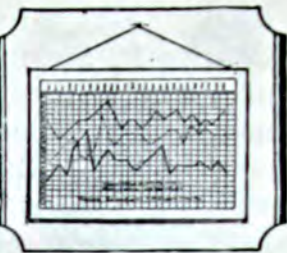


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An ancient Maori grain house in New Zealand built above ground for protection from rats



AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Honey Grading Now Easy

Through the efforts of bee culture specialists and economists, and with the assistance of an inventor, the guess work has been taken out of honey grading. It is now possible to ascertain with great accuracy to just what exact grade any given sample of honey belongs.

The essential part of the grader consists of a wedge-shaped glass vessel into which the sample of honey is placed and other wedge-shaped pieces of glass of various amber shades which are placed alongside the container of the honey sample. The one who is grading honey by this method tries various amber wedges until he finds one almost exactly or exactly of the same shade as the honey. Each wedge represents a certain color grade.

The principle upon which this grading process is based was devised largely by Dr. A. H. Pfund of Johns Hopkins University who has patented the foundation principle.

It is expected that honey grades based on this system will be recommended as standard by the Bureau of Agricultural Economics, U. S. Department of Agriculture, and representatives of the Department will probably have these grading wedges in their offices throughout the honey producing sections of the country. At the present time the Bee Culture Laboratory at Washington is in position to grade samples according to color free of charge. All that is necessary is a four ounce

sample of clean, well-strained honey.

Potatoes Take Advantage of Extra Space

It is usually supposed that when blank spaces occur in the potato field, on account of irregularities in planting or failure of planted potatoes to grow, that the space is wasted. This is not true according to the results at the Agricultural Experiment Station, Geneva, New York, for the discovery has been made that plants alongside these blanks produce a bigger yield than the general run of plants in the field, making up for part of the loss. Careful check-ups on the two plants adjoining the open space show that they make up about one half the yield that would have been secured if there had been no blank.

If blank spaces in the potato field include more than one hill, however, then the loss would be greater for wide spaces do not cause the adjoining hills to increase the yield in more than a single hill space. Anyway blank spaces cannot be considered total losses. It seems probable that the same principle should hold true with many other crops.

Burr Knots on Apple Sometimes Confused with Disease

Burr knots on apple trees, especially on certain varieties, have often been confused with crown gall. As a result good healthy trees have sometimes been discarded because these knots look like the

hairy root form of this gall. Charles F. Swingle of the Bureau of Plant Industry, U. S. Department of Agriculture, says that it seems possible that we need to revise our ideas regarding crown gall as symptoms may sometimes be nothing but a normal characteristic or tumors resulting from faulty union of stock and scion, or root aphid injury, or possibly other factors in addition to the infection which causes real crown gall.

It is said that English investigators long recognized the value of these burr knots in propagation by cuttings or layers. These knots which are really rudimentary roots have not been used in America, probably because of the fear of using something that was not clean material. The process of using knots consists in keeping damp moss around the limbs containing them for a few days. In some cases hundreds of roots have developed under a narrow band of moss. In some cases detached twigs containing knots can be used in propagating certain varieties.

About half of the 500 varieties of apples of the Department of Agriculture's Arlington Farm near Washington show the presence of burr knots. The varieties showing them most prominently are Buckskin, Northern Spy, Esopus, Rome and Springdale. It is suggested that they be considered in the discussion and classification of commercial apple varieties.

Grasshopper Nemas

It has been determined in recent years that in many regions of this country grasshoppers are prevented from becoming dangerous pests because of the thread-like nemas which infest them. Two varieties of this parasite have been found by Dr. N. A. Cobb of the United States Department of

Agriculture and his assistants to be of great economic value. They control the birth rate of grasshoppers, including the eastern red-legged locust and its relatives and the clear-winged locust of the Northwest. In some localities practically all grasshoppers are nematized and when they are they produce few or no eggs.

Either of these important grasshopper parasites can be found in the body cavity of grasshoppers in late summer. They are several inches long and look like whitish threads. Fishermen who use grasshoppers for bait may often have noticed them. In fall they leave the grasshoppers dead and burrow into the soil where eggs are produced by one variety. The other deposits eggs in the spring on young forage plants.

The eggs on forage plants are swallowed by feeding hoppers and develop with extreme rapidity. The eggs that hatch in the soil hatch out nemas which enter the grasshoppers by means of a spear-like organ.

Attempts to control grasshopper plagues are being made by moving infested hoppers to regions where they have not become infested naturally. Dr. Cobb says that the work of colonizing the nematized insects is handicapped because of general lack of knowledge of the habits of grasshoppers.

Sugar Beet Insect Carries Disease Virus

Plant pathologists of the Department of Agriculture have found many new facts regarding the importance of leafhoppers in carrying the virus of curly top, a very destructive disease attacking sugar beets in the West and Northwest. In some regions beet growing has been practically abandoned for a time because of these losses.



REVIEWS



Extension Work in Agronomy, 1923—U. S. D. A. Circular 343.

To translate the results of research work into more economical crop production is the work of the extension specialists in agronomy. That effective work is being accomplished is shown by the survey of the results contained in the above circular. Long-time demonstrations carried on by farmers numbered 161,456 in 1923, an increase of 48.2% over 1922. These demonstrations were divided between soil and crop projects.

Included under soils were two major groups—1st—demonstrations covering the use of lime, and, 2nd—demonstrations with fertilizers to encourage the use of high quality goods.

County agents reported that 170,059 farmers in 47 states followed their suggestions for the use of commercial fertilizers on more than 4,000,000 acres.

Crops were divided into two important lines of work. The production of food for live stock and improvement of seed.

The development of extension work in agronomy is also discussed. Important conferences of agronomy extension workers have been held during the year—one to discuss subject matter, the other to study methods.

The importance of extension work in agronomy is shown by the fact that 322,427 farmers were influenced to change their practices.

This work was carried on in 48 states at a cost for the year ending June 30th, 1923, of \$388,279.

An important feature of the

year's work was conducting campaigns. Demonstrations alone were not considered sufficient. Three of the important campaigns were the clover prosperity campaign in Missouri, the home-grown roughage campaign in Wisconsin and the alfalfa dairy campaign in Michigan.

Another important feature of the work was the improvement of pastures by means of the use of fertilizers, cultivation and reseeding. This work was carried on in 45 states.

The work with various crops—seed improvement and other matters are discussed.

The bulletin is of value and interest to all county agents and extension workers.



Effect of Fertilizers on the Number and Size of Potato Tubers

(Reprint from the proceedings of the 11th annual meeting of the Potato Association of America, December, 1924.)

For many years the Agricultural Experiment Station of Ohio has grown potatoes in 3 year rotation with wheat and clover.

The effect of the fertilizers used in this rotation has shown that the increases due to nitrogen have been relatively small—the effect of phosphates were also comparatively small—but varied. Lime was used on these plots which may, in a measure, have accounted for this.

Applications of potash gave large increased yield. Where no potash was used the deficiency was clearly evident.

While the effect of fertilizers on yield has been noted for many years, the author has made an interesting study of the effect of the nutrients on the number and size of tubers.

Briefly, the nitrate increased the numbers of tubers per plant—but no effect in size.

Potash had a marked effect in increasing the size of tubers—but no definite influence on the number.

Phosphate had in this instance little effect on either the size or

number of the tubers. It is pointed out, however, that lime was used and the phosphate may have been converted into an insoluble form. It would seem, therefore, that the effects of phosphates could hardly be considered conclusive.

This study is of value as a contribution towards determining the effect of plant foods on the quality of the crop as well as the yield. It is in this direction undoubtedly that more research work is needed.



Fertilizer Notes

(From page 28)

tures has been of quite satisfying volume, it is reported, and manufacturers anticipate a continuance of this situation for the balance of the fertilizer year. Farmers will be confronted with higher prices for their mixtures this season, owing to the material increases in the prices of some of the ingredients since last year, and the manufacturers generally expect that some few changes in formulae will be made in the industry during the season in an effort to hold down as much as possible the ultimate cost to the farmers. Last year, it will be recalled, there was considerable resentment on the part of many of the Southern farmers, and their political representatives, when the fertilizer manufacturers decided that they would end their liberal credit policy and not only put into effect stricter credit terms but prices higher than those prevailing during the preceding year. While there is no desire on the part of the mixers to see higher prices, the fact that the fertilizer industry has emerged from a prolonged period of depression and that prices are again on a basis of cost plus a reasonable profit, in-

stead of the "distressed" basis so much in evidence during the several years immediately following the war, has naturally made for higher production costs and thus increased selling prices. One result of the firmer market is expected to be a further gain in the consumption of high test mixtures, as the manufacturers expect that with higher prices prevailing it will be easier to convince the farmers of the economy of using the higher test plant food wherever feasible.



Foreign and International Agriculture

(From page 30)

certain economic relations. Indeed, so large are the economic values involved that the student of soils is expected to establish a more definite basis on which economists and statesmen may develop important national and international policies.

In recent years our knowledge of soils and soil fertility has expanded in a substantial way and, in some directions, to a remarkable extent. To the general progress of chemistry, physics, botany and microbiology, we owe

methods and points of view that have enabled the student of soils to analyze more critically the factors underlying soil fertility. We are better able to define the meaning of soil type and to indicate its relation to crop production. The students of soils in different countries are coming to recognize more and more keenly that the methods of studying soils must be standardized to a point where the results obtained in soil investigations, whether they deal with physical, chemical or microbiological properties of soils, be comparable. The significance of this need hardly be dwelt upon. In order that we might understand the future as well as the present potentialities in agricultural production, we must be able to measure the soils of different countries and of different continents in the same terms. We must be able to indicate the increase in yields which might be expected under any given climate conditions when suitable crops and suitable methods of tillage and fertilization are introduced. We must recognize the ultimate limits of any given crop and the ultimate change in composition of the crop as affected by soil treatment. This cannot be done except through coordinated effort by soil investigators the world over. When such coordination is farther advanced the economist and statesman will see more clearly the problems that confront their own as well as other countries. They will, to that extent, be in a better position to define policies which would bring about not only a greater degree of material prosperity but will also encourage international good will and understanding, and by the same token discourage international friction and misunderstanding.

The organization of the International Society of Soil Science,

effected last May during the sessions of the Fourth International Conference of Soil Science at Rome, is, from the point of view of the facts just noted, a significant undertaking. International committees have already been appointed whose responsibility it will be to unify the methods of soil classification and mapping as well as of physical, chemical and microbiological study of soils. The forthcoming International Congress of Soil Science, which is to be held in Washington in the early summer of 1927, will serve as a further stimulus to the organization of soil research on an international scale.



Potash Starvation Symptoms

(From page 7)

likely to need special potash fertilization. All soils which have been depleted by many years of exhaustive farming are likely to need potash fertilization.

The following kinds of soil frequently lack available potash for the growing of clover and alfalfa, and symptoms of potash starvation should be looked for in crops growing on them. (1) Sandy soils. (2) Depleted sandy loam and silt loam soils. (3) Dark colored low-land soils. (4) Mucks and peats.

For clover, 100 to 200 pounds per acre of a potash fertilizer should be used. For alfalfa, this may well be increased to 300 to 500 pounds per acre. The potash fertilizer is best applied after plowing and just previous to sowing, and should be thoroughly worked into the soil. It may also be applied as a top dressing in the fall or spring after the crop is started, in which case it should also be harrowed or worked into the soil. There is no danger of loss of potash by leaching.

Motorists: Yellow Means Look-Out!

(From page 10)

Agriculture William M. Jardine said:

"Communication is the great equalizer. It destroys animosities, aids understanding, promotes the accord of nations, and contributes to the happiness and prosperity of all who enjoy its unrestricted benefits. In the motor vehicle and improved highway there is promise of substantial betterment of communication and transportation everywhere.

"The Department of Agriculture has taken part in the work of highway betterment in the United States practically since the inception of the good roads movement. Its Office of Road Inquiry was created in 1893 for the purpose of studying the highway needs of the country and recommending the means which should be adopted to meet them.

"Until 1916 it carried on continuously a careful study of road building materials and processes, and by education and example imparted the information to road builders throughout the country. Since 1916 it has played a more active role in connection with the building of Federal-aid highways and is now engaged in the improvement of 177,000 miles of interconnected highways in remarkably harmonious cooperation with State highway departments.

"At the same time the department has not abated its efforts in research, but has applied itself with increasing intensity to problems of highway construction and transportation which have grown in importance with the increase in numbers of motor vehicles.

"This information the department will gladly extend to the Latin American Republics. In many respects the problems with which they will have to deal correspond with those which we have

already passed, and I believe that for many of these problems we may offer them a solution ready-made. In thus placing the service of the department at the disposal of the republics of the new world I do so in the spirit of co-operative friendliness. Where we give we hope also to receive much that is valuable of advice and suggestion for the solution of our own problems of highway transportation."

The members of the commission appointed by President Coolidge are H. H. Rice, vice-president, General Motors Corporation, Michigan, chairman; Charles M. Babcock, Commissioner of Highways, Minnesota; A. N. Johnson, dean, Engineering College, University of Maryland; William E. Hull, member of Congress from Illinois; Frank Page, chairman, North Carolina Highway Commission; Dr. G. A. Sherwell, secretary-general, the Inter-American Highway Commission; and Thomas H. MacDonald, chief, Bureau of Public Roads, United States Department of Agriculture.



North Carolina Leads in Leaf Value

North Carolina still claims first rank in the total value of the tobacco crop among the States of the Union, although Kentucky leads in acreage. The total value of the crop last year was \$71,807,000, the Kentucky crop being almost the same.—U. S. Tobacco Journal.



City Man—"I don't understand it. This seems to be a very modest looking cow, but the farmer said she was fresh."

Boys Eat Up Four Year Experiment

¶ *A little story which
draws its own moral.*

A BUNCH of New Jersey boys recently had a corn roast. It was a royal feed surrounded by all the glamour of such a boyish stunt—corn that had been swiped, fire in a sheltered nook, and lowered voices to avoid detection. The corn was fine, big luscious ears, and it had been easy to get from the experimental plots of the College of Agriculture. The boys didn't even have to look around for sticks to use in roasting the ears, there were nice thin ones right in the fields.

This makes a little story reminiscent of our boyhood days. But like every other story there is another side, and in this case that side happens to be especially sad. The corn which the boys ate and the sticks which they pulled up ruined a four-year experiment in improving sweet corn.

Commenting upon the incident, Dr. Jacob Lipman, dean and director of the station says, "This just serves to illustrate with what difficulties the path of the investigator is beset. Experiment sta-

tions located near urban centers feel the disadvantage of having unwelcome visitors. It is the thoughtless and irresponsible persons, most of them boys, who may seriously interfere with the progress of experiments in plant breeding and soil fertility.

"It is difficult," Dr. Lipman goes on to say, "for many thoughtless people to understand how a few apples or a few ears of corn might affect the value of investigations. It is frequently impossible to patrol experimental orchards and field plots effectively enough to protect the experiments against more or less serious damage.

"We can only hope that education and a better understanding of the significance of the contributions that the investigator is trying to make toward the progress of the human race will tend to offset the temptations that some people may have to take material of slight intrinsic value but of very large potential value from the standpoint of both science and practice."



Estimating the Quantity of Grain in Bins

People having occasion to know the quantities of grain in bins at different times are constantly confronted with the problem of getting accurate estimates quickly. Miscellaneous Circular 41, "Estimating the Quantity of Grain in Bins" by E. N. Bates, Bureau of Agricultural Economics, just is-

sued by the United States Department of Agriculture provides a means of making such estimates.

A chart for desk or wall use has been worked out to reduce the necessary work of getting an accurate estimate. Capacity of bins in bushels of any kind of grain are shown by lines and scales.

A Round-Up on Peat Soils

(From page 13)

the percentage of sugar increased or decreased in accordance with the treatment. It was also shown with potatoes that the number of culls and seconds was decreased with proper treatment, likewise the sweetness of eating carrots and parsnips, and in this connection the percentage of sugar and not the absolute amount is the important point. All of this work was the result of careful field experiments.

After Dr. Harmer's talk, the session adjourned to meet again at the Chandler Marsh where there were marsh plowing demonstrations and experimental plots. The chief feature of the plots was a series of experiments with high and low fertility, each series having a variety of truck crops. The high fertility plots have a maximum of 750 pounds of acid phosphate and 750 pounds of muriate of potash. The low fertility plots got 300 pounds of each.

The proportions of these were varied, the different treatments showing marked difference in yields.

In another series experiments with different amounts and different carriers of nitrogen were made, the phosphoric acid and potash being kept constant. On other plots the nitrogen and potash were kept constant and different carriers of phosphoric acid were tested.

As the wind had blown out the seed in June, as many as three and four plantings were necessary. In spite of this, however, excellent growth had been maintained and the plots provided a very interesting object lesson in the need for selecting the right fertilizer materials.

On this soil, both phosphoric acid and potash were needed, the potash showing a marked effect especially on potatoes and sugar beets.



Michigan entertained in its Agricultural Hall

The next two days were spent in instructive tours to the more important muck soil areas of Michigan. Many local farmers joined the party, and the first place visited was the 12,000 acre Gunn Marsh to see the production of onions.

By actual acidity tests, the soil in Gunn Marsh is medium acid, but lime is not recommended unless the soil gets more acid. The fertilizer practices vary both in formulas used and the methods of application. The best formula and methods of application have yet to be worked out for this marsh.

One grower at the present time is using 300 pounds per acre of a 2-8-10 under the row and 200 pounds muriate of potash per acre broadcast. Other growers used a 2-16-2 under the row and 2-8-16 broadcast. Still others on marsh muck soils an 0-15-20 in various amounts. It is evident that both phosphates and potash are necessary at this marsh.

The A. M. Todd Company's mint farm at Mentha came in for the next visit. Their mint still is new and supposed to be the finest in the world. It is the result of long experience which is shown in the labor-saving devices which have been introduced in its building.

Messrs. Stroud and Woodham kindly showed the party over the farm and explained the process of distillation. This farm shows to what a high degree of efficiency crop production on muck soils can be brought.

The college celery plots at Kalamazoo were inspected, plots which are giving valuable results for the muck farmer.

At the 10,000 acre Decatur muck area the chief feature of interest was an inspection of the fertilizer experimental plots. Dr. Harmer deserves great credit for the 25 experimental centers where

plots have been established and for the care and maintenance of these plots. Undoubtedly they will yield valuable information regarding the fertilization of the muck soils of Michigan.

The Decatur experimental plots are in a hardwood muck soil. The first series are different mixtures of phosphates and potash. The heaviest application made is 1500 pounds of a 3-8-24. There are also variations in the amounts of potash and the amounts of phosphates. Other series are used to determine the best methods of applying nitrogen, different sources of nitrogen. A phosphate series compares the different forms of phosphates and tests the best time of application. The plots are now in celery.

Visits were also made to the Beebe muck farms at Niles, the experimental plots at Holland and the muck soil areas at Zeeland, Hudsonville, and Grand Rapids. Addresses by different authorities were made at all of these places to the numbers of farmers who had gathered.

At the election of officers held during the convention, Dr. Paul M. Harmer of the Michigan State College, East Lansing was made president of the American Peat Society for the coming year.

Mr. W. C. Steenberg, 228 South Main Street, South Bend, Indiana, is the new first vice-president; Mr. B. F. Haanel, Canada Department of Mines, Ottawa, Canada, second vice-president. Mr. Charles Knapp of 2 Rector Street, New York, is secretary and treasurer.



THE WHOLE SECRET

Benny (having difficulty in teaching little sister to whistle)—
"Aw, just make a hole in your face and push."—The Furrow.

About Ourselves

BETTER CROPS is a monthly pocket full of information for men interested in more profitable crop production. It is a source of information as well as a mouthpiece for the research worker, the commercial man, and the advisory agent.

The aim of the magazine is to stimulate a more thorough knowledge of soils, crops, and fertilizers. It is edited with the idea of disseminating such information as is sound and practical. There will be no publication of preconceived ideas and at all times the whole and not the selected truth will be considered.

In doing this BETTER CROPS hopes to become a common ground for the interpretation of mutual interests of the scientific and agricultural business groups, nationally and internationally, especially as their activities relate to the use of commercial fertilizers.

We ask for suggestions and contributions from our readers for we know that only in that way can the magazine serve in its fullest capacity. Payments for manuscripts are made upon publication.

Subscription price of BETTER CROPS is 50 cents per year, 10 cents per single copy. Advertising rates may be secured upon application.

**BETTER CROPS
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10 Bridge Street

New York

How Can County Agent Work Be Improved?

(From page 18)

Along their own lines they were above par, invincible — but they couldn't see over the college department fence wherein they received their major graduate training. One of the potato experts resigned and later made a hit driving out potato diseases. The apple man went to work for an insecticide company and succeeded. The cattle men met reverses in the recent era of live stock depression, and as they knew little of soils or crops (or even of hogs, horses, and sheep, for that matter), they, too, quit with a curse on public service.

LACK of sympathy and lack of wide interest in all growing things — bees, bulls and bears — will put the crimp in a county agent and give him the one-track mind habit sure as death and taxes. College specialization and too much college dictation of plans and policies of the graduate when he goes afield as county agent may be one big cause for this impediment. A man can be wise in one thing, but it must not prevent him from being well informed on many other things.

Both community and county-wide results hold interest in a county agent and his work. To flirt with any one section of a county while more remote sections are left alone is to create a spotty impression.

One of the best diplomats in county service in our state started right in to organize his county by school districts and townships — not on breed lines alone, but on lines of common farm life interest, including social clubs and everything tangible. He realized that the farm home is the reason why

men and women are farming. It isn't because of the acidity test, the orchard spray ring, the iron-clad contract, or the pure-bred sire.

He could see the broad, human side of it. He did not let the tools of the trade obscure the folks at home. Today he is entrenched, as one might say, so firmly that explosive couldn't blast him out of his bailiwick — unless he wants to go, and then he must agree to find a successor equally good.

The fearless county agent gets ahead and does work that is effective and valuable. The cringer, the issue dodger, and the apolo-gizer is out of luck.

The fearless county agent, if broad gauged, will not take long distance dictation as final because he knows what his clients need. The fearless man will not be afraid to welcome commercial advice and recommend the best commercial products, because the commercial laboratory is sometimes closer to real farm needs than the academic laboratory in which he got his training. The fearless man will promote the soundest marketing and stock breeding campaigns within his region regardless of criticism.

To apply broadness and bravery to each section of the county is a matter of detail, but these two qualities are above all essential to effective and valuable county agent work.



World Soil Experts Will Gather Here

(From page 8)

establishment of an office with the International Institute of Agriculture.

A General Congress must be summoned at least every five years to investigate the scientific work, to have general control of

the Society, and to elect officers.

The Review to be published by the administrative office will be a scientific journal for the publication of original work in this field. It will also contain a regular series of special reviews and reviews in five languages, English, Italian, French, Spanish, German, of the more important recent publications and general information concerning the association.

IT is felt that a beginning has been made in the work of bringing uniformity and fixed standards into this agricultural science.

Accepted by the scientists of the different nations, this uniformity of study and research should bring about better results and closer collaboration on general problems.

A meeting will be held in Holland early in the spring to choose the delegates to attend the Congress held in the United States. Preparations are already starting for the entertainment of the visitors in America. They will travel to the sections of this country of most importance from the viewpoint of their science.

The present officers of the International Society of Soil Science include:

Dr. Jacob G. Lipman, President, New Brunswick, N. J.; Prof. Dr. D. De Angelis d'Ossat, Vice-President, Rome, Italy; Dr. Benjamin Frosterus, Vice-President, Helsingfors, Finland; Dr. D. J. Hissink, Secretary-Treasurer, Groningen, Holland; Prof. Dr. F. Schucht, Editor, Berlin, Germany; Dr. G. Borghesani, Librarian, Rome, Italy; and Francisco Bilbao y Sevilla, Representing the International Institute of Agriculture, Rome, Italy.

The Potash Situation

(From page 15)

and in some instances potash alone. All of these are recommended by three experiment stations. But it is important to find out which fertilizer treatment is the most profitable for any particular farm. For instance in Minnesota in 1924 where fertilizer experiments were conducted on four farms, no two gave similar results.

Taking up the more practical side, we come to the production, price, and methods of selling potash.

So far as production is concerned, there is plenty of potash being mined at this time. The German mines furnish the largest supply. The French mines and American sources also contribute to the potash used in the United States.

The price of potash now is lower than it was in 1913 or any time since. In 1913 the market price c. i. f. for muriate 80 per cent basis in bags as quoted in the *Oil, Paint and Drug Reporter* was \$38.05 per ton. It is now quoted from \$31.41 to \$34.90 per ton. It should be noted that this is the market price c. i. f. and when retailed in small quantities other charges must be added for inland freight, storage, and re-handling.

The price, however, in comparison with other fertilizer materials, is very reasonable and permits an adequate profit to be made on its proper use.

We are often asked if we sell potash direct in small quantities as one bag or so. In answer to this we would say that the method of marketing is to sell through the manufacturers and mixers. These agencies make resales in any quantity from one bag up and muck land farmers

should be able to obtain all the potash they require from these sources.

In answer to questions asked me at various times, I personally believe that a mixed fertilizer industry will always be a basic industry in this country. The shortage of labor on many farms—the short growing season in many places—and the psychology of the buyers—are reasons why there will, in my opinion, always be a demand for mixed fertilizers. The raw materials should also be available at reasonable prices for the farmer who needs them for his particular soils and conditions.

The most constructive attitude—in my opinion—is to cooperate to the best of our ability in helping to solve the problems of the industry in meeting the needs of the farmer.

In conclusion, potash is a most important plant food for crops on muck and peat soils because, as we have already pointed out, it not only increases the yields but has a marked effect on quality, about which we need to know a great deal more. It is our policy to actively support this necessary experimental work and to make available to the farmer at reasonable prices all the potash in good condition that he needs for the most profitable crop production.



Big Business Apple Advertising

(From page 17)

At first many small classified and reading advertisements were used, and while this brought good results, a flashy weekly program of advertising was determined upon in the fall of 1924, which included the small advertisements and in addition weekly half and full page

space was taken not only in that county but adjoining counties. Yes, this cost lots of hard earned dollars, but the question is, *did the investment pay?*

If you could devise a means of bringing 2000 people to your orchard in a single day when you had plenty of apples and cider on hand, could you sell them? Mr. Berg did! It took several traffic directors and quite an army of salesmen to handle the throng of cider, apple and vinegar customers, but he did it so well that his entire crop melted away like magic. Sometimes the week's single glass cider sales more than paid that week's advertising bill, and the former barrel and cold storage method of selling the first grade fruit was joyfully done away with. Several cars of Grimes Golden had to be purchased in addition to take care of the big demand for the "Berg cider, (that) makes a broad smile wider."

It was not a startling discovery that hundreds of people in that section liked and wanted to buy good cider and well grown and graded apples, but it did demonstrate the necessity and profit to be derived from telling the public what he had for sale and how to get to it. The product was all that was claimed for it and the customers flocked back and

brought their friends with them. Mr. Berg said: "Many came out of curiosity and went home with a bushel of apples and a gallon of cider."

The newspapers for counties around sent their star reporters and gave the Berg Fruit Farm many columns of front page stories, the most effective sort of advertising free of charge. Everyone that owned a car for many miles around eventually drove out to Berg's to see the crowd and verify what their neighbor had told them about "The hundreds of bushels of apples on the hillside," and the crowds that frequented the orchard daily.

A very occasional roadside sign and a few dollars in obscure advertising in one or two local papers is the average quota of far too many orchardists. Mr. Berg's methods would have no doubt been less effective in many other communities, but the fact remains that his methods did solve his most difficult problem—that of marketing his crop and doing it at a good profit. Almost as soon as the picking season was over his money was in the bank and he had added hundreds of satisfied customers that will be of unknown future value in years to come as his young orchards begin to increase the yearly production.



Twenty Varieties of Cotton

(From page 20)

"I would mark the blooms and watch to see how many days it was from the blooming period until the boll opened as the period between the bloom and open boll often determine the yield. A quick fruiting variety will make more per acre on the same rainfall."

Mr. Little then gave a valuable tip to the cotton farmer. He said:

"Also a variety with smaller leaves will thrive on less moisture than one with large leaves, as the one with large leaves presents such a large space for water evaporation to take place. This

was brought out very distinctly in my experiments the next season, and most important is the size of the bolls. I had some cotton that had been boosted for its large bolls. It was advertised that 40 bolls would weigh a pound. But when grown under test it took 95 bolls to weigh a pound.

"I tested all of my varieties for large bolls and on an average 65 bolls made a pound. I had one variety that 45 bolls made a pound. I also sampled it for staple length. I found in my experiments a large majority of the cotton runs from seven-eighths to one inch. I also found that a large seeded cotton had a better staple length than small seeded cotton.

"In my work with cotton I have found that I opened a storehouse of information if I would only take heed of the different things that come to hand in testing different varieties. There is a lesson to be learned every day, if we will only heed it.

"I have done some breeding and produced new strains of cotton. This year I have planted 20 varieties in my test on a test. These are being grown on a competitive basis. Last year I sold all of the seed I produced from my best varieties and when I had sold all of my seed I ordered several hundred bushels for my neighbors. They have seen the great value of good seed when grown side by side with 'just cottonseed.'"

Mr. Little urges the farmer to study the condition under which cottonseed produces in his State. "Some people order seed from the states east of the Mississippi river and expect it to do equally as well when grown in the western part of Texas. And when the crop doesn't turn out well, they blame the seed. So when you buy seed, get it just as close to home as you possibly can. Buy

the seed that the staple is an inch or more in length and try and get the variety with all of the good features you can. Test it out with other varieties as that is the only way to see if a variety is adaptable to your climatic conditions. Some varieties do best the second year."



Abbott Goes to N.F.A.

John B. Abbott, professor of agronomy of the Massachusetts Agricultural College, has just been appointed field agronomist for the northern states by the National Fertilizer Association.

Mr. Abbott, whose early training included two years of county agent work in New Hampshire followed by three years in Massachusetts, comes to his new position fully equipped for advisory work. He is the author of various papers on experiment station work, has written a great deal for farm papers, and has owned and operated two farms.

He is a member of the honorary scientific society, Sigma Xi.



Adam had the first Radio—he made a Loud Speaker out of his spare parts.—Arkansas Banker.



What's the use of having the right of way if the other fellow don't know it?—Arkansas Banker.



An Eastern farmer, who had moved to California, had heard that his neighbor raised unusually large potatoes, so he sent his hired man over to get a hundred pounds.

"Go right back," said the Californian, who wanted to impress the stranger, "and tell your boss that I won't cut a potato for any man."—Team-Work.

On the Reasons for Striving

(From page 4)

who rush madly about, craftily watching a chance to gouge a fellow mortal, or step ahead of him in the line, wickedly jabbing him with the elbow as they bore in—after a day of this, I too wonder what it is all about.

It all seems so small, so childish, so sort of useless.

The petty tricks that underlings use to undermine the overlings: the larger but still petty tricks that bosses bring into play to oust the clerks for whom they no longer have use!

The mere struggle for existence does not create these situations where human ants must push and shove each other; there is room aplenty for all—*friendly* room for *friends*.

Jealousy accounts for some of these situations.

"The mere desire to get ahead, to progress, puts in man the spirit of push which in his mind justifies toppling the other fellow out of the way," answers the pseudo-philosopher.

"But what put in man this desire to get ahead?" I ask, and the echo answers with a foggy wall of silence.

In plain words, why should any man strive for what we call worldly success? Why should not all be simple folk—fishermen like the man the captain watched, catching our meals as we need them and working only enough to capture what clothing and shelter we need?

WHY should we not all be mental vagabonds and tramp the surface of this rare and preposterous earth, sleeping in the sun, speculating on the stars, and shuddering in delicious silence at

the wonders we see around us?

Comes an answer: "Fool! Man must provide for his old age and for his family. He must work in this world in order to get together what he needs. He must struggle for these things; for nothing worth while is gained without effort!"

TO which I retort: "No answer at all! That is merely the copy-book reply given to sophomoric minds—the pap fed out to recalcitrants to hold them surely in civilization's line."

"Man," I say, does not have to provide for his old age—his tribe has always done that for him. His friends and relatives will see that he is warm, protected and fed when he is no longer able to warm, protect and feed himself."

Pride alone (and unwillingness to accept charity), accounts for those down-and-outers we see to-day. They could be warm, protected and fed in a moment should they put themselves on our charity.

Man, imitative by nature, saves for his old age, not because he has thought it all out and sees the necessity for it, but because he sees others do it, and because he has been told from childhood that it is the thing to do—that to go on living day by day, letting the morrow take care of itself, is wrong.

But I have seen many a contented hobo with a big appetite at 78—an appetite which he is always able to find a way to satisfy. Most tramps are hale, hearty, and happy. They have seen the world. They are well fed, warm and clothed in some fashion or other. They are seldom sick.

I am not advocating, Hortense, that the human race degrade itself into a tribe of tramps; I am merely argufying with you to prove that the real urge that is driving us all on to bigger and better things has no foundation in the mere "providing for old age."

It goes much *deeper* than that!

The pseudo-philosopher says in his answer: "Man must work in this world in order to get together what he needs."

Well, Hortense, what *are* man's needs?

Let's take three men and compare their needs—John D. Rockefeller, Jeff McDermid, and that chap in the dugout canoe who, when he finds he's hungry, catches his own supper.

These three men must eat, they must be clothed, they must be kept warm, they must have protection from the elements.

So; food, clothing and shelter. What else does any man *need*? I ask, not what would man like to have but what *must* he have to be happy and comfortable. Nothing more. Anything added to these three simple elements in the nature of additional comforts or enjoyments is futile.

So thus we see that it is not true that "man must work in this world in order to get together what he needs," for the simple fisherman *has all of these without working!*

And now our philosopher says, "but nothing worth while can be gained without effort." This is all true enough if we but agree as to what is worth while. Your ideas and mine on this score may be as far apart as the poles.

I know men, sterling souls, who have little of what the world calls ambition—men whose ideas as to things worth while include only hunting, fishing, lazing round in the sun and dreaming.

"Lazybones!" you would call at them. But they have a homely philosophy which can not be successfully attacked or undermined. "Fame," they say, "is a greased pole which you climb to win a \$2.00 prize, ruining in the climb a \$40 suit.

"Why struggle and strive!" they implore. "Why earn ten thousand a year and lose your soul! Why sweat to build a business and fail to see this glorious world! Why waste your youth reading Courses in Mathematics and Science when purple days await your embrace in far Siam! Why fight the throng for sustenance when it will drop in your lap unearned in countless, quaint quarters of this globe!"

"What is it all about? they cry. "Is it worth the struggle and if so, why? Where do we go when we die and —"

Questions, questions, questions—the universal question marks.

Man, with the heritage of the ages thrown unasked in his lap, invents new comforts—not for himself but for *others*.

He strives to build a business, not that he alone may live in comfort in his old age, but that his *family* may fare well, that his employees and associates may eat and grow strong.

Man writes books not for himself to read, for he knows before he starts, what will go between the covers, but he writes to instruct, amuse or entertain *others!*

HE works and struggles and strives because unconsciously and unselfishly he wants to leave the world better than he found it. His work he leaves as a heritage to unborn generations. He bequeaths some of the fruits of his genius to other men whom he has never seen and will never see—those who are to come after in the countless run of generations.

He feels a sort of gratitude to those who preceded him on this preposterous globe and he is willing to pay his debt to the generations he has inherited by striving in turn to leave the world better than he found it.

So now we get the truth: *Man struggles to get ahead not because he selfishly wants to supply his own needs and comforts but because subconsciously he is actually unselfish.*

In all of this struggling, jostling and pushing, and attempts to help our fellow-men and

leave the world a heritage of good, let us not forget to make friends. Let us clasp hands in a bond of love and service.

It is Today.

But Tomorrow?

Ah, Tomorrow may you not forget the songs I sang you yesterday and hear only my harsh voice of today. Tomorrow may you not cast me out of your life—because you have found a new friend you like better.

That is “what it is all about” *my friend!*



PIGS IS PIGS

But when it comes to being owned by one of the 50,000 odd boys and girls in the United States engaged in pig club work, a certain amount of porcine refinement must be observed. This little pig is receiving a manicure.



THE EXTRY HAND

loosened his overalls a bit more at the shoulders and waded into the second helping of chicken. "Yessir," he remarked, "I've seen lots of hard work in my time, an' I've done a lot of big things. Take fer instance three weeks ago, when I painted old Boggs's barn. That's about the biggest thing of its kind in the country."

"Pass me some more gravy," he continued, eyeing with alarm the rapidly diminishing supply of homemade dumplings. "As I was a-sayin' Mister Jimson, I'm comin' to your farm with a great deal of experience behind me, an' I'm determined to make good on this job. If you'll kindly pass me the biskits, Miz Jimson, I'll finish 'em up and git 'em out of your way. If that ain't showin' a helpin' hand, I dunno what is."

"The womenfolks all like me because I've got a kind of a way with the ladies, if I do say it, an' the horses allus like me because I rest 'em every round, an' my bosses has allus liked me because I'm so easy on the machinery. Why many's the mower I've drove all summer, Mister Jimson, without ever havin' to sharpen the sickle."

"That all might be so," said Jimson, cautiously, "but can you get any work done? That's what I want to know." "Work?" queried the Extry Hand with gusto, between bites of pie. "Say, Mister Jimson, at the last place where I worked I broke four hoe handles in one afternoon!" "Hoeing so hard with 'em?" asked Jimson. "Well, no," reluctantly admitted the Extry Hand, "leanin' on 'em."



We can hardly wait for the day when Henry Ford will make tin nickels at two cents each.



Some are born to publicity, some achieve it, and others are quoted in kidney pill advertisements.



This Month's Limerick

A plump old cornhusker named Jim
Once embarked on a much-needed swim;
While he kept his resolve
He began to dissolve,
And when he crawled out he was slim.



Fertilized with
2½% nitrogen,
9% available
phosphoric acid, and
11% POTASH



Fertilized with
2½% nitrogen,
9% available
phosphoric acid, but
NO POTASH

More than one hundred dollars extra on an acre of strawberries.

Time and money put into the preparation of the strawberry bed is time and money well spent, for they produce best yields when grown in well-drained, friable soil—rich in available plant foods.

High analysis mixed fertilizer is a profitable source for the necessary available plant foods. Mr. Pitcher, of Tangipahoa Parish, Louisiana, reaped \$109.66 *extra income per acre* when he applied 2½% nitrogen, 9% phosphoric acid, and 11% potash,

at the rate of 1200 lbs. per acre.

The Agricultural Extension Division of the University of Florida recommends for strawberries about one ton of fertilizer per acre, in two or three applications. First application, when plants are set out, analyzing 5% ammonia, 8% phosphoric acid, and 4% potash. Second application, when plants are blooming, analyzing 4% ammonia, 8% phosphoric acid, and 9% potash. Some successful growers are applying an additional dressing of 80 to 100 lbs. sulfate of potash early in January, and in March, a top dressing of 100 lbs. nitrate of soda. Where plants are very closely set, a mixture of 6% ammonia, 8% phosphoric acid, and 12% potash, at the rate of 3000 lbs. per acre, is also being used with very profitable results.

POTASH IMPORTING CORPORATION OF AMERICA


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New York City

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What Does **"AA QUALITY"** *Mean?*

"AA" means the highest *financial* rating in business:

"AA QUALITY" means the highest *quality* rating in commodities:

"AA QUALITY" FERTILIZERS mean fertilizers that have the highest *quality* rating:

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They are thoroughly manufactured, blended, and cured and are therefore in perfect mechanical condition.

Their record of continuous success covers a period of over half a century.

"AA QUALITY" FERTILIZERS are therefore

"The World's BEST by Every Test"

MANUFACTURED ONLY BY

**The American Agricultural
Chemical Company**

Better Crops

The Pocket Book of Agriculture.

November 1925

10 Cents



Roads—and Monuments—Kernels from Cobb—New Peaches
from Old Trees—Tune In! KSAC Broadcasting—in this issue.



Cabbage Pays \$43.60 extra per acre

A very slight change in fertilizer oftentimes makes a big change in the size and quality of the crop.

The experience of Mr. W. E. Hudson, a cabbage grower in Jackson County, Texas, gives us a good example.

Mr. Hudson applied to one plot a mixture containing 8% phosphoric acid, and 2½% nitrogen at the rate of 1200 lbs per acre. The crop weighed 5,920 lbs.

On an adjoining plot, Mr. Hudson applied the same mixture as

above—but with 5% potash added—and the crop weighed 8,280 lbs. (2,360 lbs. more than where no potash was applied).

On each plot, soil was sandy with yellow clay subsoil. After deducting the cost of the potash in the high grade fertilizer, Mr. Hudson's profit was \$43.60 extra per acre. Potash Pays.

FREE — a booklet entitled "Better Truck Crops" is now being mailed by our Soil & Crop Service. You'll find useful information in it. Just write to the address below for your copy.

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The Pocket Book of Agriculture

VOLUME V

NUMBER THREE

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¶ "Turkey in the Straw"
 may be all right for some
 folks, but Turkey **IN THE**
PLATTER, UM-M-MM!!
 Here's wishing you the same
 on November twenty-sixth.



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VOL. V

NEW YORK, NOVEMBER, 1925

No. 3

¶ *In which our popular
essayist tells us some
things we know, but did
not know we knew, about*

ROADS-- *and* Monuments

By *Jeff McIlernid*

THE most important things in the world are those which furnish speedier transmission—of ideas or goods.

The greatest inventions are those which whisk the written word, or spoken, on swifter wings; or that hasten the delivery of things from where they are plentiful and unwanted to the place they are needed because scarce.

The telephone, telegraph, radio, linotype, rotary press, locomotive and the automobile are the seven wonders of our civilization—in fact the mothers of our progress.

And the last of these is not the least.

The automobile is responsible for more changes in our mode of living than any other invention. I

trust that no one can successfully refute this.

Yesterday I drove the last of three hundred miles on the second layer of a road compared to which "the rocky road to Dublin" was a silk-lined, velvet carpet. I say I rode on the second layer because the first layer was suspended about six feet in the air in the form of dust!

A ROAD is to the automobile as the rails are to a locomotive—comfort in driving is furnished by the road, not the car. For with three sets of trick snubbers and equilibrators, one to keep you from springing up, a second to keep you from smashing down, and another to keep you from slipping sideways, some roads I have met prove the chap wonderfully accurate who said, "God made the country, man the cities, and the Devil the detours!"

A road is a highway, a place upon which to travel, and if you cannot travel on a road, it is about as useless as a watch without hands—it is going but you will never know where.

By a peculiar twist or quirk of fate, the road I traveled yesterday—if hitting between bumps occasionally may truthfully be termed traveling—went through Haverford, Pennsylvania.

And Haverford is the home of a man to whom this Nation has laid down an artificial stone monument a hundred thousand miles long—and as wide as four flivvers flocked together. Haverford is honored by being the home of Robert W. Leslie, the Father of the Cement Road.

Leslie is my friend—a young man of seventy-four who is so unusual that it is the dream of my life to be permitted to write his autobiography. I am intelligent enough to know that the man who writes a book gets more out of it than the man who reads it. And I look forward to the delightful task of interviewing this Colossus of Roads preparatory to writing a memorable, entrancing story of a useful life.

Leslie does not know which came first, the egg or the hen; but he does know which came first, the car or the road. For the road has

always been with us, the car arrived but yesterday.

WITHOUT good roads, flivvers would be futile. It is now well known that splendid roads lure more cars onto them than Detroit can turn out. And although the most recent billboard I have seen said, "Two thousand more flivvers on the road since yesterday," I am of little doubt that this is but a rare advertising man's unchallenged hokus pokus. The fact is, I believe, that there are not quite so many flivvers as we think. We see them once as we honk by, and then we see them again as they rattle merrily past while we tinker with *our* car. We are but the innocent victims of a motor mirage.

How far the spreading ripples from a stone cast in the cosmic brook do spread! Without Leslie and his cement road Detroit would be but a Saturday night village.

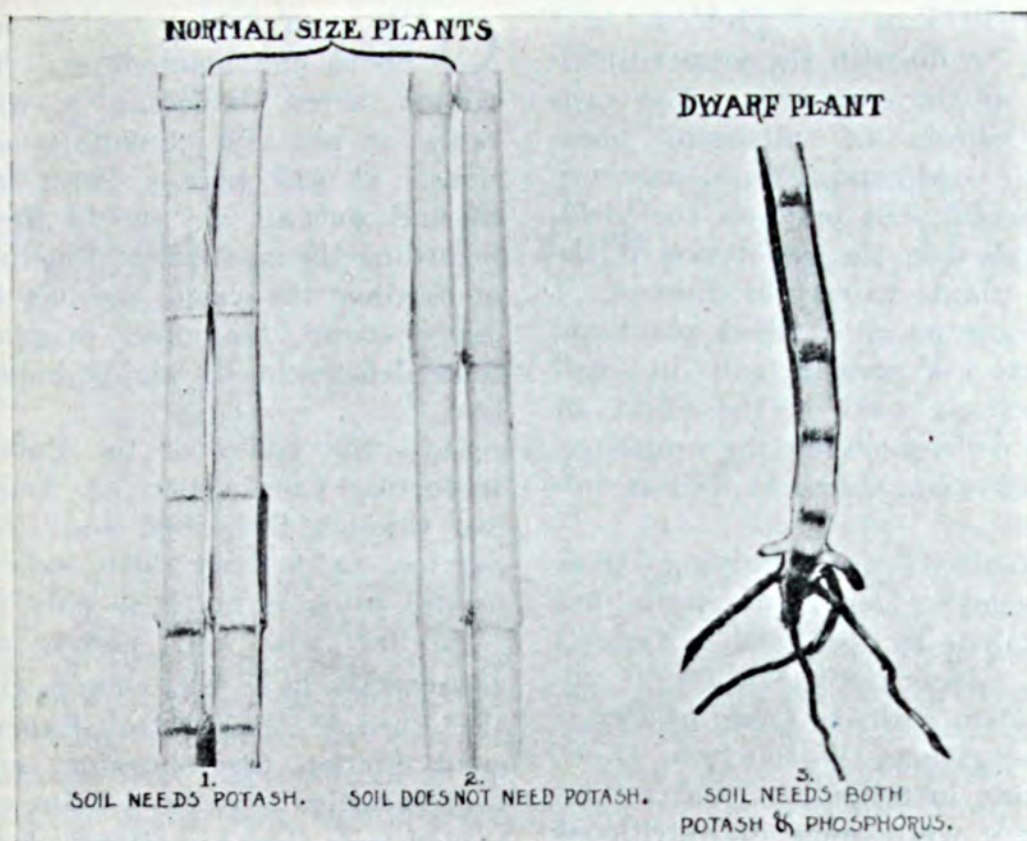
My friend Rus Rees, under whose watchful, eagle eye fleet Packard cars (advt.) roll to the shipping platform champing at their gears, once said, "but Detroit produces thousands of other things beside cars."

To which I retort: "Yes, I know, I have ridden in some of them!"

The road, with the fast automobile upon it, carrying the doctor to his sufferer, the carpenter to his work, the roll of rugs to the store, the clerk to his office, or the shopper to her *bete noir*—has etched itself into the *Zeitgeist* as no previous transmission device has done.

It has brought joy, self-reliance, health. It has made farm life tenable and city life livable. It has permitted the city worker to build in the country, and the farm worker to get just

(Turn to page 46)



¶Corn plants 1 and 2 were grown in the same soil under similar conditions, except plant 2 was given potash at the rate of 250 pounds per acre. Plant 1 was normal in size but the yield was low, due to the slow maturing of the ears, while the yield of plant 2 was normal. Note the dark nodes (they are purplish-brown in color) in the longi-section of the stem of plant 1, indicative of the need of potash. ¶The dwarfed, low-yielding condition of plant 3 combined with the darkened nodes indicates the need of both potash and phosphoric acid.

Solving

CORN *Nutrition* PROBLEMS

By G. J. Callister

IF we could put all our corn-fields together, it would make one of the biggest fields on our National farm—over one hundred and five million acres—quite a sizeable field requiring a lot of hard work every year.

The yield and quality of the crop produced in the fields is a matter of some concern, not only

to the farmers who own it, but to everybody. Any means by which this field can be worked more efficiently, producing more corn for less labor and money, or scientific assistance given in helping to solve its many problems, is important work and merits our support and continued interest.

A LOT of such problems have to do with the proper nutrition of the corn crop. The various effects of nitrogen, phosphoric acid, and potash, are very important, not only on the yield, but also on the resistance of the corn plants to certain diseases.

If any or all of these plant nutrients are present only in small quantities, what is the effect of such deficiencies on the crop?

Plants can starve as well as animals.

Scientists are studying these problems. Important work has been done by the Purdue Agricultural Experiment Station in co-operation with the Office of Cereal Investigations, Washington, D. C.

These investigations and results cover a wide range of nutritional problems. Among the results obtained, they have found that a deficiency of either available potash or phosphates has a marked effect on the resistance of corn to root rot disease. When potash deficiencies occur, it has been found that iron accumulates in the nodal tissues of the corn plant. These metallic accumulations can be seen by cutting the corn plants lengthwise. They cause a dark, purplish-brown discoloration of the joints, and ultimately, a disintegration of the joint tissues.

Corn plants heavily laden with such accumulations in the joints have been found to succumb readily to root and stalk rot. These injuries affect the ear-producing powers of the plants and consequently lessen the yield. Similar conditions of malnutrition have been observed in sugar beets, sugar cane and cotton.

The problems of crop nutrition are therefore of immediate interest to the practical man.

We need to know more about such problems.

OUR corn field is a big one, about one hundred and five million acres, including a wide range of soil and climatic conditions. It will take a long time to find out all we should know regarding the most efficient method of feeding the crop, and, as already shown, the effect of plant food deficiencies is highly important.

It is the policy of the Potash Importing Corporation of America, through their Soil and Crop Service, to actively help experimental work as much as possible.

In line with this policy, arrangements have been made with the Purdue Agricultural Experiment Station for laboratory and field investigations on a more extended scale than has hitherto been possible.

The purpose of this work is to conduct field and laboratory studies on potash deficiency problems on various crops—but especially on corn. Two men will be employed in laboratory work, and part of the time two in field work. In these investigations, studies will be made of the soils and of the plant—that is from a soils and plant physiological viewpoint.

The essential laboratory work will be correlated to practical crop production by conducting field surveys.

The purpose of the surveys is to check the results of laboratory work, to provide a practical basis for giving definite knowledge on malnutrition symptoms, and what such symptoms indicate. Some idea will be gained of the prevalence or otherwise of plant nutrient deficiencies, to what extent there are evidences of potash starvation. It will also be interesting to know if it is possible to

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Kernels from COBB

By P. M. Farmer

Washington Correspondent

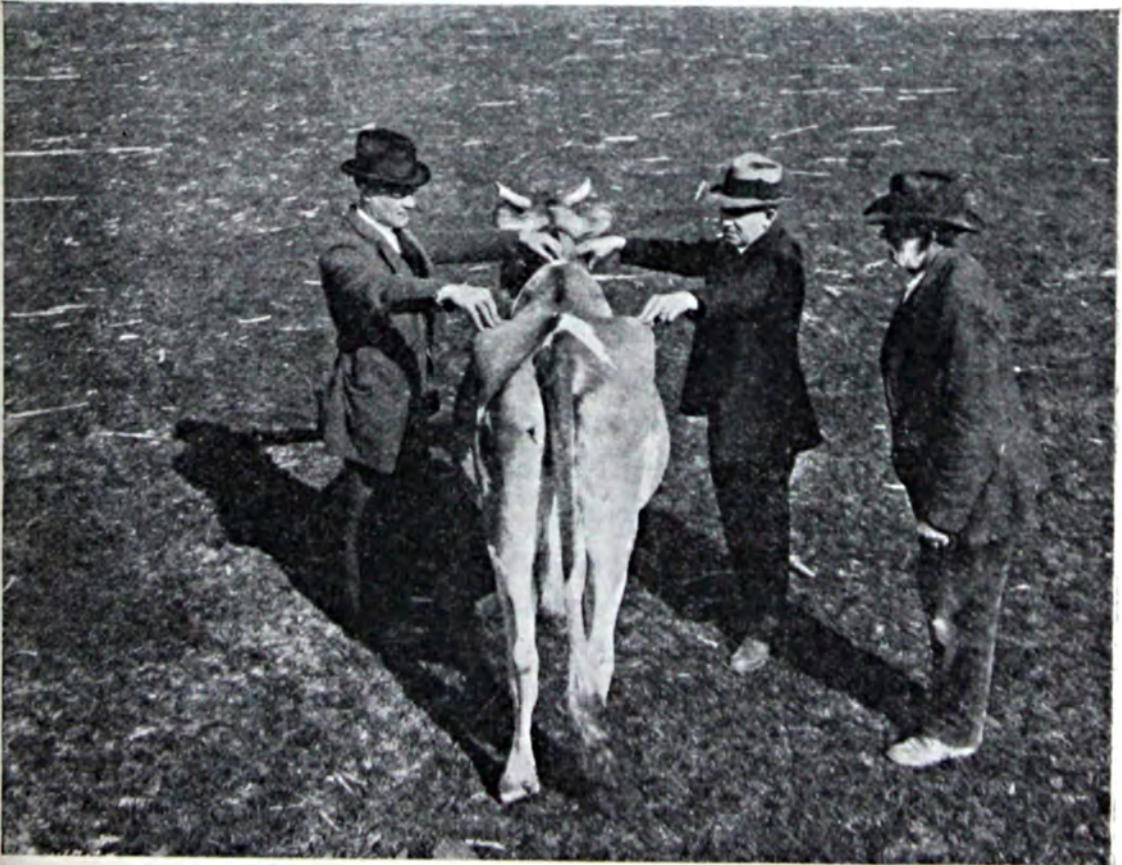
OF late there has been not a little in the press about growing corn without a cob. But down in Wicomico County, on the Eastern Shore of Maryland, the farmers, and the town folks as well, so far as P. M. F. has been able to learn, have no desire to try to grow any crop without one, that particular one being George Cobb, the county agent.

However, George's popularity may not be sufficient reason for

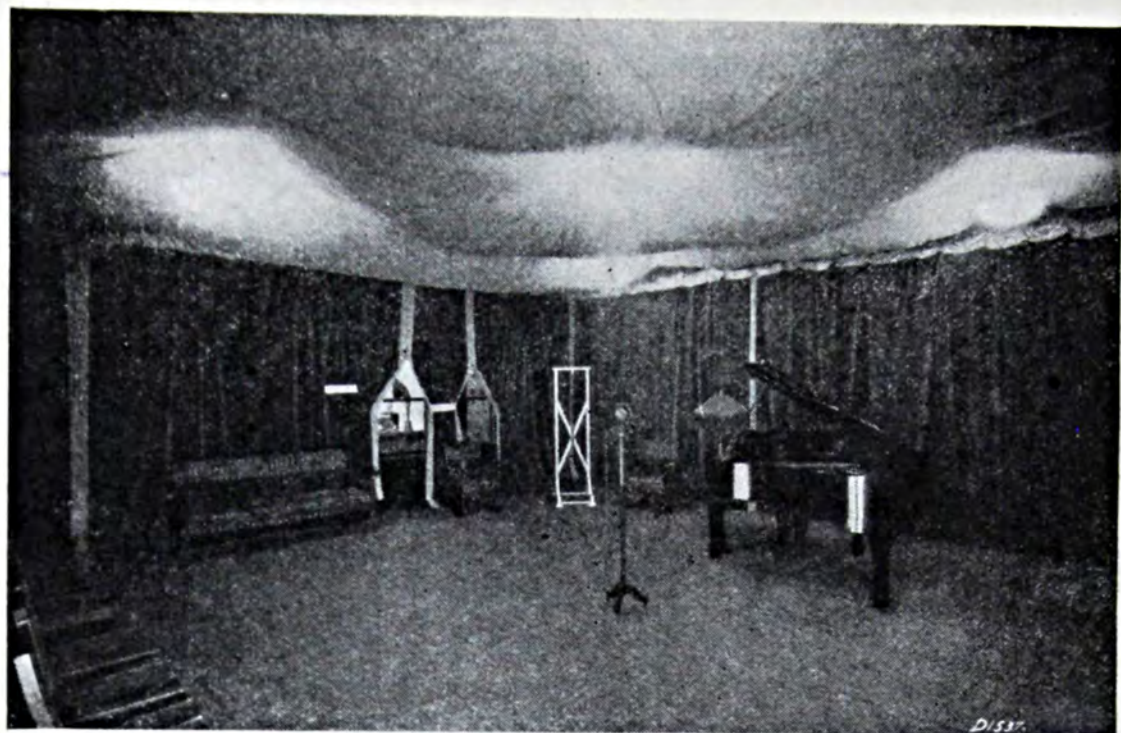
writing him up. But his success as a publicity man or columnist, to describe him more accurately, is such that the world ought to know more about his method.

Soon after Cobb became advisor to the Wicomico farmers he began writing for the local papers, turning out seasonable articles on the various crops and local problems, but according to his own admission, these essays were a flop.

(Turn to page 35)



Cobb (at left) hitting the High Spots



TUNE IN !

Station

STATION KSAC, the radiostation of the Kansas State Agricultural College has just begun the third year of broadcasting regular educational courses. Broadcasting of timely information for farmers, as well as courses of lectures contributing to a rather elaborate educational program, was begun by this institution as an experiment some years ago. The response to this effort, manifested by more than 5,000 letters of indorsement, has convinced the Kansas State Agricultural College of the possibilities of this service and the result is a more ambitious undertaking for the coming year.

In addition to the timely topics or question box and the regular courses of lectures on various subjects which have been regular fea- tures heretofore, a program for rural schools, a morning housewives program and a matinee program of current topics of interest

And now we sit contentedly at home. The big cosy arm chair — shoes off and feet toasting to a cheery log fire.

All ready — put on the ear phones — snap on the juice — adjust the rheostats — slowly twist the dials and Presto, we are attending our class in Botany. Now Dear Reader I ask you, isn't this a pleasant way to take education?

Jeff

KSAC Broadcasting

By H. J. C. Umberger

Dean and Director, Extension, Kansas Agricultural College

to women will be regular features the coming year.

In the main the program for the coming year will be devoted to rural interests. At 9:00 a. m. an inspirational and educational program will be given for twenty-five minutes consisting of opening exercises, a music lesson, talks on birds, travel, biography, books to read, current events, the agricultural primer, (discussing in turn poultry, crops, dairying, horticulture) and calisthenics conclude this program; at 10:00 a. m. the Housewives Half Hour consisting of a story serial, backyard gossip,

general discussion on household management, health and sanitation, clothing problems, household decoration, and child care; at noon the farmers' questions are answered and timely information broadcast together with a market summary.

Matinee programs provide specialties for enriching the club meetings of both town and rural women. High school credit courses in English Literature II and III, Civics and Botany are broadcast regularly in addition to a football lecture course. Lessons in color

(Turn to page 44)

Rust *and* POTASH

By C. A. Whittle

Southern Editor, Soil Improvement Committee

AGAIN there was widespread evidence of potash hunger of cotton throughout the cotton belt. Last year it was almost equally severe. The loss from rust (potash hunger) runs into millions of dollars each year, all of it easily preventable by putting into the fertilizers sufficient potash to supply the needs of the crops.

Again the experiment station plots show unmistakably that rust is potash hunger. Where potash is applied there is no rust and alongside where no potash is applied there is rust.

At the Poplarville, Mississippi Experiment Station where potash was left out of the complete fertilizer the yield of seed cotton was 684 pounds whereas alongside where potash was included in the

fertilizer the yield of seed cotton was 1080 pounds. This is typical of what may be expected on the sandy loams of the South during a dry year. It is less striking during wet years but the evidence of rust or potash hunger is always to be seen on sandy soils where no potash is applied or where not enough of it is used in the fertilizer.

On clay soils the rust is not so much in evidence as a rule but this year rust was reported quite prevalent in those soil regions.

To the casual observer or to one who does not know the symptoms of rust, the trouble is spoken of as "weather damage" or "burning of the leaves" by the drouth. But if one will take the pains to look closely he will find that the outer



Defoliation as a result of potash starvation. This field received 240 pounds each of cottonseed meal and phosphoric acid to the acre, but no potash.

edges of the leaves paled out into splotches or mosaic which gradually extend inward, the leaves curling inward as the disease spreads until the whole is brown and dead. The leaves shed sometimes very severely. The fruiting of the cotton is then halted and bolls do not develop properly.

With potash hunger properly attended to the cotton plants keep green, healthy, growing and fruiting until frost.

RUST is not confined to cotton but shows up markedly on alfalfa, soy beans and other legumes. The symptoms are the same as that of cotton. But rust of wheat, oats and rye is different. It is a fungous trouble and not primarily a sign of potash hunger, but authorities are agreed that potash adds to the strength and health of plants and thus enables plants to withstand attacks of disease.

Soils that analyze high in potash content such as the clays have shown that the natural potash of the soil does not come into available form fast enough to prevent

rust. It is therefore not so much what a soil contains, as shown by laboratory analysis, as what the plant can extract from the soil by its laboratory processes, that tell the story.

Another misconception as to the value of potash as a fertilizer has arisen as the result of applying potash alone to a soil. On most soils there are other plant food deficiencies which have to be supplied in order to make the applied potash usable. Single shot applications of potash can mean nothing but potash put on where other elements of plant food are applied to make it certain that none of them are limiting factors, will mean something definite as to whether or not potash will pay in a fertilizer.

In some regions potash is not recommended by some of the agricultural authorities. In a number of places in these regions cotton is signaling potash hunger and suffering from loss by rust damage. In such places if potash did not materially increase the yield, during a drouthy period at least, potash would save enough cotton to pay for itself several times over.



This field received in addition to the 240 pounds each of cottonseed meal and phosphoric acid, 240 pounds of potash to the acre. Note the healthy condition of the plants.

New

PEACHES

from OLD Trees

By J. William Firor

County Agent, Athens, Georgia

WALTER MATTHEWS, a farmer from an adjoining county, came to my office one day last July and said, "I have been looking for you for several weeks. I want to show you something. Come out to my car." We went to his car which was parked in front of my office. He had about fifty gallon-baskets of as luscious, highly colored, and as large peaches as I had ever seen.

After I had feasted my eyes on them, Mr. Matthews remarked, "Do you remember our talk down at the county farm last January? You told me not to cut down those old peach trees on the hill back of my house; that if I would spray them and give them proper attention, I would get good peaches. I did not have much faith in doing anything with those old trees, for they have been out there for at least 12 years and they have not done much in all that time.

“I VENTURE to say that during the last five years we have not gotten a single perfect peach from all of the trees, including some 20 or 30 besides the trees that are there now. I have been cutting down peach trees for the last three or four years. However, I followed your instructions and you see the results yourself. It is easy to sell

these peaches, too. Everybody in town seems to want them because they are free from worms and rot and keep for days after gathering.”

Mr. Matthews took his peaches to a hotel across the street and sold the entire lot for \$15.00. After eating all they wanted at home and canning over two bushels, by the end of the season, Mr. Matthews had sold \$162.00 worth of peaches.

Mr. Matthews' experience is just one illustration of the change that has taken place in the home orchards of this county, during the last few years, and to some extent in the counties adjoining us.

In this county alone there are about 1000 plantings that originally were intended to be home orchards. The fruit trees were planted in the orchards primarily to give abundant fruit to the family



One of O. T. Adams' money-makers

during the summer and to furnish a surplus to be canned for winter use. Prior to 1923, practically none of these orchards produced enough for the families of the farmers owning the orchards. Seldom was there a surplus to save for winter or to sell in the towns. The same was true of the surrounding territory.

But a change is taking place. I know of about 100 farmers who have made successful efforts to care for the trees in their home orchards this season. A few illustrations will show the results obtained by these people.

PAUL FLEMING, a member of the Clarke County Pig Club in 1924, attended a pruning and spraying demonstration in the spring of that year. He went home and sprayed and pruned some real old peach trees. These

trees had been neglected for years and were in extremely poor condition. They were only half of the old trees on the farm. From the trees that Paul worked with the family got an abundance of fruit for their use, and Paul sold over \$100.00 worth of peaches alone at the Athens Curb Market during the summer of 1924.

Mrs. W. L. Childs, a large poultry raiser about 10 miles southeast of town, had a few scale infested peach and plumb trees which were absolutely non-productive and on the verge of dying, when I got to them in the spring of 1923. Mrs. Childs followed instructions faithfully.

Results: last year she had all of the fruit she could use. This season some of the old trees bore three and four bushels of perfect peaches. She had too many peaches for home use and had to hunt up old friends to help her use them.

Still another illustration: Henry Dunlap, a poultryman near Winterville, Ga., had 40 peach, plum and apple trees that were about to go out. He also had a few grape vines. We had to cut some of the peach trees back to mere stubs to get the dead wood removed in 1923. These trees, with the exception of three, have made new heads and are in good condition now. One of these old scale infested peach trees bore enough peaches to bring Henry \$12.45 at the curb market this summer. Mrs. Dunlap canned 75 quarts. Henry's cash return this season was \$106.00.

(Turn to page 36)

The Abomination Called New Thought

B y E . W . H o w e



DO not believe in the abomination called New Thought. I write no new and profound symphonies, but persistently sing the old songs the world has accepted as a basis for human conduct. I produce no new literature; I never have, and do not intend to. The opinions I express are not mine. Except when I am mistaken in interpreting history, the opinions I express are the opinions of the world. I do not know of a single new thought I accept, or an old one I reject if it has been accepted many years by a majority of intelligent men.

I believe in any system the people have tried a long time, and found expedient. The plans men have adopted are better than plans they have talked about, and neglected to put into effect because of doubts of their utility. There is something wrong with every doctrine the majority does not put into effect. I do not believe that mankind, after experimenting with life thousands of years, finally adopted the worst system, and steadily refuses to put into effect a better. I am a believer in the people. Whatever they have worked out in their homes, in their places of business, and on the highway and market, I accept as the best they can do.

Anyone who bets on his judgment against the judgment of the world will lose. In everything in which a man is interested, the world knows what is best for him. It has learned from experience, best of all teachers. Millions of men have lived millions of years, and tried everything. The results of these experiments have passed down from the first to the last generation. Everywhere there is an undercurrent of truth of which anyone may take advantage.

There are many things you do not know. Who does know them? Those who have lived longer, had more experience, or have greater or clearer brain power. There are such men in every community willing to talk, if you will listen.

Everything of value gets into conversation and print. Because of its value, it travels. Some one in your community will read or hear it, and repeat it. The old sayings we quote from day to day represent the wisdom of countless ages.

Make new efforts, attempt to find better ways, certainly, but unless you have the encouragement of the best old thought, you will fail. A new thought is dangerous until the people have picked at it at least a hundred years.



GRAY

Goes to

P.I.C.A.

SAMUEL D. GRAY recently joined the Soil and Crop Service of the Potash Importing Corporation of America as agronomist. It is felt among agricultural workers, where Gray is well-known, that the company is fortunate in securing the services of a man so thoroughly trained.

Mr. Gray was born and reared on a farm in Southern Maryland. His early schooling was in the little log schoolhouse typical of that region, in an atmosphere of real plantation life. The home farm of something over 1,000 acres is what remains of the whole county, formerly a land grant to forbears on his mother's side—to be exact—granted in 1634 by King James of England to Bishop Clagette, first bishop to this country from the Church of England.

Early in his youth, Gray elected agriculture as his life's work and all of his time during vacations while at the University and since have been spent on the home farm. It was on this farm that the first successful field of alfalfa over one acre in size in Maryland was grown. Twelve acres of the crop were planted by Gray in 1916 and produced abundantly from three to four cuttings a year until 1924, when it was plowed for the first time.

He entered the University of Maryland as a student of agronomy in the fall of 1906, graduating with honors in 1910—B. S. degree.

Immediately after graduating he was appointed Field Agent, United States Department of Agriculture, and for nearly two years was in charge of rice investigations in Texas. As a result of experimental work conducted in Texas, the production of rice became in a very few years one of the state's leading agricultural enterprises.

Following associations formed in Texas, Gray was appointed Supervisor of Vocational Education in Maryland, which position he held until January, 1914, when he resigned to complete work for a Master's Degree at the University of Maryland, receiving the degree in June of that year.

From June, 1914, to September, 1916, he traveled extensively in South America and the West Indies, and was Assistant Professor of Agronomy at the University of Porto Rico from September, 1915, to September, 1916.

In September, 1916, Gray was appointed Associate Agrostologist, Office of Forage Crop Investigations, United States Department of Agriculture.

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¶ *The odoriferous Skunk is about to come into its own. Read Uncle Sam's suggestions about this "pretty pussy" and other fur bearers.*

Conserving Furs for Madam

By Frank G. Ashbrook

In Charge Fur Resources, Bureau of Biological Survey,
U. S. Department of Agriculture.

THE fur resources of the United States have gone too long without receiving the full attention they deserve.

This may be attributed largely to the fact that the fur trader of the past was interested chiefly in the quantity of pelts he could collect, and the manufacturer cared little about the origin of his raw material. Europe was so long supreme in fur dressing that American furriers came to regard the Old World as the essential source of their supplies. When finally the dressing of furs became an established industry in the United States, it was discovered that some

of the more valuable fur animals had almost disappeared from our forests and streams, and that the northern Canadian Provinces remained the most important source of fine furs.

True, the muskrat, the skunk, and a few other species are left in considerable numbers, but the remnants of our once rich fur resources are fast dwindling under the conditions which have prevailed during the past century. Governmental aid in the study and conservation of our fur-bearing animals has been one of the authorized projects of the Biological Survey of the United States Department of Agriculture.

The present shortage of furs is not due entirely to trapping or to trapping methods. Much of it is



caused by our wasteful methods of handling important natural resources. Conspicuous among these are our indiscriminate felling of old forests, draining marshes, and other activities whereby the fur-producing areas have been greatly reduced. The fact that trappers so long plied their trade out of season without hindrance is another cause of the shortage and one which still needs correction in many parts of the country. A bounty system which offers rewards for killing valuable fur animals at any season of the year has contributed its share in stimulating the destruction.

While the prospects for an adequate future supply of furs in the United States are not promising, they are not entirely hopeless. There is still opportunity to retrieve the losses. Many states have already enacted laws making a close season on fur animals during the warmer months, and it is probable that such legislation will soon extend to all states. A frequent defect in present laws for fur protection is that the open season is too long, permitting trapping before the pelts are prime in fall, or after breeding is in progress in spring. The legislation already enacted, however, is an indication that the importance of the fur resources is at last receiving attention and appreciation.

FUR-BEARING animals in captivity are studied by the United States Department of Agriculture to determine economical methods of raising them; to ascertain conditions under which the various species can be raised profitably and produce good fur; to develop by selective breeding, gestation, whelping, and prime fur periods; and to investi-

gate diseases and parasites of the fur bearers for the purpose of determining methods of prevention and treatment. In developing this project, the policy has always been to maintain an open-minded attitude toward all concerned. At no time has it been the intention or desire of the Government to jeopardize the fur industry.

The work is at present conducted on an experimental fur farm situated in the foothills of the Adirondack Mountains, a section of the country celebrated for the fine fur it produces. The site is three and one-half miles northeast of Saratoga Springs on an excellent State road leading from that city to Corinth. The farm is open to the general public from 10:00 a. m. to 4:00 p. m. on Wednesdays and Sundays from June 1 to December 1.

It is the plan of the Department



of Agriculture to establish an experimental fur farm in Alaska as soon as funds are available for the purpose. The main object of an experimental fur farm is to obtain information which will be of value in helping to determine the most efficient and economical methods of maintaining the supply of fur-bearing animals.

The work of the Department of Agriculture with fur bearers, however, does not end with the study of these animals in captivity. If the fur industry is to develop along progressive lines, the source of supply should be more definitely assured. At present, there are no authentic data relating to the increase or decrease of fur-bearing animals in this country. The Department of Agriculture has been, and still is, working diligently to collect from all available sources statistics pertaining to the annual catch of fur animals in the various states, and in the collection of such figures it solicits the hearty cooperation of all agencies.

and promoting measures to effect such conservation. Valuable assistance has been rendered by other organizations in helping to bring the facts before the people. State legislatures, conservation commissions, fish and game commissions, State departments of agriculture, and State universities should become active centers of propaganda for wild life conservation, not confining themselves merely to their own particular interests, but dealing with the subject in its broadest aspects.

Lack of proper information on the part of farmers, trappers, conservationists, legislators, and the fur trade is mainly responsible for the inadequate laws pertaining to fur bearers.

It is not everywhere appreciated that fur animals are a great asset to the States, and very few persons have any idea of the annual income derived from the furs produced. It is not generally known that the pelts of fur-bearing animals are of real commercial value



F. G. Ashbrook getting acquainted with a red fox on the U. S. Exp. Fur Farm, Saratoga Springs, New York

The Biological Survey has taken a leading part in molding public opinion as to the importance of conserving our wild life resources

during only a limited period of each year. The killing of fur bearers in fall and late in spring,

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From the number of replies, every state in the Union must have an outstanding cooperative. Fine, but before the judges got through, they wished they had requested a "complimentary" cigar with each manuscript. However, we tried to be as fair as possible, not even letting the thoughts of sunny California influence our chilly New York souls. Mr. Hostetler in a direct manner has pictured a cooperative of many years' standing. Age is a pretty good test of a cooperative. Close runners in the contest include Wm. W. Bathlot, C. L. McNelly, S. B. Cleland, C. M. Conner, L. W. Taylor, J. W. Firor, C. A. LeClair, and Mark Havenhill.

THE EDITOR.

Cooperative Success

PRIZE-WINNING ARTICLE

By V. V. Hostetler

Covina, Los Angeles County, California

THE California Fruit Growers' Exchange is one of the outstanding cooperative systems of the agricultural, if not the entire commercial world. The threatened collapse of the citrus industry necessitated its development which was successfully attained after several years of experiment and mistakes.

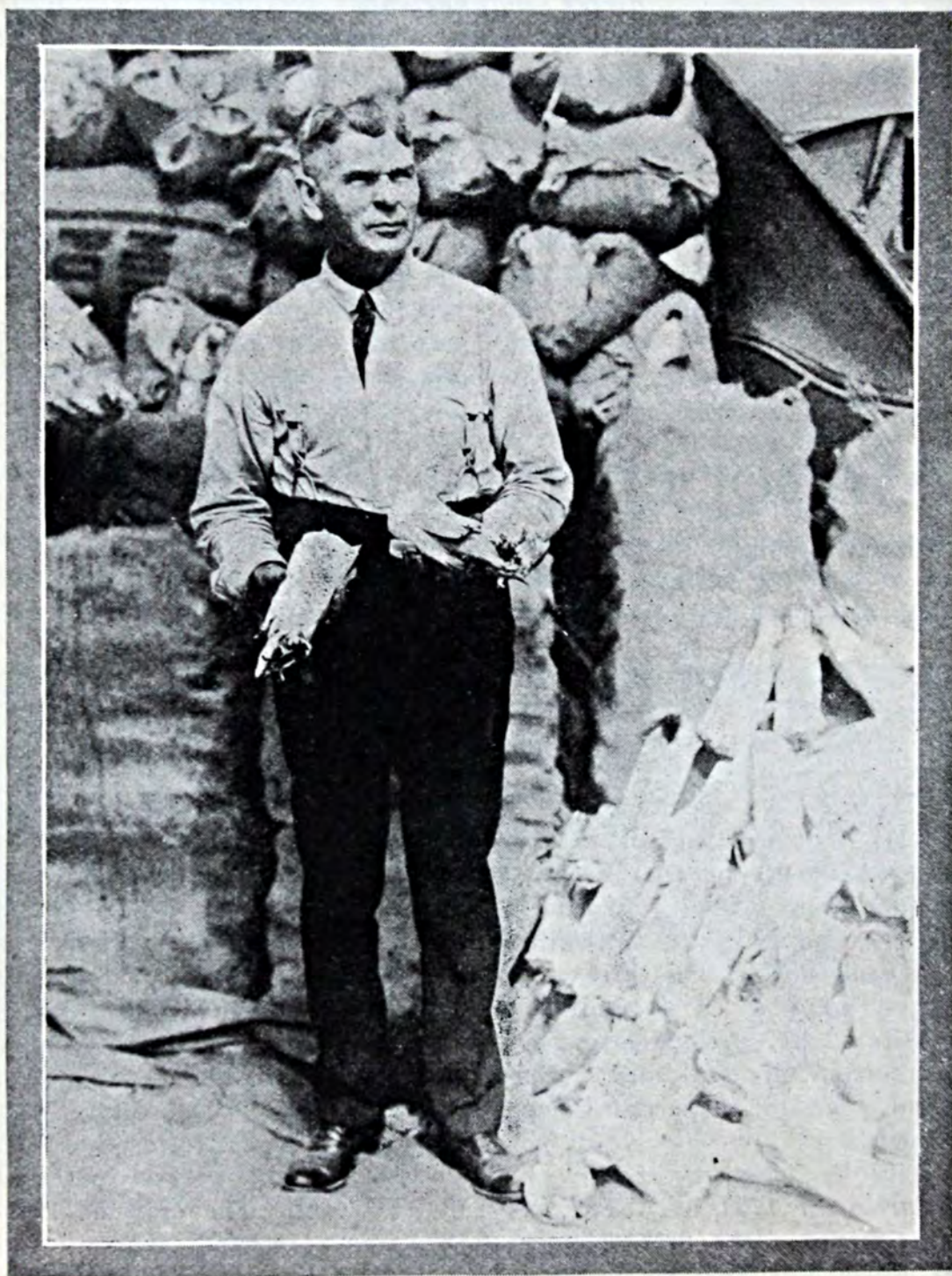
Citrus fruits were brought to California in 1769 by the Franciscan monks. The first commercial grove was planted by William Wolfskill of Los Angeles in 1841 and for a few years netted a return of \$1000 per acre. In 1882 there were a half million bearing orange trees in the state.

Two factors were conducive to the development of the industry early in the eighties: increased transportation facilities, and the introduction by the Department of Agriculture of the navel orange from Brazil to Riverside County to which it was peculiarly adapted. The first car of oranges was shipped from California in 1877. In ten years the output increased to 2200 cars. The crop of 1889-1890 was 3476 cars.

Oranges were at this time a luxury used almost exclusively during the holidays. When the shipments passed the 2000-car mark the supply surpassed the demand. In

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Better Crops' ART GALLERY *of the month*



Hail the Corn Husk King of America—W. E. Blain, Wichita, Kansas! Mr. Blain has made more money than the average successful banker by buying and selling corn husks to be used for hot tamale wrappers. The reason he doesn't make more is because he cannot get enough corn husks.



THE 1926 soils program of Stevens county, Washington, will be centered entirely on the increased production of forage crops through the use of superphosphate and potash fertilizers to supplement barnyard manure.

The benefits to be derived from such practice were clearly demon-

strated during 1925 on the farm of Smith Salsbury, on peat soil—which type represents the larger part of the soils of this county.

Mr. Salsbury in company with Leonard Hegnauer, soils and crops specialist, Washington State College, is shown in the unfertilized and fertilized portions of his field.

H. J. Plumb, Stevens County Agt.





Worcester County, Maryland, produces thousands of bushels of certified seed potatoes. County Agent E. I. Oswald sealing a bag



Where two potatoes make a load. Little David Klemm holding some potatoes grown on Long Island, N. Y. Each potato weighed nearly a pound

SPEEDING

Up the SPUDS?

By Cannon C. Hearne

State Extension Agent, University of Missouri

¶ *A "Show Me" farmer gets his answer.*

INVESTING \$14.20 and in less than a year getting a return of \$156 sounds like an oil story from Oklahoma. This happened, however, in Jefferson County, Missouri, and with Irish potatoes, not oil.

Mr. Barney Becker, Kimmswick, Missouri, under the direction of E. T. Itschner, County Extension Agent of the Missouri College of Agriculture, planted part of his early potato field this year with certified Irish Cobbler seed from Kennedy, Minnesota. The certified seed was treated by the corrosive sublimate method (4 ounces corrosive sublimate to each 30 gallons of water at a temperature of 60° F. in which the potatoes in sacks were immersed for 1 1/2 hours and then allowed to dry before cutting). Before planting that part of the field received an application of 350 pounds of 2-12-4 fertilizer.

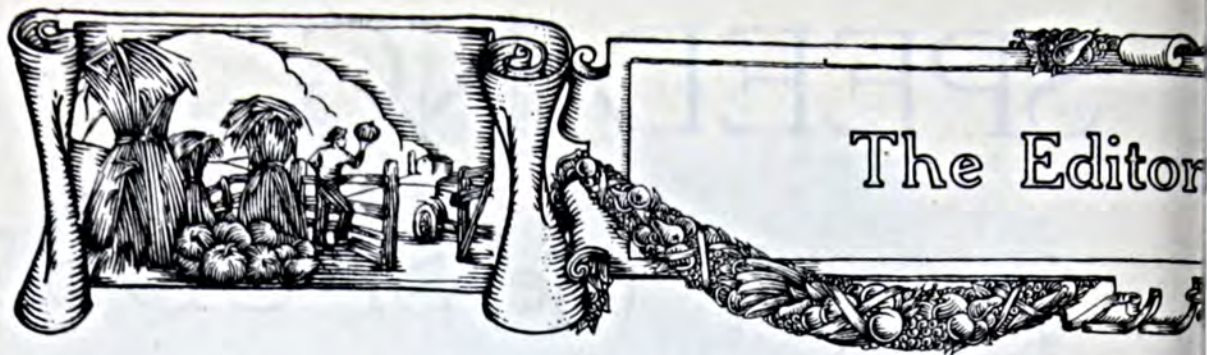
The remainder of the field was planted with home-grown seed of the same variety, without seed treatment and without fertilizer.

A heavy freeze occurred on the morning of May 25. In spite of

this freeze, at digging time Mr. Becker obtained 154.1 bushels per acre from the certified, treated, and fertilized plot of which 67 per cent were No. 1 grade potatoes and 33 per cent No. 2 grade. The home-grown seed which had received no treatment or fertilizer yielded 75 bushels per acre, of which 38.8 per cent were No. 1 grade and 61.1 per cent No. 2 grade.

At digging time Mr. Becker was getting \$2.00 per bushel for No. 1 grade and \$1.20 for the No. 2 grade. On this basis the certified, treated, and fertilized seed returned \$268 worth of potatoes, while from the home-grown, non-treated, non-fertilized seed only \$112 per acre could be sold.

THE use of certified seed, seed treatment, and fertilizer gave an increase in the total yield of 105 per cent and an increase in income of 139 per cent due to the higher per cent of No. 1 grade potatoes. By an additional expenditure of
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WATCH The burning question of the day is tax reduction.
WASTERS The Federal Government is setting its house in order, reducing its expenses and handling its finances on a businesslike, scientific plan. The result is relief for all of us in payment of Federal taxes.

But this relief is of but small benefit to us if state and local taxes are allowed to take their upward flight and state and local indebtedness be allowed to increase. While the Federal Government and Congress have been forced by a united demand from the people to stop waste and get down to business, the wasters in state and local governments have carried on an amazing orgy of needless spending, increasing our public debt and piling on the backs of this and future generations a load of taxes that has become unbearable.

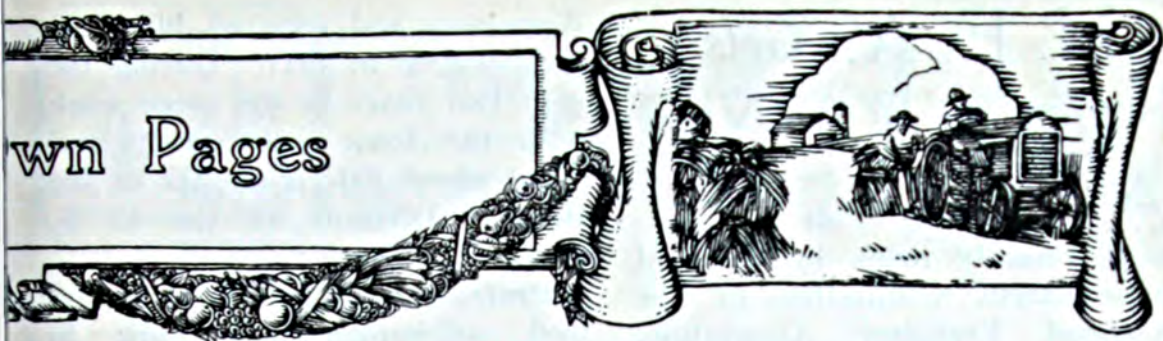
The time to call a halt before we are all in the poor house is now, not later on, **BUT RIGHT NOW.**

What good does a decrease in the Federal debt do the taxpayer and the country at large if state and municipal indebtedness is increasing at a greater pace?

The net result to you and your children is increased taxes, the fault of which lies entirely at the door of local wasters. You have them right in your community, you who are reading these pages. And it is up to you to help put a stop to it.

This magazine is sent out to the advisers of farmers. The tax question hits every farmer in this country, not only directly but indirectly in that taxes add to the cost of every item in the budget of farm life. Why not start right out now and point out to him that these wasters of the public money should not only be watched—they should be warned, seriously warned that unless they stop adding to the public debt, they will be missing in the ranks of the country's politicians? Why not point out that all proposals calling for bond issues should be voted down by the farmer whether they are for good or wasteful purposes? That if they are needed they should be paid for as we go along?

The farmer has been compelled to practise economy to a degree that has forced him at times to postpone the purchase of



many urgently needed articles. He has patched up the old Ford and forgotten the high-priced car he would like.

But his tax money has undergone no such pinching. It has been spent in the last few years of hard times on the farm with a free and easy hand by those who pose as his best friend just before election.

Why not tell the gentlemen to "patch up the Ford"? Or better still, send those who have been especially free with his money into oblivion. Hang a sign on them so all may read, "He wasted our money." Note how anxious Congress is to reduce taxes. The sign was hung on some of them last year. Try it on some of the gentlemen at home. It will save you some taxes.

E K Howz

THANKSGIVING More than 300 years ago a little band of American farmers—on the rocky coast of New England, in the face of all sorts of hardships—saw fit to set aside a day of praise for the mercies of the year past.

They set us a good example. They made the most of everything. They had the power and ability to see Life as a magnificent whole.

Too many of us now see only the "spare parts." Too often we adopt the attitude of digging—as though we had to work hard to find something for which to be thankful.

This is hardly fair to ourselves. For the day let's be thankful without reservations for all things. It will do us good—like going out and taking a deep breath of fresh air. The sickest man will be better for a deep breath of thankfulness.

N. F. A. Gets Professor WARNER

ACCORDING to an announcement recently made by the Soil Improvement Committee of the National Fertilizer Association, Professor H. W. Warner, of Ames, Iowa, has been appointed Agricultural Editor of the Northwestern Division of that organization.



Professor Warner has been Extension Professor of Soils at Iowa State College and for the past six years has had charge of the soil-improvement campaign that has been put on throughout that State. Although still a young man, he has had considerable experience in agricultural affairs.

Born and raised on a farm in South Dakota, he entered South Dakota State College in 1912 and graduated in 1916. That same year he entered Iowa State College as a post-graduate student in

Agronomy and received his Master's degree in 1917. During the next two years he did some work with the Iowa Soil Survey and spent about fifteen months in the Balloon Division of the U. S. Army Air Service.

Professor Warner has popularized soil-improvement work in Iowa; he has conducted alfalfa tours in many counties; he wrote and directed the production of a two-reel educational film, entitled "Pay Dirt," and has written bulletins on a number of soil-improvement subjects. In addition to his regular work, he has served as a special writer for a large number of farm and daily papers.

Professor Warner arrived in Washington about October 15th and will spend a large part of his time in editorial and publicity work.

* * *

They Said IT with a Coal House

E. A. WILLIAMS, state agent for extension work among the negroes in Georgia, makes report of a successful short course recently held at Washington Institute, Savannah.

Demonstrations were given in step cutting, rafter measurements and cutting, building stove flues, laying off an orchard, pruning, judging livestock, making a seed corn tester, selecting seed corn and making self-feeders for hogs and poultry. The boys were given lessons in fertilizers and legumes that go to build the soil.

The students left a completed coal house to show their appreciation for the use of the grounds and buildings. The students built the house themselves.



FERTILIZER NOTES



OCTOBER was a reactionary month for many of the materials entering into the manufacture of fertilizer, and the close of the period saw a general easing off of values in ammoniates and phosphates. Because of the uncertainty regarding the market outlook on these materials, the manufacturers were not active buyers. Contrasted with this was the firm undertone prevailing in potashes, prices of which are guaranteed, thus enabling the manufacturers to figure their costs ahead with certainty. The average price for five selected grades of potashes remained unaltered at \$1.31 per 100 pounds. The average for the ammoniates was off 5 cents at \$2.61 per 100 pounds, while the average for phosphates showed a decline from 66.75 cents in September to 63.85 cents per 100 pounds in October.

The decline in the ammoniates was due primarily to reductions in prices for tankage, fish scrap, and blood, while the reaction in phosphates was the result of a break in prices for bone materials. Trading in the markets had slowed down considerably during the month, manufacturers holding off the market until conditions become more stabilized.

Labor disturbances at Mejillones, Antofagasta, and Caleta Coloso tended to hold back shipments of nitrate of soda, and advancing ocean freight rates contributed to the stronger market for this ammoniate. Continued scarcity of domestic ammonia sulphate was also a feature of the market.

Considerable discussion was heard in market circles several months ago regarding the necessity of lower prices for Chilean nitrate of soda, to permit of further increase in consumption of that material. Some talk was heard regarding a probable reduction next

year, but at present prices are on the upgrade. A new company will enter into active production in Chile next June, this company being organized by American copper interests. The new entry in the field a few weeks ago sold on the American market \$15,000,000 in bonds to finance its operations. The company in question is reputed to have a new process for nitrate extraction which will cut the production cost 50 percent, and this process, presumably, will be made available to the other producers in Chile, with resultant lowering of costs and selling prices.

In the meantime, development of synthetic nitrogen compounds in Europe is reported to be cutting into the Chilean nitrate market to some extent. According to a report from Paris, the French Government is making satisfactory progress in the construction of its plant at Toulouse, where synthetic ammonia sulphate and other compounds are to be made, under the management of the Powder De-

partment. It is expected that the plant will be placed in operation in June, 1926. Capacity of 500 tons of nitrates per day will be attained when all of the plant is ready for operation. This is about half the production of synthetic nitrogen in Germany, and compares with output of 100,000 tons annually in the United States and about 80,000 tons per year in England. In addition to its increasing production of synthetic nitrogen products, France is getting large quantities of reparation nitrogen from Germany, all of which directly affects the Chilean nitrate situation, and makes necessary further development of other consuming markets if the steadily increasing output of the Chilean product is to be absorbed.

With the fertilizer industry

working back upon a sounder footing, there has been quite a little quickening of competition in the manufacturing end of the mixed fertilizer business. The old established companies are facing more competition by some of the smaller operators who closed down their plants during the period of depression, while a few new companies are reported entering the field. This general anticipation of better times in the industry is reflected by the resumption of acid phosphate manufacture by many of the smaller factors in the South, who had been purchasing their requirements from the larger manufacturers during the dull period following the 1920-21 market debacle, during which time the product was being sold a great part of the time at cost or under.

PRICE TREND IN FERTILIZER MATERIALS

THE FOLLOWING PRICES ARE THE AVERAGE PRICES PER 100 POUNDS FOR FIVE SELECTED* POTASHES, AMMONIATES, AND PHOSPHATES. THE COMPARISONS ARE MADE AGAINST JANUARY 1, 1914, AS REPRESENTING PRE-WAR MARKET VALUES:

Material	Current	Month ago	Six months ago	Year ago	Pre-war Jan. 1, 1914
Potashes.....	\$1.31	\$1.31	\$1.29	\$1.23	\$1.35
Ammoniates...	2.61	2.66	2.55	2.51	2.14
Phosphates...	.6385	.6675	.5780	.5715	.57

* The five selections under each heading are:

POTASHES	AMMONIATES	PHOSPHATES
Kainit, bulk	Sulphate of ammonia	Acid phosphate, 16 per cent
Manure salts, bulk	Blood, dried, New York	Bones, rough, hard, Chicago
Muriate, bulk	Fish scrap, dried, works	Bones, ground steamed, Chicago
Sulphate, bulk	Soda nitrate, spot	Rock, Florida, 68 p.c. works
Magnesia, bags	Tankage ground, New York	Rock, Tennessee, 75 p.c. works



Foreign and International Agriculture.



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy—both of facts and their interpretation.

This month we are devoting most of this section to points of interest for travelers in Holland and Germany. We will be pleased to receive, at any time, unusual observations on agriculture made by any of our readers on their visits to foreign countries.

HOLLAND — Windmills in Holland will soon be a thing of the past. It has been decreed that in the march of modern efficiency, windmills must go. Power pumps pump water cheaper, and they pump it quicker. Windmills may add to the scenery, but they also add to the cost of crop production and under modern methods they cannot be used any longer.

A large part of Holland, as everyone knows, is below the level of the sea. These areas have been drained. They are divided into "Polders." A polder is an area of land on the same water level surrounded by a canal. (The whole area of drained land is known in Dutch as "Veenkolonien," which means the whole area drained from the sea).

To get the water out of the lower Polder, it is pumped up into the canal surrounding the polder next above it, from there to the next, until the water flows into the river and out to the sea. In this process of pumping the water from the polders, the windmills have been built often in pairs along the canals that line the road-

sides. Windmills are also used for grinding grain.

Friends tell us that 10 years will be all that will be necessary to effect this replacement. In the interest of a picturesque countryside, it may take longer.

Three or four other things impressed us about Dutch agriculture: First, a soil survey under water; second, haying by boat; third, the Dutch auction; fourth, the efficiency in crop production, and in everything first, last and all the time, cleanliness.

Holland has not enough land, or to put it the other way about, Holland has too many people. They are an agricultural people, very few are rich in the modern sense of the term. Only a few Dutch East India merchants are reputed to be in this enviable position. The great majority of the people depend directly or indirectly on the land, and, therefore, it is vitally in their interest to have more land.

The Zuyder Zee takes up a lot of space for little purpose apparently. Why not drain it, have more productive polders, a whole province of new polders? The Dutch people are ambitious in this respect, plans have been prepared, and a survey conducted to determine what is the type of soil at the bottom of the Zuyder Zee.

This brings to the front another somewhat unique land problem. The question is what can be done

for the people who make their living from the waters of the Zuyder Zee. Will they take kindly to cows and pastures?

The quaint old town of Hoorn and others on the Zuyder Zee will become real inland towns, their glory as East Indian trading ports departed for all time.

WE were surprised to notice in some of the fields what looked like a stack of hay moving across the field. In reality, though, it was a load of hay on a boat gliding along the narrow canal through the field. Many such fields can only be reached by boat. Implements are carried to work in this manner and the produce carried away in the same way.

This brings us to the Dutch Auctions. When a farmer wants to sell his produce, say, for instance a load of cabbages, he loads them on his boat and floats along right into the auction room. The canal itself passes through the building where the auction is held. The auction itself is a very clever idea. There is no talking. In many such places it is done by the help of electricity. The central interest is a large pointer that is so constructed that it points in succession to a range of prices. Each prospective buyer sits in his seat opposite the pointer and can stop it by pushing a button. The load of cabbages appears on the barge at the foot of the tier of seats.

The pointer is placed at a price far above what anyone would pay. It then moves slowly over an arc to a lower price. When it touches a price that any buyer will offer, he merely pushes the button and stops it at that point. The clerk then records the sale in his name, the load of cabbages glides out and the sale is over. It is all done very quickly, very quietly, and ef-

ficiently. The auction clerk knows the credit of every buyer and takes good care, apparently, that no one exceeds the limit.

We were told that this peculiar method of bidding originated during Spanish occupancy of Holland. The Spanish placed a tax on sales where buyers bid against each other. The thrifty Dutch, in order to get away from the tax, just reversed the system.

We need hardly add that in a barge load of cabbages, they look exactly alike. They are very carefully graded and show in a practical way the results of intensive and systematic crop production. Neither space nor time is wasted. It is all organized to produce at the greatest profit.

The foregoing applies, of course, to the polder region on the west coast of Holland. East of Utrecht there are large areas of undulating sandy land, where no canals are necessary. The problem here is to build up these light soils to productive capacity. The scientific work pertaining to soils is done at the Experiment Station at Groningen.

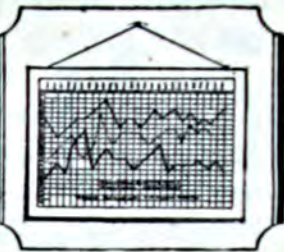
GERMANY — Justus Liebig was an eminent scientist. He was a hard worker and believed in others working hard. In his laboratory, still remaining in Giessen as he used it, is Liebig's private office surrounded by laboratories.

Liebig arrived in Giessen in 1824. One of his first orders was to cut a window in each wall of his office so that he could see his assistants working. An excellent example, though one hundred years old. Then as now apparently, scientific discoveries came, not by dreaming, but by continued and systematic hard work on the part of somebody. This attitude Liebig stimulated to the highest degree.

(Turn to page 41)



AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Studies Cuba's Soils

The readiness of the United States Department of Agriculture to assist neighboring countries with their agricultural problems was well shown during the past year when men from the Bureau of Soils cooperated with the authorities in Cuba in making a preliminary survey of the soils of the Island. In the past the soils there have been known very little and have been very roughly classified as red, mulatto, black, savana, and coco. The soil men found nearly 50 distinct types which have now been defined. They found at least 4 classes of red soils, some of them peculiarly adapted to sugar cane, the most important crop on the Island, and some of them not adapted to the crop at all.

One of the first results of the study, which was made at the suggestion of the Tropical Plant Research Foundation, has been the inauguration of fertilizer experiments on soils most suitable for sugar cane growing.

The Meat and Cheese Skipper

The cheese skipper, the larva or maggot of a very small active fly, has been doing a great deal of injury to smoked meats. The last few years some new facts have been brought out regarding this destructive pest.

Dr. Perez Simmons, in the Bureau of Entomology, found that wire cloth of 20 meshes per inch, formerly thought to be fine enough to exclude the flies, is not

effective. He has found that it is necessary to have 30 meshes per inch to keep them out. Other recommendations, in addition to proper screening of rooms in which cured meats are stored, are that allowing smoked meats to cool in unscreened houses should be abandoned; newly smoked meats are most attractive to flies and they are almost certain to infest meat in warm weather if it is left unprotected. Although wrapping of smoked meats is a good protection, this does not do away with the necessity for screen protection before the wrapping is done.

In addition to ham, bacon and cheese, the skipper attacks dried beef, salt pork, fish, carrion, and bones. Bones are a breeding place for the flies and care should be taken that such breeding places do not exist near stores of cured meats. Prevention has been found to be better than cure. Insecticides that are effective for many other insects fail utterly with this insect which is very resistant in its larval stage. It resists heat in such a way as to remind us of the fabled salamander. Four hours heating at 122 to 124° F. did not destroy the activity of full grown larvae. When the temperature was dropped to 5° F. for more than 60 hours it did not prevent their ultimate development. They can resist starvation for months even in hot weather. To free infested rooms after the meat has been removed it is necessary to

fumigate with hydrocyanic acid gas.

This insect has been known longer than most economic pests, the first reference in literature occurring in 1567. It is ceasing to be much of a factor as a cheese pest but is now the worst pest of cured meat.

Improved Phosphoric Acid Method

The furnace method of recovering phosphoric acid from phosphate rock, developed by the Bureau of Soils, has recently been improved by the discovery that almost complete recovery can be made by using a lower temperature than was thought necessary before. The high heat used in this process to vaporize the phosphoric acid caused certain mechanical difficulties in the plant which, the investigators say, will now be minimized.

Lime Pays on Spinach

In garden fertility experiments at the New Hampshire Station it was found that lime produced exceptionally good results on spinach but was not much needed on squash plots. Spinach on land that had been limed yielded 72 per cent more than on unlimed land. The good effect of lime was more apparent where no manure was used. When squashes were grown in these tests lime brought only a 4 per cent increase.

First Licensed Warehouse for Dried Fruit

The Federal warehouse act continues to draw customers and to hold a large number of satisfied ones in various fields. Recently the first license covering the storage of dried fruit under this act was issued to a firm at Tres Pinos, California. This warehouse has a capacity of 1,000 tons and provides storage for dried prunes.

World Census Work Goes On

Leon M. Estabrook, formerly of the Department of Agriculture and now Director of the World Census project, recently wrote to one of his former associates concerning his work which is being carried on in connection with the International Institute of Agriculture in Rome. After mentioning many things dear to the heart of the statistician he lightens the weight of his communication with the following: "Last week I read an outline of a proposed census survey drawn up by the Indian Economic Enquiry Committee, and was struck by the juxtaposition of two items, 'elephants' on one line and 'bees' on the next, with absolutely nothing to indicate the kind of information to be obtained regarding these two important classes of animals, such as numbers, sex, age, or value."

* * *

ASSURANCE DOUBLY SURE

"Glad to see you getting in on time these mornings, Mr. Slowe," said the manager.

"Yes, sir, I've got a parrot now."

"A parrot. What for? I advised you to get an alarm clock."

"I did sir, but after a few mornings I got used to it, and it failed to wake me. So I got a parrot and now when I retire I hang the alarm clock over his cage. It wakes the parrot, and what the bird says would arouse anybody."—Boston Transcript.

* * *

Boss—"Well, did you read the letter I sent you?"

Office Boy—"Yes, sir; I read it inside and outside. On the inside it said, 'You are fired,' and on the outside it said, 'Return in five days,' so here I am."—Pennsylvania Farmer.



REVIEWS



Increasing Potato Yields, University of Missouri, Circular No. 163

Extension Circular No. 163, University of Missouri, written by E. M. Page, presents in an attractive form some essentials of successful potato growing in Missouri.

In 32 field demonstrations in 12 counties in 1924, an average increase in yield of 62.9 bushels per acre for certified seed over common seed was shown. In 1923 the average increase in yield was 84.8 bushels per acre.

The importance of seed treatment for control of rhizoctonia blackleg and scab is stressed. Ten potato seed treatment demonstrations in 3 counties show increases of from 7.2 to 40 bushels per acre for hot formaldehyde and from 24 to 35 bushels per acre increases for corrosive sublimate treatments.

Applied at the average rate of 381 pounds per acre on 35 demonstration fields in 9 counties, commercial fertilizer gave an average increase of 47.2 bushels per acre. Recommendations for use of commercial fertilizer for early potatoes in Missouri call for about 500 lbs. per acre. For soils of medium fertility use 3-12-4 formula: On better soils 2-12-2 and for soils low in potash use a 2-12-6. On very fertile soils, acid phosphate alone should be used.

For the Missouri farmer interested in bigger yields and greater profits from potato growing, we feel this bulletin ably points the way. It presents abundant evidence of the importance of field

demonstrations and should be a valuable guide.

A Study of the Secondary Effects of Hill Fertilization, Iowa State College, Research Bulletin 87

An interesting discussion of the secondary effect of hill fertilization is given in Research Bulletin 87 by Horace J. Harper of the Iowa Experiment Station.

A vast amount of literature is reviewed and deductions are ably drawn and presented. Field, laboratory, and greenhouse study supplementing the research made by numerous investigators make this bulletin a valuable contribution to the student or teacher of soils and fertilizers.

Of particular interest is the opinion expressed and concurred in by several investigators, that there is need for considerable experimenting by manufacturers of fertilizer machinery. Poor results from fertilizer applications are too frequently traced to poor distribution of fertilizers in the soil.

To fertilizer distributor manufacturers, and chemists and teachers and to students of soils, we recommend this bulletin for careful study and as a valuable reference.

Profits from Phosphates, University of Wisconsin, Bulletin 376

The study of phosphates in the fertilization of farm crops is important in any careful analysis of the crop needs. Whitson and Richards in their discussion of

Profits from Phosphates, Bulletin 376, Wisconsin Experiment Station, ably present results of extensive experiments with the use of phosphates on Wisconsin soils.

Experimental data reveals that more than half of the soils of Wisconsin would be benefited by an application of phosphate fertilizer. The present need for liberal phosphate applications is undoubtedly due to years of continual cropping to wheat.

Trials with 16 per cent acid phosphate applied at a rate of 400 lbs. per acre resulted in average acre increases of 8.5 bushels for oats, 4.2 bushels for barley, 838 lbs. for alfalfa and 941 lbs. for clover. It is estimated that the value of the increases above noted and the phosphorus returned in the crop residue and manure returned to the soil in each case, is about 4 times the cost of the phosphate used.

The authors stress the phosphate need of different types of soils and urge farmers to resort to field trial plats on their own farms, as the quickest and most satisfactory way of learning the phosphate requirement of their soil. Much interesting and valuable information on potash, lime and manure is to be found in this bulletin. Important also is their discussion of the phosphate needs of special crops.

Every Wisconsin farmer interested in the conservation of the fertility of his soil should read this bulletin. His success in a large measure at least depends upon the principles of fertilizing Wisconsin soils so clearly presented by the authors.

The Illinois System of Permanent Soil Fertility, University of Illinois, Circular 298

Among the most valuable scientific contributions to the agriculture of the north central states was the development of "The Illi-

nois System of Permanent Soil Fertility."

The conception of this work by the late Cyril G. Hopkins of Illinois in 1910 was the real beginning of serious soil study in this country. His great contributions were the gathering together, studying, interpreting, classifying, and unifying all the known facts regarding soil fertility.

Louie H. Smith, chief in charge of publication of the soil survey in Illinois, fittingly sums up in a recent circular the effect of the Illinois System on the permanency of agriculture in that state.

One of the most significant developments after 25 years of intensive experimental study of Illinois fertility problems on more than 50 experiment fields under a wide variety of soil types, farming systems, and economic conditions, is that soils are unlike in their response to fertilizer treatment.

Some interesting things revealed by the study of the Illinois System are:

1. Some soils show special response to application of organic matter.
2. On some soils limestone is the foremost requirement.
3. Phosphorus hunger strikingly illustrated on some soils.
4. Benefit from potassium salts limited to a few acres. The greatest increase from use of potassium was in that part of the state south of Odin, demonstrated conclusively on the experiment fields at Odin, Ewing and Union Grove. The type of soil prevailing there was principally gray silt loam. The muck soils in every case responded profitably to liberal potash applications.

Every farmer interested in the fertilizer problems of his own soil would do well to send for Circular 298, University of Illinois, Urbana, Illinois.

Kernels From Cobb

(From page 7)

as stimulants of deep interest in his work. One week when he was pressed for time to produce his regular story he substituted a collection of short paragraphs about things he had observed about the county, including references to persons and places. There was an immediate flare of interest and a demand that he keep the paragraph pot boiling. Since then Cobb has been a paragrapher of no mean success. The editor of the Wicomico News gave him a regular double column now known as Cobb's Column, which often runs over into some other writer's space.

Since the Column became a looked-for feature, getting movements going for local agriculture and for many other activities has been much easier than before. If something worthwhile moves like cold molasses, a little friction from Cobb's Column warms it up. He praises the enthusiasts and "bawls" out the lukewarm members of the community, but the results show he knows how to do it. Recently he advertised through a paragraph a quantity of seed available for trial in the county, but got only two or three requests. Another paragraph on the "uselessness of sowing seed on stony ground," which he intimated he was doing, brought 19 telephone calls for the seed the day after the paper was issued.

IN addition to improving the spirit of the community and its agriculture, Cobb has been a real factor in advertising it, for there are a few readers of this county-seat paper in various parts of the

country. As a result letters have been received from a number of states asking about conditions on the Eastern Shore or for more details regarding some practice mentioned in a paragraph.

The upper right hand corner of the Column carries a symbol of welcome to everybody, a picture of the open door to the county agent's office in the court house. Below it is this paragraph:

"Your county agent is on hand to work with you. He is in touch with all of the work of the State experiment stations and he also knows what the other farmers in your county are doing."

A few paragraphs will show the flavor of the product of Cobb's observations and musings. They are taken from the Column written shortly after his return from a trip to southern New Jersey, those grown in Wicomico County.

"The first welcome sign we saw on entering New Jersey was 'Gas 19 cts.' and on the whole trip we never paid more than 21 cents for that necessity."

"We found the County Agent in Cape May county, W. Collins Thomas, doing the same efficient work he did while in our own State of Maryland. It was due to his efforts and cooperation that we were able to visit many farms and get pointers on the agriculture of the section."

"Another impression that one gets in Jersey is that roadside markets are a paying proposition if numbers are any criterion. In some cases we felt that these markets were used as an excuse for the man on the place to loaf

(Turn to page 37)

New Peaches From Old Trees

(From Page 13)

N U M E R O U S illustrations could be given of similar experiences. A conservative estimate shows that around \$10,000 worth of fruits have been sold in Athens during the past season from trees which a few years ago were considered worthless or nearly so. Besides this several hundred farm families have had an abundance of peaches, plums and grapes. Plans are being made on every side to plant out new home orchards this fall.

My purpose in writing this story is not limited to telling of how a hundred or more farmers in this section have put new peaches on old trees; but I want to go a step farther and give my experiences in getting the practices that were used across to the farmers.

When I started work in Clarke County, Georgia, in 1923, as county agricultural agent, I found

farmers generally convinced that it was not possible to raise peaches like "they used to just grow when I was a boy." Also I knew from years of work with fruits that the limiting factors to peach production in this section were, the San Jose scale, borers that infest the crowns of the trees, the curculio which causes wormy fruit, brown rot and scab. I knew that they could be controlled successfully.

But, and here was the difficulty, it was not easy to get farmers generally to undertake the practices necessary to eliminate these troubles. I just had to get a toehold somewhere and show them.

S O, in the spring of 1923, I found a small vegetable grower who had 133 peach trees from which he wanted to supplement his income. He had been talking with



G. C. Carney & Son demonstrate that Old Trees Pay

the extension horticulturist from the State College of Agriculture and was already convinced that sound fruit could be grown. He agreed to let me use his orchard as a demonstration center—a place where the things we had been talking about could be put into actual practice and shown to the other farmers who would be interested.

This man was O. T. Adams who from these 133 trees sold \$325.00 worth of peaches in 1923, \$719.00 in 1924 and will sell about \$400.00 worth this year when the final figures are gotten.

IN the fall of 1923, I started five additional demonstrations well placed over the county so as to put practically every farmer in the county close to an actual demonstration.

As a follow up to this I sent articles to the local papers telling what practices were being used at these demonstration centers. From time to time as result-data were gathered these likewise were published.

By the fall of 1924 I had sufficient facts to make a county-wide drive. A circular letter carefully prepared, short and to the point, was sent to practically every farmer in the county. It was also published in the Athens Banner-Herald, the local daily. This in turn was followed up by short articles, by personal visits and by field meetings at the demonstration centers. Within four weeks from the time the circular letter was mailed, I received approximately 200 calls for information about practices needed to be applied in producing good fruit.

From these experiences I feel certain that the best plan that can be used in getting across to farmers and others any sound, common sense, system of production—any scheme of modern prac-

tices, is to first get the plan formulated, then demonstrate it on farms under local farming conditions, and after this be sure to follow it up vigorously and persistently, using every facility available to get the actual results obtained before as many people as possible. In this way—"New Peaches Can Be Gotten From Old Trees."

* * *

Kernels From Cobb

(From page 35)

around in the shade as there was practically no produce displayed and the whole effect was one of just killing time. But in the main these stands were attractive with a large amount of produce on display and alert salesmen waiting on trade. We made a somewhat extended study of this particular part of the farming game as it is one that our farmers have neglected."

Who isn't interested in cheaper gas, even if it is in some other State? Then there is a reference to an old friend who has moved to pastures new. There is a bit of shrewd observation in the third paragraph and an urge to farmers to look into roadside marketing. He continues with some home news and suggestions:

"J. Raymond Parker has a mighty fine pair of twin calves on his place and he may be induced to carry them to the Fair, although he is not certain at this time. Ray has always had very good cows on his place that have been heavy producers of rich milk and now he is too modest to show the other fellow the kind of cows and calves that should be kept on every farm. But perhaps we can induce Mrs. Parker to work on

Raymond and as a result have these twins at the Fair this year."

Pages of argument certainly would not budge Raymond so effectively as this well-oiled jack-screw.

"Mrs. David Mansell brought several melons into town this past week that weighed over nine pounds each. The important part to remember is not the size of the 'lopes' but the fact that clover and fertilizer were the factors that made it possible to produce such specimens on land that would grow nothing but weeds two years ago. And clover is given the credit largely as fertilizer was used before. A mighty good combination is clover or some other legume plus fertilizer plus thorough preparation of the soil plus constant attention and hard work."

And then there is a simple and sincere obituary:

"It seems the Grim Reaper is taking many of our good friends lately, and we are missing them already. John Dulany was perhaps one of the best friends and cooperators that we have ever had since coming to Wicomico County. Always willing to do anything that would help us in our efforts to put something across for the other fellow and always ready to do more than his share, was one of Mr. Dulany's strong points. We are fortunate, however, in having in his son Ralph another who never hesitates or objects to doing things for us that will help the work."

They say in Wicomico County that the county agent's work is now built around Cobb's Column. Every farmer and many folks in town feel they are connected to the community through it.

Solving Corn Nutrition Problems

(From page 6)

correlate such deficiencies to certain soil types, or farming systems.

For these reasons, field surveys were commenced on September 1st.

In one part of the field survey, a study is being made along a line directly east and west—a base line—through southern Illinois, Missouri to central Kansas, then north through Kansas and east again through Nebraska into Iowa and northern Illinois.

Another part of the survey is being made from southern Indiana—east into Ohio, north through central Ohio, thence returning through northeastern Indiana.

In all this work the relation of the nitrate content of the corn stalks is also being determined and correlated.

THE survey carefully records all factors having any influence on the production of the crop, the soil, fertilizers, farming system, the condition of the crop—whether diseased—if so what diseases. Samples of the corn are sent to the laboratory at Purdue University Agricultural Experiment Station and are studied there for various malnutrition symptoms. Such tests are very detailed and systematic in character. Careful records are kept of the field from which each sample has been obtained.

This is in line with one of the important phases of the work—i. e., the correlation of field and laboratory and of the soils and plant physiological viewpoints.

We feel that work of this kind will help towards the solution of the nutritional problems of our corn field.

Speeding Up the Spuds

(From page 23)



LEFT—No fertilizer. RIGHT—350 lbs. per acre 2-12-2 Fertilizer

approximately \$6.40 for certified seed, \$7.00 for fertilizer and 80 cents for seed treatment, or a total of \$14.20 per acre, Mr. Becker received \$156 profit. Ordinarily the cost of producing an acre of potatoes in this section of Missouri is \$50. In Mr. Becker's case, where the yield was 75 bushels per acre, potatoes were produced at a cost of 66 cents per bushel. When he increased his cost per acre to \$64.20 by using the improved methods he reduced his cost per bushel to 41.6 cents through his increased yield of 154.1 bushels.

Mr. Becker's demonstration was only one of several such conducted by County Agent Itschner. Mr. Joseph Ziegler used certified, treated seed in all his field. Half of the field received 2-12-2 fertilizer at the rate of 350 pounds per acre and the remainder of the patch had no fertilizer. The fertilized part yielded 134.7 bushels per acre while the unfertilized area produced 105.8 bushels per acre, an increase of about 29 bush-

els or 27 per cent. At the prevailing price for potatoes, this increase in bushels meant about \$50. After subtracting the cost of fertilizer (\$7.00 per acre), Mr. Ziegler had a net profit of \$43.

Both of these men live in the potato producing section in Northeast Jefferson county. Seventy-five growers in this community treated 1282 bushels of potato seed at a community seed treating plant which was operated on June 10 and 11 at Imperial by a committee appointed from among the growers. All who had signified their desire to treat seed were given a day-hour schedule to avoid confusion which might arise from all coming at the same time. It was possible to treat at the rate of 150 bushels per hour at a cost of 5 cents per bushel.

A wooden tank with a false bottom was used with the temperature being furnished by steam from a road engine. The potatoes were immersed in sacks and allowed to dry in the wagons or trucks on the way back home.

Cooperative Success

(From page 19)

these early years of the industry the crop was bought outright by dealers who shipped wholesale to large marketing centers. When demand slackened the marketing was done almost entirely through commission firms.

This system had two fundamental weaknesses: no single buyer or shipper was able to maintain efficient market connections nor have knowledge of shipments by all competitors to all markets, and second: there was no systematic attempt to create a market in small cities. An immense market awaited intelligent development and control. It required the organized effort of the growers, the men who must sell the entire crop at a profit and who paid the price of imperfect distribution, to effect this market improvement.

Profiting by the failures of several cooperative organizations 60 growers met at the Los Angeles Chamber of Commerce April 4th, 1893, and appointed a committee which planned the Exchange system.

APPROXIMATELY 200 associations, individual growers, and packing companies now compose the Exchange. These associations are controlled exclusively by the grower members and are operated on a non-profit basis. The fruit is in most instances picked, and packed by association crews under the supervision of the manager. Many associations also fumigate and spray for their growers and during recent years storage for orchard heating fuel is being provided. These services are done for members at cost.

The season's shipments are di-

vided into periods called "pools" which may extend for one or more months or for the season. Returns to members are made on a basis of the average price received for all fruit of that variety and grade during the duration of the pool.

Individual associations frequently hold property of \$300,000 value and do an annual business exceeding \$100,000,000.

Each association is a part of a district exchange of which there are now 22. The district exchange is the sales agent of its association members. Its manager apportions all orders for fruit and is in constant touch with the sales and traffic departments of the central exchange and acting upon this knowledge of market conditions, he sells to the best advantage for his district. The central sales department dealing with these 22 district managers can distribute market information more rapidly than to 200 local units. The district manager is in a position through the associations to speedily increase or lessen shipments.

THE California Fruit Growers' Exchange is a non-stock corporation of which the 22 representatives of the district exchanges are members. The directors of the Exchange meet weekly and the sessions are open to all association managers, growers, and to those interested in the citrus industry. The keynote of the Exchange sale's policy is equable distribution.

Previous to the beginning of each season the general manager and the sales manager visit each division office in markets in various parts of the United States for conferences. During the season

the sales manager obtains weekly from each district exchange manager an estimate of shipments of fruit of the next week and with this information can approximate market conditions at any given point.

Coordinating with the sales department is the traffic department which gives advice regarding car supply, freight rates and adjusts claims for damage.

Advertising was first begun by the Exchange in 1907 when \$6000 was appropriated for a newspaper campaign in Iowa. The annual advertising appropriation now exceeds \$800,000.

The Fruit Growers' Supply Company, which is a separate organization owned by the Exchange assures to the members every orchard and packing supply at minimum cost and without delay.

Through this vast cooperating machine which the Exchange has perfected, during 1923-1924 it shipped 44,266 cars of fruit valued at \$50,515,497, which was 72.9 per cent of the entire citrus crop of California.

Foreign and International Agriculture

(From page 30)

He was trained first as a pharmacist, but afterwards turned to chemistry, and at 21 years of age he went to Giessen as a full professor. The building in which he worked hardly looks like a laboratory in our modern sense. It was formerly part of a barracks, and its exterior still impresses visitors as such. However, it was adequately fitted up. Additions were made in 1835, and we all know the good work that was done there.

The laboratory now remains as Liebig and his co-workers used it for many years. Places where lime was burned, acid distilled and the class room where Liebig lectured and where students cut their names on the desks, are still shown the visitor.

Silent and empty now, but impressive as the place wherein much was done to advance the fundamental research on which many of



our modern agricultural practices are based. Visitors are welcome. There is a society in memory of Professor Justus Liebig in Germany, the officers of which are always glad and ready to show visitors the laboratory and equipment used by this eminent scientist.

—o—

The German Potash Chemists held their principal meeting in Wernigerode June 5th to 7th last. Addresses were given by Dr. Quincke, Hannover—"Neuere Untersuchungen ueber das Verhaeltnis der Luftkohlensäure zur Düngung" (Recent Investigations on the Relation of Air Carbonic Acid to Fertilization)—Dr. W. Mayer, Berlin, and Mr. Haehnel. Dr. Mayer lectured on "Die landwirtschaftliche Anwendung der Kalisalze" (The Use of Potash Salts in Agriculture). This paper and a review of Dr. Quincke's paper will be published in one of the early issues of BETTER CROPS.

—o—

Gray Goes to PICA

(From page 15)

Upon returning from the Army in December, 1918, Gray was re-assigned his old position and given the responsibility of supervising cereal grass gardens in 12 states.

Mr. Gray was appointed Head of the Department of Soils, New York State Institute of Applied Agriculture, Farmingdale, Long Island, in June, 1921. In October, 1921, he was placed in charge of the extension work on Long Island under the auspices of the Institute, which position he held until he went with the Potash Importing Corporation October 1, of this year.

Conserving Furs For Madam

(From page 18)

when the breeding season has started, is a wasteful practice.

Approximately 45 to 55 percent of the pelts coming to the raw fur markets fall into the unprofitable class. Fur of superior quality and more of it would come to these markets if the seasons were shortened and made more uniform in States having similar climatic conditions.

TAKE, for example, the muskrat, which is the most valuable fur producer in the United States. Its increasing value for fur and meat makes it most desirable to preserve and perpetuate it as a natural resource. As a staple in the American fur market, the muskrat is considered the most important fur animal. Some dealers consider it the barometer of the fur industry. "As goes the muskrat, so goes the market". Although injurious in some localities, the muskrat is for the most part an inhabitant of places unsuited to agriculture. Muskrats multiply much more rapidly than other fur bearers, and because of their aquatic retreats and general habits, they are better fitted than most animals of this class to maintain their numbers under the little protection now afforded them.

In certain sections of our country where the open season is from four to six months, the muskrat is becoming very scarce. It is still unprotected in 12 States, and in 15 States has to face an open season of from four to six months. The persons responsible for the enactment of the laws do not always realize that two and one-half months are a sufficient open season on muskrats, nor that the most



Beaver houses are no longer a common sight

valuable skins are those taken late in winter and early in spring.

Next in importance to the muskrat as a source of fur is the skunk, an animal which brings to the trappers of the United States millions of dollars annually. Thirty-five States now have laws protecting skunks, with open seasons of one and one-half to six months. These laws were passed quite largely in response to the wishes of farmers, who recognize the usefulness of these animals in destroying noxious insects, and to the demands of persons interested in conserving the fur resources of the country. There are still 13 States that give no protection whatever to skunks, and one with only a few local county laws to protect it. In view of their usefulness and fur value, skunks should be protected everywhere by a close season of at least nine months, but the right of farmers to destroy predatory skunks should always be reserved.

Every State should require that trappers be licensed and, in addition, every trapper should be bound by oath to turn into the game warden, a report of his catch for the season.

Areas in which fur bearers have

become depleted should be closed completely for a period of years and, so far as practicable, these regions should be restocked. The national forests furnish excellent breeding grounds where fur bearers can live and increase unmolested, and stock from these forests could well supply depleted areas.

FUR farming is attracting wide attention, chiefly because of the increasing demand for furs and the possibility which it holds out of supplementing the supply obtained from our fine fur animals in the wild. The enormous profits derived from the sale of pelts and of breeding stock of certain species naturally have greatly stimulated interest in the enterprise.

Judging from the information at hand, it is estimated that approximately 1,200 fur farmers are engaged in the production of one or more species of fur-bearing animals in the United States and Alaska. The majority of them, however, are raising silver and blue foxes. The total investment

in the business is somewhere between \$12,000,000 and \$15,000,000.

When it becomes stabilized, fur farming will be a commendable and hopeful adjunct to the fur industry and as such should be encouraged by all interested in the fur trade. That dishonest ranchers and companies should have used fur-bearing animals as a means to extract money from persons unfamiliar with the business was only to be expected. Such a condition is found in many other enterprises. The lack of authentic information concerning the raw fur market and the feeding, breeding and management of fur bearers in captivity has made the work of deceiving the novice extremely easy.

Raw fur dealers are inclined to look askance upon fur farming and to be skeptical as to its future. As long as the majority of persons engaged in fur farming continue to market only pelts of poor

quality, which they are compelled to harvest simply because they can not sell inferior animals alive, raw fur dealers are justified in manifesting their present attitude.

When the main purpose of raising fur-bearing animals in captivity is lost sight of—that is, to produce saleable pelts—the business loses its economic basis for existence.

Ever since the beginning of time people have worn furs, and it is doubtful whether it will ever be desirable to place them in the discard. The fur business, therefore, has good reason for its existence.

The aim of the Biological Survey is not to antagonize the fur trade, but rather to assist and cooperate with it in helping bring about the maintenance of a constant supply of fur-bearing animals, not only for the few coming years, but for all succeeding generations.

§ § §

Station KSAC Broadcasting

(From page 9)

and design are a Friday feature.

The evening program, which has gained favor under the name of "College of the Air", provides any person within radio earshot of the college to earn a year's college credit if he has the ambition and capacity for work. The courses, which include Business English, Community Organization, Economics, English Literature, Journalism, General Psychology, Educational Sociology and Sociology, Educational Psychology and Vocational Education are adequate in every detail. Radio lectures are supplemented by home study and regular examinations are taken by students under the direction of

county superintendents.

IN addition to the college credit courses there is an evening feature designated as Opportunity Talks. They include book reviews, current events, the English primer, brief lectures on etiquette, business, inventions, art, fashions and sports. Forty extension courses, covering the fields of agriculture, engineering, home economics, and general science, are given without college credit. The daily market review is sandwiched into the evening program, which is closed with a radio-telephone question box; lecturers answer questions phoned

to the station and this conversation is broadcast. Telephone exchanges have agreed to give their subscribers a certain number of free calls.

The Kansas State Agricultural College has followed the practice of enrolling those who desire to take advantage of the courses of instruction offered and this will be done again this fall. During 1924, 967 individuals enrolled and in 1925, 1,771. A most interesting observation is in the fact that in 1924 each individual took 2.5 courses on the average but in 1924-25 they took 6.8 courses and even though these courses might be considered somewhat technical, more than 15 per cent of those who enrolled in 1924 were enrolled in the second course.

PROBABLY the immense popularity of radio, as a method of giving instruction, may be accounted for by the fact that any program of service to any particular group of people which is broadcast will seek out those whom it will serve. One would hardly expect farmers to be interested in calisthenics offered primarily for public schools, it would be natural to assume that farmers get sufficient physical exercise in the daily routine of chores and other farm duties. However, the following is taken from a letter received last year from a farmer living in the central part of Kansas:

"We heartily endorse your opening exercises for common schools. We are boosters for a radio in every district. We even take the (calisthenics) exercises ourselves, with all our other work and find they do us good."

Another farmer writes in that the radio alone is responsible for convincing him that tankage is necessary for feeding protein to hogs. He writes as follows:

"Your radio talks convinced me that tankage is necessary to balance the ration in feeding hogs and by doing this that cheaper gains are made. Before I used tankage I fed corn and white shorts in a self feeder. I did not know that chickens would eat green alfalfa leaves. Station KSAC told me to keep a supply of alfalfa leaves before them. I tried this and was surprised at the amount they used in their daily feeds."

Any one will recognize that one of the greatest benefits in the contact between instructors and students is the inspiration afforded by this contact. The interest of another in one's routine problem is always a means of transmitting inspiration. Farm boys and girls whose contacts are more limited even than those of older people, may gain much in this way from radio. One farm woman from northeastern Kansas wrote as follows:

"The programs from your station are the most instructive of any we get over our radio, the lectures on subjects concerning agriculture are of a great benefit to everyone interested in those things. It would take the joy out of life for my oldest son should they be discontinued as he listens every evening that you broadcast."

Radio may hold an appeal for some because of the novelty it offers or to others because it affords possibilities of entertainment not heretofore available to rural communities, but the support given KSAC is because it contributes latest up-to-date information for business farmers. No effort has been made to take advantage of either novelty features or entertainment and the enthusiastic tone of the volume of approval is an expression of appreciation for the program of information to which station KSAC is dedicated.

Roads—and Monuments

(From page 4)

enough of the city to sicken him of it and make farming attractive by insidious comparison.

But the automobile could have done none of these things without the roads.

The cement road *a la* Leslie is more than a skid-proof, dustless, mudless, bumpless highway upon which men and merchandise hum to distant points. The road is a tie, a bond that pulls states and cities and human hearts together, wrapping them securely and with love into a compact bundle of unified ideas and sympathies.

WHEN, between New York and Philadelphia, one hundred and one years B.L. (before Leslie) a road was completed upon which stage coaches sped in the marvelous time of ten hours for the ninety miles, men wept with joy.

But now a silent eight in San Francisco slips down the road at dawn on Monday and arrives in New York Saturday night in time to deposit the driver at the door of the Silver Slipper *revue* at ten. And sympathetic hearts at the Golden Gate beat in unison with others at the end of the Sunrise Trail—the Nation is one, indivisible, cemented together with long solid links of portland.

Man is in process of development. What he will be we can but guess. But this we know; that good roads are making better men. "The first law is to be a healthy animal." And good roads are making men better animals. I realize that Gentle Reader now has the opportunity of swearing softly to himself, muttering, "Yes, I have just been missed by a few. I call them road-hogs."

But that is beside the fact.

The open road is giving us a new man. A man of cool nerves, quick

wits, good lungs, finely coordinated muscles and hair-spring decision. Road judgment leads to better judgment on other things. Men are better animals—and as the body increases in vigor, the mind accumulates vitality.

IN the beginning, when to sit in a motor car and grin at ten miles an hour was regarded as a rare example of courage and fortitude, men waved to other men in their benzine buggies as they passed in a cloud of dust. The wave was accompanied by a smile of *camaraderie*—souls in tune were passing, and courtesy demanded recognition.

This gay habit passed, as the roads became more crowded. Men found they dared not raise their hands from the wheel to wave, else the wave might sweep over them as they sank for the last time in the restless sea of traffic.

The friendly wave of courtesy has become the raucous curse proclaiming the complete imbecility of the other chap who wilfully or thoughtlessly refuses to "move over!"

But this too will pass, and the more friendly wave will come back, as on the lake and sea today the great vessels hail the tiny skiff as they meet—and pass.

As the roads widen, time and energy now used in "keeping clear" will be used to think of the other fellow—and *camaraderie* will return.

GOOD roads—cement roads—are an investment for posterity. They are insurance premiums upon policies of future prosperity from which our grandchildren will reap annuities. The highway of today is the path down which generations yet unborn will glide to happiness.

The prophets who saw nothing but waste and extravagance in the

automobile and wanton disregard of economies in the huge investments in roads to run on have lived to see ushered in the greatest era of prosperity ever known by any Nation on this earth. Just what share the road and car have had in creating this golden harvest will never be known, but surely it is a large share.

Many of the things that were "going to happen" with the coming of good roads and the fleet flivver have never come to pass, thus proving again that most of our worries are phantoms.

Mail order men feared the horde of automobiles as the farmers on the Nile fear the angry hum of the approaching cloud of locusts.

"Give each farmer a car and fine roads to travel on and he will buy his needs in the nearest town. Ah! Woe are we! Our business will go to the dogs! *A bas the fliv!*"

But mail order sales creep constantly higher each month. The miles between farm and town have shrunk to minutes when laid out on the gleaming surface of the cement road. But the dire distress of the mail order man is still in the offing and may never materialize.

For the road and car have aided rather than harmed business. New wants have been created that must be met. New desires are formed that will be satisfied. Civilization inches up a notch and let out one hole in the belt. The void must be filled—and the merchant wins again.

AMERICANS are inordinately fond of erecting memorials to their hallowed dead. Every imposing spot is cluttered up with statues, tombs, towering shafts of granite and arches of marble and

stone commemorating someone or something.

Millions of dollars are sunk in useless, albeit eye-pleasing, architectural concoctions of nothingness.

America is monument crazy.

A highway is a *real* monument. Every mile of good, wide, cement road is a monument to its creator and to its builder.

We cannot do better than to show our love for those of courage or extra merit than to plan and build horizontal monuments in their honor upon which those who come after can glide—and ponder.

Popular subscriptions for memorials are unusually successful in this country. My suggestion is this: Let the public subscribe to and build broad highways in everlasting stone and endow the strips of white road with the honored name of him to whom our gratitude should be shown.

We have the Lincoln Highway.

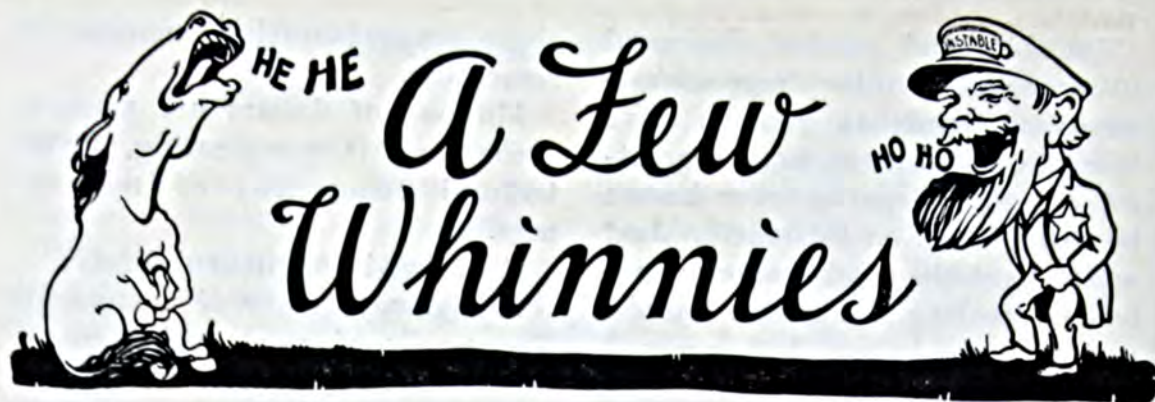
Let us have the Jones Highway, the Brown Highway. And instead of a meaningless crypt unseen except by the chattering and morbid, let us build the Unknown Soldier Boulevard from Atlanta to the Sea—or from Portland, Maine, to Portland, Oregon.

The world is full of roads.

The road to knowledge, the road to happiness, the road to a man's heart, the road to success, and the primrose path are all well sign posted.

But the best road of all is the beautiful, broad, cement highway that ribbons into the setting sun, that beckons and lures, that answers the universal plea, "I want to go somewhere!"

The cement road says: Come! I will show you America first! You shall glide freely, noiselessly, cheerfully, bumplessly, dustlessly, on—on—on!



COMMENT

We are reminded that in the old days life was what you made it; now it's what you make.

"Prohibition is held directly responsible for America's demand for jazz music," says a recent news dispatch from Washington. There have been some mighty mean things said about prohibition in the past few months, but heretofore they have always stopped short of calumny.

A New York department store is now handling Ford airplanes, but the most of us will put off purchasing one until the ten-cent stores sell them.

Many a man has been divorced because he replied sincerely when his wife asked what he thought of her new bob.

It's only a short time now until Congress meets again, and any little vices heretofore overlooked will be taken away from us then.

The big difference between being right and being President is not infrequently about \$75,000 per year.

Jed Jimson wants his milk cows to be modern in every way, so he has put silk stockings on 'em and bobbed their tails.

A man should never be judged these days by the shabbiness of his furniture; it may be antique.

"Money's sure tight hereabouts, ain't it?" asked a new tenant.

"Yep," agreed the Extry Hand, "but not so tight as them that's got some."

* * *

It's strange how a modern farm boy can take part in every track meet and tennis tournament during the year, dance every night, play football all through four years of college, and still be made violently ill by the suggestion that he assist with the corn harvest.

* * *

Of all the road warnings described by Ted Butlar last month, none should be more effective than one in Oskaloosa, Iowa, which is simply a tombstone factory placed on the hither side of the railroad crossing.

* * *

Dr. Davis Wesson, former President of the American Institute of Chemical Engineers, announces that he has found a way to make synthetic beefsteak. It would be still more interesting if Dr. Wesson would discover a way to market some of the beef now being produced in the good old way.

* * *

Every dog has his day; every turkey his Thanksgiving.

Blind



This simple test shows that all of us are blind in some ways, even though our eyes are clear and sound.

For example:

Take your vest! One that you've worn many, many times, and ask yourself this question: How many button-holes are there on it?

You can't say how many until you've counted them, and yet, you have probably buttoned up that vest every morning and unbuttoned it every evening, several hundred times.

Most of us are the same. We see a thing without closely observing it. Students of human nature say that we oftentimes think of far-away things while reading a paper or book—our minds not thinking of what our eyes see.

How many of us, for example, remember what we saw on this page in the last issue, and in the two issues before? How many of us remember how Mr. Pitcher made \$109.66 extra net profit per acre on strawberries?

Of course, we don't need to clutter up our minds with a lot of dates and records. But we should make note of good information—especially information that is connected with extra profit.

In this issue, and in succeeding issues of "Better Crops," you will see potash advertisements. In them, you will find facts which may be helpful to you in your work.

POTASH IMPORTING CORPORATION OF AMERICA


General Office: Dept. BC, 10 Bridge Street
New York City

ATLANTA

SAN FRANCISCO

BALTIMORE

Sales Agents H. J. Baker & Bro., 81 Fulton Street, New York
West of Rockies, Meyer Wilson & Co., San Francisco, Cal.

Genuine  *German*
POTASH

CHEMICAL VALUES

versus

CROP VALUES

While the chemical analysis of a fertilizer shows the percentages of its plant food elements, it does not indicate its actual crop value, as it does not disclose the materials from which the chemical elements are derived or the mechanical condition of the fertilizer—two very important factors in the crop value of any fertilizer.

“AA QUALITY” FERTILIZERS

are scientifically compounded and are so blended as to furnish the greatest crop producing values and their perfect mechanical condition insures easy and even application of the plant food.

To produce the largest yields and best quality of all crops use only

“AA QUALITY” FERTILIZERS

MANUFACTURED ONLY BY

**The American Agricultural
Chemical Company**

Better Crops

The Pocket Book of Agriculture.

December 1925

10 Cents



Index: Self Praise—Both Ends and the Middleman—Fertilizer Efficiency—Dust Means Bust—Southern Strawberries.

A Tribute to Extension Workers

Christmas Day on the farm will be a little more happy and a little more prosperous than usual.

From all parts of the country, crop and market reports have been favorable. Of course there were a few exceptions, but as a whole, the farm has prospered this season.

Large mail-order houses report exceedingly good farm business; more automobiles are being purchased by the farmer than ever before; a greater percentage of farm boys and girls are going to college—all reports point toward prosperity on the farm.

What greater tribute can extension workers receive in return for their study and cooperation with the farmer?

During the coming season, the agriculturists associated with our Soil & Crop Service will gladly cooperate with extension workers—and do their share to make Christmas 1926 even happier and more prosperous than this year.

Potash Importing Corporation
of America

10 Bridge Street, New York City

Better Crops

The Pocket Book of Agriculture

VOLUME V

NUMBER FOUR

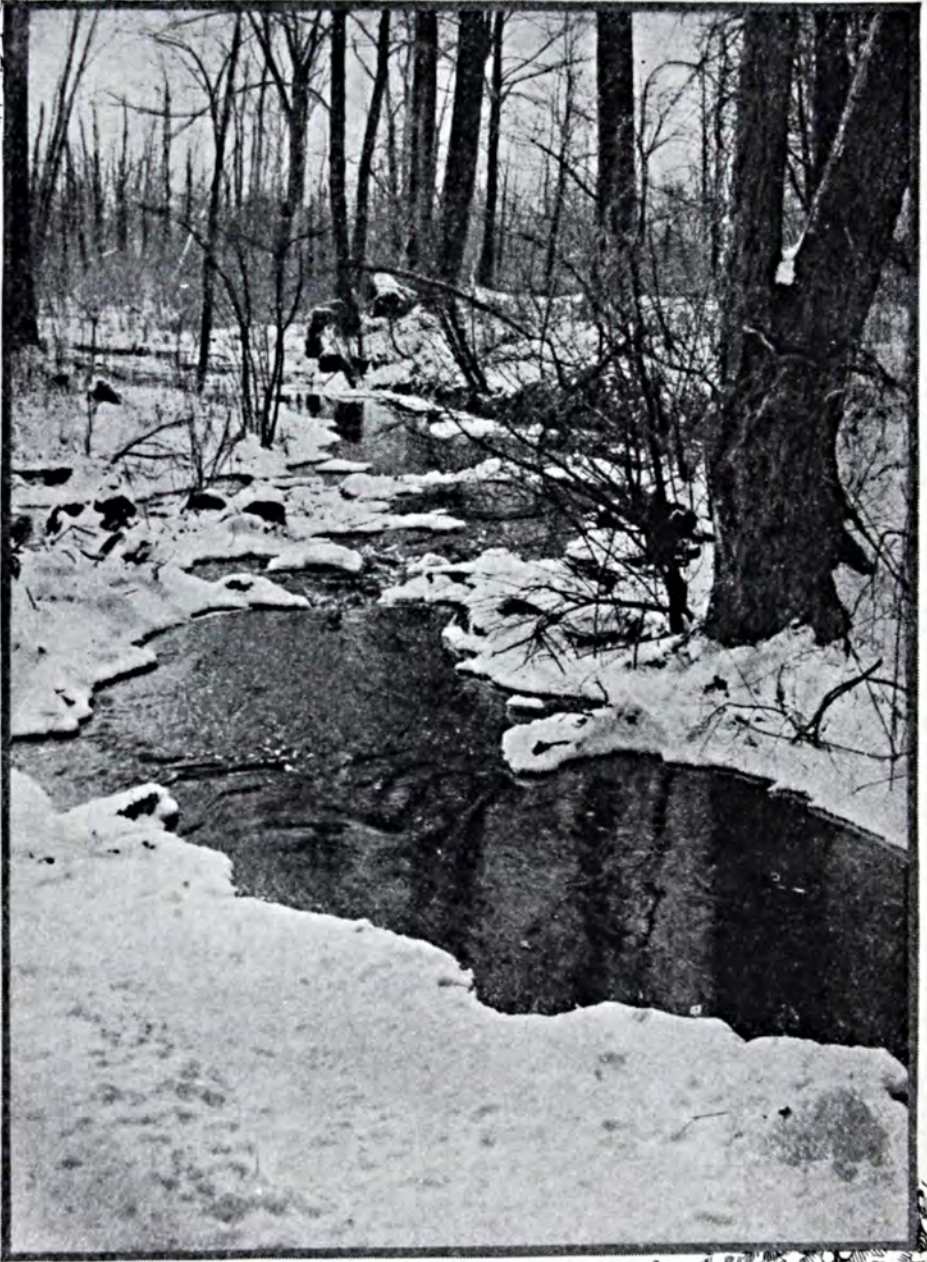
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Peace on
Earth;
Good Will
toward Men





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VOL. V

NEW YORK, DECEMBER, 1925

No. 4

Self PRAISE

By *Jeff McIlernid*

I BECOME each day more firmly convinced that such things as one's character, honesty, virtue, ability and leadership, cannot be increased one jot or tittle by one's talking about them, or raising thunderous ballyhoos in their regard.

In fact I now believe that to advertise one's virtue is to force men to question it; to proclaim loyalty is to say that it exists in outline only; and to claim leadership is to startle the universe actively toward proving that the mantle belongs on other shoulders.

In Hamlet, Shakespeare has a little play within the play wherein a Queen makes violent show of protesting her love for her King. She declines her head on his shoulder, lays him on a bank of flowers, sees him asleep—and

leaves him, passionately and volubly explaining to the audience her tender regard for the King.

Hamlet, in the audience watching the playlet, you remember, turns to his Queen-mother and asks, "Madam, how you like this play?"

To which the Queen a bit cynically answers, "The lady protests too much, methinks!" And true enough, a moment later comes in a fellow, very evidently a hireling of the Queen, takes off the crown from the sleeping King's head,

pours poison in his ears, and tippitoes out.

The playlet ends with the Queen, after much passionate lament over the queer, inexplicable taking off of her late spouse, accepting the proffered love of the Poisoner!

"The lady protests too much'."

And thus does Shakespeare cleverly warn those in his audience who can see and think to beware of those who too strenuously protest their regard—their voices are soothing, but their later deeds may spring the trap their kind words set.

LOYALTY is a matter of deeds, not voice. And its strength is not swelled by pumping it full of sweetened wind. Either one is loyal to a person, a creed, a business or a plan—or one is not. "Give me the ready hand rather than the ready tongue", said Garibaldi.

A man's whole attitude is essenced in a single deed and no amount of effervescent, sparkling explaining can prove more than is revealed by analyzing that deed in the test tube of time. The cynic, His Dictionary, states: "An hour overtime is worth two protestations of loyalty."

There are only two ways to prove anything: the first by deed, by actualities which we can see, feel, hear and smell; and the second by words.

We are rather prone, I feel, to accept empty words in lieu of facts, appearance in lieu of authenticity, when after all, facts are the only nourishment upon which truth may feed and thrive. Truth strangles, sucks its breath and languishes upon a diet of sugar-coated honey-phrases. Our claim that we are too busy to dig for the facts in every case, and that we must accept things at their face-

value as they are presented to us leads us into many false morasses of judgment.

Give a man a monocle, a red sash across his strutting bosom, a high hat, and a haughty air, and we say, "Here is a nobleman". We are too wrapped up in our own ceaseless turmoil to investigate and peel him to the second layer where lies the red undershirt of the janitor who is masquerading in the borrowed haberdashery of the duke.

"The world is full of a number of things"—and because this is so, and because the world is also full of opportunists who seize upon every chance to mislead us into hallucinations that they are the jehovahs of the hour, we are constantly having foisted upon us falsities and fakes.

And those who have something we need, seeing this state of things and fearing that we will overlook the inherent virtues in their article and be deceived by the sugary-sweet enticements, blandishments and cajoleries of the seductive fakerino, feel the urge coming over them to put their virtues on record.

The man of ability, unwilling to await the busy world's discovery of his competency and power to perform, starts to spout succinct examples of his success.

THE honest engrosses the fact of his honesty upon the minds of his auditors in no uncertain terms; the loyal pleads his loyalty and the leader ballyhoos his leadership.

What is the result? We begin at once to say of him who protests thus volubly his honesty, "How much has he actually stolen?" And of the one who proclaims his abject fidelity, "We must watch him more closely."

(Turn to page 62)

POTASH on CLAY SOILS

By

F. J. Jeter

North Carolina State
College of Agriculture



RESULTS being secured from a demonstration in Cherryville township of Gaston County, North Carolina, indicate that at least four per cent potash in the fertilizer mixture used under cotton on the soils of that township will pay good returns.

The demonstration made under the supervision of L. B. Altman, county agent, is on the farm of J. A. Hager. It was put in because for several years the farmers of the township have suffered with the leaves of their cotton shedding and the plants dying in early summer.

A test was made to determine what percentage of potash was necessary to prevent this trouble. It was found during the summer that on the plots where no potash was used or where only two per cent of potash was used, the plants were very badly affected.

On those plots where from four to six per cent of potash was contained in the mixture, the plants were not affected by the trouble and went through the summer in a thriving, healthy condition.

Mr. Altman reports that actual results in weights of seed cotton cannot be given at this time as Mr. Hager has picked the cotton one time without securing the weights. Mr. Altman is confident, however, that at least four per cent of potash should be used in the fertilizer mixtures for cotton on this type of soil.

Both Ends and THE MIDDLEMAN

By

Arthur P. Chew

United States Department of Agriculture

"Who made that wagon?"

"It wasn't made. It was brought on."

Thus local idiom in a Missouri village 50 years ago celebrated the coming of the railroad, and the distinction thereafter necessary between locally made goods and things "brought on" by railroad from the outside world. Before the advent of the railroad, the place had been almost self-sufficient. People had ground their own flour, spun their own yarn, made their own clothing, tanned their own leather, made their own shoes, built their own plows and wagons. An exchange of services among neighbors made the "distribution problem" negligible. There were few middlemen's charges to worry about.

But the coming of the railroad changed all that. It brought the community into immediate touch with a surprising new fact; namely, that under modern conditions of production and marketing it often costs more to sell goods than to produce them. "Brought on" suits, for example, were plainly not as durable, or made of as good material, as the home-made kind. Yet they cost as much and

sometimes more. Of course they were stylish, and they began to acquire a vogue after some of the bolder spirits had braved public opinion by attending church in "brought on" clothes. This, however, didn't alter the fact that there wasn't the same sheer value in the new stuff.

Today that Missouri village is a big town, but it is still wondering why distribution often costs so much more than production.

AN economist engaged in studying modern distribution costs, who passed his boyhood in the Missouri village in question, related the foregoing bit of economic history to me. He said the importance of the change signalized by the invention of the term "brought on" was so great and so complex that no one has ever been able exactly to measure it. It is known, of course, that distribution nowadays is often more costly than production.

"It costs more to sell and deliver



A successful farmers' curb market, Roanoke, Virginia

the marketable products into which agricultural commodities are converted than to produce and manufacture them," declared a joint congressional commission which investigated marketing costs in 1921 and 1922. But the hard question is whether modern high costs of distribution are fairly compensated by the decrease in production costs that results from high specialization of labor and from efficient large-scale production for world-wide markets.

"Frankly, I give it up," said the economist. "It is fairly easy to measure the spread between the price of farm products at the farm and their price in the city. Thus in New York City the growers of Washington apples, according to a recent Government study, received only \$1.18 out of a retail price of \$5 a box. Only about 13.35 per cent of the price of bread is returned to the farmer for the wheat used. There is a spread of about 7 per cent of the consumer's price between the wholesale and the re-

tail price of fruits and vegetables in New York City.

"I could pile up examples of this kind indefinitely, all drawn from official sources. For Texas cabbage, in 1920 and 1921, the growers received only a little over 10 per cent of the wholesale price. Cauliflower growers in Colorado received only a little more than 30 per cent of the wholesale price. Potato growers received from around 55 to 78 per cent of the wholesale price, the proportions varying roughly with the distance of the growers from their principal markets. Another big whack out of the final consumer's price went for retailing.

"But such data doesn't really touch the vital problem. It is important to know how much we pay for production and how much for distribution. When it is realized how big an item distribution is, we shall be better prepared to tackle the job of cutting it down.

(Turn to page 59)

¶ *Vital Messages on farm credit, eliminating waste, developing buying power and how the National Fertilizer Association helps the manufacturer, the distributor and the farmer.—*

The

N. F. A.

Holds Southern Convention

By the Editors

A LARGE number of members and friends of the National Fertilizer Association gathered at the first Annual Southern Convention held at the Hotel Biltmore, Atlanta, Georgia, November 9 to 11.

The present National Fertilizer Association is a consolidation of the former National Fertilizer Association and the Southern Fertilizer Association. That this consolidation is proving a marked success not only in extending the usefulness of the Association but in strengthening the service it gives to members through the work of its many committees, was evident throughout the convention.

The President, Spencer L. Carter, in his opening address gave an

excellent review of the progress made in organizing the work since the consolidation of the two associations on June 15, 1925. The office forces are now housed in the same building in Washington and an efficient organization has been perfected. Branch offices have been established at Atlanta, Georgia; Shreveport, Louisiana; Chicago, Illinois; Raleigh, North Carolina and Bellows Falls, Vermont.

The President emphasized the point that one of the most important activities to be undertaken by the association is the standardization of formulas. It is, however, a big problem and will require a great deal of work to accomplish

successfully.

CHARLES J. BRAND, executive secretary and treasurer, presented a report showing good progress. Eighty-five to 90 per cent of the total fertilizer tonnage is now represented by the association.

Of special interest to agricultural experiment stations, county agents and farmers, is the work of the Soil Improvement Committee now organized in two divisions one for the north with headquarters at Washington, H. R. Smalley, director, and one for the South with headquarters at Atlanta, J. C. Pridmore, director.

An able report of the organization of this committee was given by Warner D. Huntington, the chairman. Mr. J. C. Pridmore said that the work in the Southern Division is progressing very favorably. The work of organization is completed, and it is ready to do all that will be required of it. A branch office has been opened at Raleigh, North Carolina, W. F. Pate, agronomist in charge; and another at Shreveport, Louisiana, in charge of C. P. Blackwell, agronomist. C. A. Whittle is editorial manager, and W. H. Sachs, agronomist, both at the Atlanta office.

Fellowships have been established by the Southern Division at the agricultural colleges of North Carolina, South Carolina, Mississippi and Georgia. The Fellowship at Mississippi is to work out the problem of the economic value of potash in fertilizers with special reference to its use in the control of wilt and rust in cotton. The fact that high yields are closely associated with maximum profits from the use of fertilizer, was also clearly demonstrated by charts.

JOHN I. TIERNEY, Assistant

to the President, gave a report of the Joint Washington office with the manufacturing chemists of the United States, particularly with reference to pending legislation on the use of Muscle Shoals.

Other outstanding features on the program were three addresses by men of national prominence. The Hon. Robert A. Cooper, commissioner and executive officer, Federal Farm Loan Bureau, U. S. Treasury Department, gave a forceful address on "Financing the Farmer with Special Reference to the Federal Intermediate Credit Banks."

Praise was given the Intermediate Credit Banks by Mr. Cooper. He pointed out the vital differences between commercial banks and the credit banks and the advantages to the farmer who is not able to obtain the proper credit from home banks. Very special emphasis was laid by the speaker on the necessity for further crop diversification to establish stable values on which credit could be obtained. The one crop system of farming was a much poorer risk.

"Elimination of Waste in American Industries" was the subject of a very strong and practical address by Major Arthur E. Foote, assistant chief, Division of Simplified Practice, U. S. Department of Commerce. Through Major Foote, Secretary Hoover sent his best wishes for the continued success of the association.

AS is well known, Secretary Hoover has always taken an active interest in industry. Under his leadership intensive studies have been made of many industries. One of such studies has been embodied in the Division of Simplified Practice. This division has cooperated with more than 50 industrial

(Turn to page 55)

SUPER-FARMING *plus*



The home that vegetables built

I WILL wager that if you would put Erhardt Brothers of Allegheny County, Pennsylvania, on one of the poorest truck farms in the county, and say, "Here it is boys; this place is a failure; do as you please with it," it would only be a question of a few years until the farm would be pointed out as one of the model places of the community.

I don't suppose Father and Mother Erhardt thought 30 years ago when they moved onto their farm three miles from Wilkesburg and a few more from Pittsburgh, with their four boys and two girls, that before many years the city would keep growing out to their farm until it would be rated and taxed at such a high value that only what we might call "super-farming" would enable them to still carry on and pay their taxes and other expenses with a good profit left.

NECESSITY did not drive them to this type of farming, for they have always done it on this farm, and now when high taxes are driving their neighbors out of business Erhardts are keeping serenely at it. Thirty years ago when livery stables and teams were common as garages and automobiles now are, Erhardts not only hauled all the manure they could find time for, but they were paid for doing it. Gradually, as the auto came, conditions changed.

HONEST VEGETABLES

By Hugh Fergus



A partial view of Erhardt Brothers' farm

Pretty soon they had to haul it free, and now it is so scarce that one of the boys told me they would gladly pay five dollars a load for good manure that commercial fertilizer cannot take the place of, for use in their hot beds and on certain crops.

Thirty years ago too when they had to haul their truck to the city over the dirt road, two loads a day made a hard day's work. Now a fine concrete road past the farm and a truck has speeded up this part of the work to make delivery of the produce a pleasure.

Whether the land was high in value or not, Erhardts have always used intensive methods as much as possible for the greatest returns. One combination is two rows of onions with lettuce between. Another is early potatoes—after the last cultivation, cucumbers are planted in every other row. The

potatoes shade the cucumbers until they get a good start. This means the potatoes have to be dug with a hook, but the digging is as good as a cultivation for the cucumbers. All crops are gotten in early so that most of the farm except that part in crops like asparagus and rhubarb, grows two and sometimes three crops in one year.

YEARS of experience have shown them that they have to make a study of their farm to discover which part is best suited for the various crops. For instance some parts are well adapted to asparagus while they might as well not plant anything as to try to grow asparagus on other parts. Soil where strawberries do best is not adapted to good bean growing, and so on.

(Turn to page 53)

It means to Better Cotton resorted to by growers in the Golden State—

One Variety

By LAW

By Laurence W. Taylor

County Agent, Bakersfield, California

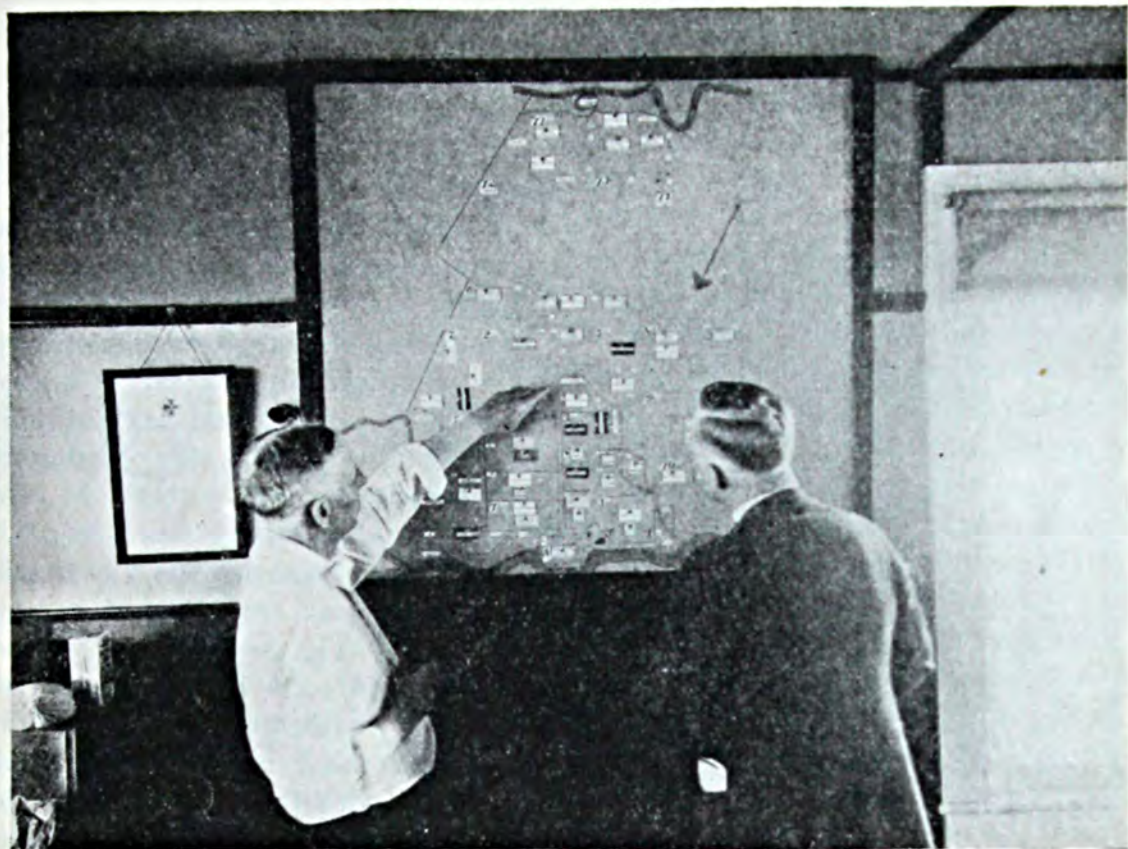
A LITTLE farmer's aid that is really helpful came out of the last California Legislature in the form of a law to protect one variety cotton areas in the state. The law recognizes nine such areas and prohibits the growing of any kind of cotton except Acala cotton in them.

It is well known to all cotton growers that cotton cross-pollinates readily in the field and that

cottonseed is easily mixed in the gin. Where different varieties of cotton are grown in the same community and ginned at the same gins it is not possible to keep the seed pure and the varieties from mixing. It is also well known that mixed cotton seed produces mixed cotton of uneven staple and unreliable quality. Such cotton has always been bought by the mills
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Uniform growth from uniform seed is possible only in one variety districts



A Maryland farmer explaining colored tags with which he records crop rotations on each field

FERTILIZER EFFICIENCY

By Arthur M. Smith, Ph. D.

Maryland Agricultural Experiment Station

Here we have all the facts. To make a profit with the use of fertilizers, a farmer needs to have the best and fullest information available. This we always try to give.—
THE EDITOR.

NOWHERE does the old saying, "He profits most who serves the best", apply more fully than in the business relations between fertilizer manufacturers and farmers. The whole idea in using fertilizers is to increase the efficiency of crop production; first, by increasing the yield per acre

and thus lowering the unit cost; and second, by leaving the soil in as good or a better state of fertility after the harvest as existed at seed time.

Efficiency is simply a collective term for the right thing at the right place, at the right time. With reference to the use of fertilizers, it means a fertilizer material or mixture of honest intrinsic value, applied in sufficient amounts to a soil and crop in need of the plant-food elements it contains. Obviously it is to the mutual interest of both farmer and manufacturer that the conditions for the efficient use of fertilizers be understood as fully as possible.

The nutrition of field crops depends primarily on the amount and the concentration of plant-food elements contained in the soil solution. A favorable temperature and supply of moisture; the relative solubility of the plant-food elements contained in the soil, supplemented by those supplied in the fertilizer; and the physiological characteristics of the plant itself are the positive factors which determine the amount of growth.

To obtain 100 bushels of corn or 1000 pounds of cotton to the acre, the total amounts of nitrogen, phosphorus and potassium that these crops will consume must be present in the soil solution at some time between seed-time and harvest. If a soil contains sufficient quantities of these elements in such a form that they will be dissolved as rapidly as required by the crop, there is no need to purchase them. Or if through crop rotation, manuring or tillage, sufficient amounts may be added to the soil, or made soluble in the soil moisture more economically than is possible by purchasing them in fertilizers, it is surely good business not to purchase.

CERTAIN soils for certain crops, under favorable climatic conditions, will always supply a sufficient amount of one or more of the three elements sold in fertilizers. Other soils, regardless of climatic conditions, will never supply, to many of our cash crops, a sufficient amount of either nitrogen, phosphorus or potassium. A third condition frequently exists, in which the soil will supply sufficient plant-food for the early or perhaps the latter part of the growing season, but fails at some critical period in the growth of

the crop to supply the needed elements in adequate amounts.

THE first case includes those soils on which we find single elements or two-element fertilizers producing as large crop yields as do complete fertilizers. For example, in a grain and hay rotation, on certain soils in the Piedmont, the inclusion of potash in the fertilizer for wheat has frequently failed to increase the yield sufficiently to pay for the cost of this material. The second case represents those soils to which, for all ordinary cash crops, a complete fertilizer must always be applied. This includes the vast majority of soils in the Atlantic Coastal Plain. In the third instance the deficiency of nitrates in many soils at the time of seeding winter wheat explains the unusual value of even one or two per cent of readily available nitrogen in the fertilizer.

This deficiency is often entirely seasonal, and the following spring the same soils usually contain sufficient nitrogen to mature a large crop. A similar example is that of potash for potatoes. Many soils contain enough potash to produce innumerable crops of potatoes, were it readily available. In fact they get along very nicely during the early stages of growth, when the potash requirement is relatively small. But from mid-season on, the yield is rapidly and greatly reduced, unless sufficient potash has been applied in the fertilizer to insure that potash is not the factor which limits the crop.

It is such instances as these that have led certain soil scientists to conclude rather hastily that the analysis of soils for total plant-food has very little value. Soil an-

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DUST

means

BUST

By

C. E. Gapen

United States
Dept. of Agriculture

Would this apply to the dust swept under the bed? Here's a chance for further investigation.



A FEW years ago a dust-ridden world knew practically nothing about one of dust's most emphatic qualities, its explosiveness. Now after a few years of study and experiment by the U. S. Department of Agriculture and others it has been found that many great industrial disasters have been caused by the explosion of harmless looking particles set off by a flame or electric spark.

Some of these substances in their original state would seem to be almost unaffected by fire, and certainly no one would look upon them as substances to be ground into explosives. The Bureau of Chemistry has tested hundreds of samples of dust from all sorts of manufacturing plants, elevators, threshing machines and from other places and has found that probably a hundred different kinds are explosive when fine enough and properly mixed with air.

Chemists have made various tests to determine the ignition points at which various dusts will

explode and what means can be employed to prevent explosions. One of the big problems, however, has been to thoroughly acquaint the public with the danger that exists when dusts are allowed to accumulate on ledges and elsewhere inside plants. To call this danger to their attention a miniature grain elevator in which conditions similar to those which sometimes exist in commercial elevators has been constructed and is used for demonstration purposes.

THIS little machine resembles somewhat the rough model of a locomotive, and the similarity is accentuated when the explosion occurs lighting up the window in front like a headlight and throwing a blast of flame and smoke through the roof. At the front end and near the bottom is a screw cap which is removed in order to

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ALTOGETHER *and We* GET THERE

By P. H. Stewart

Agronomist, University of Nebraska

It ain't the individual nor the army
as a whole, but the eber lastin' team
work of ebery bloomin' soul.

ON the office wall of an Agricultural Extension Director in one of our corn belt states this framed motto hangs where all callers may digest it:

Sometimes as Extension workers we are accused of not quite following that bit of homely philosophy. Most of us are apt to develop some pet projects or lines of work and to plug along a certain rut which we feel leads toward the objectives. Maybe if we stopped our more or less habitual efforts for a bit and looked about to see whom we might call on for help, we could enlist enough assistance from others interested in the same project to build a real highway toward our goal. That last sentence sounds something like a generalized text for an abstract sermon but let us see if by illustra-

tions it can be made more definite and less of a theory.

SUPPOSE, just for an illustration, we take some of the recent work done along that line in Nebraska. Probably other states have better and more complete work that might be used but the Nebraska situation will suffice to illustrate how other people besides the extension workers may be interested in agricultural projects.

For the past two seasons Nebraska in her extension work has put considerable emphasis on projects which dealt with Hog Lot Sanitation, Livestock Feeding Schools, and More-legumes—Erosion. By means of meetings, movies, publicity, demonstrations, and campaign letters, agents and specialists have attempted to carry

out these projects with fairly satisfactory results. But during the past 6 months an effort has been made to get other than extension folks to work along these same lines. Let us see how it has been attempted.

To begin with, the Nebraska State Bankers Association through their Agricultural Committee has developed what is known as "The Nebraska Plan" which involves a triangular form of cooperation involving the banker, the farmer and the agricultural college. As stated by the Chairman of the Nebraska Bankers' Agricultural Committee, the banker in an agricultural community is the keeper of the farmers' money. He is, of course, responsible to the farmer for its safety. He is called upon daily to make loans to farmers for the development of various farm enterprises. He, therefore, must know farming and the problems of the farmer to be able to pick out the worthy propositions, or else unwise and unsafe loans are sure to be made. If the banker in an agricultural community is in close touch with the most recent developments and recommendations of the agricultural college and experiment stations, he is in a splendid position to assist in putting desirable practices to work.



A double-deck cafeteria

SUPPOSE, for instance, County Agent Jones is working on the McLean county system of hog lot sanitation as one of his major projects. By meetings, publicity, slides and demonstrations, considerable interest has been aroused. A farmer who has heard more or less of the system stops to say a word or two about it to his banker, perhaps incidentally or because he wants to borrow a few hundred dollars to buy some sows or to build a hog shed. Because of the banker's financial contact he is in a vital position to influence the farmer one way or another.

If he himself has been "sold" on the sanitation project and knows of the serious pig losses through the so-called "filth-born" diseases, he will heartily encourage Farmer Jones to put his sows on new land and to either clean up the old hog house, or better yet, put his money into small colony houses which may easily be moved about. He may even have at hand plans for individual hog houses furnished by the county agent which can be given the customers. Encouragement from the banker to follow the sanitation system of raising hogs would help to get a cooperator for the project and at the same time the banker would be protecting his bank by loaning on a safe investment.

As another illustration, suppose the extension agent has been putting on livestock feeding schools, an important part of which has been the feeding of younger beef cattle on account of their greater economy of gain and relative profitableness. Here again perhaps the banker is called upon for a loan and again if he is familiar with the project, he can further it and decrease the risk of loss to the

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RENOVATING

the Farm ORCHARD

By C. L. Burkholder

Purdue University, Lafayette, Indiana

THE farm orchard can be made a most profitable side line on the farm. This fact has been brought out time and again where records have been kept of small farm blocks of trees that were properly pruned, fed and sprayed.

It is good sounding theory to say "We will let the other fellow raise the fruit and buy our supply of him". Unfortunately, two or three bushels frequently make up the year's quota when the fruit must be purchased with cold cash, while 15 to 20 bushels could have been utilized if they had been grown on the farm.

In consideration of the fact that the main purpose of the farm orchard is to provide a continual supply of fruit for home use, it would seem logical to reduce the size of the orchard so that only enough fruit would be produced to supply home needs. The average farm orchard is too large for the time that can be given to its care, especially in the important matter of spraying.

Ten or 12 trees are sufficient to supply the needs of the average family, with enough fruit extra to pay for all of the cost of pruning, spraying and fertilizer. It would certainly be better to take good care of even five trees than to half care for 40.

Most farm orchards are planted entirely too close together, 25 to 30 feet being the average planting

distance. The first step in renovating most home orchards is to remove a part of the trees so as to give the required room for the remaining trees. Apple trees can't spread out and grow low to the ground if they are crowded so close together that the only open space is above the trees. The removal of every other tree in the diagonal row is a good way to start this thinning out operation.

One of the first points to consider in pruning tall old apple trees is to lower the height of the trees as much as possible. This lowering process must frequently be spread out over several years. If the top of the tree is too heavily cut back and opened up the main scaffold limbs are easily sunburned, and this is invariably followed by flathead bores and the partial or complete destruction of some of the limbs. Usually six or eight feet is all that can be removed at one time.

The exact point at which to make the heading back cuts depends upon the location of the lateral limbs. It is very important to cut back to and just above a lateral branch which will tend to

*Before*

spread the future growth of the tree. Of course a rank growth of water sprouts will spring up near these large cuts and they will have to be removed either during the following summer or winter. If this is neglected the sprouts quickly replace all of the height originally removed.

All large cuts and especially those necessary in the heading back of the tree should be covered with a heavy white lead and oil paint. Figure 1 is an old neglected Wealthy Tree. It is so tall it would be next to impossible to spray all of it with a barrel spray outfit. It is so thick and brushy that the fruit could not possibly color up properly and have good flavor.

Figure 2 shows the same tree after pruning. The highest parts of the top have been removed down to side-growing laterals. The remainder of the tree has been thinned out by removing a large number of small branches. The tree is now low enough that it can be thoroughly sprayed inside and out and the sun light may now

reach all of the fruit spurs throughout the entire tree.

OF course it is unfortunate that apple trees ever are allowed to become so high as this old Wealthy tree but the fact remains that this is a typical type tree that must be dealt with in many farm orchards. The heavy pruning out in this tree would never have been necessary if a yearly system of moderate thinning out and heading back had been followed.

As suggested before, the severe cutting is sure to be followed by a heavy growth of water sprouts and these must be removed each and every year. This should be accompanied by further thinning out of small branches and a reduction of the total height of the tree.

There is no question but what proper pruning is an important part of the work of renovating the home orchard, but unfortunately, most farm apple trees are starving for food and seldom have half as much water as they need. Time spent in pruning or better soil management practices is wasted if spraying is neglected or omitted from the program.

(These important features will be discussed in an early issue.)

*After*

¶ Agricultural Experts Make Recommendations for Virginia and North Carolina Based on Exhaustive Study of Tobacco Situation—

1926 Fertilizer

RECOMMENDATIONS

for Tobacco

FOR several years there has been a feeling among tobacco growers that a more careful study of the influence of potash salts on tobacco is needed. Tobacco being a highly specialized crop and markets variable in their requirements, a great deal of care and work is needed to determine the best fertilizer practices that will produce the largest profit for the farmer.

The situation on the whole has been unsatisfactory. In many tobacco areas farmers have been at a loss to know how best to fertilize their tobacco crop.

In view of this confused situation—not uncommon to other crops and other regions—a committee of agronomists met recently at the State College of Agriculture, Raleigh, North Carolina, to study all existing experimental data and to make recommendations

for fertilizing the tobacco in the flue-cured tobacco leaf districts of Virginia and North Carolina. This committee was headed by Dr W. W. Garner, Tobacco Specialist of the United States Department of Agriculture; Professor T. B. Hutcheson, Agronomist of Virginia Polytechnic Institute, Blacksburg, Va.; E. G. Moss, Director of Tobacco Branch Station at Oxford, North Carolina; W. F. Pate, L. G. Willis and C. B. Williams, Soil Fertility Experts from the State College at Raleigh.

After a careful study of all data available, taking into consideration the need for a working basis by which manufacturers could best serve the farmer's interest, the committee agreed to make certain definite recommendations, which we are pleased to publish verbatim.

I—Fertilizers for Bright Tobacco

Analyses of Mixtures—

1. *For Piedmont:*

Eight per cent available phosphoric acid, 3 per cent ammonia and 3 per cent potash, or 10 per cent available phosphoric acid, 4 per cent ammonia and 4 per cent potash.

2. *For Coastal Plain:*

Eight per cent available phosphoric acid, 4 per cent ammonia and 4 per cent potash.

For sandy loam soils containing considerable organic matter, reduce the nitrogen about one per cent; and for very sandy soils increase the potash 2 to 3 per cent.

3. *For Control of "Sand-Drown" (Magnesia hunger):*

For sections where "sand-drown" is prevalent, it is recommended that fertilizers carry 2 per cent of magnesia (MgO). This may be derived from sulphate of potash-magnesia, dolomitic limestone, or any other material carrying magnesia in forms known to be available to the plant.

Amount of Fertilizer:

Use 800 to 1200 pounds per acre in the drill at or just before transplanting.

Sources of Plant Food Constituents—

1. *Phosphoric Acid:*

Derived from acid phosphate.

2. *Potash:*

Derived from sulphate of potash-magnesia, muriate of potash or sulphate of potash.

Available experimental data at this time from bright tobacco sections of North Carolina and Virginia have shown that muriate of potash generally produces tobacco of equal or better yield and market value than that produced by sulphate of potash. In view of the fact, however, that experiments have shown that an excessive amount of chlorine in fertilizers used on tobacco injures its burning quality, it is recommended that such fertilizers be compounded with the above named sources of potash in such proportions that the fertilizers shall contain not more than one unit of chlorine for two units of potash.

3. *Ammonia:*

For Coastal Plain:

One-half of the ammonia should be derived from organic sources; preferably cottonseed meal, tankage or fish scrap; and one-half from nitrate of soda or sulphate of ammonia; provided that at least one-half of the inorganic nitrogen be derived from nitrate of soda.

For Piedmont:

One-third of the ammonia should be derived from organic sources, preferably cottonseed meal, tankage or fish scrap; and two-thirds from nitrate of soda or sulphate of ammonia, at least one-half of the inorganic nitrogen being derived from nitrate of soda.

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¶ *A new "Legume weed" fights for recognition as useful crop.*



S. B. Nichols in Dalea

DALEA...

on Trial

By A. A. Burger

DALEA is the new legume that is being boomed at the present time. But whether it is a plant or a weed, as yet, it is difficult to say. It has some very admirable qualities in its favor, and in time we may discover more; but it also has some qualities that seem to detract from its useful-

ness. Perhaps even these may be outweighed by the good.

At the present time dalea is a leguminous weed going through the testing period; it may remain in that class or it may become a useful plant. However that may be, the best way to introduce any new

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AGRICULTURE

(American Society of Agronomy, Association of Land Grant Colleges, and American Soil Survey Association meets in "Windy City.")

DID you want to know anything about our national agriculture and its many problems? Then Chicago was a good place to visit during the week commencing November 16 to obtain such information.

Many workers, well-known in the agricultural field were in Chicago at that time. The Honorable Secretary of Agriculture was there, many presidents of agricultural colleges, directors of state agricultural experiment stations, and of the various departments of the United States Department of Agriculture. Directors and workers in research and extension were well represented, and of increasing importance to our national agriculture, was the presence of many ladies prominent in home economics. Engineering and the Farm Bureau Federation were also well represented.

Especially must we mention the presence at the meetings of six county agricultural agents, the prize winners in the soil fertility program contest recently conducted by the Northern Division of the Soil Improvement Committee of the National Fertilizer association.

Laboratory research is of the greatest value when translated into more efficient production. In this work we cannot overestimate the importance of the extension forces and county agricultural agents.

The national agricultural organizations that met in Chicago arranged in the order of opening dates were the "American Society of Agronomy" which held its 18th annual meeting on November 16 and 17. The "Association of Land Grant Colleges" held its 39th annual meeting November 17-19, and the "American Soil Survey Association" on November 18-19.

As anyone who tried to attend all of the meetings knows, it was a very crowded week and for all interested in agriculture, a very profitable and eventful week.

In the wide range of subjects covered was reflected the increasing complexity and usefulness of our agricultural field and laboratory work. Many subjects of vital, practical, and scientific interest were discussed, but through all the discussion there seemed to be the one dominant idea—the need for

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Results of experiments on Wisconsin Plainfield Sandy Loam

KING Potato

Read about spuds in the Badger Dairydom.

THE Wisconsin Potato Growers' Association held its annual show at Oconto on November 3 to 6 with an estimated attendance of nearly 4000 people. For real interest and constructive forward-looking plans it was probably the "biggest and best" that has ever been held.

Among those in attendance who will do much for the future of the industry were 600 rural school boys and girls who are interested in better potatoes. Fifty-five teachers who accompanied the youngsters each received a box of standard variety seed stock that will be studied by the students and eventually planted by them.

Actively engaged in making the show a success were potato growers from about 25 counties that have community potato work under development and organization. These communities vied for hon-

ors in county booth prizes, with Price and Oneida counties winning first and second awards with their truly remarkable exhibits. Nearly a hundred prizes were given individual exhibitors as inducements for them to bring their good potatoes into the competition.

Growers of certified potato seed were very much in evidence among the thousands who came to the show. There are now more than 150 farmers in the state whose potatoes are grown under the certification plan. J. G. Milward, potato expert of the Wisconsin College of Agriculture, announces that these farmers grew 167,000 bushels of certified seed this year. Much of this stock is being tested for mosaic disease by the college before it is shipped to growers in the South.



Similar experiments on Wisconsin Antigo Silt Loam

Holds HIGH Court

By Dr Guy A. Peterson

Madison, Wisconsin

THE test is made by sprouting a single eye from a potato. If no mosaic shows up on this sprout the tuber is free from the infection and is qualified to go into the southern market with a state certificate of inspection as a guarantee of merit. One peculiarity of this disease is that it may not appear to the eye in the northern grown seed, even though the infection is present and ready to make its appearance when the seed is sent to warmer climates. The laboratory test discloses the infected tubers, however, and by this method of control it is hoped to eventually control the dreaded disease.

Results of fertilizer experiments that had been conducted during the year and which were on exhibit at the show proved of particular interest. One of the most unusual of these was the variations

in yield due to placement of the fertilizer. O. J. Noer, of the Wisconsin College of Agriculture, ran some tests on Fred Dopp's farm at Almond on Plainfield sandy loam. Fertilizers analyzing 4-10-6 were applied by hand at the rate of 900 pounds per acre. The fertilizer was applied with the seed, above the seed, below the seed, and by the side of the seed. Noer found that when fertilizers are applied in the row, best results are obtained when the application is made at the side of the potatoes. This resulted in about 20 bushels higher yields to the acre than were received by the same application when the fertilizer was put in with the seed. "This difference at the prevailing prices this year," says Noer, "is great enough to pay for the fertilizer."

The unfertilized plots yielded
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☞ *Big, luscious berries;
lots of spanked cream;
no one around but me—
Yummy-ummy!*

Jeff

SOUTHERN STRAWBERRIES

By R. B Fairbanks

ONE of the most profitable truck crops grown in the South is the strawberry. More than half the acreage in the United States devoted to strawberries for shipment is found in the southern states. The leader is Tennessee, this state devoting about 21,000 acres to the crop. No state in the Union approaches this in acreage. Louisiana comes second with between 14,000 and 15,000 and Arkansas third with from 13,500 to 14,000 acres. Virginia usually grows around 10,000 acres and North Carolina approximately 6,000. Alabama grows from 3,500 to 4,000 acres, and Florida from 3,000 to 4,000 acres.

Of the early crop of strawberries, Alabama, Florida, Louisiana, Mississippi and Texas are the principal producers. These five states devote around 23,000 acres

to the early berry crop. The second early crop comes almost entirely from Arkansas, North and South Carolina, Tennessee and Virginia. About 2,000 acres of this second early crop comes from the southern district of California. These five Southern states devote approximately 52,000 acres to the second early crop.

The early strawberry crop is grown entirely in the lower coastal plains section of North and South Carolina and Georgia, the state of Florida, Southern Alabama, Mississippi and Louisiana, and Southern Texas. The medium early belt includes all of the South with the exception of that portion where the early crop is grown.

The earliest berries usually come from the Plant City district of Florida, these going to the market during December and January,





Picking strawberries, Lee county, Alabama

with the heaviest shipments in February. Usually a small quantity goes to market by Thanksgiving. By the time the shipments have played out around Plant City the northern portion of Florida in the Starke and Lawtey districts begin to ship, which is during the latter part of February. In March, shipment from this section becomes quite heavy. During the latter part of April, shipments commence from North Carolina, and further North. Similar successions in movement take place in Texas, Mississippi, Louisiana, Alabama and Arkansas.

IN deciding where strawberries are to be grown, several things must be taken into consideration. Transportation facilities for shipping the berries, of course, is among the most important. Being close to a supply of pickers, boxes, crates and other supplies, is also important. Then too, these well

defined sections where strawberries are grown are usually so located that one section will not be shipping at the same time another section is shipping. This is necessary in order to avoid overstocking the market.

The strawberry will grow in the South on almost any type of soil, but it positively will not grow on a soil that is water sogged. Of primary importance is the thorough preparation of the soil. Also it is very important that the soil contain a liberal amount of organic matter. If an abundance of stable manure is available this of course will serve the purpose very well indeed.

Often preparation of the soil for strawberries is commenced one or two years before the plants are to be set. Where one looks ahead this far and turns under one or more cover crops, then thoroughly prepares and fertilizes the soil, and sets good plants, a whole lot has been done toward succeeding with berries.

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With the Editors

EVERY useful magazine has a sound policy. The editors have given our policy earnest consideration. We feel that you would like to know what it is, and we want to tell you about it.

THE policy of **BETTER CROPS** is definite. It is to stimulate an interest in all factors pertaining to a more efficient agriculture and to give accurate information on such subjects.

IN developing a more efficient agriculture, you believe—as we do—that one of the most important factors is sound research and experimental work. It is our policy, therefore, to actively support all groups and agencies doing such work, especially the State Agricultural Experiment Stations and Colleges, and the United States Department of Agriculture.

WE believe that such research work is of the greatest value when translated into more efficient production and better living on the farm. Agriculture should be put on a business basis. The farmer is entitled to a larger share of the consumer's dollar. Living and working conditions on the farm should be improved. Consequently we are glad to heartily support the work of the agricultural extension forces and the county agricultural agents.

ESPECIALLY do you want all the facts, not selected facts. It is therefore a very vital part of the policy of **BETTER CROPS** to publish all the facts.

YOU want these facts presented by authorities in an easy-to-read and attractive form. To combine a soundness of purpose with brightness of treatment is one of our chief aims.

IT is the firm resolve of the editors to live up to this policy at all times.

THIS magazine is your forum. Will you suggest any improvements in this policy that would help you? Our office is at 10 Bridge Street, New York, south of the Customs House, near Bowling Green. We shall be glad to see you or glad to hear from you at any time.

Better Crops' ART GALLERY *of the month*



Dr. C. L. Marlatt, chairman of the Federal Horticultural Board. A great controversy has grown out of the action of the board in issuing a regulation under the plant quarantine act to keep out certain foreign bulbs after January 1, 1926.



R. H. Aishton, John H. Light, A. M. Loomis and Wm. H. Barr, representing Transportation, Agriculture and Industry on a visit to assure President Coolidge support of economy program.

Harry Steel, Ohio, Olympic heavyweight wrestling champion, chose farming in preference to career on professional mat.



U. S. Delegates to Pan-American Congress of Highways at Buenos Aires: Lt. George T. Howard, Dean A. N. Johnson, Charles M. Batcock, Congressman W. E. Hull, Admiral Lattimer, Frank Page, H. H. Rice, Pyke Johnson, T. H. McDonald, and Miss H. M. Sweet, secretary.

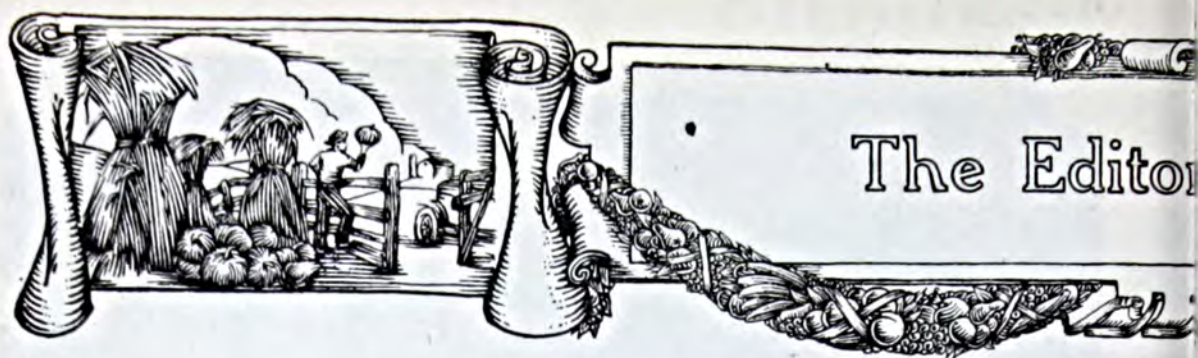


East Side New York boys bring produce to city to show their progress to the men who are sending them to a agricultural school.

The vegetables were used at a dinner of New Yorkers who paid \$60 per plate. The proceeds will be used to make farmers out of more young fellows from the "Big Town."



Just another way of making the farmer's dollar go farther—Sonny submits to home influence, incidentally practising economy.



SCIENTIFIC MEN IN AGRICULTURAL BUSINESS

The other day, we noticed two statements in the agricultural press.

The first was in an agricultural college magazine. It said that some 170 graduates of that institution were now associated in agricultural business—nearly all in technical positions with agricultural machinery, fertilizer, dairy, cooperative, and other organizations, selling goods and rendering service to the farmer.

The second statement was in a circular published by the United States Department of Agriculture. It showed that in 1923, in 48 states, 322,427 farmers were definitely influenced to change their cropping systems by the Agronomy Extension Services of the Agricultural Colleges and Experiment Stations.

These items record some of the activities of three major groups—the Farmers, the Agricultural Workers, and the Agricultural Business Men. These are the great divisions of the personnel of our national agriculture.

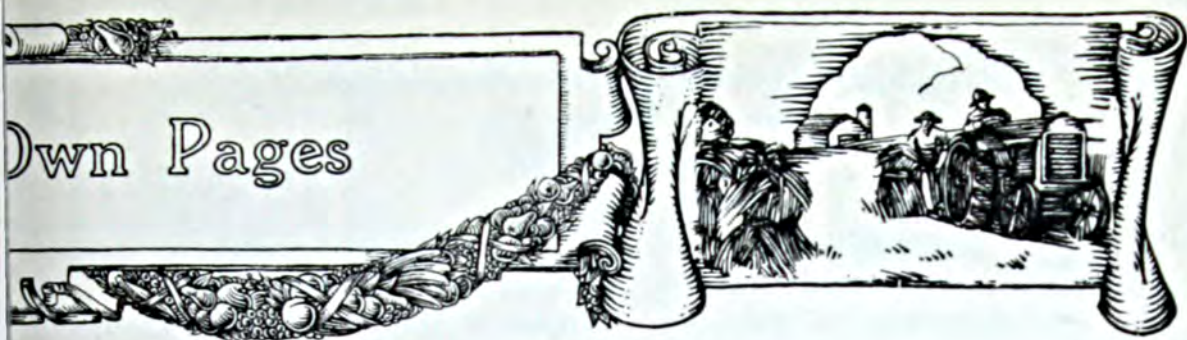
As groups, they are beginning to work together. Economic pressure is compelling this, driving home the idea that each group must understand and work with the others.

WHY? Because they are dependent on each other. Unity is not in each group as such, but in the larger view, the farmers, the scientists, and the business men as one large body in which is vested much of the responsibility for managing our greatest national asset—the land. There is no escape from this responsibility or its consequences.

The land has given a poor return perhaps—then the farmer is in poor financial condition. Agricultural business is bad—the scientist is discouraged. Criticism is common at such times, and appropriations are hard to get. The condition of any group, is the condition of the others. We are prosperous together or poor together.

The outstanding trend of recent years has been the growing realization of this mutual interdependence, and the development of definite systems of organization to express it and correlate it to practical affairs.

For instance, the Agricultural Colleges and Experiment Stations have organized effective extension departments to serve the



Farmer. The Scientists and Farmers are getting together to their mutual advantage.

The Business Man and the Farmer understand each other.

But this is not enough. What of the Scientists of our Agricultural Colleges and the Agricultural Business Men? The great need of this organized effort is for these two groups to know each other better. Much is being done, but much remains to be done.

There is much that the Scientist can give to Agricultural Business—often technical in character. There is much that the Business Man can give the Scientists.

The problem and the solution—how this can best be done—needs clearer definition. We must have a basis for cooperation between these groups, something they can all believe and act on.

To us there seems to be only one such basis. It is for each group to actively support the soundest possible research and experimental work in all agricultural fields, and to accept the results whether in their favor or not—to make every effort to put forth the whole truth.

Only on some such basis can cooperation grow, and only by the support of such a policy can the Farmer maintain a decent standard of living from his land; can Agricultural Business permanently prosper; and can the Scientists in Agriculture work to their fullest capacity and usefulness.

“THERE AIN’T
NO SANTA
CLAUS”

A bit of every day slang! But when you have just been dealt one of Old Father Time’s gentle “hard knocks” how often do you find yourself thinking along the same

line?

Since the childhood day when we first realized that Santa Claus was a myth, we have constantly been losing some one of our pet illusions. But in its place has generally come a bit of good hard sense.

We, in agriculture, have lost a lot of illusions the past four years. This year has been full of good sense, consequently there is going to be a heap more sincerity in the holiday greetings.

BETTER CROPS steals a goodly share of that sincerity for its greeting to its readers—MERRY CHRISTMAS AND A HAPPY AND PROSPEROUS NEW YEAR.

Chicago Entertains Agriculture

(From page 23)

hard work in systematizing and organizing our agricultural work in field and laboratory to the end that there may be evolved a national program to guide our agricultural development. This was the outstanding idea we brought away from these meetings. Closely related with this need were discussions on the effect of the Purnell Act and the effect on rural life of increasing research in agriculture and home economics.

THE Society of Agronomy ably contributed to the solution of agricultural problems by offering a well-filled program covering "Methods and Relations in Extension Work in Agronomy"; "Soil Deterioration"; "Taking Agronomic Research to the Farmer"; "The Present Status of Corn Improvement"; "Controlling the Quality of Crops"; "Soil Bacteriology"; and particularly on "Base Exchange Phenomena in Soils".

The Association of Land Grant Colleges discussed a wide range of subjects in its different sections and divisions. The general session was devoted to the topic, "The Relation of the Land Grant Institutions to the Fundamentals of a Forward-looking National Policy for the Development of Agriculture, the Industries, and Home Making."

The Honorable Secretary of Agriculture addressed the meeting in general session on Wednesday evening, November 18. An interesting history of the Purnell Bill was also given. The other organizations represented at that meeting were the "American Farm Bureau Federation", "Engineering", and "Home Economics".

At other meetings of the general session, the Land Grant Institutions in their relation to the development of agriculture, the development of the industries and of home making were discussed.

IN the sections on agriculture, engineering, and home economics, papers of a wide range of subjects vital to the different fields were presented. The agricultural section included papers on resident teaching, experiment station work, and extension work. Unfortunately, however, space does not permit of reporting in detail.

The work of the American Soil Survey Association, in a few words, is to thoroughly systematize the field work and knowledge of our soils. This is important work. The Association is a vital factor in its continuance.

The more important subjects discussed were soil profile studies: prairie, northern timbered, southern, and western soils. Field problems and methods also received a prominent place. Of particular interest to many workers was a paper on "Soil Map Reproduction". Members of the Bureau of Soils, United States Department of Agriculture, gave interesting observations on the soils of Cuba and Haiti.

The meetings closed on Thursday evening, November 19. Everyone interested in the progress of our agricultural development and the formulation of a national program for agriculture should be sure to read these papers when they appear in the journals of the respective societies.



FERTILIZER NOTES



DEVELOPMENTS in the fertilizer situation during November were such as to give pause to the manufacturers in their operations for the coming spring's business, and the price trend was again downwards on both ammoniates and phosphates. The situation was reported as unfavorable in the tobacco growing sections in the north, with farmers cutting down, but in the Southern States the outlook for fertilizer consumption during the coming spring months continued reasonably favorable.

The prolonged spell of indifference on the part of fertilizer mixers is believed due in some measure to a general fear that the nitrate of soda market might repeat last year's performance, and go into a slump at the height of the season. This fear, it was felt among trade members, might account for the extreme conservatism of the mixers in their purchasing of materials. The market for nitrate has held up sturdily thus far, however, and gives promise of continued strength. That this view is shared by the manufacturers of commercial fertilizers is indicated by the more numerous inquiries reaching sellers during the closing week of November.

WITH a heavy crop of cottonseed meal this season, this material has assumed greater importance and it is believed that meal will be used as an ammoniate more large-

ly than ever before this year, replacing in part other materials normally used.

Potash market conditions showed no outstanding changes. The manufacturers are covered on their season's requirements on this material, this being one item on which they have been able to figure their forward costs with certainty. Stabilization of the remainder of the market to a similar degree would be welcomed by the industry.

HOLDERS of bone materials in the Chicago market who had been looking for higher prices on their stocks were forced to start the unloading process early in November, after buyers had held off the market for several weeks. This precipitated a general downward movement in quotations, and carried the average price for the group down, being offset in part by the firmer position of the market for Florida phosphate rock. Car shortage was a serious factor in the latter division of the phosphates market, interfering with contract shipments to some extent.

Fishing on the Chesapeake has closed for the season, and while authentic data regarding the make of scrap is not yet available, it appears that production for the 1925 season greatly exceeded that of last year. Prices on this ammoniate have remained about steady,

an advance in the price of the dried scrap failing to hold.

SUMMING up the situation in relation to the outlook for the balance of the season, it appears that there is still considerable filling-in buying to be done. Mindful of the expensive lessons of the past the manufacturers of mixture have not let their optimism run away with them this year, and while the consensus of opinion among the makers of commercial fertilizers indicates that a material gain over 1924 consumption figures is looked

for this year, most of the mixers have been reluctant to turn out stock in heavy quantities in anticipation of this demand. Many of the manufacturers, it is reported, have arranged for sufficient stock to take care of their contract requirements, with a conservative surplus to take care of prompt shipment business during the height of the shipping season. Unless there should be some radical change of destructive character, however, it is expected that most of the manufacturers will find that they have under-bought in the materials market and re-enter later on for additional supplies.

* * *

PRICE TREND IN FERTILIZER MATERIALS

THE FOLLOWING PRICES ARE THE AVERAGE PRICES PER 100 POUNDS FOR FIVE SELECTED* POTASHES, AMMONIATES, AND PHOSPHATES. THE COMPARISONS ARE MADE AGAINST JANUARY 1, 1914, AS REPRESENTING PRE-WAR MARKET VALUES:

Material	Current	Month ago	Six months ago	Year ago	Pre-war Jan. 1, 1914
Potashes.....	\$1.31	\$1.31	\$1.29	\$1.23	\$1.35
Ammoniates..	2.61	2.61	2.60	2.56	2.14
Phosphates...	.63	.6385	.5780	.5715	.57

* The five selections under each heading are:

POTASHES	AMMONIATES	PHOSPHATES
Kainit, bulk	Sulphate of ammonia	Acid phosphate, 16 per cent
Manure salts, bulk	Blood, dried, New York	Bones, rough, hard, Chicago
Muriate, bulk	Fish scrap, dried, works	Bones, ground steamed, Chicago
Sulphate, bulk	Soda nitrate, spot	Rock, Florida, 68 p.c. works
Magnesia, bags	Tankage ground, New York	Rock, Tennessee, 75 p.c. works



Foreign and International Agriculture



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy—both of facts and their interpretation.

THE Hawaiian Islands, or at least that portion of the Islands devoted to pineapple culture, present a challenge to the fertilizer industry to evolve some method of keeping up the fertility of pineapple-growing land.

According to a special report received recently by the "Wall Street Journal", the country's leading financial paper, decline in a few years in the production possibilities of Hawaiian pineapple plantations appears inevitable unless the packing companies succeed in bringing to light some method of maintaining the fertility of their pineapple acreage.

That the experimentation which has been in progress for the past few years has not yet proved satisfactory is evidenced by the anxiety of the companies to obtain additional pineapple land. Of the companies operating in the Islands, one alone appears to have solved its problem for a number of years to come through purchase of the undeveloped Island of Lanai, about 70 miles from Honolulu, where a town has been built and planting is in progress with the first crop yield due in 1926.

ANOTHER company has been forced to turn its attention elsewhere in the Pacific, notably the

Philippines, where attempts are going on to change land-holding laws to permit of plantation establishment. Samoa and Tahiti are being investigated by experiment and planting.

Hawaii's 1925 pack of pineapple approximated 7,200,000 cases, as compared with 6,826,000 cases last year. By far the bulk of this production comes from in and around Honolulu, although that does not necessarily imply that the fruit is grown on Oahu Island. In pineapple culture, high land produces the best results. The plant requires little water, but even the high land in Hawaii after two or three plantings becomes practically useless to produce a crop worthy of packing.

With scientific fertilization it is believed, the land might again become valuable, but once ploughed it suffers enormously from erosion, owing to the softness of the soil and the heavy rainfall. Use of paper in pineapple planting, which was started extensively a few years ago as a means of solving the growers' problems, has been found to frequently intensify erosion by permitting downpours to tear gullies between rows.

Pineapple fields are washed away at an alarming rate, whole hillsides being undermined. Growers must constantly seek new land, and there is, of course, a

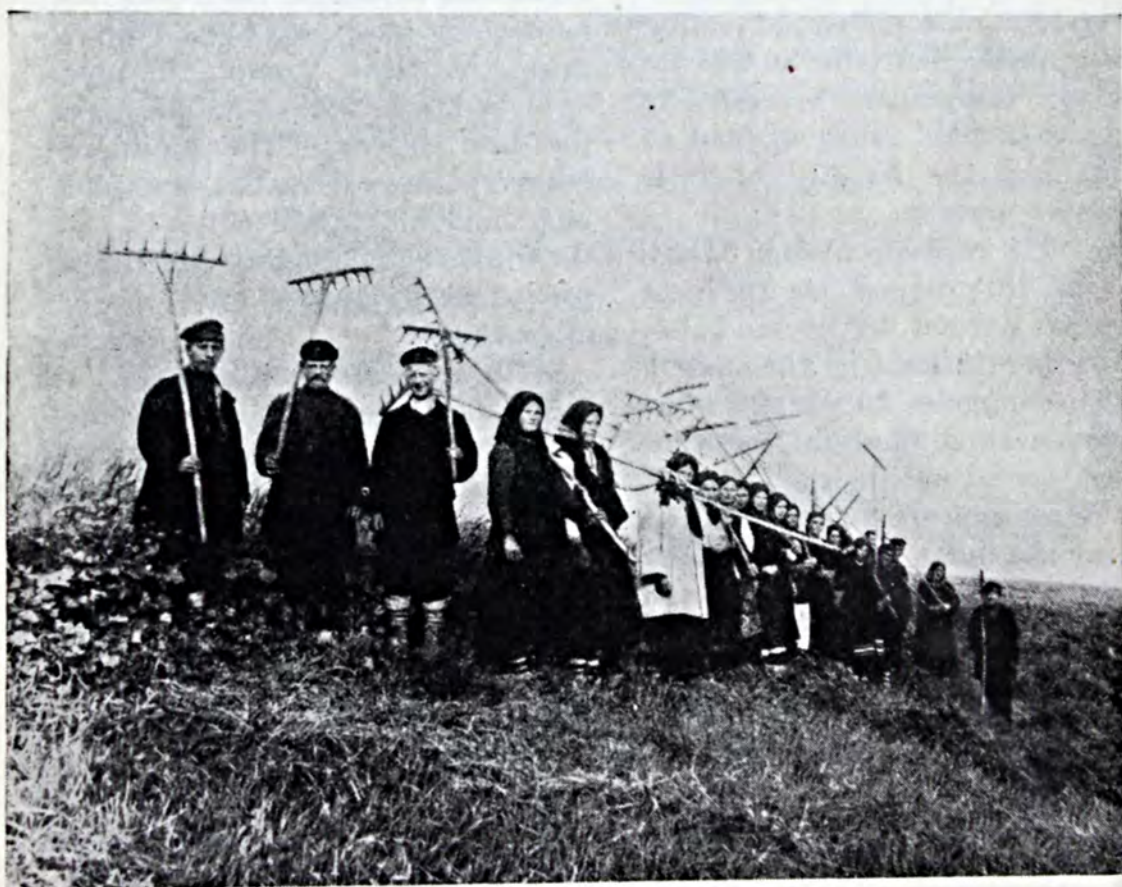
limit to this search in the Hawaiian group of islands.

Enormous acreages are still untouched, but a large part of the idle ground is under control of sugar plantations, which have come to realize the danger to their watersheds from pineapple culture. Upland pineapple fields render the land used unfit for forestation, badly needed; cause silting of irrigation systems, and often increase the rapidity of the rain runoff to a dangerous extent.

PINEAPPLE packers operating in the Islands depend to some extent upon the offerings of private growers, but most of them have developed, or are developing, their own acreages. Under the im-

petus of heavily increasing consumption, the production has increased from 2,670,000 cases to 7,200,000 cases in ten years. Chief opportunities for new development appear to be on Lanai and Molokai Islands.

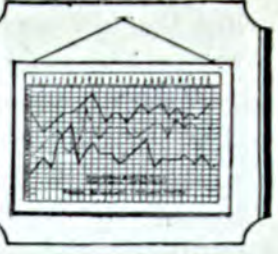
Among the latest developments in the handling of pineapples grown at points distant from the canneries is that of the company carrying on at Lanai. The pineapples will be shipped to the Honolulu cannery on steel barges, now building. The holds of these barges will be filled with water and the pineapples will be flumed aboard where they will fall into tanks, preventing bruising and preserving freshness. As the holds fill with pineapples, the water will be forced out.



Russian peasants dressed in the native costume engaged in bringing in the 1925 harvest. The crop, a bumper one, has exceeded the expectations of the farmers



AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Fish Oil Effective in Arsenate of Lead Sprays

Efforts to improve the sticking qualities of orchard and garden sprays have recently resulted in the discovery of valuable facts regarding certain oils. The Bureau of Entomology of the Department of Agriculture has carried on many tests at places in Massachusetts and New Jersey, and one of the outstanding facts brought out is the superiority of fish oil as an adhesive in arsenate of lead sprays.

Most dependable results were obtained in 1924 because of the above normal rainfall in the regions where the tests were carried on. The materials used were linseed oil, fish oil, and corn oil, and in effectiveness they ranked in the order named. Linseed oil was found to adhere more closely to the foliage than fish oil but the difference was so slight as to be of little significance. Corn oil is not so good as either of the others but is more efficient than various other substances tried previously, such as soap, glue, casein, molasses, glucose, and flour.

Fish oil is to be recommended for large spraying operations because of its cheapness. For small areas, linseed oil can be used very well as the increased expense is not great and this oil is always easily obtained. Either of these oils is used at the rate of one gallon to 400 gallons of spray solution. The oil should be added

after the arsenate of lead has been well mixed with the water and while the solution is being agitated.

"Large quantities of fish oil are used in the gipsy moth spraying operations where a grade known as "light pressed," a yellow-brown product, is used. Cheaper grades known as crude fish oil contain stearin which may clot and cause trouble in the operation of machines.

Because arsenate of lead solution sticks so well when fish oil is used, livestock should not be allowed to graze on vegetation under trees that have been sprayed with the mixture.

Some Cheer for Corn Farmers

While the price of corn has been slipping down the greased pole, there are reasons why the situation should not be considered as bad as it looks to the casual observer. As is well known, all but about 20 per cent of the corn crop is annually fed on the farms and livestock prices this fall are very satisfactory.

Economists of the Department of Agriculture point to a likelihood of increased feeding demand and call attention to smaller supplies of some other feed crops. They also say that farm carry-over of corn is very low and that the crop although much larger than that of last year is only 90,000,000 bushels larger than the five-year average and that consid-

ering the low stocks the total supply for the year is less than the five-year average.

The barley crop for the year was 40,000,000 bushels above 1924 but half of the increase was in California where last year's crop was nearly a failure. This year the grain sorghum crop was reduced by about 21,000,000 bushels which makes up to a great extent for the increase in barley. Another factor is that the hay crop is considerably below the five-year average and that the oat crop while above the average for the five-year period is about 70,000,000 bushels smaller than last year's crop and the total supply, taking into account the supply on hand, is about 23,000,000 bushels less than last year.

Other factors mentioned by the economists are that the ratio of corn and hog prices is such as to stimulate feeding of hogs to larger weights, and in fact hogs shipped to market are already showing heavier weights than a year ago. Also it is probable the number of spring pigs may be increased if prices continue favorable, so that large quantities of corn may be required for summer and fall feeding before another crop is produced.

The Smell of Cotton

The old saying "only a smell" has always connoted something hardly worth mentioning, but if the work on cotton odors being carried on by chemists in the Department of Agriculture continues as promising as at present a mere smell may be the means of suppressing the toughest customer in the cotton belt, the boll weevil, and it may, in addition, supply an outlet for a waste product of beet sugar manufacture. More experimental work is necessary, but it has been determined that the

odorous constituents are, at least in large part, ammonia and trimethylamine.

These substances have been found in the emanations of the living plants, and field tests have shown that trimethylamine possesses some attraction for the weevil. Just how successful it will prove as a bait is yet to be shown, for field conditions are much different from those in the laboratory.

If this chemical proves successful as a lure for the insect, large quantities of it can be made at low cost from waste sugar-beet molasses, a by-product for which manufacturers have long sought a profitable use.

Use By-Product of Car and Tractor

The automobile and tractor provide no profit in the way of fertilizer, but old oil drained from the crank case is now widely used by farmers for various purposes, including the protection of hogs against lice. The New Jersey Agricultural College has gone a little farther than usual in making recommendations for the use of this former waste. It is suggested that the oil, with its content of metal particles and diluted with fuel oil which seeps through from the cylinders, be left in an open container until the gasoline has largely passed off by evaporation and the suspended particles have settled to the bottom. The oil is then still too thin for engine use, but is satisfactory for lubricating most farm implements. The heavy residue may be put into a convenient container and applied with a brush to the scouring surfaces of plows and cultivators to save them from rust. Another use for the dirty oil is for spraying on stagnant pools to stop the breeding of mosquitoes.



REVIEWS



Factors Affecting Farm Profits in the Williston Area, Florida, Bulletin 175

Farm management is the study of the business side of farming. It deals with the business aspects of farming, as opposed to the technical aspects. Thus, it does not deal with how to grow corn, but with whether to grow this crop, what acreage of it, the cost of growing it, and the returns to be expected from it.

A farm survey of 120 farms in the vicinity of Williston, Levy county, Florida, was made during the summer of 1923 by Professors J. E. Thurlington and H. G. Hamilton. The principal soils covered by the survey were Norfolk Sand and Norfolk Sandy Loam, about 75 per cent of the area being of the latter type of soil. This soil was well adapted to the growing of cucumbers, the outstanding crop. Approximately two-thirds of the crop acres were given over to cucumbers, corn and peanuts coming next in order of acreage and importance.

The average labor income of these farms was \$807, the lowest being minus \$3,586 and the highest \$19,925. The average capital per farm was \$8,111, 80 per cent of which was fixed capital and 20 per cent working capital. Receipts from the sale of cucumbers averaged 72.3 per cent of total.

One outstanding feature of this survey was that as capital increased labor income increased until a capital of \$12,000 was reached. Another important finding was that with the land valued

at from \$40 to \$50 per acre the labor income was higher than where land values were higher or lower.

In a careful study of the crops sweet potatoes-sugar cane-hay-cotton-peanuts-watermelons - pasture-corn and cucumbers, taking into consideration cost of growing, adaptation to soil and climatic conditions, certainty of crop, acre value and capital required, cucumbers proved to be the most profitable.

For anyone interested in making a study of their own particular farm as regards the selection of crops most likely to make them a profit and particularly to farmers in regions where similar conditions prevail, we believe this bulletin will prove a valuable guide.

Effect of Cropping Upon the Active Potash in the Soil, Texas Bulletin 325

So much has been written during the past decade about conservation of soil fertility that one wonders how long the haphazard American methods of farming can go on without materially affecting the producing power of our soils. A large amount of work has been done by chemists and agronomists in an effort to arrive at some tangible means of approximating soil fertility and formulating methods for maintaining the natural fertility.

Of recent years soil fertility studies have to a large extent been based on the amount of mineral elements removed from the soil by

the crops grown. It is perfectly obvious that any sound basis for a soil fertility program must take this element into consideration.

In Bulletin 325 Texas Experiment Station, G. S. Fraps, Chief of the Division of Chemistry, ably discusses the subject of effect of cropping upon the removal of active potash from the soil. All experiments were on corn and sorghum grown in succession. Phosphoric acid in the form of dicalcium phosphate, and nitrogen in the form of ammonium nitrate were added to all pots in the potash studies. A pot in every series had sulfate of potash added and was used as a check. The crop was harvested at the end of 60 days. All crops grown, as well as soil in the pots after all roots had been carefully removed, were analyzed.

Careful study of the experiments reveals that the decrease of active potash is not as great as the quantity removed in the crop. It is also evident that the amount of potash withdrawn from the soil increases with the active potash present.

In the correlation studies of the active potash removed from the soil and the active potash lost in cropping, careful observation shows that the relation is not the same in all cases. It appears that differences in the character of the minerals furnishing the potash, differences in soil condition as well as biological relation may to a large extent be responsible for such variation.

The amount of active potash lost from the soil in 409 pot experiments averaged 40.9 per cent of the potash removed by the crops. (Active potash means that dissolved by fifth-normal nitric acid). It is clearly demonstrated by the studies conducted by Professor Fraps that the determination of active potash in the soil is a use-

ful and valuable method for making a study of the potash resources of a soil and a working basis for judicious use of potash salts in crop fertilization.

For those seeking a method for studying the potash needs of their soils we feel that the work of Fraps points the way. This bulletin should be carefully studied by all soil chemists and soil fertility experts.

38th Annual Report of the Director, Pennsylvania Bulletin 196

For a number of years experimental work of the several Agricultural Experiment Stations has been confined largely to the everyday problems of the farmer. Many valuable bulletins have been written and a large amount of invaluable service rendered the farmer.

With the rapid increase of our population the necessity for more careful conservation of our greatest national resource (soil fertility) and the increasing hazard caused by inroads of insects and diseases, need for a more extensive study of farm problems is apparent.

Only recently the "Purnell Bill" made available \$20,000 a year for this much needed research work for each experiment station. Though much research is in progress, this additional appropriation will make possible considerable expansion of this line of work.

Some idea of the interesting projects already under consideration can be obtained by reading the 38th Annual Report of the Director of the Pennsylvania Agricultural Experiment Station, State College, Pa. This report should prove of interest to all agricultural workers, for it typifies the high ideals of those to whom is entrusted the future of our agri-

culture. If any civilized nation is to endure—surely it must be based on a permanent agriculture. With our experiment stations alive to their obligation to civilization—all that seems necessary is that all alike give those untiring workers your moral and legislative support.

Important projects are reported under way on the following: analytical service, agronomy, tobacco experiments, animal husbandry, botany and plant pathology, dairy husbandry, forestry, horticulture, poultry husbandry, zoology and entomology and animal nutrition.

Considerable attention is being given to fertility investigations, and a large amount of data is available. Work with culture, diseases and fertilization of tobacco has made considerable progress. Studies having to do with forest preservation are being made. During the past decade forests of Pennsylvania have been seriously damaged by insects and diseases. Outstanding in our minds is the "Chestnut Blight."

The American hen comes in for her share of the critical scientist's time. Artificial illumination to give her an added interest in her owner—promises by virtue of a compulsory 13 hour day to bring more dollars to poultrymen supplying lights.

Old Bossie has not been neglected. It seems the disease man (The Vet) is after her number—and the "pure food man" even follows her products as far as the final resting place, be it the glass of milk or saucer of ice cream. Investigations aiming to make Bossie a greater asset to civilization are under way. Surely Vitamins A B and C are to be given their rightful place in the rôle of life, and here Bossie we are told reigns supreme.

Fertilizer Efficiency

(From page 14)

alysis has the same value as any other inventory; for in no business on earth are all items in stock equally available for immediate conversion into cash; and, just as in business, certain classes of employees are subject to a more rapid turn-over, so in the soil certain plant-food elements are more readily influenced by biological factors.

THE somewhat typical cases cited above indicate that, consciously or unconsciously, fertilizer manufacturer and farmer are both seeking the same things, namely, the types of fertilizer mixtures and materials best adapted to definite soil and crop conditions, and the time- and place- utility values of commercial fertilizers as determined by the method and time of application. In this they are aided by the agricultural scientists of the state and national Experiment Stations.

It is an example of the spirit of cooperation in the search for truth: the scientist seeking the truth for its own sake, and we hope also for his own, that he may serve more effectively; the farmer seeking to use fertilizer more effectively in order that he may produce efficiently and live more fully; and the manufacturer seeking to learn the potentialities of his market and to know where it is and where it is not, in order that he may devote his energies to the fulfillment of the real fertilizer needs of the farmers.

With potash, as with nitrogen and phosphorus, the amount required in the fertilizer depends on the total amount present in the soil, the rate of availability when needed, and the requirements of the crop. Every pound of potash

sold in fertilizers to be used on soils deficient in potash, or for crops requiring more readily soluble potash than the soil can supply, not only creates a market demand for more potash by demonstrating its efficiency in crop production, but also proves itself a real blessing to the farmer who uses it.

Every pound of potash applied in fertilizers to soils containing sufficient available potash to meet the requirements of the crop rotation employed, is not only a direct loss to the farmer purchasing it, but represents also a loss to the potash producers through misdirected sales effort in trying to develop a part of the market which really does not exist. To continue to sell fertilizer materials for use under soil and crop conditions in which they are not needed, is literally trying to draw water from a dry well. In other words, the agricultural scientist, farmer, and fertilizer manufacturer all have a tremendous responsibility and opportunity, as well as a selfish interest, in studying soil and crop conditions to increase the efficient use of fertilizers.

Some examples from experiments in Maryland, as published in bulletin 247*, may be cited to illustrate conditions under which various fertilizer elements may be used both efficiently and inefficiently.

On the Chester loam, in the Piedmont Plateau, at the Howard county experimental field, an application of 400 pounds per acre of 4-10-6 fertilizer for wheat increased the yield 6.7 bushels per acre. On an adjacent plot this fertilizer with the potash left out, when applied at the rate of 350 pounds per acre, has increased the yield by 6.6 bushels per acre. Here

the potash did not pay for itself. The necessity for nitrogen on this soil is shown by the fact that a third plot receiving 250 pounds of acid phosphate, but no nitrogen, gave an increase of only 2 bushels per acre over the yield of the unfertilized plots. Similar results were obtained on the same soil in Baltimore county. My own analyses of Chester loam from Baltimore county show it to contain about 2.8 per cent K_2O in the surface soil and 2.9 per cent K_2O in the subsoil. For many years to come, potash will not be a particularly paying proposition on this soil for grain and hay rotations.

Data obtained by the Pennsylvania Experiment Station on Hagerstown silt and clay loams showed that potash alone had no appreciable effect on the yield of corn, oats, wheat and mixed hay grown in a four-year rotation; but that potash applied with phosphoric acid has greatly increased the yields. It so happens that the Hagerstown soils frequently contain as high as 4.8-5.2 per cent K_2O in the surface and sub-soils.

But, contrary to the Chester soils, the Hagerstown soils, because of their fine texture and enormous iron and aluminum contents, are very easily puddled, and are frequently in very poor mechanical condition; so much so, that even heavy manuring often fails to release appreciable amounts of potash. On this soil the advisability of purchasing potash in the fertilizer depends very largely on the mechanical condition the farmer is able to maintain and the extent to which both lime and manures fit into his cropping system.

FOR grain and stock farming it is possible on both the Hagerstown and Chester soils to obtain maximum yields without purchas-

*McCall, A. G., Fertilizers for Maryland Soils, Bulletin 247, Maryland Agricultural Experiment Station.

ing potash, although on the latter it may be accomplished much more easily in spite of the lower total potash content, because of the difference in soil texture and in the amounts of colloidal iron and aluminum present.

To continue briefly, on the DeKalb silt loam in the Appalachian Highlands the Maryland data shows that while potash was essential for potatoes, it failed to increase the yield of oats or of hay. This soil contains slightly less potassium than the Chester loam. On the other hand on the heavier Sassafras soils of the Del-Mar-Via Peninsula, the Maryland experiments have shown that while only small amounts of potash are needed for wheat, relatively large amounts are essential for potatoes, tomatoes and practically all truck crops.

It has long been known that where the price received for the produce warrants, and quality of crop is the first essential, the soil becomes merely a place to stand, feed and water the crop; meaning that it is not wise to risk the possibility that the plant-food contained in the soil itself may not be available at the time it is needed.

With a four-year rotation of wheat, grass, tomatoes and corn on Sassafras loam at the Ridgely experimental field, potash gave increases worth 50 per cent more than when either nitrate of soda or acid phosphate were used alone. Phosphorus and potassium, as 750 pounds acid phosphate and 300 pounds muriate of potash per acre per rotation, produced crop increases worth \$73.36 for the rotation; while when nitrogen was added the value of the increase amounted to \$92.24. In this case potash was the key, but nitrogen and phosphorus could not be omitted.

And so on, the story could be multiplied. In Maryland, as in

nearly every other state east of the Mississippi River, there are soil and crop combinations which do not need potash, where its use would be unprofitable; just as there are soil and crop conditions where commercial nitrogen is not a profitable investment, and also where phosphorus, and especially phosphorus only, is not a profitable soil treatment until the deficiency in potash or nitrogen or both has been supplied.

Regardless of the merits or demerits of the controversy concerning the value of soil analysis, the fact remains, that when a certain plant-food element is shown to be present in appreciable quantities, we may be able to devise a rotation, manuring or cultivation system whereby it can be made partly available.

For example it has been shown that the addition of nitrates to soils increases nitrate production in the soil, just as the addition of kainit increases the rate of availability of the potassium in the soil. But, if a soil is naturally deficient in any one plant-food element, we know that it will always have to be purchased, if a self-sustaining agriculture is to be maintained thereon.

The entire question of efficiency in the use of fertilizers is one of extreme interest to all of us; for we gain or lose mutually according to the degree of our individual success in solving the problem.

* * *

"Jim, I see that your mule has U. S. branded on his right hind leg. I suppose he was an army mule and belonged to Uncle Sam?"

"No, suh, dat U. S. don't mean nothin' 'bout no Uncle Sam. Da'ts jess a warnin'. Dat U. S. jess stand fo' Un Safe—dat's all."—Judge.

Dust Means Bust

(From page 15)

insert the charge of dust, which is approximately a small handful. This dust is placed in a small cup just below the outlet of an airpipe which carries a blast of air from a pressure tank when a trigger is released. The handle at the rear of the roof is used for pumping up the pressure tank.

The remainder of the equipment of the interior consists of two ignition points about 10 inches above the dust cap. These points are connected with batteries and the circuit is closed by means of a convenient push button. On the top of the elevator building is a circular opening about 8 inches in diameter over which a heavy piece of manila paper is fastened by means of a steel band tightened with a screw.

When the machine has been loaded and the paper securely fastened in place the spark is started and the air pressure released. The sharp spurt of air blows the dust from the cup into a cloud which is almost immediately ignited with the spark, producing an explosion which blows the paper roof off the building with a loud report and oftentimes with the production of a dazzling flame.

At the recent exhibition of chemical industries in New York the use of this machine for demonstrating the explosiveness of many kinds of dusts attracted more attention than almost any other exhibit. Aluminum dust was found to give the most brilliant display and it also provides terrific force. This dust, by the way, has put on some demonstrations of its own in factories. A few years ago such an explosion in a manufacturing

plant where highly polished aluminum products were manufactured wrecked part of the plant and killed six girls who were working at the burnishing machines.

AMONG other dusts which have caused explosions resulting in heavy losses of property, and also of life are flour, starch, hard rubber, wood, milk powder, soap, spice, cork, feather, and the dusts produced in elevators and threshing machines. Grain smut has exploded and wrecked many threshing machines, and as a result of the experiments carried on in recent years devices have been perfected for cleaning out the dust as threshing is in progress and methods of wiring have been developed so as to prevent the accumulation of static electricity which causes sparks and often is responsible for setting off the explosion.

D. J. Price, in charge of the Office of Development Work of the Bureau of Chemistry, says the new equipment for demonstrating dust explosions affords possibility for testing all types of industrial plant dusts, a matter of great importance to the managers of large grain handling plants and manufacturing establishments.

* * *

A FRIEND IN NEED

An old ducky was asked which he thought more important, the sun or the moon. "The moon," he replied. "The sun shines in the daytime when it's light anyway, but the moon shines at night when it's dark and you need light to find the chickens."

One Variety by Law

(From page 12)

because there was no other. It has always been bought under protest, however, the protest being greater and the price lower as the evidence of mixing was greater.

For many years, cotton experts, mills and buyers have been advising against the use of too many varieties of cotton. Communities where only one variety would be grown have been held up as an ideal. Some progress has been made along this line in the South, but the supply of one variety cotton is still meagre.

IN the West the cotton industry came into being only a few years ago. In the San Joaquin Valley it has been important for five years, although small acreages were grown previous to that time. Most of the San Joaquin farmers knew little of cotton culture and they followed very closely the advice of the man who introduced it into the Valley. Mr. W. B. Camp, of the Bureau of Plant Industry, United States Department of Agriculture, in charge of the experiment farm at Shafter, not only introduced cotton, but told the farmers how to grow it and started them off with the best seed attainable. He was careful to give them only the seed of the particular variety that he had found to be best adapted to the Valley conditions, the Acala variety.

The result was that as the cotton industry grew, the Valley made excellent records in the matter of cotton yields, quality and staple and much advertising was given to the industry. With an increased acreage from 4,000 acres in 1922 to 35,000 in 1925, with newcomers from everywhere settling in the

valley to grow cotton, the problem of maintaining the one variety and the high quality became serious. Every cotton grower from somewhere else wanted to plant the seed he had used at home.

THE Kern County Farm Bureau, through its cotton committee, came to Mr. Camp's assistance. An educational campaign was begun and farmers and business men were told of the value of the one variety community. All farmers were urged to stick to the Acala cotton and leave the experimenting to the experiment station. A county ordinance was passed by the Kern County Board of Supervisors making it a misdemeanor to plant any but Acala cotton in Kern County. The county ordinance could not be made strong enough or far-reaching enough, however, so the Farm Bureau Committee took its fight to the state legislature.

The bill did not pass easily. There was much discussion of constitutional rights, and paternalism and other high sounding doctrines. In spite of this, the influential farmers in the valley were able to get their views over, and the bill was passed and signed.

The San Joaquin Acala cotton is an upland cotton, averaging full one to one-eighth staple and strict middling grade. It may vary from one inch to one and three-sixteenths and from middling to good middling. It is an extremely white cotton, it takes dye exceptionally well and it is used to a considerable extent with rayon in the manufacture of artificial silk. Last year the cotton sold

(Turn to page 50)

Southern Strawberries

(From page 27)

ONE of the troublesome things in the South in connection with strawberry growing is nematodes. These little parasites live in the soil, penetrate the small roots of the strawberry plants and cause a swelling or a knot to form on the roots, which produces what is known as root knot. This interferes with the water passing through the roots and naturally seriously injures and often entirely destroys the plants. Therefore it is very important to select soil that is not infested with this pest.

In the extreme South, particularly in Louisiana and Florida, new plants are set each season, as the growers figure it is less costly and more certain of a profit being made to go to the expense of setting new plants each year, than to carry the old plants through the summer. Where plants are set each year, they are set early, all the way from June to late September or early October, so as to give them time to grow and be in good shape to produce a crop of berries the following spring.

It is usually found advisable not to put any fertilizer in the drill before the plants are set, when they are to be set in midsummer, as this would make the grass and weeds all the harder to control. Usually when set at this time of year, the fertilizer is given in side applications in late summer and early fall, usually in August and October or early November. If the plants are set as late as August, or if they are set in the fall or winter, many of the best growers apply 800 to 1,000 pounds of an 8-5-6 or 10-4-8 fertilizer in the drill before setting, and give a side application of an equal amount later on.

Various fertilizer formulas are used. The best growers however, are rapidly giving up even as low grade as an 8-4-4 or an 8-5-6.* The 10-4-8 is now being very generally used by many. This high percentage of phosphoric acid and potash are necessary to hasten the ripening, and to give firmness and carrying qualities to the berries. In fact the growers have found that it is utter folly not to give a very liberal amount of potash, as if this isn't given, berries do not hold up well and reach the market in poor condition.

WHERE plants are set in summer, cultivation is usually started immediately afterwards and kept up until about Christmas. This is necessary to keep down weeds and grass and to push along the growth of the plants. The same general kind of cultivation is given to fall set plants, but only one or two cultivations are usually necessary. When set in winter or early spring, cultivation begins soon after growth starts in the spring and is kept up throughout the summer and into early fall.

As soon as the first crop of berries is picked, preparation for the second crop begins immediately. In those sections where new plants are to be set, new ground is prepared.

Liberal fertilization is given the old plants in August and again in October or early November. In fact these old beds are treated in

(* The percentages are stated in the following order: phosphoric acid, nitrogen, potash.)

exactly the same way as new plants are treated, both as to cultivation and fertilization. Some do not use very heavy amounts of fertilizer, but it is very noticeable that the most successful growers are usually those who use the large quantities of fertilizer. A ton to the acre, given in two applications, is not excessive at all. For these side applications given to old plants, the same analysis of fertilizer as used for the new plants is generally used. Not less than 6 per cent potash should be used and 8 per cent has been found desirable. Not less than 8 per cent phosphoric acid should be used, and 10 per cent is better. At least 4 per cent ammonia should be used and if the ground is not very fertile, 5 per cent should be used.

THE strawberry plants are usually mulched with pine straw some time between November and early March, depending on the location. The plants will gradually

work themselves out from under this loose straw and as the berries are formed they are on top of the straw and protected from sand. This mulching is done not to protect the plants from cold weather, but to keep the berries clean and free of sand. Usually the straw is plowed under after harvesting is completed.

The berries from new plants are practically always larger, finer in quality and bring a better price than those from the two and three year old fields. This is the reason why more and more strawberry growers throughout the lower third of the South are setting new plants each season. Even though a little more work is required, it is the opinion of many of the leading growers in that section, that the additional yields are enough to offset this and make a profit besides.

One of the outstanding changes that has taken place in strawberry growing in the South during recent years is the increase in the amount of fertilizer used. A few years



Only the best berries go North

ago, 400 to 500 pounds per acre was considered liberal fertilization. Now 1,500 to 2,000 pounds is by no means uncommon and some of the growers even go as high as 2,500 to 3,000 pounds. Not only has the amount in pounds increased, but the quality of the fertilizer has changed considerably. Formerly the low grade 8-2-2 or 8-3-3 were generally used, but now a strawberry grower found using these low grades stamps himself as being non-progressive. The 8-4-4 is about as low a grade as any use, and most of them are getting away from this, using 8-5-6, 10-4-6, 10-4-8, etc. The 10-4-8 is becoming especially popular in the North Carolina belt. In many sections the growers are actually giving the plants four or five times as much plant food as they did a few years ago and it may be accepted as a fact that they are not doing this for any other reason than because they have found it pays them to do so.

THE principal varieties grown are Klondyke, Missionary, Lady Thompson, Aroma, Gandy, Excelsior, Ozark and Bubach. More Klondyke are grown than all other varieties put together, as this particular variety succeeds over most of the South. A good many Missionaries are grown in Florida and to a lesser extent in Eastern North Carolina. Around Pasadena, Texas the Excelsior is liked. The Lady Thompson is grown some in North and South Carolina. The Aroma is quite popular in some portions of Tennessee, Kentucky, and Arkansas, but taken as a whole, the Klondyke is by all odds the leading variety.

Some grow the berries in hills, others according to the matted row system. In most sections of the South the single row method is

practiced, but in some sections, notably Florida, the double row method is practiced.

By thorough preparation of the soil, heavy fertilization, properly grading and packing the berries, the industry has rapidly come to the front in the South. Many millions of dollars are brought in to Southern growers, and taken as a whole, it is one of the most important truck crops of the entire South.

R. B. FAIRBANKS.

* * *

One Variety by Law

(From page 47)

at a premium of from one to four cents per pound above New York quotations. The average yield in Kern County in 1924 was 1.2 bales per acre.

The cotton has quality and the yield is high. When the mills realize that this fine grade of cotton is available, they will outbid each other for it and the San Joaquin farmer will profit as the result. Because of its protection in the law, the Valley will assume a unique place among cotton communities. The commercial activities that have grown out of the industry can feel safe in investing money in the Valley. The law assures progress in the industry and prosperity to those connected with it because as long as the law holds, the cotton from the Valley will be in demand and will sell at a premium.

Such laws as this are real farmer legislation. The farmer does not want laws that will make him rich without working. They never do anyway. What he wants is protection in his business from those influences which, through ignorance or malice, do not permit him to adapt his operations to modern conditions.

Dalea on Trial

(From page 22)

plant is to tell the truth about it, to describe its limitations, to tell just what it has done under practical conditions, and if possible, to give the results that have been obtained with it.

Systematic botanists have discovered this plant growing wild in the region of the Upper Mississippi Valley in a number of states. They gave it the jawbreaking name of *Dalea Alopecuriodes*. More recently, however, it was observed by Professor H. D. Hughes, of Ames, growing wild on the land in the western part of the state of Iowa. Because of the practical use that was being made of it by some of the farmers of that section, he made various tests on it at the experiment station and at the same time sent considerable of the seed broadcast to the farmers of the state.

HERE is what he has to say concerning it: "Dalea has been under observation for a number of years in western Iowa and has been plowed under as a green manure. The plant was tested under a great variety of conditions by the experiment station. That it has a considerable value as a green manure on certain soils is evident. We believe that a good many farmers will be interested in trying out this legume on the soils of their own farms, in this way determining its soil adaptability.

"A number of men were found in western Iowa who have been plowing this under with satisfactory results, as measured by marked increase yields of grain crops following. In this way, as excellent stands of clover and alfalfa were secured as could be desired. Dalea made fully as satis-



Harvesting the "Weed"

factory a growth on soils requiring three tons of lime to correct the acidity, as on sweet soils. Acid soils will not produce biennial white sweet clover and hubam clover successfully without the application of lime. Some observations seem to indicate that the legume has been known to make a very satisfactory growth when red clover seedings failed entirely under the same conditions, due apparently to the low moisture content of the soil."

One of the first places that Professor Hughes observed the plant being put to practical use was on the farm of W. H. Wood, of Logan, Iowa. He was the pioneer in raising dalea—hence its name, Wood's clover. It was first observed by him several years ago, growing in the low level lands of the Missouri river bottoms, and because it seemed to do well in fall wheat, making a rank growth by fall, he determined to give it a more extensive trial. His own farm is on the river bottoms, and varies from Missouri river bottom gumbo, to a light soil consisting largely of river sand. It was on this type of land that he has grown it for several years with especially good results as a soiling crop.

IN his own words, this is his experience and his method of handling the crop. "I have been growing dalea continuously for 18

years, with the exception of two years when I had the land in corn. I sow it in the winter when the wheat is about two inches high and all danger of frost is past. By this time the wheat plants are nicely rooted, and the dalea seed can be worked into the soil by harrowing, setting the teeth rather slanting. Harrowing pays even for the fall wheat alone. The dalea makes a very rapid growth after the small grain is harvested, covering the ground quickly, and reaching the blooming stage about the middle of August. Any time thereafter, it may be turned under as a green manure.

"I raise winter wheat on ground that is too low for corn. During all the 18 years my wheat froze out only once, and it has yielded from 18 to 35 bushels per acre, grading either No. 2 or No 3, and weighing 62 to 64 pounds per bushel. I attribute this remarkable yield to the fertilizing effect of the dalea. Wheat grown with dalea yields eight to ten bushels more per acre than that grown on ground without it. My ground thus continuously in winter wheat is growing better and producing more per acre from year to year."

Mr. S. B. Nichols of Clarksville, Iowa, who has had considerable experience with the plant has this to say about it: "I call it a velvet crop as it matures after the small grain crop is removed from the ground. Thus it is possible to secure two crops from the same piece of land in one season. I think it is the coming legume for green manure, for it will produce as much as 12 to 15 tons of green manure per acre. And this manure crop is evenly distributed over the land so that the farmer does not have to haul it or even touch it.

"As soon as the light ground farmer finds out what dalea will do for him there will be a great

demand for the plant. The agriculturist has been very careful about what he takes hold of, or recommends, and well he may be; it has taken years for him to learn that sweet clover is a good soil builder, but now it is grown very extensively."

Mr. Nichols has made it a practice of sowing the dalea with any kind of an early small grain crop. Last year this crop seeded with the oats on May 31, at the rate of 15 pounds per acre, stood three feet and two inches high on the eighth of September, and would have yielded 14 tons of green manure per acre if it had been plowed under. The crop, however, was kept for seed. Mr. Nichols has found that the crop is at its best on light sandy land or on badly rundown farms, and that on sour or acid soil, it does not need lime. His land is located in one of the most sour soil sections of the state, and he unquestionably has had good success in growing it.

THE drawback to dalea is its lack of palatability to live stock. Perhaps in time this may be overcome. Mr. Wood has suggested the mixture of alfalfa with it; this, he says, cut for hay is eaten readily. He reports that, in 1923 a stack of dalea straw from which the seed had been threshed, was entirely consumed by stock. Dalea does have a disagreeable odor and it is on account of this that stock do not seem to like it.

In spite of this, dalea is a very rich protein legume,—one of the very high protein plants. The reports on it indicate that it contains 22 per cent of protein, whereas alfalfa contains but 11, sweet clover 11, and red clover 7½. Compared with our other common legumes it has a very wide protein ratio.

No one seems to know just how dalea was distributed, nor exactly where is its native home. It is thought, however, that it might have been scattered over the low lands where it was first seen growing by wild geese in their journeys across the country. But that is not important. Dalea does have some very strong features that commend it; there are also some strong features against it. These, in time may be overcome and even

if they are not, the plant may find a useful place as a soiling crop.

This new legume weed is now being tried out under practical farm conditions in a number of states, and it should not be boomed faster than the actual facts concerning its value will warrant. If it should prove to be a good thing, there will still be time enough to boom it. In the meantime, the agriculturist will hesitate to recommend it.

* * *

Super-Farming plus Honest Vegetables

(From page 11)

SINCE they used manure so heavily in the earlier years, they have not yet had to resort to cover crops to keep up the humus content of the soil. However, no leaves, tops or waste vegetables are destroyed. They are all gotten back on the ground to be plowed under again. This year a 4-8-4 mixture of commercial fertilizer was used liberally on most of the crops. On crops like asparagus and lettuce where quick growth of stems and leaves was necessary they used nitrate of soda in addition.

Even though their farm is hilly all rows are laid out almost as straight as a surveyor could do it. Perhaps this does not add any to their yields, but it certainly adds to the beauty of their farm. Most of the rows are laid out 28 inches apart and cultivated with one horse. Thus far they have had more satisfaction planting their seeds by hand.

A FEW hives of bees are kept. One of the boys said, "Partly as a hobby, and then to be sure our flowering crops like cucumbers are cross-pollinated."

During all these years the Erhardts have stuck to the policy of "Honest vegetables". All the produce from their 20 acres of truck is wholesaled to grocers and produce retailers. A grocer who buys their produce knows that the stuff in the bottom of a crate or a basket is just as good as it is on top.

This policy has built up such a reputation for them that they are still selling to some of the same dealers they sold to 30 years ago. This policy of "honest vegetables" has created such a demand for their produce that they do not have a telephone in their house but instead often have to figure how much they can cut each customer down to instead of having a surplus to wonder what to do with.

Better Crops Invades AFRICA



AWAY back in September, 1923, when the magazine BETTER CROPS first saw the light of day, little did its sponsors even suspect that in two short years it would penetrate the deepest wilds of the dark continent. Yet that is exactly what has happened.

The picture above is an actual photograph of a real money order just received to pay the postage on BETTER CROPS. It came all the way from Umbogintwini—pronounce it if you can.

H. E. Andries, who sent it, says that the amount is equal to one dollar. The rest of his address is Natal, South Africa.

The editors felt that county agents in the United States would be interested in knowing that their problems as discussed in BETTER CROPS are also of interest to Mr. Andries who evidently is trying to improve the agriculture where ele-

phants and lions are farmyard pets.

The county agents may also be interested in knowing that as a part of the 1926 expansion program of BETTER CROPS, the teachers of vocational agriculture are to be added to the family. Almost every day expressions of interest are received from the men whose chief problem is impressing youngsters with the importance and dignity of farming.

The magazine feels sure that the older members of the family will heartily welcome the newcomers.

The N. F. A. Holds Southern Convention

(From page 9)

groups in effecting the practical reduction of the variety of their commodities. Major Foote has been associated with this work since its inception.

The speaker pointed out that the question is how may we most effectively eliminate waste? Waste is a drag on our national prosperity. Studies of simplified practice have shown that waste in production is often as much as 50 per cent. It was shown by the speaker how the turnover in various industries had been increased and profits increased by the adoption of simplified practice in the manufacture of electric light bulbs, bricks, fruit containers, drugstore supplies and other manufactured articles.

Simplification as a principle can be applied to any industry.

Major Foote showed how this principle affects the fertilizer industry and how the division of simplified practice can help in such work to the benefit of the manufacturer, the distributor and the consumer.

Dr. H. A. Morgan, President, University of Tennessee, showed very clearly how important it is to study the development of our man power which after all is our buying power. The address was entitled "The Handicap of Areas That Are Exclusively Rural."

Dr. Morgan showed that the chief influence in properly developing our man power is the common pool of community funds. It pays for our schools, it represents the possibility of the community's development.

Where do the funds come from? From two big sources; natural resources and commercial resources.

Of the natural resources, only the soil and mines pay taxes into the community fund. This means that in an exclusively rural area the soil is the main support of this pool. On the other hand, in agricultural communities which are diluted with industry, commerce is taxed and so pays into the fund.

COUNTIES exclusively rural were poorer in every respect in population, in education and in power to buy. In agricultural areas in which industry was established, more children are in school, they stay in school longer, the tax rate is less and more money is available for developing man power which, after all, is civilization.

To effect this change, so that agriculture and industry can both contribute to the common fund, two important means are available. First, distribute electric power through exclusively rural areas so that industry can be established. In the opinion of Dr. Morgan, this is the real significance of the proper use of Muscle Shoals power. Second, where an exclusively rural county adjoins an industrial county, the two might be made into one unit. This has been done. In these two ways, agriculture can be diluted with industry and thus both the natural resources and the commercial resources will contribute to the development of our national power.

The meeting closed on Wednesday, November 12. The consensus of the convention was that it had been very successful. The next annual convention of the association will be held in June, 1926, at White Sulphur Springs.

1926 Fertilizer Recommendations for Tobacco

(From page 21)

II—Fertilizers for Dark Tobacco (Sun Cured and Shipping)

1. Analyses of Mixtures—

Use 8 per cent available phosphoric acid, 3 per cent ammonia and 3 per cent potash.

2. Amount of Fertilizer—

Use 600 to 800 pounds per acre in the drill at or just before transplanting.

3. Sources of Plant Food Constituents—

1. Phosphoric Acid:

Derived from acid phosphate.

2. Potash:

Derived from muriate of potash, sulphate of potash, or sulphate of potash-magnesia.

3. Ammonia:

Two-thirds of ammonia from organic sources, preferably from cottonseed meal, tankage or fish scrap; and one-third from nitrate of soda or sulphate of ammonia; provided that at least one-half of the inorganic nitrogen be derived from nitrate of soda.

III—Use of Lime on Tobacco

1. It does not appear that in ordinary practice, the use of lime is necessary for the correction of soil acidity in bright tobacco rotations. However, it has been fully demonstrated that small quantities of dolomitic limestone are effective in preventing "sand-drown" or magnesia hunger. It is therefore recommended that dolomitic lime be the only form of lime used on bright tobacco lands for this purpose.

2. Experience has shown that heavy liming on sandy soils is often followed by persistent decreases in crop yields. For this reason it is recommended that applications of dolomitic limestone to tobacco soils be limited to the amounts necessary for supplying the needs of the plant with respect to magnesia. It is suggested that for tobacco an initial application of one ton per acre of finely ground dolomitic limestone be used broadcasted over the entire area at least four months in advance of planting. Thereafter, on soils showing a response to this treatment an application of 1000 pounds may be broadcasted in the fall in preparation for tobacco the following year, provided that the rotation does not include tobacco oftener than every third year. If tobacco is to be grown oftener than this it is advisable to restrict the amount of limestone to 500 pounds applied in the drill before transplanting.

IV—Importance of High Grade Tobacco

In view of the fact, that in all probability quality of tobacco will play a more important part in the future in profitable tobacco growing than in the past, it is especially urged that bright tobacco growers exercise all possible precautions to secure the best possible grades.

(Turn to page 58)

Altogether and We Get There

(From page 17)

bank by suggesting certain recommended practices. If it is a matter of a loan for feeds, the banker's knowledge of the recommendations through the feeding project may help to influence recommendations as to what to buy.

ONE more illustration might be taken from the More Legumes Project. Incidentally or intentionally a farmer may discuss the crop plans for the year with his banker. If the banker is aware of the almost universal need for an increase in the acreage of legumes, he can make suggestions which add greatly to the effectiveness of the recommendations of the county agent. If the banker knows that much undesirable, imported alfalfa and red clover seed is being sold, he can warn the farmer of this and perhaps assist in getting seed that is adapted and satisfactory.

"But", the reader may say, "all that is fine, but how are you go-

ing to get this information to the banker in order that he may be in a position to back up the county agent?"

It has already been stated that in Nebraska the Bankers Association has worked out a banker-farmer-college combination. As a first step in the development of this plan, 225 Nebraska bankers from all parts of the state spent two days at the agricultural college last spring at which time talks and demonstrations were given along the lines of the main extension projects. The fundamentals of hog lot sanitation, feeding, soil fertility, legumes, and other important phases were particularly emphasized in an effort to get the bankers to see why extension workers were trying to accomplish certain things. And apparently the meetings were successful if success may be judged by the interest of the bankers and the reports which they gave.

As a further step regional meetings along the same lines are now being held to which bankers



Bankers and farmers meet at agricultural college

are bringing four or five of their farmer customers. With these men cooperating with and assisting the agents the major projects for any county should develop rapidly. The banker on account of his financial relationship to the community is in the keystone position to influence affairs. But men in other lines, such as lumbermen, seedsmen, and elevator men, if acquainted with the merits of a project, may also do much to assist

in the development of lines of work that touch their business.

There is, of course, the element of danger that some folks may try to use a project for their own financial gain and thereby retard developments and cause difficulties and misunderstandings. But by honest above-board dealings and publicity this trouble would not seem serious. In the end the teamwork of "every bloomin' soul" counts.



Looking over Nebraska experiments with alfalfa

* * *

1926 Fertilizer Recommendations for Tobacco

(From page 56)

V—Burning Qualities of Leaf Tobacco

Market quality in tobacco has for a long time been determined by the physical characteristics and color of the leaf and these to a large extent govern selling prices in primary markets. In the final test for smoking tobacco, the burning quality of the leaf is a critical factor determining the acceptability of the different grades. It is, therefore, essential that increased attention be turned toward the improvement of this latter quality.

October 21, 1925.

Report of Tobacco
Conference Held at
N. C. Exp. Station.

W. W. GARNER	(Washington)
T. B. HUTCHESON	(Virginia)
É. G. MOSS	(North Carolina)
L. G. WILLIS	" "
W. F. PATE	" "
C. B. WILLIAMS	" "

Committee

Both Ends and the Middleman

(From page 7)

But after all, the basic thing is to find out, not how much more we are paying for distribution than for production, because nowadays you can't really draw a line between production and distribution, but whether the distribution side of the equation, insofar as it can be marked off from production, is costing too much and if so what is the remedy."

An investigation was recently completed by the Department of Agriculture into the profits and costs of middlemen, and it will be useful in a moment to glance at some of its results. It is necessary always to bear in mind, however, that statistical evidence that a certain economic function is costing too much is not altogether satisfactory, because statistics may leave some element of cost out of the reckoning. Moreover, middlemen who are accused of doing a poor job can always remind their accusers that they are free to do it better and cheaper if they can.

The experimental method of determining whether there is waste in distribution is that of the cooperatives. Where cooperative associations succeed in distribution in a big way, you have pretty good proof that they are eliminating wastes and cutting down expenses. That is really the only way in which they can succeed. There is nothing in the idea that cooperation gives monopoly control of commodities, as a result of which consumers can be gouged.

No cooperative association anywhere has gone as far as some industrial corporations have gone in controlling production and marketing, and yet there is no undisputed case even in industry of permanent monopoly control of

prices. Even the United States Steel Corporation finds that the prices of its products vary, not with production costs, but with market requirements. It may, therefore, be taken for granted that growth in cooperation means that excessive distribution costs are coming under pressure.

BUT before inquiring what the cooperatives are doing to cut down distribution costs, let us see what kind of a bill of health the latest Government investigation gives to the middlemen. Briefly, the finding of the Department of Agriculture is that the wide spread between the prices of many farm products in the country and their prices in the city does not represent an unfair profit taken by the middleman, but indicates that his service costs are too high.

Net profits taken by distributing agencies are declared to be an insignificant part of the total price spread. They rarely absorb more than 5 per cent of the consumer's price, and usually take less than this proportion. Where the trouble lies is in the middleman's costs of doing business. These are heavy in part because consumers demand much service, in part because there are too many middlemen for the amount of business they have to divide, and in part because distribution has not kept pace with production in economy and efficiency.

Does that mean that distribution is costing too much? Transportation by stage coach was slow and costly, but you could hardly call it too costly before the locomotive made cheaper transporta-

tion possible. It may be that distribution, as it is now done, is done as cheaply as possible, and that a new technique is required to reduce its cost materially.

Certainly the mortality among middlemen suggests that they are not without a powerful incentive to cut down their costs. If they fail to do so, the fact may as reasonably be attributed to lack of power as to lack of will. There can be no doubt, however, that if means are

available to cut down the cost of distribution, whether by cooperation or in any other way, they will be found and applied, and the middlemen who can not accommodate themselves to the new order when it gets going will have to step aside for those who can.

Here are a few facts, taken from the Government's records, which suggest that big savings—and that means big profits—are possible in distribution. Although margins in the retail meat trade, average about 24 per cent, the net profits of 130 stores were only 3.09 per cent on their investment.

In these figures are both stores that made a profit and those that made a loss. There were 101 stores that made a profit, and their profits

averaged $4\frac{1}{2}$ per cent, while 29 "loss stores" showed a net loss of $1\frac{9}{10}$ per cent. Profits from stores in New York, Chicago and Cleveland varied from practically nothing to around 10 per cent of sales. As a whole, however, the profits of the trade were considerably less than a fair return for the capital and labor put into it.

Many retailers were losing money and did not know it because they kept no proper records. Two

out of seven stores in Chicago, Cleveland and New York were not successful. One merchant in Cleveland whose sales were about \$12,000 had a margin of about 24 per cent of sales, that is to say, he sold his merchandise for 24 per cent more than it cost him. But after paying expenses, his

yearly income was only \$1,600. Had he rented his building, which he owned, and gone to work for wages, he could have made \$2,800 a year. He thought he was getting along all right because he was making a living, whereas he was running his store at a loss and probably preventing the success of other nearby stores.

(Mr. Chew will conclude his discussion of this important subject next month.)



Terminal wholesale market, South Water St., Chicago—"the most congested street in the world."

King Potato Holds High Court

(From page 25)

from 30 to 60 bushels per acre less than did those treated with a 4-10-6 mixture. Noer attributes the difference due to the placement of fertilizers to the fact that potato sprouts are very watery. The salts in the fertilizer make a concentrated solution outside the sprout which is injurious because it draws the plant liquids out of the developing stalk. Noer illustrates this by the familiar break-fast phenomena of putting sugar on grapefruit which draws the juices out from the fruit cell walls. He says that the above action will be much more severe in very dry years than in wet years for there will be little moisture in the soil to dilute the fertilizer salts. A special type of planter has been devised that will place the fertilizer on the side of the potatoes to conform with the findings of this experiment.

NOER'S results on a similar type of experiment on the Bowers and Walton farm at Arena two years ago showed the same relations. Here, with a thousand pound application per acre on sandy soil he found that the application by the side of the seed produced nearly three times as many potatoes as were produced on the check plot, and a third more than were produced when it was applied with the seed.

Noer's primary interest lay in finding the value of activated sludge produced by the Milwaukee Sewage disposal plant, but he used liberal applications of phosphorus

and potassium as well. On the A. M. Olson farm at Harshaw, where Green Mountain potatoes were grown on clover sod, he found that with prices as they are this year the heavier applications of high analysis product paid the best. In this case it was the 900 pound application that proved to be most profitable.

These results show that on this farm a 900 pound application of a 3-12-4 mixture produced 155 bushels more per acre than did the non-fertilized plot.

Rate	Analysis	Yield, Bu. per Acre
No fertilizer	232.9
500 pounds	3-12-4	310.6
750 pounds	3-12-4	362.3
900 pounds	3-12-4	388.2
750 pounds	3-8-4	336.4

Noer made experiments with sludge on different soil types. In all of these tests on fields that responded to nitrogen fertilization, sludge was found to be quite as efficient as tankage in mixtures where a portion of the nitrogen was applied from organic materials. On the whole he found that 500 to 1000 pound applications of fertilizer increased potato yields this year from 40 to 150 bushels. On some types of soils he found that sludge gave better results when mixed with inorganic fertilizers such as nitrate of soda or sulphate of ammonia, while on other types such as the Plainfield sandy loam plots at Almond, sludge when applied with potassium and phosphorus was quite as good as a mixture of these three substances with inorganic fertilizers.

Self Praise

(From page 4)

Things are often proved by antithesis—and paradox partners with Nemesis to slap athwart the thigh those who outstep the bounds of true modesty. Claim leadership and you shall find yourself following. Parade your purity and gain the reputation of being a pavement pounder.

There are those who cannot bring themselves to believe that "If a man write a better book, preach a better sermon, or make a better mouse-trap than his neighbors, though he build his home in the woods the world will beat a path to his door."

And I myself believe that to calmly and supinely recline on the spine and await the plaudits of the world is too far a swing of the pendulum. There is a happy medium that lies midway between ballyhoo and utter silence.

THE world is hungry for facts. After several centuries of progress man is now able to make satisfactory judgment on all things the truths about which he knows. No longer do we permit our judgments to be swayed and our opinions formed for us by professional swayers. The day of the editorial writer who jobbed out for his audience cut-and-dried policies has gone down in darkness.

Men want facts, news, statistics.

And from these they are quite ready and willing to deduce the vital truths. Now strewn with thorns is the way of the propagandist, while the path of the purveyor of meaty facts is paved with flowers. Men welcome him into their homes, and to their firesides

he comes with a bag-full of the latest statistics.

IF it is true, and I believe it is, that to advertise virtue is to raise a question as to its present existence, then we must beware how we spread the *facts* about its existence, for often the mere brief announcement of a fact, when that announcement was not called for, creates a deeper doubt—"paints the devil on the stump" which must first be scraped off before the true deity can be embellished thereon.

You ask me, "Are there any worms in that breakfast food you make?" and I retort, in a surprised, hurt fashion, "Of course not! Whatever put that silly idea into your head!" You believe me—and apologize.

You requested the facts. I gave them to you—and added just that correct degree of sincerity to my tone which fosters belief.

But suppose that the thought had never entered your head that there might be fish-bait in my "Breast-of-wheat", and you opened your daily paper tomorrow to find a bold, dominant advertisement over my signature to the effect that "There are no worms in my breakfast food."

That is simply stating the truth, isn't it? But what manner of thoughts rush into your head? You at once are brought to the belief that I had been experiencing trouble with my product, that customers had complained and that in order to scotch the thing I had resorted to publicity. You say to yourself, "I'll wager there *are*

worms in his breakfast food, or he would never have advertised that there are none!

"Methinks the lady doth protest too much!"

The world is now too busy to beat paths to the doors of the loyal, the virtuous, the honest, to the home of the man of ability and the cabin of the leader. It needs sign posts.

IT is hungry for facts about these folks. It is sorely in need of information about all things; it fairly aches to discover those in whom its confidence can be placed.

But we cannot help but believe that most men are biased in favor of themselves. We know too well that men often stretch half-truths to full-truths if the stretching can aid them to secure that which they are seeking. We know too, that while not actually the deliberate statement of an untruth, the suppression of a vital fact at the psychological moment operates as a lie and more effectively.

And, therefore, if his proofs of ability are publicly cried by the good soul himself, the poor fellow but pulls a world of doubt down over his head and is banished from the market place. We know he exaggerates!

Where is the thread, then, that leads from this labyrinth of the Minotaur, which the modern Theseus may wind into a ball and follow to the cool outer air?

If the world needs a sign pointing him out as an able, honest, energetic, loyal, virtuous fellow, yet he is not permitted to erect the guide post himself, how may he take full advantage during his lifetime of those valuable virtues which he knows are his, and which

he knows the world of men will value can it but grasp the facts?

VOLTAIRE said, "The author who speaks of his own works is almost as bad as the parent who talks about his own children." And it has often been stated, "Let another sing thy praise—be thou silent."

Self-praise is dangerous.

There are some things that must be felt, sensed and understood. Character, honesty, ability and leadership must be impressed upon those who surround us by deeds, not words. Our qualities must be of such an intensified nature that they seep through our countenance and sparkle in our eyes.

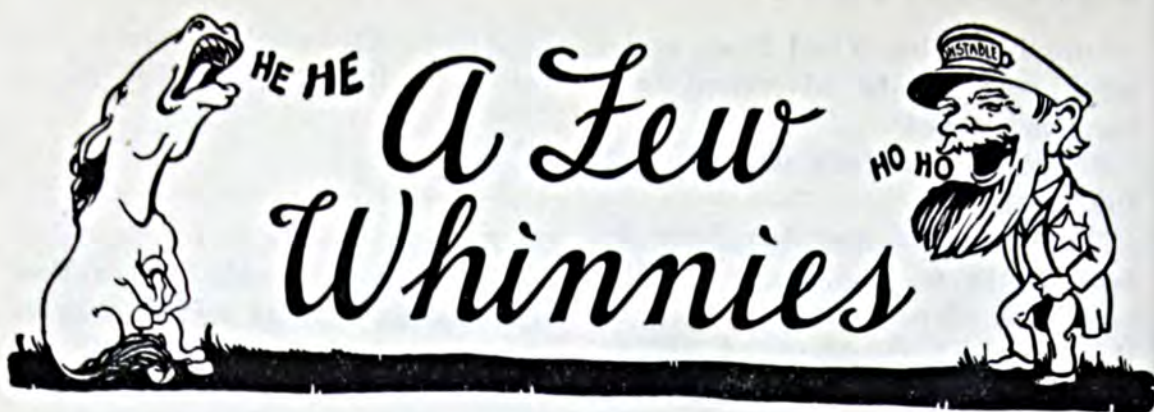
We must convey by manner, dress and action what we dare not say.

Or we can confide to a third person our various merits and he can, in perfect safety, pass the good word along to those whom we seek to impress.

When it becomes necessary, however, for one to take such a step, it should indicate clearly to him that the virtues he claims are not vital and virile enough, else the third party would, without instruction, parade the highways proclaiming those virtues to all and sundry.

Leaders do not need to claim leadership. The populace acknowledges their leadership, and appraises their value on the platform of past performance. Nothing they say can add or detract from their record.

And so I say, I become more firmly convinced each day that none of one's virtues can be increased one jot or tittle by one's raising thunderous ballyhoo in its regard.



Christmas Hints

In accordance with plans laid some time ago, the 25th of this month will be Christmas, and if rumor may be trusted, it will be one of the best Christmases this year. Arrangements are being made to deliver snow to all those who prefer a white Christmas. Those who would rather, may have coal delivered instead, at the regular price. (Try and get it in New York.)

It is always difficult to select appropriate Christmas gifts, and BETTER CROPS wants to be as helpful as possible in this respect. Electric light bulbs, pots of glue, bottles of ink, jam, and hammers are especially recommended by this department for the baby. Very young children can have no end of fun with these materials, and some mighty interesting decorative effects will be achieved wherever they see fit to play with them.

Gifts from parents to children and vice versa are always hard to select. One father we know pre-

sented his son with a new auto. The son gave his father a new check book.

The man with a talkative wife will appreciate a small radio. He can put the head phones over his ears and go on thinking about something else.

A red hot necktie will appeal to the man who forgot to put in an adequate supply of coal last fall.

A few indestructible decoy chickens, to be installed in the garage and practiced on during the winter months, would be nice for the country road speed demon.

You can't go wrong in sending photographs of yourself to very dear friends. They make right good kindling.

A couple of hand-painted feed troughs would be just right for the man who raises hogs.

Someone has said that after all, it isn't the gift, but the spirit of the giver, that counts. However, we must warn our readers that it isn't considered good form these days to send spirits around, especially through the mails.

* * *

M. M. Hobson of Florida wins this month's Whinnies prize for baby beef with this ad, run in the Des Moines Dairy Farmer: "FOR SALE—THOROUGHbred AYRSHIRE BULL, four months old, weight about two thousand pounds."

* * *

A Pittsburgh dispatch carried in the newspapers some time ago told the story of a man who thought himself so ugly he hid in a cave, coming out only at night so as not to scare anyone. If this practice grows popular among ugly men there'll be an awful demand for caves.

“The Best is Generally the Cheapest in the End”

There is no commodity to which this trite proverb is more applicable than to a fertilizer. One fertilizer may have the same chemical analysis, the same general appearance or the same smell as another, but one of these may have much greater value as a crop producer, because its plant foods have been selected for their crop producing powers rather than on mere chemical analysis; because its materials have been more scientifically prepared and blended, or because the fertilizer itself is in far better mechanical condition for easy and uniform application. Such a fertilizer will give far better results and prove to be “the cheapest in the end.”

“AA QUALITY” FERTILIZERS

comprise all the essential factors of the best crop producers that the practical experience and scientific research of over half a century have developed, and they are guaranteed by the largest fertilizer company in the world.

MANUFACTURED ONLY BY

**The American Agricultural
Chemical Company**



IN different parts of Michigan, on sandy loam and clay loam soils, twelve sugar beet growers tried different fertilizers.

On some plots they used nitrogen and phosphoric acid alone; on others they used a high-grade fertilizer containing 2% nitrogen, 7% phosphoric acid, and 10% potash.

When the crops were lifted and returns received from the factories, the average results for the twelve growers showed:

Average yield of sliced beets was 1.5 tons greater when the high-grade fertilizer (containing potash) was used.

Average sugar-content was 1.22% higher when the same high-grade fertilizer was used. And—

Average profit was \$12.20 more per acre.

Heavier crops, higher sugar-content, and bigger profits depend largely upon the available plant foods in the soil. Use a high-grade mixture—containing 10% potash or more—on your crops. You'll find that Potash Pays!

A successful agriculturist for one of the largest sugar beet factories recommends—with very few exceptions—the use of 300 to 600 lbs. per acre of a high analysis fertilizer which contains **more potash** than phosphoric acid. For muck soils, 500 to 1200 lbs. per acre of 0-8-24, or 150 to 200 lbs. per acre of 0-0-50, is often recommended for profitable results.

POTASH IMPORTING CORPORATION OF AMERICA

**General Office: Dept. BC, 10 Bridge Street,
New York, N. Y.**

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Sales Agents H. J. Baker & Bro., 81 Fulton Street, New York
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Genuine  *German*
POTASH

Better Crops

The Pocket Book of Agriculture.

January 1926

10 Cents



Read: The Kingdom of the Blind—Dance Helps the Farmers—Exit Mr. Ground-hog—Early Tomatoes in the South

The New Year

January is the month of plans . . . good resolutions. Farmers are looking ahead, planning crops, figuring prices. Extension workers are in conference with farmers, with each other at their colleges of agriculture, and with fertilizer men in fertilizer schools. They are planning their main projects for a BIGGER and BETTER AGRICULTURE.

January is the month of new interest and new beginnings. Folks are still fresh with the spirit of the new year.

In line with this spirit, the men in commercial agriculture are now making their programs. We are preparing for the demands which will be made upon us—all the way from improving mining and manufacturing facilities and methods, the best arrangements for shipping and distribution, to little personal attentions.

The Potash Importing Corporation of America has a good many departments—accounting, traffic, sales, soil and crop—and they are all ready to render service to the farmer, the manufacturer, and the agricultural extension man. We want to take our part in all programs which are now being formulated for a BIGGER and BETTER AGRICULTURE.

Potash Importing Corporation
of America

10 Bridge Street, New York City

Better Crops

The Pocket Book of Agriculture

The Whole Truth—Not Selected Truth

VOLUME V

NUMBER FIVE

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The EDITOR'S

The Convention of Land Grant Colleges, held recently in Chicago, emphasized the need for a "forward-looking" national policy as the basis for the development of our agriculture, the industries, and home making.

In principle the evolution of such a policy will require above all things a very clear comprehension of the needs and possibilities of our national agriculture as a whole, a continuity and broad unity of purpose, yet avoiding a "sterile conformity" to mere practices, and as the program indicated, a sound policy must therefore be founded on "fundamentals."

What are the major difficulties and what are the possibilities of realizing such a **National Policy for American Agriculture?**

One difficulty is to find more of this essential time for fundamental work. A knowledge of fundamentals gives permanency. Without such knowledge a policy must be superficial, uncertain and eventually a failure. But work of a fundamental character requires time. The returns for time so spent are not immediate and never can be.

A second difficulty is the ability to comprehend the needs of our agriculture as a whole—this, we are in danger of losing. Glancing back a moment, the first State agricultural colleges founded in accordance with the Act of Congress were "especially for the sons of toil". The agriculture of the day, its problems and methods, were rooted deep in a common heritage from the land. The problems and methods of solution were relatively simple. Comprehension and unity were possible.

Speaking after 50 years of work, Dr. Gilbert on discussing the work of Rothamsted, emphasized and cited as a "prominent characteristic" of that experiment station the very close relation of the field to laboratory work and the necessity for a comprehensive view.

In the earlier days of agricultural development, a clear comprehension of the needs of the whole by one leader was more nearly possible.

But in the last two decades, conditions have changed. Under the stimulus of science applied to agriculture, economic pressures

OWN Pages

and other causes, our agriculture has been subdivided into many parts. The emphasis is on the specialist each speaking his own language. Though all may be working on agricultural problems, it is increasingly difficult for one specialist to understand or value the other.

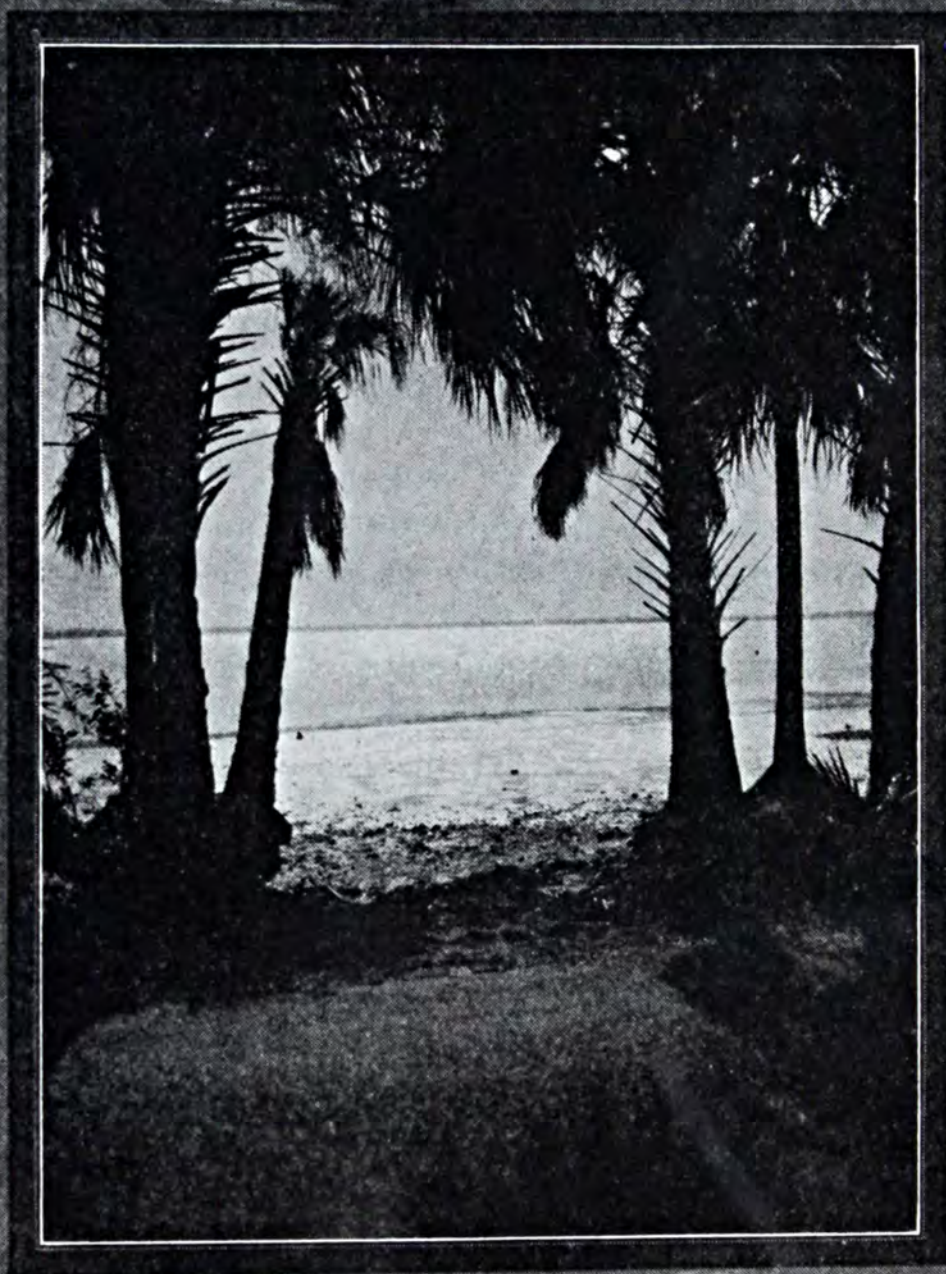
The condition has produced leaders but too often of the group, the section, the part and not of the whole. Failure must be the result. How can the parts be brought together into one comprehensive unity, not only within our own national agriculture, but in its international relationship as well?

For these reasons it is particularly significant and encouraging to know that the research work made possible by funds now available under the Purnell Act and the United States Department of Agriculture has been organized by all the Agricultural Colleges and Experiment Stations on a nation-wide cooperative basis.

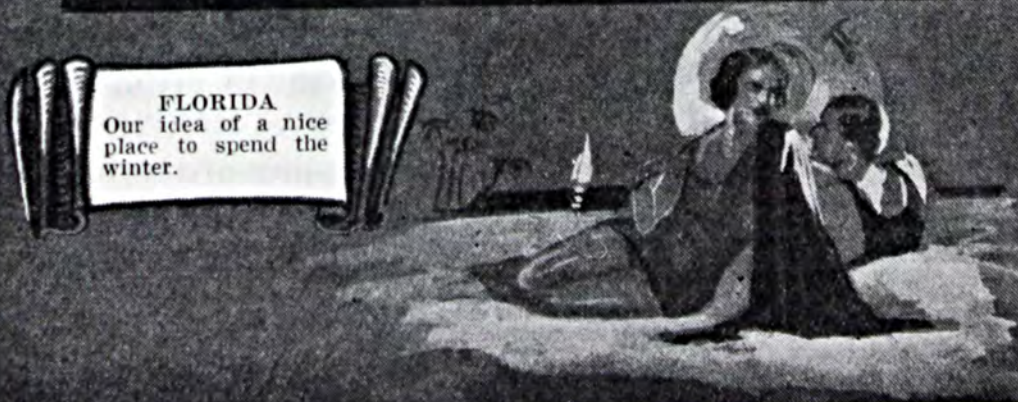
Managed in this way, the Purnell Act is of vital importance, not because it now gives \$20,000 to every state and larger amounts next year, but because it is a valuable contribution to evolving a sound, forward-looking policy. By cooperating as a whole, a viewpoint of the whole will be developed. By avoiding duplication and doing fundamental work when it can best be done, more time for such work will be gained.

In this age an increase in funds available for agricultural work is not necessarily a blessing in itself. Their acquisition is a supreme test. The test is—can we subordinate our group, our theory of success and our leadership to the larger view of the needs of the whole? When this is possible a policy is possible.

OUR NEW YEAR BABY With this issue, **BETTER CROPS** welcomes into its family circle of readers the **TEACHERS OF VOCATIONAL AGRICULTURE**. With a greater realization each day of the influence of young farmers on our agriculture, we feel that the aim of our publication is of value to these teachers. At all times, the editors want these new readers to feel that this is their forum—a common ground where they can work out their problems with our county agent and other agricultural extension readers.



FLORIDA
Our idea of a nice
place to spend the
winter.





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VOL. V

NEW YORK, JANUARY, 1926

No. 5

¶ The beginning of the year is a good time to test your mind's eye on this chart which Jeff calls—

The KINGDOM of the BLIND

By *Jeff McIlernid*

A MAN took ten dollars away from me last night so easily that I am ashamed to tell of it.

In fact, I wouldn't publish the details now except I am sure that in the story lies a moral which fits this season—the beginning of a new year.

We were talking, this man and I, about Russell Conwell, who made a fortune from his lecture

"Acres of Diamonds," the lecture which tells the narrative of the discontented fellow who left home, travelled around the world to hunt his fortune, only to return sad, disillusioned and penniless to find that in his own back yard others had discovered acres of diamonds!

I remarked how few of us are really alive to the opportunities around us, and how Conwell, in

his own life, had been able to clearly perceive his own opportunities.

Then this man said: "The trouble is, that most men *look*, but do not *see*; they become blind to the very things that represent their main chance. That is why often an inexperienced chap from the outside can drop casually in and point out to a captain of industry chances for profit that had been entirely overlooked."

"We are, most of us, so close to the pickets that we cannot see the fence," he went on.

AND then he sprung the game on me that cost me ten dollars, taught me a great lesson and gave me the stimulus for this story.

He said: "By the way, speaking of inability to see, how many times do you estimate that you have looked at that watch you carry?"

"I have had it twelve years," I replied; "I presume five times a day would be a conservative estimate; five times three-sixty-five—let's see—eighteen hundred. Times twelve years—say about twenty thousand times. Why?"

"You have lifted that watch from your pocket twenty thousand times to peer into its face—by your own too conservative estimate. You're too low—but let that pass."

"I'll wager you cannot tell me whether your watch has a Roman numeral six or a regular figure six! I say that you cannot tell me now, after looking at the watch five times a day for twelve years, whether the six is a 'VI' or a '6.'"

I pondered a moment.

"I'll take your wager!" I exclaimed, for suddenly I knew that the "two" on my watch was a "II," and the four a "IV."

"My watch has a 'VI' for its six," I announced solemnly, my mental fingers already on the easily won money. "Let's make it ten dollars," I proposed.

"Good," he said, "I accept."

I pulled out the watch. My face fell. I looked at him sheepishly. *My watch, in common with most other watches, had no six whatever.*

66 IN the Kingdom of the Blind, the One-Eyed is King!"

Most men can look, but few can see. *Looking* means but to open the eyes and let nature do the rest, but to *see* means to concentrate the gaze with an understanding eye—to see not only the thing itself but its background—the history behind it; its true relation to other things; and its calculated future.

With so few men able to look and actually see what they look at, it is small wonder that certain clever men have been able to dominate, to intrench themselves so thoroughly that nothing now can dislodge them. These men *see* what they *see*. They look—and understand. Their gaze takes in fully what is there and their mind supplies the rest.

Most men are mentally blind and because this is so those who can even partially see the "acres of diamonds" in their back yards are easily King, though even the best is but one-eyed mentally.

As we look over the great inventions and great discoveries of the world, we cannot but be startled with their simplicity when viewed in retrospect.

Take Ike Newton and his apple, for example.

For unnumbered generations men had watched apples falling.

(Turn to page 61)

¶ *This is the second of Professor Burkholder's practical series.*

RENOVATING *the* Farm ORCHARD

By C. L. Burkholder

Purdue University, Lafayette, Indiana

NO successful farmer expects to produce crop after crop from the same soil without returning plant food to the ground as a just re-compense for such returns.

Somehow these same people often forget that a crop of even wormy, diseased apples remove about eighty-six pounds of plant food to the acre while crops such as corn remove only ninety-two pounds, and wheat forty-five pounds. It is a well established belief that the farm orchard cannot be expected to produce

more than every other year. Why?

It is true that old trees of some varieties such as Baldwin, White Pippin and Wagoner seldom can be kept in a vigorous enough con-

dition to crop annually. On the other hand most varieties will produce at least a partial crop every year if they are well supplied with plant food and water.

The blooming process on an apple tree uses up a great deal of the stored energy of the tree and

unfortunately an apple tree produces the fruit buds for the next

(Turn to page 54)



Mulching with straw saves cultivation during busy summer season

The Influence of POTASH on COTTON Bolls AND Foliage on a Potash Deficient Soil'

By J. J. Skinner and W. F. Pate²

¶Reprinted from the September Journal of the American Society of Agronomy.

THE results secured in a fertilizer experiment with cotton on a Coastal Plain soil which was formed from Piedmont material transported and deposited by stream action show striking needs of the soil for certain plant food materials for cotton production and the influence of certain fertilizer elements on the character of the cotton plant and the fiber produced.

The experiment cited was made on the Wickham fine sandy loam near the Cape Fear River at Fayetteville, North Carolina, in 1923, was repeated in 1924, and is one of a large group of fertilizer experiments on the principal soil types in the cotton belt.

The soil consists of a light brown or yellowish brown fine sandy loam to a depth of 10 to 12 inches,

while the surface 2 to 5 inches is a gray to yellowish gray. It is underlain by a yellowish brown to light brown fine sandy loam, extending from 12 to 15 inches in depth and this passes abruptly into a yellowish red, heavy, stiff, but friable sandy clay. The chemical analysis of a composite sample representing the Wickham fine sandy loam of this area shows the surface soil to contain 0.028 per cent nitrogen, 0.033 per cent phosphoric acid, 0.748 per cent potash, and 0.432 per cent calcium. The analysis of a composite sample of soil taken from the experiment area before the experiment was inaugurated showed the surface soil to contain 0.0736 per cent phosphoric acid, 0.75 per cent potash, and 0.35 per cent calcium. The subsoil contained 0.062 per cent phosphoric acid, 0.93 per cent potash, and 0.29 per cent calcium.

¹ Contribution from Office of Soil Fertility Investigations, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C., and Department of Agronomy, North Carolina Agricultural Experiment Station, Raleigh, N. C., cooperating. Received for publication May 20, 1925.

² Biochemist, U. S. Department of Agriculture, and Professor of Soils, N. C. Agr. Exp. Sta., respectively.

THE experiment with cotton was made on a uniform field on plats 1/18 acre in size. Twenty-

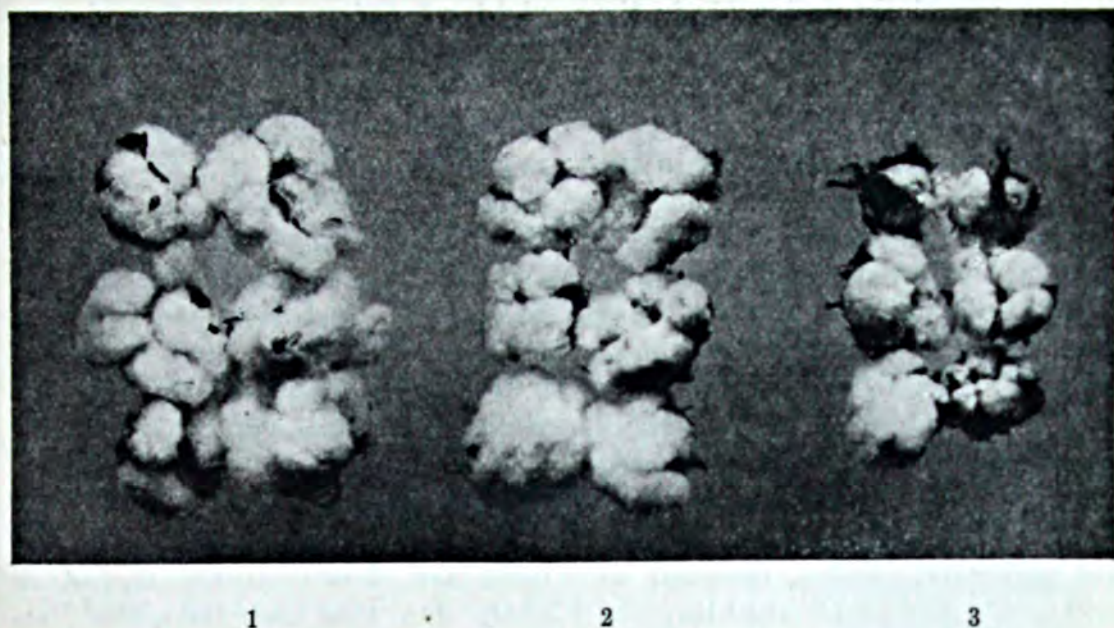


Fig. 1.—Open cotton bolls from 3 plots of the fertilizer experiment on Wickham fine sandy loam
 1, from plat fertilized with 900 pounds per acre of a 9% potash fertilizer.
 2, from plat fertilized with 900 pounds per acre of a 6% potash fertilizer.
 3, from plat fertilized with 900 pounds per acre of a no potash fertilizer.

one fertilizers were used, the plan of the experiment being based on the triangle system of fertilizer experimentation.¹ Acid phosphate, nitrogen, and potash were used singly and in combination of two and of three of the fertilizer constituents. There were four mixtures of phosphoric acid and nitrogen, four of nitrogen and potash, four of phosphoric acid and potash, and six mixtures containing all three fertilizer ingredients, the ratio of P_2O_5 , NH_3 , and K_2O varying in the mixtures in 3 per cent stages. The plan of the experiment is such as to show the needs for the soil of any of the fertilizer constituents or combination of fertilizer constituents. The source of P_2O_5 in the fertilizer was acid phosphate, the source of K_2O was potassium sulfate, the source of NH_3 was one-third from sodium nitrate, one-third from ammonium sulfate, and one-third from cotton-seed meal. The fertilizers were applied in early spring before the

seed was planted and were used at the rate of 900 pounds per acre. Wanamaker's Cleveland cotton was grown in 1923 and Mexican big boll in 1924. The fertilizer treatments together with the yields are given in Table 1.

During the early season there developed a considerable difference in the growth of the plants in the variously fertilized plats. During the early growth and throughout the entire season the plants on the plats receiving fertilizers containing no nitrogen made a slow growth and produced a small stalk, and those receiving mixtures containing nitrogen produced an early vigorous growth and a normal size stalk which is characteristic of the effect of nitrogen on cotton on most soils. However, the plants on the plats receiving phosphate alone, nitrogen alone, or mixtures of phosphate and nitrogen developed abnormal characteristics in July, which became very marked by early August. An abnormal dark green color developed, and many of the leaves of the plants became crinkled. This character-

¹ Schreiner, O., and Skinner, J. J. *The triangle system of fertilizer experiments* In *Jour. Amer. Soc. Agron.*, 10:225, 1918.

istic was especially noticeable in the plants on the plats containing high proportions of nitrogen. This unusual color and crinkling effect on the foliage was not apparent in the plats receiving fertilizers containing potash, nor did any abnormal physiological disturbance appear in the potash plats. There was no apparent difference in the blossoming and fruiting of these variously fertilized plats at that time. Later in August the crinkled leaves of the plants on the no-potash plats became bronzed and rust appeared, which resulted in early maturing and shedding of the foliage and a cessation of fruiting.

WHEN the cotton was picked on September 21, there was a marked difference in the size of the bolls on the potash and no-potash plats. The bolls on the potash plats were large and the burs opened normally, while those on the no-potash plats were small and apparently opened before reaching full maturity. The burs did not open wide and the cotton clung tight.

A photograph made on September 21, 1923, the time of the first picking of the cotton, is shown in Fig. 3. Figure 4 shows the cotton fertilized with a mixture containing 6 per cent P_2O_5 , 3 per cent NH_3 , and 6 per cent K_2O , and Fig. 3, cotton fertilized with a mixture containing no potash and a high proportion of ammonia. The formula used here is 6-9-0. It should be noted that the plants in the plats which received the potash fertilizer still carry their leaves and the cotton is fluffy, while that receiving the no-potash fertilizer has shed its leaves and the bolls are small and poorly opened. The complete fertilizer plat gave at this early picking a

yield of 774 pounds of seed cotton per acre against 612 pounds for the no-potash plat.

The rust or potash hunger characteristic is noted in Fig. 2, which shows the field as it appeared at the time of the final picking on October 25. The cotton on the left received a fertilizer containing 9 per cent P_2O_5 , 3 per cent NH_3 , and 3 per cent K_2O , and that on the right a mixture containing 9 per cent P_2O_5 , 6 per cent NH_3 , and no potash. The generally defoliated plants with small partly opened bolls are shown on the no-potash plat. On this and the other no-potash plats in the experiment, especially the plats fertilized with mixtures high in ammonia and no potash the pickers complained of difficulty in picking the cotton on account of the cotton sticking in the burs and the burs not being open as wide as on the other plats.

In Fig. 1 cotton bolls picked from several of the plats in the experiment are shown. Those shown as No. 1 are from the plat fertilized with 900 pounds per acre of a 9 per cent potash fertilizer; No. 2 from the plat fertilized with a 6 per cent potash fertilizer; and No. 3 from the plat fertilized with a no-potash fertilizer. The character of the cotton grown with the different fertilizers is interesting and the differences are very marked.

The experiment was repeated in 1924, the same fertilizers being used on identical rows as was done in 1923. Mexican big boll cotton was grown instead of the Cleveland. The growth and fruiting characteristics were the same as observed in 1923, except that the differences occurring in the differently fertilized plats were even more marked and the foliage and boll characteristics were accentuated.

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DANCE

Helps the Farmers

By Dr. Guy A. Peterson

Madison, Wisconsin

*Every Community
ought to have this
kind of Dance.*



JAMES DANCE, former county agent in Waupaca county, Wisconsin and present president of the Central Wisconsin Seed Company, is still giving the farmers the same kind of information and services that he gave them when he was county agent.

Since this county has been without an agent for about two years, many farmers have availed themselves of the services offered by the seed company. "We believe it pays us to help the farmers, for by so doing we are helping ourselves," says Dance.

Dance maintains that Waupaca county, with its sandy loam soil that is quick maturing and readily responsive to small amounts of fertilizer, will prove to be an ideal place for growing seed corn, because corn will get ripe there in almost any season.

He says that in the fall of 1924 when seed corn was scarce in many communities, a considerable number of farmers in the neighborhood of Waupaca had as much as a hundred bushels of good, dry

seed corn that would germinate practically 100 per cent.

The company intends to develop their seed corn growing on the same basis as most sweet corn factories develop theirs. They will contract for the seed corn, weigh it up when the farmer brings it in, and pay him for it by the ton. It will then be hung and dried in the kiln drying rooms until ready for shelling. It is not shelled before spring, when it is tested, tipped,

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Finishing the discussion started last month.

Both Ends and THE MIDDLEMAN

By

Arthur P. Chew

United States Department of Agriculture

MANY retail dealers lose money because there are too many retail shops in their neighborhood. Competition forces their prices below the profit level, in spite of all they can do toward keeping operating expenses down.

In a little Wisconsin village of 1,000 people one meat market served the people and the proprietor seemed successful. But when another store was opened, both lost money. It has been found, indeed, that it takes about 1,000 people to support one retail meat store. In one city where there was one meat store to 835 people, three out of every four stores were found to be losing money.

There are thousands of meat stores in the country that haven't enough population in their neighborhood to support them profitably. This is a difficulty that the dealers can not control. Another difficulty, only partially controllable, is too high running expense. Many stores do just a little more business than one man can handle

and less than two can handle. When there are two men in such stores, they nearly always run at a loss.

Similar illustrations of apparently remediable waste in distribution could be given from other lines of business. Enough has been said, however, to show that retailing is a big factor in widening the spread between the city and the country price of farm products. But it is by no means the only cause of the trouble. Trucking costs, railroad switching and floating, pier station handling, loading and unloading, credit and delivery service, and purchase in small lots by housewives add to the cost of distribution.

In New York about 25 per cent of the trucking charge for handling fruits and vegetables is attributed to idle time occasioned by the use of out-of-date facilities. It costs more to truck a sack of potatoes 10 miles in New York than to haul it by freight 1,000 miles from Michigan. Terminal conges-



Congestion in South Water Street, Chicago, costs consumers an enormous sum

tion is a cause of waste and extra expense in distribution in most of our large cities.

Another cause of high distribution costs is shrinkage and deterioration of perishables, as a result of inefficient marketing. Gluts in one place while at the same time there are shortages at other nearby places are a common occurrence. There is no doubt at all as to the crying need for more efficient distribution; the only question is whether the means to supply that need are available.

NO one thing can remove all the causes of too high distribution costs. They are too many and varied. Cooperation, however, seems likely to do its share, judging by the progress it has made in the last 10 years. I have referred to cooperation as an experimental method of determining whether distribution costs are too high.

Usually, it assumes they are,

plunges in to find out, and settles the problem one way or the other by its own records of profit and loss on the undertaking. Generally, it appears, the hunch on which the cooperatives proceed is right. At least that seems a reasonable inference from the fact that cooperative business done by farmers' organizations in the United States increased from \$635,838,684 in 1915 to \$2,200,000,000 in 1923.

Success is the only word that explains that sort of a jump. Farmers organized cooperatively are finding that they can do the job of assembling and distributing the products of the soil better and cheaper than it has been done before. That is why there were 10,160 cooperative associations in the United States two years ago, compared with 5,524 in 1915.

It should be noted that the growth in the volume of cooperative business is a better measure of the success of the cooperative

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Fertilizers

In ALABAMA

By F. E. Boyd

Agronomist Alabama Polytechnic Institute, Auburn, Alabama

DURING the three-year period 1923 to 1925 the Agronomy Department of the Alabama Extension Service in cooperation with the fertilizer division of the State Department of Agriculture and fertilizer manufacturers and distributors made a careful study of the kind and amount of fertilizers used in each Alabama county.

The compilation for 1923 was never completed in detail. The results of the 1924 study were published in the December 15, 1924, issue of the Alabama Farm Bureau News. Based on the number of tax tags sold during the 1924-25 season the State of Alabama used 579,622 tons of fertilizers of all kinds. An analysis of this tonnage has just been completed, the results of which are given in the accompanying table.

In this study we are unable to determine the formula for 71,219 tons and could not find any record as to the distribution of 70,961 tons. This "unaccounted for" tonnage is probably made up of small shipments for which no shipping record is required, tonnage hauled by wagon and unused tax tags. A

good part of this tonnage may be assigned to territory in which are located large fertilizer factories that deliver a considerable tonnage to wagons.

A complete analysis of the data shows that the total tonnage is represented in 76 different materials and formulas but 14 of this number representing only 59 tons were grouped together in the "miscellaneous" column.

Taking the State as a whole these data are quite accurate and give a very good idea as to the kind and amount of materials and mixed goods used by Alabama farmers.

A further study reveals the fact that 49.5 per cent of the total tonnage is composed of separate ingredients or materials and that 42 per cent is made up of complete fertilizers containing 16 per cent plant food, the minimum required by the Alabama fertilizer law. The remaining 8.5 per cent of the total is mixed fertilizers with the plant food content varying from 17 to 25 per cent.

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The sick soil as it looked before it was treated to a dose of "education"

Education--The County Agent's Life-Saver

By A. A. Burger

Ex-County Agent, Iowa

¶An "Old Hand" talks out of his experience on the value of keeping ahead of the game.

EDUCATIONAL projects are the foundation of all successful county agent work.

It is natural that this should be so for the authors of the Smith-Lever law which made provisions for its support, had this thought in mind when the bill was on its passage in Congress. From the very nature of the work it is essentially a part of a great extension organization, reaching down from the federal government, through the state extension departments, ultimately through the county agents in the various counties of the country, to the people. It is one of the greatest

forward steps in agricultural educational work ever undertaken by the government. Its results have fully justified its establishment and more than that, its growth and accomplishment have far surpassed the fondest hopes of its authors.

I do not want to be misunderstood. There are, to be sure, many other legitimate lines of work that the county agent may take up, and many of them have been demanded by the people. A great many of these have been very successful. Some of them have failed. Where they have

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¶ *Prohibition is no problem for this grower of quality fruit.*

500 Grape

COMMERCIALLY, the grape industry in South Carolina at present is confined largely to express shipments. Until a few years ago, practically no attention was given to this delicious fruit other than the planting of a few vines for home use.

Several vineyards have been planted in the state recently with the idea of supplying the demand of local and nearby markets for table grapes. As the industry increases, markets other than local will have to be found. This problem is already being solved by several of the enterprising farmers in this state who are raising grapes on a commercial scale.

A notable example of good work that is being done along this line is found on the farm of A. D. Atkinson and his son F. W. Atkinson. In 1924 the Atkinsons made a profit of \$624.75 on their acre of grapes in Aiken County. The exact number of vines on this acre numbered 500 and the gross sales amounted to \$805.40, which is an outstanding record of production for the second growing year of the vineyard.

However, the Atkinsons are not only producing good yields of grapes on one acre of average Coastal Plain land—but what's more—they are selling them. F.

A. Atkinson, who is the manager of the vineyard, started out on the right foot by building up his market on a quality product. And as a result where he found it hard to sell 1,000 pounds of grapes the first year, he could have sold grapes from 10 acres on the same market the third year, according to his statement.

The writer recently visited the Atkinsons' farm and got a first hand account from F. W. Atkinson. As Mr. Atkinson keeps accurate records on his grape vineyard he had no trouble in backing up his story. And it is a story to which every Palmetto farmer who wants to engage in a profitable side line should listen.

The farm consists of 315 acres with about 150 acres under cultivation and is a typical Coastal Plain farm such as is found in most of the South Atlantic states. Beech Island is the name given to this particular section of the Sand Hills.

Mr. F. W. Atkinson, who has charge of the vineyard and the home orchard, started his account of how he managed to make grapes a profitable enterprise with the following statement: "It was after the boll weevil hit us hard that I began to look around for some crop to supplement cotton

Vines Earn \$805.40

By

J. Lewis Merritt

Clemson College, South Carolina

and the general farm crops. At first I tried out several crops that looked good on paper, but none of them suited me. Finally through a suggestion of the Extension Horticulturist of Clemson Agricultural College, I decided to try grapes on a small scale. And I would advise all beginners to start out on a small scale, the average size of the grape vineyard for av-

erage farms should be 1 or 2 acres. In my own case I found it better to 'grow' into the business, rather than 'go' into the proposition on a large scale at first.

"After inquiring around the neighborhood I found that grapes had been tried by some farmers 40 years before, but that they proved to be a failure. However,

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County Agent C. L. Gowan and A. D. Atkinson inspecting grapes in Atkinson's vineyard

*If a woodchuck would
chuck only wood, this war
might not have been waged.*

EXIT

GROUND-HOGS have increased in numbers in the Eastern States during the past few years and have considerably extended their range. In counties where they were an object of curiosity or entirely absent a few years ago, they have to-day become a menace to crops. There has also been a noticeable change in their habits, probably due to the more intensive cultivation of farming lands.

These animals at one time were seldom noticed out of the fields, but were seen close to patches of

woods, fence rows, rock piles, brier thickets, and in similar situations. Although many may still be found in such places, ever increasing numbers are digging their burrows far from such protection and usually in places where their presence represents a loss to the farmer.

Ground-hogs are particularly fond of leguminous crops and move their residence from place to place to keep within easy access of the soybean or the clover field as these crops are rotated. They travel also farther from their dens than is generally suspected, although they usually manage to keep open a number of otherwise unused holes in order to make a quick get-away from their enemies. They have been observed as far as a half-mile away from any den, probably in search of a new home or a more favorable field for their operations.

A number of introductory demonstrations and country-wide campaigns to reduce the numbers of these animals have been conducted in agricultural communities of Indiana and Illinois by the Biological Survey of the United States Department of Agriculture. These



*Ground-hog-Woodchuck or Mar-
mot*

Mr. Ground Hog

By
James Silver

United States Department of Agriculture



demonstrations aroused surprising interest and showed that farmers recognize the ground-hog, or woodchuck, as a destructive pest and an intolerable nuisance.

As a result of the interest manifested, the Biological Survey assigned a specialist in rodent control to cooperate with the extension services of these two States and later a second expert was assigned to New York State.

AS a basis for a schedule of demonstrations, a circular letter questionnaire was sent to county agents of Indiana and New York asking whether rodent pests were of importance in the county and assistance needed in the solution of problems arising. The replies indicated that animal pests generally and ground-hogs in particular were of considerably more importance than had been realized before.

Of the 72 counties in Indiana replying to this letter, 46 definitely requested demonstrations or other types of assistance in rodent control. This was 64 per cent at first notice, but that was a year ago and it has been significant

that during June of this year (1925) more than half of the Indiana counties in which ground-hog demonstrations were held on request were counties that had previously reported ground-hogs as "non-important, no assistance needed."

The demand for rodent-control work in Illinois has been fully as great and operations during the past year have been nearly equally divided between the two states.

In New York, the first questionnaire was concerned primarily with the scheduling of woodchuck demonstrations and resulted in arrangements for 203 demonstrations in 51 counties. Most of the county agents who scheduled ground-hog demonstrations during the farmer's busy season did so with misgiving, but almost without exception they were surprised at the large turnout.

Of the 92 demonstrations conducted in 24 counties in Indiana, farmers to the number of more than 2,100 attended, and averaged about 23 at each demonstration.

That these demonstrations resulted satisfactorily, is indicated also by the fact that 20,000 pounds of calcium cyanide, the fumigant

recommended for use in destroying the pests were sold in Indiana. Much zest was added to the demonstrations by having the assembled farmers dig out one or more burrows, to capture the ground-hogs and show the immediate action of the calcium cyanide.

Considerable work is involved in digging out some of the burrows and there is no definite assurance in most cases that the burrow will be occupied at the time, so some apprehension was felt as to how the farmers would respond. It was soon evident, however, that they get a real "kick" out of it. It was sport for them as well as an opportunity to joke one another about their digging ability.

It also proved very instructive since only a very small proportion had seen a burrow excavated. More important still, by actually seeing the recommended product do the work in less than a minute, they were won over at once to the method, so that the demonstrations proved unusually effective.

As an illustration of the rapidity with which the recommended methods found favor, four counties, two in Indiana and two in Illinois, that had been paying

bounties on ground-hogs, appropriated funds for the purchase of calcium cyanide in quantity for free distribution to the farmers, in place of paying out money under the old bounty system which had failed to stop the increase of the pest.

Mercer County, Illinois, is one that has been paying a bounty on ground-hogs and that now realizes the futility of this system. Five years ago this county paid out \$500 at the rate of 25 cents for each ground-hog. In spite of this drain on the numbers of the pests ground-hogs increased steadily until last year the bounties paid at the same rate amounted to \$3,000.

This year the county appropriated \$1,200 for the purchase of calcium cyanide as recommended, and a series of demonstrations was arranged. As a result the infestation has been greatly reduced.

The effective control of ground-hogs becomes a problem of larger scope than clearing individual farms, because of the migratory habits of the animals. County-wide campaigns for the control of the ground-hog seem to meet this larger need.



Game wardens digging for ground-hog information

400 BUSHEL

Potato CLUB

Elects a New Member

By Hugh Fergus

TOM DENNISTON has been going to school for the past 10 years.

This is not an ordinary school Tom has been attending but one where potatoes are the main theme. Tom has been both teacher and pupil.

The past two or three years his boys have been members of this same school and this year Denniston and Sons have graduated from this school of experience by achieving the highest honors that can come to a Pennsylvania potato grower, namely, membership in the 400-Bushel Potato Club of the state.

Even though they have reached this coveted honor they feel that they can still learn a few wrinkles in the potato business and even though they had just harvested and marketed the crop when I visited them, they were already laying plans for a better crop next year and a larger acreage.

A few years ago the Pennsylvania State College hired a potato specialist, Dr. Nixon, to do extension work over the state among the potato growers. By lectures, articles in the farm press that reached the farmers of the state,

and working through the county agents, he has in a short time brought Pennsylvania from twenty-seventh to seventh among the potato-growing states.

For example, in the county where the Dennistons live, if you had asked a potato grower five years ago if he were using certified seed, he would have looked at you questioningly and asked you what you meant. Now this county annually plants about 10 carloads that are ordered through the Farm Bureau in addition to those ordered privately through seed houses.

About four years ago, in order to add stimulus to the growers who were making good yields, Dr. Nixon organized the 400-Bushel Potato Club. To attain membership in it a grower must grow 400 bushels or more on one acre to be dug under official supervision. Along with it he must keep and turn in to the State College an accurate record of all the work and expense of growing.

TEN years ago Mr. Denniston began growing potatoes as a cash
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Early TOMATOES

¶ Dixie meets another demand from northern markets.

THE growing of early tomatoes for the northern and eastern markets in several of the southern states has reached tremendous proportions.

The yearly output runs well up into the thousands of cars, Mississippi alone shipping around 2,000. Florida, of course, is the leader in the production of very early tomatoes, these being shipped from mid-winter up to early summer. Texas is a large producer of these early tomatoes; also west Tennessee and to a lesser extent southern South Carolina and Georgia.

There seems to be an ever-increasing demand for the southern-grown early tomatoes on the part of northern

and eastern consumers. Ten or 15 years ago the market for this crop was not nearly so great as at present.

It seems that the increased demand is due not only to the ever-increasing population of the larger cities in the north and east, but to the increased consumption

per person. This, of course, is brought about by the increased desire for this fresh fruit on the part of both rich and poor.

Another reason for the increased consumption of this early vegetable is that most of it goes out now as green-wrapped instead of pink. Until a few years ago practically all of the early tomatoes were picked and shipped in what is



"Where the red tomatoes twine"

in The SOUTH

By R. B. Fairbanks

known as the pink stage, or just after ripening started. This, of course, meant that they had to be consumed in a very short time.

Now a very large percentage of the early tomatoes shipped from the South go out as green-wrapped. These are picked when the tomatoes are fully mature and when the green color begins to show a whitish cast. They are wrapped in tissue paper, and shipped in refrigerator cars.

When handled in this way, they usually reach the distant markets just about the time the pink or ripening color begins to show up, and so the time over which they can be marketed in the shops is prolonged considerably.

To get this fruit on the market as early as pos-

sible, the plants are grown in hot-beds. In the tomato-growing regions of Texas, Central Mississippi and West Tennessee, where most of the crop outside of Florida is grown in the South, the seed are sown from December 15 to middle or latter part of January. Of course, in Florida the seed are sown much earlier.

Some still use manure-heated hot beds, but most folks now use flue-heated hot-beds, which enable them to more nearly control the temperature. These hot-beds are very simply constructed and wood is used for providing heat for the flues which warm the soil above. A cloth covering is used more generally than glass, because it is less expensive.



Looking for worms and rot

During very cold weather when the cloth covering is used, two or more thicknesses may be put on and then a covering of pine straw or other straw or grass is put on.

The plants are usually transplanted to a cold frame after four or five leaves have developed. These cold frames are covered with cloth and usually are constructed with short rafters to give considerable room for the growth and development of the plant.

If the weather turns quite cold while the plants are in the cold frame, lighted lanterns are often hung on the rafters to provide heat. It is remarkable how much heat may be secured from a few lanterns placed in these tightly covered cold frames.

Some of the growers transplant the plants twice to get a stronger, more vigorous plant, but the general rule is to transplant them only once. When they are taken from the cold frames, they are set directly in the field.

Practically all of the green-wrapped tomatoes are sent to market in the 4 bushel crate or flat in which the tomatoes are packed in baskets holding about 3 quarts. These individually wrapped tomatoes are so packed in the basket

as to present a very neat and attractive appearance.

The fruit is carefully graded. Responsible people, who know what it takes to make a number one tomato, do the grading.

THE plants are set in the field in that portion of the tomato belt outside of Florida from March 20 to early April, depending on the weather.

The tomatoes are usually staked and pruned, so as to secure the finest specimens. The staking and pruning method does not give the greatest yield in total number of pounds, but will give the greatest amount of early and large fruit.

There is no advantage in allowing more than the 4 or 5 clusters of fruit to form, because this is as many large, first quality fruit as the plant can produce in time to get to the early market. The suckers are kept pruned out from the time they start to develop to throw all the plant food and moisture into the production of the tomatoes.

Many growers prefer to have to
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Careful staking and pruning insure larger fruit

NORTH CAROLINA *Holds* Fertilizer School

AT the State College of Agriculture, Raleigh, North Carolina, on December 9, soil specialists met with farmers, fertilizer dealers, and salesmen in a one-day intensive short course on the use of fertilizers in connection with soil fertility. More than 300 of these interested agriculturists listened intently to the addresses and entered into the short discussions of the fertilizer problems of the south.

Professor C. B. Williams, Head of the Department of Agronomy at the College, opened the school. Dr. E. C. Brooks, President of the State College welcomed the visitors and expressed his pleasure at so fine a cooperation of education and business. He especially complimented the fertilizer men upon coming to the College to seek the latest facts as founded upon experimental inquiry in the use of their product.

W. A. Graham, Commissioner of Agriculture, told briefly of the growth of the use of fertilizers and the duty of the department to the industry.

To W. F. Pate, local agronomist of the National Fertilizer Association, much credit was given for the arrangement of the program which smoothly crowded into a short period of time a great deal of information.

Professor C. B. Williams discussed in detail "Wise Use of Fertilizers on Cotton—Their Effects upon Yield and Maturity for Different Soils in North Carolina." He emphasized the importance of improving the grade of fertilizer

and urged that more consideration be given to recommendations made by the State Agricultural College, which institution has over a period of years made a very careful study of the fertilizer requirement of important crops on the several outstanding soil types.

CHARTS showing results of experimental work during the last 15 years were used by Professor Williams in his recommendations for best analysis for the several soil types in which cotton is grown. For cotton in the Coastal Plain he recommended an analysis of 8-5-3 at rate of 600-900 lbs. per acre. For cotton in the Piedmont section a 10-4-2 at rate of 600-800 lbs. per acre was recommended. Use of the above analysis and rate of applications showed a maximum return of \$4.00 for each dollar invested in fertilizer for Coastal Plain and \$5.56 for Piedmont section. Phosphoric acid was shown to be an important factor in controlling maturity of cotton.

DR. J. J. SKINNER of the United States Department of Agriculture spoke at length on "Fertilizer Results with Irish and Sweet Potatoes" in North Carolina. A comparison of yields with the use of potash from several sources on Irish potatoes showed little difference. The best analysis as shown by experimental data was a 6-6-5 and best rate of application 1200-1600 lbs. per acre.

On the Dunbar fine sandy loam in eastern North Carolina, best results with sweet potatoes were secured by using 1800 lbs. per acre of a 7-7-5. On the Portsmouth sandy loam best results were secured by use of 1600-1800 lbs. per acre of 8-6-6. The potash requirement of sweet potatoes was shown to be high in results of recent experimental work, from 6 per cent to 8 per cent being recommended. In a comparative study of analysis, the largest money return with sweet potatoes was obtained by use of 1200 lbs. of a 7-3-10.

In the Piedmont section of the state a 10-4-4 was recommended for both Irish and sweet potatoes. Nitrate of soda was reputed to be the most effective source of nitrogen for sweets.

Dr. Skinner appeared on the program again in the afternoon and discussed "Uses of Some New Nitrogenous Materials." He showed charts and tables of yields secured from use of certain air-derived nitrogen materials. Taking into consideration the cost of the several sources of nitrogen, very little difference was shown.

Mr. E. G. Moss, Director of Tobacco Branch Station at Oxford, North Carolina, gave the fertilizer manufacturers some real food for thought in a discussion of "Kinds and Amounts of Fertilizers for Best Results with Tobacco in the Old and New Belts of North Carolina." He showed that while muriate of potash or chlorine forms of potash would give equally as good yields and nearly as good quality of tobacco, it was preferable that the sulphate or more refined forms be used at least up to 50 per cent of the potash requirement.

He stated that if growers continued to use the chlorine sources of potash and the manufacturers continued to supply tobacco ferti-

lizers, leaving out the sulphate forms, that buyers would soon begin to discriminate. Foreign buyers are already beginning to do so in Mr. Moss's opinion, and he felt that if the burning quality of our tobacco be allowed to become any poorer by failure to use the sulphate forms of potash as suggested, tobacco manufacturers would be compelled to add foreign blends, which he indicates is already being done, and at a loss of demand for the bright leaf of North Carolina.

Later in the day Mr. Moss discussed "Importance, and How to Most Economically Supply Magnesia to Tobacco Soils for Control of Sand Drown." He said the dolomitic limestone applied broadcast 60-90 days before planting at rate of 1000 lbs. per acre every three years or approximately 400 lbs. per acre each year where tobacco is grown continually was effective. He suggested further that if sulphate of potash be used in the production of quality leaf, that the magnesia might well be secured in the form of sulphate of potash magnesia.

Professor L. G. Willis of the North Carolina Experimental Station gave an interesting discussion of "Some Peculiarities of North Carolina Types with Respect to Response of Certain Crops to Fertilizer." He also discussed the relation of mechanical make-up of soils of the state to the particular kind of nitrogen for best results on cotton.

Professor W. B. Cobb of the North Carolina Experiment Station, discussed soil types from the standpoint of their strength and weaknesses in plant food.

The meeting as a whole contained much valuable information for all who attended. More meetings of similar nature would undoubtedly prove immensely valuable to students of soil fertility and to fertilizer manufacturers.



Keep the ORCHARD FIRES Burning

By V. V. Hostetler

Covina, Los Angeles County, California

⁶⁶DOES citrus orchard heating pay?" has been definitely answered in Southern California by the returns from the 1924-1925 crop which had a delivered value of \$122,245,523. This is the greatest return for any citrus crop, in spite of the fact that the number of cars shipped was 49,437 compared with 60,732 the year previous. The reduction in shipment was due to the freeze of the last week of December, 1924, which affected a greater area than any previous "cold snap."

Although the Eastern market conditions were without doubt un-

usually favorable and well handled for the growers' benefit, the financial success of the year's crop was due chiefly to the orchard heater.

The Covina district, which is one of the foremost orange shipping points in California, has the following examples of the effectiveness of orchard heating. From a ten-acre grove unheated, 100 boxes of low grade fruit were picked which brought \$393, and \$75 was spent to pull the remainder of the crop which went on the ground. From ten acres partially heated the fruit was all brought to the

packinghouse, 20 per cent being thrown out by the water separator, while 1271 packed boxes of low grade fruit brought a return of \$3924. The crop from ten acres properly heated was 4400 packed boxes which netted \$16,829.

ONE association manager estimates \$1000 as an average return per acre from protected Valencia groves and from 40 to 50 per cent as the loss where groves are unheated.

With figures such as these upon their books eight of the ten shipping organizations of Covina installed or supplemented during 1925 adequate storage for fuel oil for their growers. The storage equipment consisted of reinforced concrete underground tanks of from 12,000 to 35,000 gallon capacity and sheet iron overhead tanks holding from 50,000 to 200,000 gallons.

The heaters are of many types and exemplify many theories. The original belief that a dense smoke blanket would prevent the radiation of heat from the earth and thus protect the fruit has been replaced by the knowledge that it is necessary to warm the lower strata of air in times of low temperatures. The heavy, low grade oil formerly used has given away to an oil of higher gravity from 31 to 37 degrees, which produces less smoke and more heat. The heaters have also been improved to eliminate the smoke as much as possible.

The average orange grove comprises 80 trees to the acre but in only extreme cases is it thought necessary to provide a heater for every tree. The price of oil heaters during 1925 ranged from \$1.75 to \$3.75 according to the type and construction. Practical-

ly all have a capacity of nine gallons and will burn from 10 to 14 hours according to draught regulation.

It is almost impossible to calculate the cost of a night's orchard heating because the heaters in the most exposed parts of the grove are usually lighted when the temperature becomes dangerous and the heating is increased or diminished according to the temperature. Seldom are all the heaters in a grove burned all night. For this reason it is also difficult to give figures for labor, but two men are usually employed on a ten acre grove equipped with oil heaters and they are paid approximately \$5 each if they work the greater part of the night.

It is to be understood that such expenditures are usually necessary in only a few districts for a few nights in a season.

For several years the Government has maintained many stations for temperature observation in the citrus districts for the growers' benefit. During cold weather at 7:30 each night the probable minimum temperature is forecast.

Supplementing the work of the Government, the Covina, Glendora, Azusa district in 1925 organized a Central Protective Association which has four patrolmen covering the district and making temperature reports at intervals of every fifteen minutes during the dangerous periods. This information is distributed to the growers from a private telephone exchange so that there will be no delays.

Citrus growers of California have come to regard equipping for orchard heating as they do their fire insurance on their buildings: something that may not be of use for many years but which makes big returns in peace of mind at all times.

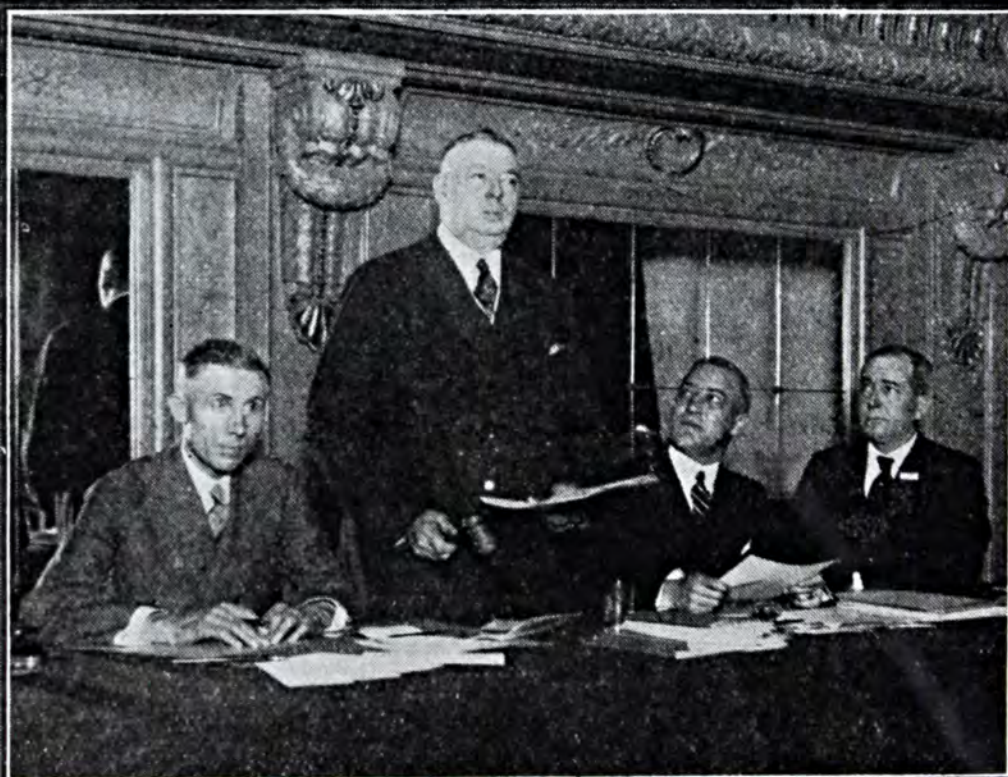
Better Crops' ART GALLERY *of the month*



A Perfect Pair—Alice Burkhart, Iowa, and George Cuskaden, Indiana, win titles as healthiest farm youngsters in America. More than 600,000 competed in the contest.



A hand-operated grist mill in old Shantung, China. Modern machinery is almost unknown here.



Frank Evans, Sec'y.; C. E. Bradfute, Pres.; A. R. Simpson, Treas.; and Edward A. O'Neal, Vice Pres. in Chicago Session of Farm Bureau Federation to oppose western freight rate boost.



Ralph Test, Hoosier county agent, saved many lives by bulldogging wild Texas longhorn cow loose at Chicago Stock Yards.

C. E. Troyer and L. M. Vogler, Indiana, show their reserve and grand champion corn at International Hay and Grain Show to Director G. I. Christie.



"Corn plants must be well fed and well bred." A portion of the Indiana exhibit at the International Hay and Grain Show, 1925, Chicago. The exhibit pointed out simple methods of determining fertilizer requirements for corn and methods of breeding corn.



Some of the Better Crops grown on Long Island. New Yorkers pay premiums for vegetables like these.



Monument in Harz Mountains, Germany, where in 1748 first attempts at raising potatoes in Europe were made.





No wonder Britains have good bacon. These pigs enjoy cod liver oil spooned out to them by fair caretaker.



Control of tomato pests by inoculating plants with diseased microbes is one of the new scientific researches of England.





County Agent E. I. Oswald, Md., built this neat case to file his papers, farm journals, and bulletins.



Willard Evans, thirteen-year-old club boy of Pocomoke, Maryland, makes pets of his purebred Poland China pigs. Pig clubs are among the most popular with farm youngsters, involving nearly 100,000 head of swine each year.

A Word on our Policy

EVERY useful magazine has a sound policy. The editors have given our policy earnest consideration. We feel that you would like to know what it is, and we want to tell you about it.

THE policy of BETTER CROPS is definite. It is to stimulate an interest in all factors pertaining to a more efficient agriculture and to give accurate information on such subjects.

IN developing a more efficient agriculture, you believe—as we do—that one of the most important factors is sound research and experimental work. It is our policy, therefore, to actively support all groups and agencies doing such work, especially the State Agricultural Experiment Stations and Colleges, and the United States Department of Agriculture.

WE believe that such research work is of the greatest value when translated into more efficient production and better living on the farm. Agriculture should be put on a business basis. The farmer is entitled to a larger share of the consumer's dollar. Living and working conditions on the farm should be improved. Consequently we are glad to heartily support the work of the agricultural extension forces and the county agricultural agents.

ESPECIALLY do you want all the facts, not selected facts. It is therefore a very vital part of the policy of BETTER CROPS to publish all the facts.

YOU want these facts presented by authorities in an easy-to-read and attractive form. To combine a soundness of purpose with brightness of treatment is one of our chief aims.

IT is the firm resolve of the editors to live up to this policy at all times.

THIS magazine is your forum. Will you suggest any improvements in this policy that would help you? Our office is at 10 Bridge Street, New York, south of the Customs House, near Bowling Green. We shall be glad to see you or glad to hear from you at any time.

Terry WINS Cotton CONTEST

ANNOUNCEMENT has just been made from the Mississippi A. & M. College that Will Terry, of Jackson, Miss., produced 13,520 pounds of seed cotton on three acres of land this season. In so doing he wins the capital prize of \$500 in cash in the "Better Cotton Production Contest" conducted in 1925 under the auspices of the Extension Department of the College.

Other winners were Earl Love, of Doddsville, Mississippi, \$300 cash with a yield of 12,603 $\frac{3}{4}$ pounds of seed cotton on three acres of land, and Dr. S. W. Johnston, of Vicksburg, Mississippi, \$200 cash with a yield of 12,523 pounds of seed cotton on the same amount of ground.

In making 13,520 pounds of seed cotton on three acres of ground, Mr. Terry has established a record and has brought distinction not only on himself, but to the State of Mississippi, because, as far as is known at the College, his yield exceeds the yield of cotton ever made by anyone on this amount of ground.

The report of Mr. Terry on his yields was supported by affidavit from T. E. Hand, County Agent, Jackson, Mississippi; Carter Stirling, First National Bank, Jackson; F. M. Coleman, County Superintendent of Education of Hinds County; and R. H. Pate, Mississippi Bureau of Development, Jackson.

The donors of the \$1,000 cash, which made the contest possible, were the fertilizer manufacturers doing business in the State and the Mississippi Cotton Seed Crush-

ers Association, \$500 coming from each of these sources.

In conducting the contest, R. S. Wilson, Director of the Extension Department, and his associates, and the donors of the cash premiums realized that what is needed in Mississippi is a stimulus to the economic production of cotton, the major cash crop. They recognized the fact that it is not more acres of cotton, but more cotton per acre, which result, in the end, means more money to the individual grower and to the State.

Acre yields, or the amount of cotton produced on every acre, determines whether or not the grower makes anything out of his crop, and, generally speaking, the bigger the yield the bigger the profit. The results obtained in the contest have more than justified the efforts, for the yields produced by the winners and others standing high in the contest show that good profits can be made from growing cotton in this State.

Over 3,000 entrants in the contest competed for the premiums, a large per cent of whom rendered reports. Nine of them, in addition to the winners already mentioned, made over two bales per acre.

The exceedingly high records produced by these contestants this season, which records come from every soil type of the State, show the possibilities of profitable cotton production in Mississippi, when recognized good principles of farming are followed and should serve as a stimulus to every cotton grower in the State.



AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

South Carolina Farmers Using More Concentrated Fertilizer

South Carolina has been analyzing the fertilizer sold within the State for the past 34 years and, according to the extension agronomist, plant food is now being used in more concentrated form than ever before. In the first three years of the 90's the average composition was 13.37 per cent of available plant food.

Just before the outbreak of the war the average composition had reached 16 per cent, but the shortage of potash resulting from the interruption to world trade brought the percentage down again. By 1920, however, farmers were again using a higher grade product and last year the average of all samples analyzed was 16.19 per cent of available plant food.

In commenting on the desirability of using high test fertilizer the extension agronomist gives several reasons for recommending the practice: Lower hauling and distributing costs, lower freight cost, cheaper handling, and, finally, the lower cost of plant food.

A Spraying Danger

In spraying experiments carried on by Charles E. Smith of the Bureau of Entomology and A. P. Kerr of the Louisiana Experiment Station some new facts regarding the use of certain insect poisons were brought out. It was found that sodium silicofluoride and certain arsenical poisons were much more injurious to certain plants in mixtures than when used by themselves, the conclusion being that

chemical reactions occur in the presence of moisture and release high percentages of water-soluble arsenic.

The results obtained by these scientists show that in spraying work great caution should be used in mixing this sodium compound with certain arsenicals for use against insects on plants.

When used on soybeans undiluted sodium silicofluoride caused only slight burning, but a mixture made of equal parts of calcium arsenate and this chemical killed the soy beans. A mixture containing equal parts of lead arsenate and the sodium compound caused some burn but less than that caused by undiluted lead arsenate.

Heat the Hen House

One of the poultry specialists at the Ohio State University says the cheapest way to keep the poultry house warm enough for maximum egg production is to set up a brooder stove in the house and use it on real cold days. He recommends that just enough fire be kept up to take the chill off the house and keep the drinking water from freezing. Wire netting around the stove will keep the hens from getting singed. Open fronts must be closed with windows or heavy cloth and arrangement made for ventilation.

Is Yeast Good for Hogs?

Professor C. P. Thompson of Oklahoma College has carried on an experiment which seems to refute the claim that yeast aids the

hog's digestive process and results in larger and cheaper gains. In order to remove all doubt he is continuing his experiments for another year.

Pennsylvania Bans Low-Grade Fertilizer

On January 1st an amendment to the Pennsylvania fertilizer law prohibiting the sale of extremely low-grade fertilizer, went into effect. This law prohibits sale in the State of fertilizer of two or more ingredients containing less than 14 per cent of total plant food. The law also specifies that no commercial fertilizer shall be sold containing less than 1 per cent of ammonia, 1 per cent of available phosphoric acid, and 1 per cent of water-soluble potash. It is thought that the number of brands of mixed fertilizer will be greatly reduced and farmers will be relieved of much confusion in making purchases.

Many Poultry Flocks Now Accredited

At the annual meeting of State marketing officials, held at Chicago early in December, it was brought out that about half the States now have some form of accreditation for poultry flocks or hatcheries. When this work started about five years ago there was a great deal of confusion, but since then a committee has been working toward uniformity in control regulations.

Dr. L. E. Card of Illinois said that a plan for accrediting or certifying poultry should aim at economical production, be sound in theory, practical, and not cost too much. Three distinct steps applying to flocks, eggs and chicks are recognized: accreditation, certification, and record of performance.

A. L. Clark of the New Jersey

Bureau of Markets suggested the need for Federal participation in the development of standards. He believes that this work will form a basis for judging poultry which will bring the utility breeders and fanciers together and lay the foundation for pedigreeing poultry.

Fertilizers Not Guilty

Tests carried on for the past two years at Sanford, Florida, have shown that celery, a major crop of the region, develops the black-heart disease largely as a result of fluctuations in the water supply. When the work was started it was suspected that the plants showing this condition owed their black-heartedness to fertilizers. By maintaining an adequate but not excessive supply of moisture throughout the growing season, being particularly careful not to overwater toward the end of the season, the disease practically may be avoided.

Nevertheless, new facts were brought out regarding the fertilization of celery in this region where it is applied as heavily as four tons or even more to the acre. The composition must be looked to carefully for, although the water supply is the principal factor in black-heart, too heavy applications of plant food or the wrong kind will damage the crop. On land that has had no crop for several years four or five tons to the acre may be used, but on fields cropped regularly year after year smaller applications are better. The United States Department of Agriculture, which has been co-operating in these experiments, says that a fertilizer lower in phosphate and higher in potash than that generally used in the locality is giving best results in the growing of celery.



Foreign and International Agriculture



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy—both of facts and their interpretation.

WE all know that the agricultural experiment stations of Germany have done good work. Bernburg, Darmstadt, Giessen, and Bonn are familiar names.

But in addition to these official experiment stations, private initiative has been relied upon to carry on soils experiments and develop new strains of plants. Large German landowners are continually making soil experiments under field conditions to find the value of fertilizer applications on various types of soil in actual practice.

This has been especially true since the war because many of the younger generation, second and third sons of landowners who formerly went into military occupations, are now coming back to the land either as farm managers (*verwalter*) for their older brothers or as experts along special lines.

The largest farm in Germany, the Wentzel estate near Halle, employs a full time man whose sole work is the superintending of soils experiments. This estate also carries on a plant breeding establishment that rivals some experiment fields in size and thoroughness.

Quite a few of the large farms hire full time soils men, but generally speaking, several large farmers cooperate by hiring an expert to do the work, thereby dividing the expenses.

Rather large plots are laid out in the fields so as to give the fertilized areas exactly the same

treatment as that given the untreated areas. By so doing all the increase in yields can be attributed to the treatment and they can tell whether increases are great enough to pay for the costs.

Small farmers benefit from these experiments by watching them. If results are especially noticeable, they will copy the practices the large farmers indicate are profitable.

These large landowners make their experiments directly in the fields because they seem to have little faith in the small plot and pot experiments, except as indicators of what might be advisable to try. They say that there are too many factors such as labor, soil conditions, and climate entering in to allow them to rely wholly on the small plot method of testing.

The experiment station at Weihenstephan operated by the Province of Bavaria is an especially interesting one. It was our privilege to visit this station with a young instructor by the name of E. Nitter, a dashing sort of fellow who was assisting Director Kulisch in the classroom. The fertilizer experiments being carried on there were quite similar to those in many American experiment stations, but the seed and grain improvement work are worthy of mention.

Assessor Crebert, in charge of the seed experiment work, showed us a great many crosses with many kinds of grasses that were being made in an attempt to find a suit-

able grass mixture for the various types of soil in Bavaria. He had hundreds of plots of grass, and it was truly surprising to see how much difference there could be in varieties of grass.

The station was not only trying to develop new strains but it was also getting new varieties from all parts of the world in an attempt to acclimate them to the rigors of the Bavarian climate.



E. Nitter in Bavarian costume

As we came to the wheat experiments, Nitter told us how the Hessians had taken the Hessian fly with them during the Revolutionary war. The descendants of those flies have since done many times more damage in America than the entire cost of the War of Independence.

The Weihestephan station has recently developed a variety of wheat that appears to be immune to the ravages of this fly. Nitter said that the yields from this new strain were not so great as those

from other improved varieties but hopes are held out for improvement in yields so as to make the wheat more desirable.

A smut-resistant variety of wheat has also been found there in very recent times. The discovery of this smut-free grain was very similar to that of the finding of the cabbage that is immune to cabbage yellows, a discovery made at the University of Wisconsin some years ago. This wheat will be a great thing for the world if it can be propagated with good results in other climates.

Germany, being the greatest potato-growing country in the world, is very much interested in ways and means of improving both the eating and stock feeding varieties. Nitter said that some very good results have been received from this work but the experiments had not been running long enough to enable them to make any definite reports of progress.

One type of experimental work which seems to be very valuable is that of testing farmers' seeds for yield, quality, and disease resistance. Farmers who want to sell seeds desire to have the approval of the station so they send in samples to be tested on the college acres.

The seeds are planted, yields are compared, and a prize is given each year to the men who have the best varieties. It really amounts to a kind of contest somewhat similar to Iowa corn yield contests. These results are then used by the growers for publicity material when they sell their seed.

After a new strain is developed at the station, provision for its dissemination into the country are quite different from those in America. Here we usually send small samples to various parts of the state and depend on each individual farmer to propagate the

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REVIEWS



Report of the Secretary of Agriculture, 1925

It is very gratifying to note from the report of the Secretary of Agriculture, W. M. Jardine, that agricultural production this year on the whole has been well balanced. The value of the 1924-25 for all farm production represents an increase of 7 per cent over 1923-24. Farmers are receiving better prices for their products than at any time in the past five years.

While the picture for the entire country shows increasing prosperity, it must be noted that drouth affected some sections, particularly the southwest and an area from the Ohio and Potomac rivers southeast to central Georgia and east to the Atlantic.

The Secretary points out that the increase in foreign cotton production should be carefully studied, and reports that the Department of Agriculture is giving very close attention to possible competition from such sources.

The major crops are discussed in detail. Agricultural exports for the year ending June 30, 1925, were 21 per cent greater in volume than in the previous year.

Foreign competition continues to grow stronger in some lines of farm production. The report does not advocate the supervision and control of cooperative movements. Such associations are business concerns and should stand on their own feet.

Freight rates are carefully considered from the viewpoint that there should be substantial readjustments in such rates. The very important question of the surplus

of some products is also discussed and what can be done towards handling such surplus, is one of the major economic problems of the nation. The opinions of Secretary Jardine on this subject are given.

Rubber possibilities in the United States, the plant quarantine act, grazing leases, federal-aid roads, are also given due consideration.

Everybody interested in the development of our basic industry, Agriculture, should carefully study this report.

The Potato News Bulletin, November, 1925

What causes poor stands of potatoes? In this bulletin H. R. Talmage, prominent potato grower of Riverhead, N. J., gives his opinion from actual observation that "the most common cause of poor stands is due to the fertilizer coming in contact with the seed." This is a very interesting observation and is in part confirmed by the research work discussed in the review of the next bulletin in this column.

The second common cause for poor stands is seed infected with late blight. On Long Island rhizoctonia is another cause.

Other very interesting articles in the bulletin are on "Hill-Unit Selection of Potatoes," "A Special Train Load of Certified Seed Potatoes," and especially an article on "Future Possibilities with the Potato" and "Cooperation in Certified Seed Production." The Bureau of Agricultural Economics, United States Department of Agriculture discusses the present high potato prices.

Fertilizer Experiments: Research Bulletin 65, October, 1925, Agricultural Experiment Station, University of Wisconsin, Madison

No practical question regarding the use of fertilizers requires such definite answer as how to apply fertilizers without delaying or preventing germination, or causing a streaky condition in fields where fertilizer is applied.

We are therefore very glad to learn that this and associated problems have been carefully studied at the Agricultural Experiment Station of the University of Wisconsin by a group of workers, Emil Truog, H. J. Harper, O. C. Magistad, F. W. Parker and James Sykora.

The investigation was undertaken for the purpose of studying the various effects which fertilizers have on crops.

It was found that the method of applying the fertilizer was so important that a large part of the study was devoted to that subject. This work was to study particularly the action of fertilizers in the hill and drill row.

The experimental work was done in the laboratory greenhouse and field for a period of five years. Several crops were used, but because of the importance of the crop and its adaptability to special fertilization, corn occupied a prominent place.

The results of this very practical investigation are given in 55 pages of closely printed material containing 23 tables and 12 figures.

It is very interesting to observe that potato sprouts were found to be much more sensitive to fertilizers than corn sprouts. Considering germination and early growth, the best method of fertilizing corn is to spread it about $\frac{1}{2}$ to $\frac{3}{4}$ inch above the seed.

Fertilizers may serve two pur-

poses, as plant food and to decrease the danger of freezing. It is also very important to note that while there is very excellent machinery for applying fertilizers, some attachments on corn planters do not apply fertilizers as well as they might.

A great deal of practical information is given on the methods of application of fertilizer and effect on germination, especially on corn, oats, cabbage and potatoes. Results are also given on ammoniacal and nitrate nitrogen and the secondary effects of fertilizers.

(These experiments were conducted under a fellowship grant from the Soil Improvement Committee of the National Fertilizer Association. The authors are indebted to A. R. Albert for assistance in starting the experiments.)

A Hand Book of Agronomy: Bulletin No. 97, June, 1925. Virginia A. & M. College & Polytechnic Institute and the U. S. Department of Agriculture Co-operating. Extension Division, Blacksburg, Va.

So much information is being published in these days on different agricultural problems, that it is always useful to find a hand book that gives the many facts on crop production for any definite crop region. One of the latest to be published is the "Hand Book of Agronomy" compiled by G. W. Patteson, Jr., T. C. Maurer and S. R. Bailey.

This book is divided into two sections. The first section gives a great deal of information on some 60 crops, a very important part of which is a group of 18 grasses. Part II discusses crop rotations recommended for Virginia, inoculation of legumes, lime and fertilizer recommendations, the composition of fertilizer materials and very valuable information on the control of diseases and the eradication of weeds. It is a very useful hand book.

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The Influence of Potash on Cotton

(From page 10)

THE potash content of the Wickham sandy loam, on which the experiment was made, is low in comparison with most of the Piedmont soils from which it was derived, but it is as high as in other Coastal Plain soils surrounding it.

The data giving the yield of the various fertilizers on Wickham sandy loam are given in Table 1. The yield secured at the first picking, the total yield, and the percentage of the total yield of cotton opened at the first picking are given for each year and it will be seen that there is a marked difference.

The fertilizers are arranged into groups. In Group A the fertilizers containing only phosphate, only nitrogen, and only potash are given. Group B contains fertilizers composed of phosphate and

nitrogen; Group C, mixtures of phosphate and potash; and Group D, mixtures of nitrogen and potash. Group E contains three fertilizers, one high in phosphate and low in nitrogen and potash, the second high in nitrogen and low in phosphate and potash, and a third high in potash and low in nitrogen and phosphate. Group F contains the three fertilizers each having two of the constituents in equal proportions and a third constituent lower.

The yields given by the three fertilizers in Group A show the need of the soil for potash fertilizers. In both years the yield was greatest from the use of potash and was least from the use of phosphate.

A comparison of yields from the fertilizers in Groups B, C, and D



Fig. 2.—Cotton in fertilizer experiment on Wickham fine sandy loam, October 25, 1923

Left, fertilized with a mixture containing 9% P_2O_5 , 3% NH_3 , and 3% K_2O , at rate of 900 pounds per acre.

Right, fertilized with a mixture containing 9% P_2O_5 , 6% NH_3 , and no potash. Note the heavily fruited stalk and fluffy top cotton on the left in contrast to the defoliated plant and small partly opened boll on the right.



Fig. 3.—Cotton in fertilizer experiment on Wickham fine sandy loam, Fayetteville, N. C., September 21, 1923. Fertilizer containing 6% P_2O_5 , 9% NH_3 , and no K_2O was used at a rate of 900 pounds per acre. Note the defoliated plants and small, poorly opened bolls

shows the relative effect of the mixtures. In 1923 the average yield for the phosphate-nitrogen mixture (Group B) was 756 pounds of seed cotton per acre, against 477 pounds as an average for the phosphate-potash mixtures (Group C) and 981 pounds as an average for the nitrogen-potash

mixtures. In 1924 the average yields for each group were respectively 607 pounds, 544 pounds, and 873 pounds. The largest yield was produced by the nitrogen-potash fertilizer.

A comparison of the three fertilizers in Group E also shows the beneficial effect of both nitrogen



Fig. 4.—Cotton in fertilizer experiment on Wickham fine sandy loam, Fayetteville, N. C., September 21, 1923. Fertilizer containing 6% P_2O_5 , 3% NH_3 , and 6% K_2O was used at a rate of 900 pounds per acre. Note the cotton still retaining its foliage

and potash in contrast to the minor effects of phosphate on yield of cotton on this soil.

In Group F, which comprises mixtures approaching equal proportions of the fertilizer elements, there is not a wide variation in the yield of cotton from the three mixtures.

The data as a whole show a high nitrogen and potash requirement for cotton production on this soil, while phosphate has but little influence on yield.

It is interesting also to examine the data from the point of view of the effect of phosphate, nitrogen, and potash on time of maturing of the cotton.

Where phosphate was used singly, a very small yield was secured, but in 1923, 61.6 per cent of the cotton opened early against 47.2 per cent of that fertilized with nitrogen and 74.4 per cent of that fertilized with potash. In the following year the result was somewhat similar.

In Group E the complete fertilizer high in phosphate gave a small yield but matured 75.7 per cent of its cotton early. The high nitrogen mixture matured 54.9 per cent of its cotton early and the high potash mixture 79.2 per cent in 1923, which result is in harmony with that secured in 1924.

In the phosphate-nitrogen mixtures (Group B) a larger percentage of the cotton opened earlier than the cotton in the phosphate-potash mixtures (Group C) or the nitrogen-potash mixtures (Group D).

FROM the data as a whole it becomes apparent that while phosphate has had very little influence on yield it has had an effect in the maturing of cotton and in this way

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(From page 42)

Experiments in Rice Production in Southwestern Louisiana: U. S. Department of Agriculture, Bulletin No. 1356, October, 1925

Many farmers in the United States would hardly know rice with any degree of certainty, yet it is an important crop in Louisiana. The superintendent of the Rice Experiment Station at Crowley, Louisiana, J. Mitchell Jenkins, in cooperation with Charles E. Chambliss of the Bureau of Plant Industry, has recently published a very instructive bulletin on the results of cultural experiments conducted for 13 years, which subjects include seed bed preparation, seeding, soil fertilizing, irrigation, rotation and weed control.

Some of the more noticeable results are that the best depth of planting is 5-7 inches; a smooth seed bed was the best; the largest yields were produced when rice was planted about May 14th. The largest yields were obtained by growing the crop in rotation with the Biloxi soy bean, though when fertilizers were used, the results were as follows: "Acid Phosphate, sulphate of ammonia, nitrate of soda and cottonseed meal did not increase the yield of rice when applied alone, nor did acid fertilizers when applied with other fertilizers.

"Dried blood may be applied as a source of nitrogen for rice when a legume is not used to supply this plant food.

"Sulphate of potash applied at the rate of 100 pounds per acre produced an increase in yield when used alone and with sulphate of ammonia."

The bulletin contains a great deal of practical information obtained as a result of this 13 years

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The Influence of Potash on Cotton

(From page 45)

is a factor in the fertilization of cotton in this soil, but its influence is a minor one as compared to nitrogen which produced a vigorous plant capable of producing an abundance of fruit, or of potash which is a prime factor in the metabolism of the plant in rust prevention and boll formation and maturation. The effect of potash on cotton on this soil is unusually striking and its influence is much more pronounced than on most soils of the cotton belt.

TABLE 1.—Yield of cotton on Wickham fine sandy loam.
(Pounds of seed cotton per acre.)

Group	Fertilizer formula $P_2O_5-NH_3-K_2O$	1923			1924		
		Yield, first picking, Sept. 21	Total yield	Per- centage of total yield matured by Sept. 21	Yield, first picking, Oct. 3	Total yield	Per- centage of total yield matured by Oct. 3
A Single	15-0-0	198	324	61.6	198	342	57.9
	0-15-0	306	648	47.2	216	504	42.8
	0-0-15	576	774	74.4	432	756	57.1
B No potash	12-3-0	540	666	81.1	360	468	76.9
	9-6-0	432	612	70.6	342	522	65.4
	6-9-0	612	882	69.4	432	612	70.6
	3-12-0	504	864	58.3	468	828	56.6
	Average	522	756	69.8	400	607	65.9
C No nitrogen	12-0-3	306	468	65.4	270	486	55.6
	9-0-6	288	450	64.0	306	558	54.8
	6-0-9	180	414	43.5	180	468	38.5
	3-0-12	414	576	71.9	414	666	62.2
	Average	297	477	61.2	292	544	53.7
D No phosphate	0-12-3	432	792	54.5	252	666	37.8
	0-9-6	736	1116	65.9	594	972	61.1
	0-6-9	702	1026	68.4	612	990	61.8
	0-3-12	774	990	78.2	576	864	66.7
	Average	661	981	66.7	508	873	58.1
E Unbalanced complete	9-3-3	504	666	75.7	450	738	61.0
	3-9-3	504	918	54.9	396	810	48.9
	3-3-9	756	954	79.2	576	846	68.1
F Balanced complete	6-6-3	846	1080	78.3	522	1044	50.0
	6-3-6	774	972	79.6	666	1080	61.7
	3-6-6	738	1044	70.7	576	900	64.0
No fertilizer		180	342	52.6	72	270	26.7

REVIEWS

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of this good experimental work.

Insecticide and Fungicide Laws: U. S. Department of Agriculture Insecticide and Fungicide Board, S. R. A. Insecticide No. 52, November 1925

The various states have made a number of laws with regard to the manufacture and sale of insecticides and fungicides. This bulletin is very useful, as together with previous announcements Nos. 13, 21 and 35, it gives a complete summary of the present laws and amendments made to old laws to January 1st, 1925.

Abbreviations Employed in Experiment Station Records for Titles of Periodicals: U. S. Department of Agriculture, Dept. Bulletin No. 1330

The Experiment Station Record is well known to all workers in agriculture. It will be surprising to many such workers to know that this very useful publication abstracts articles from well over 3500 publications. The list of publications itself is therefore very instructive and the abbreviations of course are essential. It should be in the hands of all workers who use the experiment Station Record.

Johnson County Soils: University of Illinois, Agricultural Experiment Station Soil Report No. 30. June, 1925

This report is one of the series of soil surveys made by the State of Illinois. It shows that the most important soil type in Johnson county is the yellow silt loam. This is bordered by swamp and bottom land soil. In this survey a supplement contains field data from experiments conducted on the soil types similar to those occurring in Johnson county, which adds very much to the value of the survey for practical uses.

Dance Helps the Farmer

(From page 11)

butted, and prepared for delivery to the men who buy it.

"Although this is only our third year," says Dance, "we already have many farmers growing seed corn for us. In order to get them to grow the best seed, we traded in the old seed corn they had, supplying them with pedigreed, Wisconsin Nos. 7, 8, and 12 varieties and sold their old corn to farmers who wanted seed for silage purposes."



How many kernels? One of Dance's publicity stunts

"The seed business," this ex-county agent declares, "is a seasonal business. It keeps us busy in the spring, and early summer, and again at storing time in the fall, so in order to have something to do all the year round we buy and sell feeds to the farmers, and handle all kinds of spray materials, poultry equipment, and garden supplies. We buy feed in car lots and sell it to the farmers as they need it."

The farmers around Waupaca find this seed store a convenient place to meet each other because the company does all it can to give the atmosphere of the place a welcoming tone, and is always ready to answer the farmers' questions and help them to solve their individual problems.

MR. DANCE is kept busy much of the time just answering questions. Since he has had a great deal of experience in this line while he was county agent, he does not find it unpleasant.

"We realize that we are benefiting ourselves when we answer the farmers' questions. They come here to ask how to remodel poultry houses, how to mix poultry feeds, and how to cull chickens. It is to our interest to furnish them with this information, for we know that the better the conditions they have for raising poultry the more feeds they will buy from us. The feeling of good will that this type of service engenders is worth much in dollars and cents, but it is also worth a great deal to have pleasant relations with one's customers as well."

Last year the company sold over \$1,000 worth of inoculative cultures at cost, to increase alfalfa and legume yields in the community. The inoculin was supplied by the Wisconsin College of Agriculture on condition that it should be delivered on this basis. Inoculin provision is a service that is usually performed by the county agent, but there are few county agents in the state that have supplied as much as this to the farmers of their counties.

Dance says that they are glad to do this because they realize the value of alfalfa to the community, and indirectly to their own prosperity, so they welcome any opportunity to increase the acreage

of this crop. Their efforts are meeting with success, for Waupaca county considerably increased its alfalfa seeding last year, many farmers substituting alfalfa for potatoes, which are not always profitable when conducted on a one-crop basis.

SINCE we are located in the heart of the central potato belt, farmers ask us a great many questions about seed treatment and about fertilizers. They ask us how to control potato bugs, potato blight, and leaf hoppers.

"When we answer these questions, and when we give spraying demonstrations to show them how to eradicate their pests, whether on their potato fields or in their orchards, we are helping both them and ourselves. We sell seed potatoes and furnish the farmers with a large percentage of the spray material."

Mr. Dance does not profess to be able to answer all of the questions that the farmers ask him, for farmers have their individual problems. However, he does keep a supply of the commonly used bulletins put out by the United States Department of Agriculture and by the University of Wisconsin.

These bulletins are available for free distribution, so when a farmer or vegetable grower asks Dance something that is not in his particular line, he gives the man the bulletin that applies to the particular problem at hand. He tries to keep posted on the most common questions that farmers ask him.

LAST winter when little interest was displayed on the part of merchants to stage the customary corn and grain show, Dance decided to hold a corn show of his own. It proved to be a fine suc-

cess, with over 50 entries of choice corn of all popular varieties.

Aided by the State Bank, more than \$100 worth of premiums were offered. The corn was kept on exhibit for a full month as an inspiration to all who visited the store. The other business men of the town were glad to join the seed company in holding a show in the armory this year.

By understanding the farmer and his needs, and by realizing that the prosperity of the firm depends on the prosperity of the people who patronize it, this firm bids fair to be a success in the community it is attempting to serve.

(Both Ends and the Middleman)

(From page 13)

movement than the increase in the number of active associations, because associations are getting bigger all the time. They are continually being merged, consolidated, and expanded. Moreover, the disappearance of a cooperative association doesn't necessarily mean a net loss to the movement since its members often join some new larger organization.

Ten years ago cooperation was confined largely to the north central and Pacific States. Now it is spread all over the country. More than 40,000 names of cooperative associations are on file in the Department of Agriculture, but among these are many duplicates and many inactive concerns.

Every region in the last 10 years, however, has shown a large increase both in association membership and in cooperative business. Cooperative business done in cotton in 1923 totaled \$100,000,000; in dairy products \$400,000,000; in fruit and vegetables \$300,000,000; in grain \$600,000,000; in livestock \$250,000,000; in nuts \$50,000,000; in poultry and poultry products \$50,000,000; in tobacco \$150,000,000; in wool \$20,000,000; and in merchandise \$160,000,000.

Not many years ago farmers' business organizations were mostly local enterprises, with occasional federations of locals for selling purposes. To-day many associations operate over important producing sections and sometimes over entire States. Fifty of the new large associations have a greater aggregate membership than all the



This New York City market supplies hotel trade. Poor facilities increase trucking charges 25 per cent

5,524 associations from which reports were obtained in 1915.

HERE is a powerful force tending to introduce into distribution the principles that have made production efficient, both in industry and agriculture. These principles are summed up under the head of the economy of large-scale operations. In production, efficiency has been found in division of labor, in standardization, in mass operations, and in the elimination of costs due to unnecessary competition. All those efficiency factors are being introduced into distribution by the co-operatives.

Other distributing organizations are working along the same line. Cooperatives have no monopoly of the opportunity to bring distribution into line with production in the application of modern efficiency methods. They merely happen to be doing it on a bigger scale than anyone else just now. And according to Judge R. W. Bingham, of the national council of farmers' cooperative marketing associations, they are doing so with very few casualties.

"Within the last five years," Judge Bingham recently told the United States Chamber of Commerce, "commodity cooperatives have had the best business record of any other form of business in the United States. There have been more failures of great banks within that period, more failures in the large railroads, and a higher percentage of bankruptcy in every other form of business, than among commodity cooperative organizations. . . ."

Our problem of distribution is not one of wiping out illicit profits, or of breaking down oppressive groups that intervene between the producer and the consumer and take toll from both.

That no such effective banditry is practiced seems to be an unavoidable inference not only from the heavy mortality among middlemen, but from official investigations showing that the profits taken by distributing agencies are only a small fraction of the price finally paid by the consumer. Essentially, the problem of distribution is simply to get it organized as efficiently as production is organized.

OUR present system of distribution is an out-of-date inheritance from the days when production as well as distribution was on a local scale. In those days manufacturing costs were high, from lack of machinery and labor-saving devices, but distribution costs were low. Today, with production geographically specialized and depending on a world market, the urgent need is for improved distribution processes, and this is a mechanical, technical, and financial problem. It is also a problem in regulating the flow of commodities to market.

Cooperatives are pointing the way to the solution. But they are not going to do the whole thing by themselves. That would be too much to expect of them. It would be the same as relying on cooperative associations to take over the entire business of distribution.

Other agencies, we may be quite sure, are not going to be shouldered aside to that extent. If distribution is to be made cheaper and better, it will be by the introduction of labor-saving devices, by the lessening of destructive competition, by resort to the principle of large-scale operations, by grading and standardization, and by a more thorough exploitation of market possibilities by every agency engaged in the business. *End*

Education—The County Agent's Life Saver

(From page 15)



Abandoned sandy land in Iowa produced this crop of alfalfa after experiments with fertilizers and proper rotations

succeeded they have been a great impetus to the work, but where they have failed they have in many instances almost wrecked the local organization.

Even educational work, in all of its various forms, does not always go over in the way that we fondly anticipate that it should. However when it is based upon sound, sensible, educational practice or experience, and then projected into the proper channels in the right time and in the proper way, its efforts are not wholly lost, and though it may not always succeed, nevertheless it is building in the right direction.

Results of educational work are not always evident, not even measurable. But the effect is cumulative and later these efforts bear fruit. Without question it is the greatest field of usefulness of the county agent system, and perhaps it is its greatest weakness, for all too often these efforts are not appreciated by the people. They want, in many cases, more direct results. "Touch their pocket

book," as somebody has said, "and they will respond." This is literally and absolutely true. Educational work does this, but its results do not always come quickly, nor are they always measurable from the standpoint of dollars and cents.

Let me illustrate. One of the most far-reaching and most important campaigns that has been waged on a large scale throughout the United States has been the eradication of bovine tuberculosis. Every county agent knows the consequences of this awful disease in human suffering; he knows the enormity of the losses in our livestock. In truth, the disease had gained such a foothold in the great livestock producing sections of the country that it threatened the very foundation of our livestock industry.

Through the educational work of the county agent system this insidious disease is being rapidly eradicated and controlled. I say this with no reserve for it is through the county agent system

that this work is being largely accomplished. It is a monument to the efficiency of the system though perhaps it may not be fully appreciated. None can say what it has been worth in human happiness; nor is it possible to place a value upon its fundamental economic worth.

We are now face to face with a new movement in American agriculture, that of cooperative marketing. The county agent has carried on organization and educational work that has laid the foundation upon which this structure is to be built. He has not done the marketing work directly and it is well that he has not. But he has helped in the organization of cooperative enterprises that are beginning to function successfully; he has been conducting educational work that has been preparing the proper attitude of mind, which after all is the most essential. Cooperation will never succeed unless first there is present the proper mental attitude and conception of what cooperation and cooperative marketing really mean.

Boys and girl are learning what cooperation means from their club work; the men and women

are getting the true conception of it in their township or local meetings. They are learning a sense of their own power in these meetings just as the New England fathers, prior to the days of the American revolution, in their own meetings, learned the power of concerted action and felt the pulsation of their own strength.

That spirit made them free. The same spirit will some day give the farmer economic independence and a control over the destiny of his own markets. I think that these local meetings and the educational effort that has been made effective through them are the really outstanding accomplishments of the county agent system.

There is another line of educational endeavor that has a very proper place in the program of every county organization. I shall include here both experimental and demonstrational work because they are more or less of the same nature as far as the individual farmer is concerned. Such projects may well include two or three of the major lines of crop or livestock production or soil fertility.

Perhaps in nearly every section



Yields were carefully checked up to determine the most profitable fertilizer treatments

of the country the problems of the soil are basic. And because the prosperity and welfare of the people depend upon the fertility of the soil, some work of this nature should be included in every well-balanced program of educational work. The economic value of such work is very appreciable and its effect upon the future types of agriculture and practices of farming will be very marked.

By way of illustration let me suggest that the rapid introduction into certain sections of the country of such crops as soybeans, alfalfa, and sweet clover, the liming of land, the use of fertilizers on certain lands and for certain crops, owe their introduction and rapid extension to experimental and demonstrational work conducted by the county agent.

Let me give an illustration of a demonstration which was also in the proper sense an experiment. It was put on in Black Hawk county, Iowa, to determine and demonstrate not merely the effects of limestone, phosphorous and commercial fertilizer, but the far more important problem—that of reclaiming about 5,000 acres of abandoned sandy land by the growing of alfalfa, sweet clover, soybeans, dalea, clover and other leguminous crops. It is impossible to measure the results of this work in cold dollars, but the results of it have been that hundreds of acres of this land are already being reclaimed; and many a poor fellow who was eking out a miserable existence and hanging on by his eyebrows, has been made happy because he can see the sunshine and the prosperity of a better day. Hundreds of people come annually of their own accord to see this reclamation project.

My attention has been called recently to another similar project conducted in Bremer county, Iowa. It was carried out on heavier soil,

but it illustrates the possibilities of this type of educational work. Two or three of such demonstrations in a county will mean that the system of soil and crop management will ultimately be changed and benefited.

Such demonstrations as these are worthwhile. They justify the expenditure of the vast sums of money which the people contribute for the support of this type of extension work. They still allow much time for other work to be done, and the educational value of such work continues long after the experiment or demonstration itself has been completed.

The program of work of any county should not be narrow nor lopsided. It must be determined by the particular needs of the people and the peculiar fitness of the county agent to carry them to a successful conclusion. Not always is it the work which the people demand, which is most important. Sometimes the things that should be done require courage and a high degree of self reliance. In some places there is a demand for commercial or business ventures. The county agent, as a general rule, is not the proper person to engage in this, and such work may well be left to those institutions which are already organized to handle legitimate business.

When farmers organize to go into business of their own the county agent may be of great assistance in originating, promoting, or assisting in such work, but his efforts will count for most when they are confined to the educational side of all such projects. He will find in this field less room for criticism and less trouble; there will be plenty of opportunity for the full use of his talents and all his time; and there will be also the greatest possibility of success.

Fertilizers in Alabama

(From page 14)

Kind and Amount of Fertilizer Used in Alabama Season 1924-25.

<i>Kind</i>	<i>Tons</i>	<i>Kind</i>	<i>Tons</i>	<i>Kind</i>	<i>Tons</i>
Phosphate 16%	122,620	8½-2½-5	4,048	11-2½-3	13,787
Phosphate 18%	5,895	9-2½-5	45	11½-2½-2	36
Phosphate 20%	976	9-3-4	3,391	12-0-4	4,087
Soda	67,881	9-3½-5	20	12-0-5	340
Kainit	11,378	9-5-2	105	12-2½-2	4,963
Manure Salts	688	9½-2½-4	574	12-2½-4	69
Muriate of Potash	6,914	9½-4-7	178	12-3-3	116
Bone Meal	72	9½-4½-4½	867	12-4-4	8,560
Tankage	318	10-0-6	119	12-4-8	55
Pulv'd Manure	68	10-2½-3½	1,045	12-6-2	125
6-6-6	96	10-2½-4	20,182	12-6-4	25
6-8-4	50	10-3-3	64,475	13-2½-1	93
7-5-5	40	10-3-4	45	14-2½-2	147
7-5-7	70	10-3-5	238	14-3-2	45
8-3-5	44,569	10-3-6	20	15-3-5	294
8-3-8	59	10-4-2	800	15-5-5	1,582
8-4-4	21,732	10-4-4	18,982	16-4-4	10
8-4-5	1,765	10-4-5	935	18-6-6	13
8-4-6	360	10-4-7	815	*Miscellaneous	59
8-5-3	111	10-5-3	60	*Unknown formulas	71,219
8-5-4	88	11-0-5	150	*Unaccounted for	70,961
8-6-4	84	11-2½-2½	68	State Total	579,662

* "Miscellaneous" tonnage includes those formulas with less than 10 tons each.

"Unknown formulas" represents that tonnage without available record as to formula.

"Unaccounted for" tonnage may be partly unused tags and that delivered in small lots for which shipping records not required.

A detailed analysis shows that the Alabama farmer uses more phosphoric acid than the entire amount of potash and nitrogen combined. To insure more eco-

nomic production on Alabama farms both the nitrogen and potash content of the average fertilizer should be increased.

* * *

Renovating the Farm Orchard

(From page 7)

year's crop during and immediately following the blooming season.

If there is a shortage of the plant food at that time the tree is

naturally not able to do both things at one time, with the results that no fruit buds are formed for a repeat crop.

THE average farm apple tree is invariably poorly supplied with nitrogen which is the main plant food element lacking in the average farm apple orchard soil. In the farm orchard which has been bearing for a good many years it is never a mistake to make a yearly application of five to seven pounds of nitrate of soda or sulphate of ammonia per tree.

Scatter the fertilizer mostly over the ground under the drip of the branches in a strip eight or ten feet wide. Make the application when the blossom buds show pink in the spring.

Barnyard manure is one of the very best fertilizers for bearing apple trees, but will not show such an immediate invigorating effect on the trees as will either of the forms of nitrate mentioned above. It is most stimulating when plowed or disked into the soil between the trees.

An orchard which has been in sod for a number of years will be greatly benefitted by plowing and cultivating even for one season. The plowing, however, should be very shallow so as to disturb just as small a number of the roots as possible. A wagon load of manure to each old tree will not be too heavy an application and should be supplemented with nitrate in addition.

REGULAR annual cultivation of the small farm orchard is rarely practical as this work comes during the busy season in the farm when the first call on time and horse power rightly comes from the main farm crops.

The practice of covering the ground under the trees and out to three or four feet beyond the tips of the branches with straw is an excellent substitute for cultivation. It has the added advantage of

being a system of management in which all of the work can be done at any time during the winter months.

Any roughage about the farm makes good mulching material such as corn fodder, stalky manure or clover seed threshings. This type of mulch must be renewed each winter and should always be deep enough to smother out all weeds and grass.

One caution in this regard is that once a system of mulching is started in the orchard it should be continued as it draws up the root system of the tree and if the mulch is not replenished at least once a year a portion of these roots near the surface will dry out and be killed.

Commercial orchard practices cannot always be entirely followed in the home orchard. However, the method of soil management in the most profitable orchard in Indiana is both interesting and instructive.

The orchard consists of 60 acres of apples now 21 years old. Every tree is kept mulched with straw as far out as the limbs extend. The space between the trees is double-disked about 10 times per season and receives an application of 10 tons of manure to the acre every other year.

In addition to this ideal combined system of mulch, cultivation and manure, each tree receives five pounds of nitrate or sulphate each spring. It has not missed a crop in six years on most varieties.

(An article on spraying will follow in an early issue.)

* * *

TRUE TO THE FAITH

Little Isador Shapiro rushed into the grocery store. Banging a dime down on the counter he panted: "Gimme for ten cents animal crackers. Take out the pigs."—Farm Life.

Early Tomatoes in the South

(From page 24)

atoes follow corn or some other crop of this kind, because there is usually much organic matter to be turned under and this seems to especially benefit the tomato. Usually the ground is flat broken or bedded in late fall or early winter and allowed to remain in this shape to absorb the winter rains until just before getting ready to set the plants in early spring.

In getting ready for setting the plants, where the rows are bedded in late fall or early winter, they are rebedded in the spring, and where broken broadcast, double disked with a disc harrow. The rows are usually laid off four to five feet apart and the plants set from $2\frac{1}{2}$ to three feet apart in the drill.

Tomato growers long ago learned that to get the best and most fruit and the earliest fruit, liberal quantities of a high-grade complete fertilizer must be used. A few hundred pounds per acre will not give the desired results. It takes from

1,000 to 1,500 or more to do the work.

Some like one analysis and some another, but one thing that all tomato growers seem pretty well agreed upon is that a liberal amount of high-grade fertilizer must be used. Especially is this true of potash. Unless a liberal amount of potash is used, puffs will usually form, the skin will crack open, and the tomato will not carry well.

A puff on a tomato is an unfilled space between the skin and the fruit proper. Many growers say that they can tell by glancing at the tomatoes in the packing shed whether or not they were fertilized with a liberal amount of potash as those that do not get much potash will invariably show a heavy per cent of puffs and lack a certain firmness and color.

The matter of puffs in tomatoes is a rather serious one, because a puffed tomato will not reach the market in good condition.



Hundreds of "juicy salads" on their way North

Also when a small per cent of potash is used, the stem end of the tomato cracks open more readily than where heavy amounts are used. The potash seems to toughen the stem and to a very large extent, prevent the cracking.

The average analysis used by most of the growers is an 8-4-6, although some use an 8-4-4, some 12-4-4, some 10-4-4, and some 10-4-6.* It seems rather definitely proven that 6 per cent is the minimum amount of potash that should be used. In the southern part of Texas in the Rio Grande Valley, tests have shown that 8 per cent potash should be used.

Only a comparatively small amount of nitrogen is needed in that territory, because the land is still quite rich in nitrogen. The formula that most of the growers in the Rio Grande Valley use is an 8-2½-8.

The proper firmness and carrying qualities, say the growers of the Rio Grande Valley, is not assured unless a heavy percentage of potash is used. Probably the 8-4-6 is about the standard average analysis used by the leading tomato growers over the whole South.

In addition to applying all the way from 1,000 to 2,000 pounds of this high-grade complete fertilizer, many of the most successful growers give a side application of nitrate of soda or sulphate of ammonia. Some prefer to give all of this material in one side application and others prefer two.

When two are used, many of the growers give the first application about the time the bloom buds begin to appear, and the second when the largest tomatoes are about the size of marbles. From 75 to 100 pounds per acre is applied where two applications are given—usually 100 to 150 pounds where only one side application is given.

The growers who advocate the one side application state that by

giving it soon after the plants have been transplanted and started growth, far better results are secured from 100 to 125 pounds than can be secured from 150 to 175 pounds, applied after the fruit has commenced to form.

There is much evidence to support the contention of those who believe that all of this readily available nitrogenous fertilizer should be given early in one side application.

Cotton growers used to think that the nitrate of soda or sulphate of ammonia should not be applied until fruiting started, but it is generally conceded now that this is too late, and that usually best results are secured from a side dressing, if given the cotton immediately after it is up and growing well.

The same general principle seems to apply to tomatoes, and it is clear that those growers who believe in the method of applying it soon after the plants are set out and started to growing are on the right track.

Year in and year out the early tomato industry in the South is a very profitable one. Of course when there is an over-production, there is a heavy loss, but by studying the situation carefully, the growers are avoiding over-production better than formerly. It is a highly specialized business and one in which many things are necessary and the two most important seem to be brains and fertilizer.

* (The percentages are stated in the following order: phosphoric acid, nitrogen, potash.)

* * * * *

Teacher—Willie, what is an "average?"

Willie—It's something a hen lays on.

Teacher—Explain, please.

Willie—Well, I can't explain it—but I know our old Leghorn hen lays on an average of three eggs a week.

500 Grape Vines Earn \$805.40

(From page 17)

I believe the failure was caused mostly by neglect and lack of disease control. Anyway the consensus of opinion was that I was a 'darn fool' for trying to grow grapes in that section after they had already proved to be a failure.

"But I took courage after further investigation on my part and in January of 1922 I decided to put out my first grapes.

"First, I selected an acre of land on a slight slope. The land was a sandy loam about 8 inches deep with a clay subsoil that afforded good drainage.

"However, grape growing does not depend so much on soil or climate, it rests mostly with the individual. Grapes require closer attention than any other horticultural crop, but the returns are also greater. For example, you can't delay a week and put on a spray and expect to get results. Pruning must be done at the right time and in the proper way.

"I made my first planting in January, 1922. As stated above, I started out with one acre, planting the following varieties, Brighton 125, Delaware 125, Concord 125, Niagara 125. The 500 vines were purchased from a first-class nursery and cost me \$60, the fertilizer cost \$50. The cultivation, staking, tying, posts, and wire cost \$60.

Mr. Atkinson states the cost of production for one acre usually runs from \$75 to \$100 after the vines begin to bear. This does not include the cost of marketing and harvesting which are standard costs. Harvesting cost of course depends on the yield.

Mr. Atkinson continued the story by saying: "I fertilize my grapes well and cultivate thoroughly and often; these two fac-

tors go a long way to success with grapes.

"Grapes should not be planted over 8 feet apart in rows and rows should be 10 feet wide, rows should be wide enough apart to drive a wagon between them.

"After the grapes begin to bear I use a standard fertilizer consisting of 600 pounds of 9-3-3 and 200 pounds of nitrate of soda per acre. In addition I broadcast 16 tons of lot manure to an acre. I also plant two cover crops, peas in summer and rye and vetch or oats and vetch in winter. The manure and the cover crops provide humus which helps to conserve water supply as well as enriching the soil. During the severe drouth this season I would not have made anything without the humus in the soil which conserved the water for the crop.

"Beginning in the spring I plow through my grapes once a week during the harvesting season, using a special grape hoe, which is a one-horse implement. By using this hoe I save much time and labor. I bought the first grape hoe sold as far south as Atlanta.

"My grapes come in before California grapes," says Mr. Atkinson, "which is another advantage we have in Dixie in getting to the big eastern markets first. The harvest season with me usually runs about two weeks."

TWO-QUART baskets are used by the Atkinsons and 12 baskets are packed in a crate. A label is stuck on every basket to remind people where they can get more grapes of the same kind and quality.

Since the first year the Atkinsons haven't been able to supply

the demand. After the first year they did not try to sell the grapes, because they were selling themselves and the big demand could not be supplied. The first year it was very hard to sell 1000 pounds of grapes, the next 6000 pounds were sold on the same market. In 1925 Mr. Atkinson states that he sold out before he knew it and that the demand was so great he could have sold the grapes from 10 acres instead of one. The grapes were properly harvested, graded, packed and labeled, the result being a quality product that sold itself.

"The people must be educated to eat grapes," says Mr. Atkinson. "It is best to start with 1 or 2 acres at first and get the trade built up. Community plantings of several acres and cooperative shipments is another fine way to get started.

"Beverages made from grapes offer a wonderful market that has not been developed in the South—it offers a big opportunity. We have had hundreds of visitors in our vineyard and we sell a large

quantity of our grapes at the packing shed."

Mr. Atkinson says the possibilities for the average Southern farmer with 1 or 2 acres of grapes is good. The Tryon section in North Carolina started growing grapes 25 years ago and they have developed a good market for grapes in commercial quantities. It was in Tryon that Mr. Atkinson first became interested in growing grapes. He got his information first hand and then he tried it out himself and he has just started in the business, he says.

Already Mr. Atkinson has received calls from all over the South asking for his aid in helping to establish grape vineyards.

In three years the Atkinsons have sold \$2,028 worth of fruit from 1½ acres consisting of 1 acre of grapes and ½ acre of home orchard.

The Atkinsons believe in diversification, for besides growing cotton and general farm crops they have five acres in pecans and 10 acres in pears,—but the grapes paid better than anything.



This is what good fertilizer helped to do on a single grape vine

400 Bushel Potato Club

(From page 21)

crop in addition to his regular farm rotation of corn, oats, wheat and hay. At first his yields were only average. Some years he would make some money and others he would lose. It was not until Dr. Nixon came to Pennsylvania and Mr. Denniston heard his lectures and became one of his disciples that any real progress was made.

His first improvement was in certified seed, then spraying and more spraying, then better preparation of the seed-bed, better cultivation and added and more intelligent fertilization all of which culminated this year in their 441 bushel yield on an acre.

The soil this record yield was made on was a sandy clay loam, well-drained and sloping to the south. For the past 30 years it has produced clover every three years in the rotation. Two years ago it received 12 loads of manure on the wheat and again last year the same amount on the clover.

This made an extremely heavy sod, especially since they allowed the second growth to lie on the ground to be plowed under this Spring. Plowing was done early in the Spring to a depth of eight inches.

In the section where the Dennistons live the market pays the best prices for the potatoes that are marketed earliest.

Knowing this, the Dennistons wanted to plant as early as possible and hurry the crop along. So planting was done April 20 at a depth of several inches below the top level of the ground.

However, the seed was covered lightly in order that the sun would warm it and cause it to sprout quickly. Two harrowings were made with a smoothing harrow as the sprouts were growing. Then

once again the smoothing harrow was used after the potatoes were up.

Not only were the Dennistons gratified at passing the 400-bushel mark, but they were extremely well pleased at the financial returns from this acre. Mr. Denniston has built up such a reputation for quality in his potatoes that they practically sell themselves. Three hotels, five restaurants, and three stores all use nothing but Denniston's potatoes when they can get them.

The price ranged from \$2.25 per bushel on August 24 to \$1.50 on August 31. The total crop brought \$710.69. The total cost of raising including seed, fertilizer, spraying, etc., was \$93.58, leaving a total net profit of \$617.11 for the one acre.

In addition to these workings, the weeder was used once, the sulky worker once; there was one complete working with a one-horse cultivator, then four workings were made in every other row with the one-horse cultivator in order to clear a way for the wheels of the sprayer.

Three years ago on this same ground, they had a yield of 325 bushels per acre and the only reason they could see that they did not reach the 400 mark that year was because they did not plant thick enough. So this year 24 bushels per acre were planted in rows 30 inches apart and 12 inches apart in the row.

Fourteen-hundred pounds of fertilizer per acre are not uncommon applications in Maine, but in this section it was unheard of until the Dennistons tried it. An 0-12-6 grade was used. Nine hundred pounds were applied with a grain drill before planting and 500 more at time of planting.

The Kingdom of the Blind

(From page 6)

They heard the dull thud of dropping "windfalls" with half an ear—with half an eye they saw the ripe fruit drop from boughs to ground. It never occurred to any one of the millions on this earth to ask: "Why should the apples always fall downward, never upward?"

Newton saw the apple fall—and as it struck the ground he was struck with a great question. Out of his ratiocination came the accepted law of gravity. Newton looked, and saw, and *understood*.

A later Newton, friend of mine, lived on Fordham Road in the Bronx, New York City. He owned a two-family home of the type common enough in that district.

WHEN the Florida ballyhoo hit the nation this later Newton "saw" his big chance. He would sell the Bronx two-family and point the flivver's nose due south, returning, of course, as they all do in the movies, in a Rolls-Royce.

Newton went—and is back. What happened I will not relate. Like the Baptist who was asked whether he would prefer Heaven or Hell after death: "I have friends in both places,"—both in Florida and the Bronx.

But what this 1925 Newton did *not* see as he *looked* over the Florida literature prior to his southern flivver-jaunt was this: that while Miami had been increasing from 5,000 to 50,000 people the Bronx had increased from 80,000 to 1,000,000 people; that although lots on the Main street in Miami had, in ten years, increased in value from \$15,000 to \$100,000, similar lots in the Bronx had in-

creased from \$5,000 to \$125,000 in the same decade!

He was too close to his own native Bronx to see and understand what was going on right under his nose—Florida's swamps, like distant pastures, looked greener. *The house he sold in the Bronx for \$20,000 was worth \$40,000 on his return from Florida!*

Henry Ford, at the beginning of this century, was no closer to the automobile of today than were dozens of others equally gifted men. Each saw in the "gas buggy" only a marvelous new contraption for which folks would pay good money.

The first year or two of popular acceptance of the automobile proved that self-propelled vehicles had a great future. Hundreds went into the game.

But Ford *looked*—and *saw* what the others were too blind to see: that, while in the beginning folks would buy cars for pleasure and the thrill, the real opportunity lay in providing transportation.

Henry clearly saw that while people would pay any price for pleasure they would buy transportation upon a price and reliability basis—and that for every seeker after expensive pleasure there would be a thousand willing to buy inexpensive transportation.

In the kingdom of blind car-makers, Ford, though many may claim he is one-eyed mentally, is easily King.

66 ORIGINALITY," said T. W. Higginson, "is simply a pair of fresh eyes."

In a world where admittedly there is nothing new under the sun, the big prizes are distributed to those who can look at an old

proposition with fresh eyes—who can bring to bear on a hackneyed subject the impress of a virgin mind.

No subject is ever fully covered. No thought ever fully completed. No idea is ever worked out to its fullest. Completion is stagnation. There is a new and undiscovered facet on every diamond, and a new side to every philosophy.

ORIGINALITY is the ability to look and see and know—to find the undiscovered; to poke in the cast-off rubbish heap of the world for sparkling bits of newness which can be set in lustrous, modern settings and presented as original.

He is most original—in this Kingdom of the Blind—who can see the thing as it is, cock his eye at it, then close his mind, walk away to think, *and return with a new idea!*

This walking away is an important part of the formula. Most of us are too close to our own petty subjects—we lack the outside viewpoint. We can gain this fresh outlook only by going away for a long enough time so that we are strangers when we return to the subject and thus view it through a stranger's eye.

Every man should leave his wife for a month every year; every business man should cut clean from his desk for many weeks; every student should lock up his books; and every writer should occasionally push aside his manuscript and take it on the wing for parts unknown.

Upon returning, it is marvelous with what fresh eyes we view our former works and associates. Our "blind-spot" is gone.

The real value of a vacation lies not in the rest supposedly gained but in the renewed interest and viewpoint which comes with the returning.

Our blind eyes can see again for a time. Work fast! For blindness again steals in and we become helpless as before.

At this season it is well to remain away from your most cherished plan for a while. Come back to it with new eyes. Let it be seen for what it is worth. Analyze it in comparison with other similar projects. Compare its worth. Value it. Dig into it. Look at it—and *see* it.

Then examine yourself. See yourself as a stranger might view you. Look yourself over physically. Peer into a mirror, a cheval glass, if possible.

Test your mental progress of the last year. Be fair; be honest; be square—but do not be easy on yourself. Be critical. Do as a stranger would. Get away and take a squint at yourself—*see* yourself as others see you.

How do the man and his work "stack up"? You—and your job? You—and your contribution to posterity? You—and your cherished ambition? How about it? Be honest!

This inability to see, so common among the citizens of the Kingdom of the Blind, often creates odd situations.

I know one citizen who, upon closely examining himself, admitted that he "might be in a rut"! You see what partial blindness does to one's vision! The fact was that the rut he was in had so gradually deepened and widened and lengthened that he could no longer see over its edge.

It was a *grave*!

Who was he?

I'll mention no names! Have you a mirror?

* * *

The world has need for just two kinds of workers—those who can do a job without being told, and those who can do it after they are told.

CLEAN Seed Means BETTER Grain Crops

A GOOD fanning mill is a prerequisite to good farming, says E. W. Hardies, assistant professor of Agronomy at South Dakota State College. He urges every farmer to make sure that all seed sown next spring is faultlessly clean.

If there is a fanning mill on the farm, seed can be cleaned this winter at times when it is almost impossible to do outside work. The time spent in running seed through the fanning mill will more than pay for itself in a cleaner and larger crop that can be handled more economically and will bring a better market price.

PURE, clean seed, means seed free from other grains, weed seeds, dirt and chaff. Records given by the seed inspection service of the United States Department of Agriculture show that the states of South Dakota, North Dakota and Minnesota produce annually almost 5,000,000 bushels of foreign material in their wheat crops alone. This is a large economic waste which effects both the farmer and the country elevator. It reduces yields, increases the cost of harvesting and threshing, takes up space in the elevators and grain cars and costs just as much to ship to market as an equal amount of pure grain.

Where poor farming methods are used, the amount of foreign material is steadily increasing because of the impure seed used and the lack of proper rotation

which will destroy many of the weeds. The largest per cent of the weeds found in grain crops were introduced through impure seed. Seed properly cleaned before planting and a good crop rotation will do much to reduce the amount of weed seeds and other impurities in the small grain crop.

* * *

Foreign and International Agriculture

(From page 40)

new variety free from contamination with other varieties.

When a promising strain is found at Weihestephani it is increased at the college until enough has been grown to give it a real test. It is then sent to some large land owner to be further increased. A man from the college gives it regular inspection to see that the right kind of treatment and care is given.

If the variety proves to be satisfactory, the landowner has the privilege of buying the right to use the seed for a certain number of years. He may sell from this seed to any party he wishes. If he fails to disseminate it in a satisfactory manner, however, he may not be allowed to purchase other varieties as they are developed.

One thing quite noticeable about the results found at the station was the faith large farmers had in the value of the work. Nitter said that this was quite universal in Germany.



ECONOMY

NOW that the holidays are over it's as good a time as any to begin on that economy program you have thought about for so long. Economy is one of the things everybody does best when broke, and there's nothing like a holiday season to generate the proper conditions.

The first step is to make out a budget. Add up all your expenses for last year; subtract the cost of a new pair of collar buttons; add three new tires and a pair of skates for the kids; divide by the amount of all the sums you are apt to inherit during the coming year; and multiply by the cost of three tons of coal delivered in your cellar. The total represents the probable expense of operating a completely equipped home, wife, and flivver this season. If in doubt as to the accuracy of the estimate, add ten per cent.

The next step is to effect household economies of such a nature that all waste is eliminated and expenses cut to a minimum. This is very simple, but must be accomplished by the exercise of ingenuity. The following suggestions have been thoroughly tried out by this department and found to work as well as any others we can think of:

I

A patch for little Willie's pants may be made out of one of big sister's dresses. For a large patch it may be necessary to sew two dresses together.

II

Holes in stockings should be carefully preserved and installed in the next batch of doughnuts.

III

It is a mistake to throw away old five dollar bills. If carefully crumpled up, they make excellent stuffing for a new bed tick.

IV

Old noses which have become dulled by the use of too much powder are not completely ruined. Good furniture polish, well rubbed in, will often bring out that youthful luster again.

V

Doing without one meal a day will cut down the grocery bill a third. Doing without eating altogether will eliminate this irritating source of expense entirely.

VI

Pasteboard boxes from mail order houses may be worked up into shoes for the children by a skillful housewife. Odd-shaped fragments left over may be fried in lard and served for pancakes.

VII

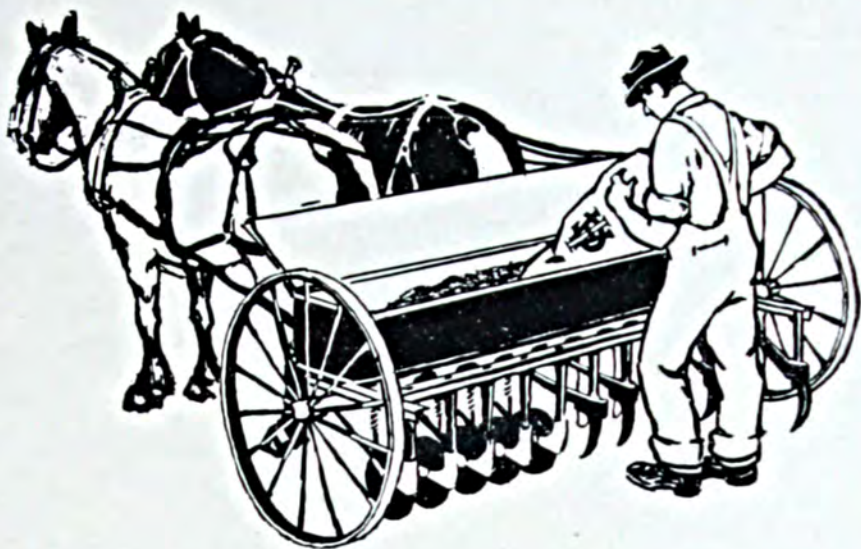
If the car needs new tires, buy a rubber plant and raise your own.

VIII

Unsightly tears or runs in black stockings may be defeated by painting the skin beneath with black ink.

* * *

January is the month when the fireside cornhuskers get in their very best work.



THROUGH MIXING

A fertilizer must be thoroughly mixed to drill easily without "lumping." If it's not properly prepared, a concentration of the ingredients in spots is likely to burn the plants.

International Fertilizers are safe—because the ingredients are mixed in the proper proportions—and mixed thoroughly. Modern mixing machinery, as used in International plants, is as far superior to the home-mixing equipment of the average farmer as the modern threshing machine is to the flail that Great-grandfather used.

Each bag of every shipment of two or more tons is carefully sampled by chemists at the time of shipment. This inspection insures quality in International Fertilizers.

INTERNATIONAL AGRICULTURAL CORPORATION
MANUFACTURERS OF HIGH GRADE FERTILIZERS

Dept. B, 61 Broadway, New York City

Sales Offices in Fifteen Cities



YOU may never know—it drains your profits like a leaking faucet and robs your plants of the yield that should be yours.

A few years ago, it carried away 4 to 5% of the total cotton crop and in some fields the destruction reached as high as 50%—cutting crops in half.

Many authorities agree that the most common causes of cotton rust are: lack of humus in the soil, poor drainage, and potash hunger. The better treatment you give your soil—the more you safeguard your income.

The United States Department of Agriculture, in Farmers' Bulletin 1187, recommends the following: "... supply vegetable matter to the soil. Use fertilizers containing potash. Drain the wet fields."

Put a little more time and care in the preparation of your soil—and don't guess with fertilizers. In the Bulletin mentioned above, the United States Department of Agriculture recommends: "The use of kainit at the rate of 200 lbs. per acre, or 50 lbs. per acre of muriate of potash, or the application of other potash-containing fertilizers ..."

On this basis at least 600 pounds per acre of a high analysis complete fertilizer containing 4% potash, or 400 pounds if the potash content is 6%, are required to supply the necessary potash. If the losses from rust are heavy, larger applications per acre may be used to advantage.

POTASH IMPORTING CORPORATION OF AMERICA

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POTASH

Better Crops

The Pocket Book of Agriculture.

February 1926

Cents



This time: Thoroughness—Lambing Time—Why Farm Electrification Drags—Reclaiming the East—Beautifying the Farm Home

“Squanto”

“Squanto” was our first extension worker. To know him, we must turn back the pages of history to Pilgrim days.

The Pilgrims were not trained in the methods of agriculture. Few, if any, had any practical experience in farming. They learned some of their first lessons from “Squanto”—a friendly Indian.

He showed them how, by placing two dead fish in each corn hill, the plants thrived and produced large crops. Later on when the fish failed to keep up the good growth of stalks and ears, they discovered how the ashes of burned brush, combined with the dead fish, again produced abundant corn. Modern science shows that that was because the ashes contained potash, which made a more balanced plant food.

From that crude primitive beginning, our scientific farm practices, fertilization and rotation have developed. We now speak of dead fish and wood ashes in terms of nitrogen, phosphoric acid, and potash. The methods have changed, but the principles are the same.

During the past eight years the American farmer consumed an average greater than 6 million tons of high analysis fertilizer per year. The estimated consumption for 1925 totals more than 7,500,000 tons.

And, just as “Squanto” advised the Pilgrim, agricultural extension workers are advising the modern farmer to use the best balanced fertilizer for his various crops.

Potash Importing Corporation
of America

10 Bridge Street, New York City

Better Crops

The Pocket Book of Agriculture

The Whole Truth—Not Selected Truth

VOLUME V

NUMBER SIX

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The Editors Talk

AGRICULTURAL SERVICE We are all impressed with the fact that this is an age of service—with the idea that service must be rendered, as well as goods sold. Organizations now exist, costing several millions annually, solely to determine and render the most efficient service—much of it free or at a nominal charge.

Do we get our money's worth?

Probably for no other class of men are there so many service organizations maintained as for the farmer. By lectures, mail, personal visits, and through the air, literally thousands of people daily are telling the farmer what to do and how to do it.

For the farmer, some 6,000 scientific agricultural "projects" are conducted, supervised by thousands of trained workers. The results of this research are taken to the farmers by another group of more than 4,000 official advisors.

Commercial organizations of all descriptions—financial, chemical, railroads, department stores, machinery, and many others are fast organizing agricultural departments to add to the free service given to the farmer.

What is the meaning of this growing volume of service? Is there too much? Is it effective?

Service is not a vague and passing idea. It is a permanent growth. In its best sense service means the development of a growing sense of our responsibility to others—a clearer conception of our obligation to those with whom we deal and a desire to express this obligation in practical terms. As a shrewd Scot, viewing his stubborn and rock-ribbed acres, once said, "We can only confer a permanent benefit on ourselves by first conferring a benefit on others."

This idea we are incorporating into our social and business motives. For the sake of brevity, it is summed up in the one comprehensive word, "Service." Though no doubt it is used many times as a convenient catch word for lesser things, underneath is a basis of true idealism. In governmental departments and in business from top to bottom, the idea is growing.

The great danger is that in the fast growing of a service of all kinds maintained for the farmer, shallowness and confusion

will result. The word may thus come to represent something that is confusing and unreliable.

On matters of everyday occurrence in the handling of soils, fertilizers, crop production, and the management of stock, the farmer is advised in many cases, no doubt, to do a dozen different things and adopt a dozen different methods, all by experts connected with various "service" organizations.

The needs of true agricultural service are many, but there are three of especial importance: first, thoroughness—service on the basis of ascertained and carefully studied facts; second—in some way the incorporation of clear, far-sighted vision that can estimate the value of permanent betterment; and third—straight dealing and thinking, the elimination of "devious" ways, one of the hardest factors that efficient service has to overcome.

On the basis of these essentials, men can express in practical terms their obligation to their fellows, to the people with whom they deal, and add to the profits, not only of themselves but of others, for the benefit of all men.

Such is true service.

1926 TOBACCO OUTLOOK For the past ten years there has been a vast expansion of the tobacco industry. Writers have warned farmers of the possibility of over-production. Experimental Stations in the tobacco producing regions have rendered invaluable assistance in the matter of selection of high yielding varieties, information on cultural and production methods, timely advice on insect and disease control and prevention, methods of curing, and assistance in the important problems of fertilizing, grading and marketing.

In spite of the efforts of the above agencies to protect the farmers' interest, much tobacco has reached the markets which, because of poor quality or undesirable type, could not be sold with profit to the farmer. Tobacco has been grown in numerous instances under soil and climatic conditions not at all favorable to the crop. Certain areas have developed so rapidly that there has been an over-production. In almost all the important tobacco districts, because of eagerness to profit on the high market following the war, the factor of quality has been neglected. In all of the producing area there are farmers who have by use of fertilizers unsuited to the crop, materially lowered the average price of tobacco by flooding the market with tobacco for which there was little demand.

Reports from the Bright Flue-Cured tobacco district of North Carolina and Virginia, point to at least as large an average in 1926 as in 1925. The price for 1925 crop was satisfactory in most cases in this district. Farmers in this region appear to be following more closely than ever recommendations of their agricultural experts and it is believed a healthy condition prevails as regards probable acreage and attention to certain details affecting production of quality leaf.

In South Carolina and Georgia, especially in the Flue-Cured district, prices during 1925 have not been satisfactory. Experts at the experiment stations say the acreage will probably not be increased and that farmers are being urged to give more attention to grading, selection and proper use of fertilizers in an effort to compete with farmers farther north.

The situation is vastly different in the northern cigar leaf and binder districts of Wisconsin, Ohio, Pennsylvania, New York, Massachusetts and Connecticut. Here it appears there is an over-production and a great depression of the market. On this market there appears to be a surplus of about two years market demand. Farmers in certain districts have decided to grow some other cash crop and all along the line there are indications that the acreage will be cut.

In the Export district of Maryland there is little cause for alarm. Prices have been fair to good and while the market was slow to move the crop, press reports indicate there will be no surplus. The big problems in this district appears to be that of convincing the farmer of the importance of proper grading and packing. This aspect of the situation is being carefully and efficiently handled by the Maryland Tobacco Growers Association in cooperation with experts of the State Experiment Station and Federal Department of Agriculture.

In the Burley tobacco district of Tennessee and Kentucky and the Dark tobacco district of Virginia, conditions are fairly satisfactory. Prices for good quality tobacco generally have been good. Too much poor quality tobacco, however, has found its way to the market and the price level to some extent has been affected. Looking at the whole field—from the viewpoint of an economist—it is impossible to paint a rosy picture of the tobacco situation for 1925 or to hold out much encouragement for better prices for the 1926 crop.

Careful study should be made of the several markets as to surplus and demand and the 1926 acreage figured accordingly. It is obvious that there has been a large over-production with discouraging results in certain districts.

Common-sense interpretation of the situation as it appears now would seem to justify a consideration of reducing the acreage in almost all tobacco districts and more careful attention to the all-important factor of tobacco fertilization. Quality as well as yield are largely determined by the fertilizers used.

Probably the best slogan for the tobacco growers of the United States this year should be: "A smaller acreage, better high yielding varieties, more attention to cultural and curing methods, and more and better tobacco fertilizer."

CALIFORNIA East is East and West is West—but the Pacific Coast is the land of sunshine.

One of our editors has returned recently from a visit and is enthusiastic about all he saw. He believes that the Coast is making rapid strides, especially in matters of more efficient crop production.

Among other developments, a Soil Improvement Committee has been organized by the Fertilizer Manufacturers of California.

The Committee is enthusiastic. The fertilizer companies are supporting them—moved by the real cooperative spirit, not only among themselves in the best interests of the industry and the farmer, but by cooperating with the Experiment Station workers as well.

We offer all these gentlemen our sincerest congratulations on the inception of this movement, and wish it all the success it deserves. Everyone is fortunate in having available at the Riverside Horticultural Experiment Station 70 miles from Los Angeles, 50 acres of citrus fruits planted seven years ago—now ready for experimental work with fertilizers.

The Experiment Station officials have offered to cooperate with the Committee in planning new work. This experimental work will mean a great deal to the citrus industry of the future. Cooperation is a frail plant, it needs constant cultivation, but we feel that it will thrive well in this instance.

Another thing—as G. P. Gray, State Chemist, points out the California consumer of fertilizer is to be complimented on the use of high analysis fertilizers. The average analysis for all classes of mixed goods shows 17 units of plant food. It is also encouraging to note that since 1923 the State of California now requires a segregation of the fertilizer tonnage sold. Data of this kind, some details regarding the fertilizer used in a state is valuable and needed in other fertilizer-using states.



A profitable pair





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VOL. V

NEW YORK, FEBRUARY, 1926

No. 6

☞ *A little essay on—*

Thoroughness

By *Jeff McIlernid*

MY friend Eddie Bok, who used to edit *The Homely Ladies Choinal*, with a corn cob pipe and a wrinkled brow, announces that the trouble with Americans is that they are not thorough.

Bok, in the land of dikes and tulips, was early trained in the homely Dutch way—taught that “whatever was worth doing at all was worth doing well,” to use the apt expression of Lord Chesterfield who, by the way, was not a Dutchman.

And so, in a *Collier's* editorial, he jumps down the throat of

Young America and seeks by precept, example and exhortation, to educate it to thoroughness.

Bok says, “As a Dutch boy one of the cardinal truths taught me was that whatever was worth doing was worth doing well: that next to honesty came thoroughness as a factor in success.” Bok says that “if a boy in America abbreviated the word ‘Company’ to ‘Co.’ he received a hundred per cent mark.” And he continues his tirade by warning, “There is no use of preaching this doctrine of thoroughness if the son sees abbrevia-

tions rampant on his father's business letterheads and practiced by him in his letters. We must practice ourselves what we preach to our children."

This matter of abbreviation is merely a small hole indicative of a great cavity in American mentality. "It is," he says, "like a snowflake which we fleck from our coats, but which multiplied can render helpless the most powerful engine conceived by the mind of man." We must never save time by abbreviating anything, because if we do it is only a step from that to greater crimes.

The editorial is startling. We thrill to it with our mental hair on end.

And then Monsieur Bokerino, in a naive way, signs his preachment "Edward W. Bok"—abbreviates the bull's-eye of his own baptismal handle—and leaves us in doubt as to whether he was spoofing us or not! We pause, ponder and philosophize; in doubt as to what the abbreviation "W." stands for. Inevitably we come to the conclusion that the "W." must be the symbol for "Waggish."

But to make even more effective the attempt at educating Americans in the efficient art of thoroughness, the lean, intelligent face of the whilom editor peers forth from among the eight-point lines of his screed, with a look that says, "I've said ye were not thorough! Ye abbreviate maliciously. I put forth my jaw at ye! When will ye learn?"

And under the audacious portrait appear these cryptic hieroglyphics, "© U. & U."

Now, for the benefit of the initiated, let it be at once known and understood that these four quaint characters are simply beautiful, poetic studies in Americana—succinct examples of that lack of thoroughness that is rapidly sending us to the "demnition bow-wows." Sherlock Holmes would, with the

assistance of the alert Watson, quickly deduce that these hieroglyphics are not, as originally supposed, "dancing men," but are the childish, American manner of saying, "Copyright, Underwood and Underwood"!

"A splendid example, Watson, of that unfortunate, un-Dutch failing of these stupid Americans through which they reduce thirty letters to four! Most astounding, my dear Watson, most astounding!"

Bok is respectfully referred, by permission, to John VIII, 7.

* * *

THOROUGHNESS, like Einstein's theory, is a matter of relativity.

And thoroughness is not, I believe, the racial or national characteristics of any one people. "You cannot condemn a race," nor can you attribute to one race alone a quality which all have in common.

The Dutch are thorough, as Bok says. But so, in a different manner are the English, Germans, French, Czecho-Slovaks and Russians. Yes, and the Americans, in spite of Edward W.'s hasty and ill-conceived declamation.

"Thoroughness," Webster states, "is the quality of achieving completeness, perfection; the ability to pass through, or to the end."

So! One is thorough if one gets to the point where one had planned to land. Nothing said about the method.

The law states that a photographer who copyrights a picture loses his copyright if he permits reproductions minus the word "copyright" and the name of the copyright-ee. But to conserve space, the law permits the use of the initial "C" of the word copyright, endorsed in a circle, thus ©.

And to further permit concentration in a limited space, it sanctions the abbreviation of the pho-

(Turn to page 62)



A field of Irish potatoes in Louisiana

Southern Ways *with* *Irish Potatoes*

By R. B. Fairbanks

THE early Irish potato crop of the South, even though small in quantity as compared to the potato crop of the North, is a very important one. Going on the market at a time when consumers are anxious for fresh, new potatoes, the price paid is often two or three times that paid growers in the main potato belts of the North and West.

Virginia leads in early Irish potato production with from 90,000

to 100,000 acres. Florida is second with an acreage of 25,000 to 30,000; North Carolina is usually third, with around 20,000 to 25,000 acres; South Carolina fourth with 15,000 to 20,000 acres. Louisiana, Alabama and Texas usually grow from 10,000 to 12,000 acres.

While the early Irish potato crop of the South is grown over a wide range of territory, yet it is in certain well defined sections that most of the crop is grown. In Virginia

it is on the Eastern Shore and in the Norfolk district; in Florida in the vicinity of Hastings; in North Carolina in the Beaufort section; and in South Carolina in the Charleston and Beaufort districts. In Texas it is largely in the Wharton, Eagle Lake and Brownsville districts that the crop is grown, and in Louisiana in the vicinity of Alexandria and Bayou Lafourche. In Alabama it is around Mobile.

Inasmuch as one of the principle objects with this crop is to get it on the market as early as possible, a soil that warms up early, that is easily prepared and that is well drained, is the one commonly used. This means a light, sandy loam soil.

Planting in the Hastings, Florida section usually commences in January. In the Southern part of Florida where small acreages are grown, planting commences a month or two earlier. In South Alabama, South Georgia, and South Carolina, some growers plant as early as late January, and others as late as March 1, but February 1 to 15 is the usual time. The crop is planted a little later in the North Carolina and Virginia sections.

THE growers have found that it pays to give the soil thorough preparation. Usually a disc harrow is run over the ground a time or two before it is plowed, in order that all trash may be thoroughly chopped to pieces. After the ground is plowed, it is again harrowed. The rows are laid off from $2\frac{1}{2}$ to 3 feet wide. In many sections in Louisiana, the rows are made 5 to 6 feet wide in order that a crop of corn or cotton may be planted in the middles before the potatoes are harvested.

Of utmost importance in growing this crop is the amount and

kind of commercial fertilizer used. Often a few days difference in the time of harvesting may mean the difference between a profitable and an unprofitable crop. This is the reason why the growers spare no expense or effort to grow the crop just as quickly as possible. From 1500 to 2500 pounds of fertilizer per acre is generally used, some going as high as 3,000 pounds.

This is usually put in the drill a week or 10 days before time to plant the potatoes. Some apply about half of the fertilizer in the bottom of the drill, say 10 days before time to plant, and then thoroughly mix it with the soil by running a small plow in the bottom of the furrow. This is followed with a second application just before dropping the seed. The object of applying it several days ahead of planting is in order that the fertilizer may become thoroughly incorporated with the soil, and some of it be dissolved and ready for the plant roots to take up just as soon as they are formed.

In order to get a strong growth of the plant as quickly as possible, a fertilizer high in ammonia is used. This gives the plant an early start, which is absolutely essential.

A high per cent of potash is also essential. At the Florida Experiment Station it was found that where a liberal amount of potash was not used, the potatoes failed to reach full size. Where comparatively little potash was used, the development of the top of the potatoes was interfered with considerably. Experiments and tests elsewhere have proven very definitely that a high per cent of both potash and ammonia are absolutely essential in order to make the crop a profitable one. While considerable phosphoric acid is needed, yet a comparatively smaller amount of this is essential than of the potash and ammonia.

(Turn to page 51)

¶ *Gamboling
to prosperity.*

Lambing Time

By

Claude Harper

Animal Husbandman, Purdue University

ANY one in Indiana who has handled more than 30,000 breeding and feeding sheep since 1894 and has never failed to make a profit any year except one, deserves a medal. Such is the record of W. W. Miller, Whitley county farmer and vice-president of the Indiana Sheep Breeders' Association.

Mr. Miller has been entered in the Hoosier Gold Medal Sheep Club the past two years and has

won a gold medal each year by producing prime market lambs when mating western ewes with purebred Rambouillet rams. He has also kept cost records on producing market lambs in cooperation with the agricultural extension division, Purdue University, for the past five years. When asked how to make lambs grow Mr. Miller said:



Heat from the ewes' bodies keeps this well-built lambing pen warm

"My lambs have a special line of business. They must grow rapidly from the time they are born in January, February and March until they go to market in May and June, if they are to reach a good market weight in that period. Lambs that grow rapidly must eat plenty, sleep a lot and exercise some.

"A lamb that does not play seldom eats enough, and a lamb that does not have enough to eat seldom sleeps enough. A lamb that does not play usually stands with all four feet drawn together, back humped and bleats and bleats. Such a lamb is not directing its best efforts toward rapid growth. Any car of lambs that is going to average 70 pounds on the market when 100 days old must possess the ability to hustle.

"In the first place a lamb must have vigorous parents. A strong sire and a capacious mother are the lamb's surety of power and vigor. A well-fed and well-bred, spirited

mother feeds her lamb and protects him while his legs are still wobbly. Then there is no substitute for the milk the mother furnishes, either in regard to cost or fattening ability. There is something in the mother's milk that just makes a lamb grow. Whatever that may be is not in other feeds the little fellow can handle. Whenever a lamb comes into this old world and does not have a liberal supply of milk to draw upon, his chances for rapid growth are mighty slim. Shut off the mother's supply of milk and the lamb's credit is gone. As a business proposition, he suffers.

"Around here we try to see that a lamb has full swing. The first two weeks of a lamb's life his feed consists of milk only. At the end of that period the little fellow begins casting about for something, at which to nibble. They like to imitate their mothers. For the next two weeks he nibbles a bit of oats,

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Some of Miller's ewes and 100-day old prime lambs

Money in Sweets

By
Gus M. Oehm

Editor, College of Agriculture,
Fayetteville, Arkansas



Howard Lawrence

HOW Howard Lawrence, a Greenbrier, Arkansas, 4-H club boy, cleared \$466.95 on a single acre of sweet potatoes this year, is told in his official report as a club boy, filed with County Agent W. L. Hall, under whose supervision the acre was grown.

One hundred and fifty dollars of the amount represents prize money which he won. These prizes were offered by the three banks of Conway for the greatest production per acre of Nancy Hall sweet potatoes. Howard defeated several dozen good Faulkner county farmers in making his record.

Howard's net earnings from the acre were \$316.95. It probably equals the returns from an average of 10 acres of cotton in Faulkner county. His total yield from the single acre, as certified and sworn to, was 23,031 pounds, the estimated value of which was placed at \$455, and his cost of production, including an allowance for his own labor, was \$138.05.

Howard's official report shows:

kind of crop—sweet potatoes.

Acreage—one acre.

Kind of soil—sandy, clay loam.

Preparation of soil—plowed seven inches deep March 20, 1925. It was then harrowed, rolled, fertilized, bedded, rebedded and rolled. Potatoes were planted April 22. Nine hundred pounds of an 8-2-5 fertilizer were used. Rows were 38 inches apart and plants were set 17 inches in the row.

Expenses of producing the crop:

Labor (self) 90 hours at 15 cents	\$14.50
Labor (hired) 130 hours at 20 cents	26.00
900 pounds fertilizer	20.75
Plants, 10,278	18.00
Storing and curing	41.00
Rent of land	5.00

Total cost\$138.05



W. N. Stauffer (left) showing his potato field to friends

Potatoes, Potash,

By F. C. Gaylord

Professor of Horticulture, Purdue University

MORE than 25 years ago the Purdue Agricultural Experiment Station made a discovery that revolutionized the agriculture of northern Indiana and all muck soil areas in the country. Previous to that time, muck soils were practically worthless, but with the discovery that potash applied to this soil would make it produce enormous yields of cabbage, mint, onions, potatoes, corn, and root crops the land became a most valuable asset.

While most all of these crops were of highest quality, potatoes grown on muck soils were always thought to be of low quality and were often discriminated on the market.

Professor Sam Conner, of the Purdue Experiment Station, 20 years ago made a study of muck-grown potatoes and as a result

of his work, found that the application of nitrogen, potash and acid phosphate decreased the per cent of water in the tuber on any soil. The decrease in moisture in muck soils, however, was more marked than on any other type of soil, often amounting to a decrease of as much as four per cent. Instead of muck-grown potatoes being found the most watery, they contained less water when fertilized properly than any other potatoes. Potash seemed to make the potatoes less watery than either nitrogen or phosphoric acid.

Samples tested showed that muck grown potatoes when properly fertilized were, contrary to popular belief, of the highest quality, being white, dry and of excellent composition. Not only was the water content lowered, but the ash content was considerably in-



The field that averaged 425 bushels to the acre

and Muck Soils

*A famous
potato grower
tells his secrets.*

creased by fertilizers, especially potash.

Even with this knowledge, the muck sections of northern Indiana did not develop as potato-growing sections. However, five years ago more work was started in development of the muck area as a potato-growing center. W. W. Stauffer, a northern Indiana farmer, started with the potato improvement work. At this time his home county was importing from 30 to 40 carloads of potatoes to meet the needs of its people.

This year, as a result of the gradual development of the potato program, his county produced enough to supply its own need besides shipping between 30 and 40 cars of U. S. No. 1 potatoes. Five years ago Stauffer wasn't growing enough potatoes to feed his own

family let alone sell any to his neighbors.

Stauffer learned the secret of potato-growing in the corn belt, then passed these on to his neighbors, and in his community alone last year more than 10,000 bushels of quality spuds were produced. On one Saturday last spring Stauffer sold 700 bushels of seed potatoes to neighbors and growers in nearby counties.

It was just five years ago that Stauffer first became interested in potato-growing. The first step in starting the potato work was the securing of certified Rurals from very best sources and it had been proven that selected seed was the first limiting factor in growing real spuds. The first year Stauffer planted two acres of potatoes on virgin muck land soil,

Numerous demonstrations had proven that onions and other crops could not be grown without potash, so the ground was fertilized with 200 pounds per acre of 50 per cent muriate of potash and 300 pounds of 16 per cent acid phosphate. Eighteen bushels of certified seed were planted, the crop level, shallow cultivated and sprayed and the average yield was 265 bushels per acre.

Not satisfied with this, the seed for the next year was hill selected from this crop, kept over winter in pit storage, treated and green sprouted in the spring and the second year eight acres were planted, using same fertilizer as year before.

The second year the record yield of the four years was hung up as the eight acres measured 3,407 bushels or 425 bushels per acre, the highest yield ever recorded in Indiana. In 1922 on an increased acreage an average yield of 365 bushels of potatoes were secured.

In 1923 Stauffer planted 20 acres of potatoes, part of the crop was fertilized with 250 pounds of 50 per cent muriate of potash and 300 pounds of 16 per cent acid phosphate while an acre was given twice this much potash.

On this muck soil Stauffer's yield showed that 250 pounds of 50 per cent muriate was about the correct amount as the increased application did not increase yields sufficient to pay for the extra fertilizer.

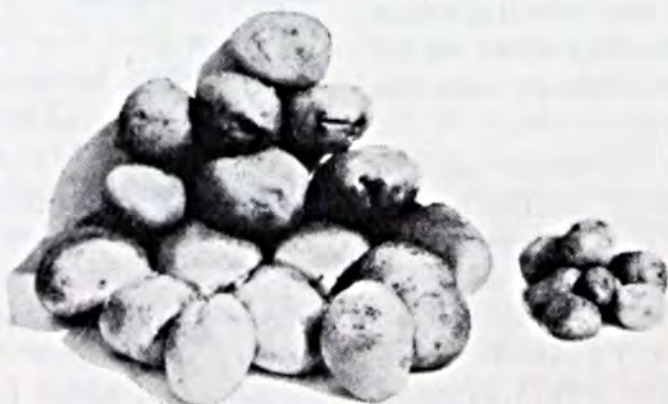
On September 15, the potato field was killed by frost but the average yield was 365 bushels per acre. In 1924, 30 acres averaged 250 bushels an acre while 30 acres in 1925 averaged 250.

Many growers in Northern Indiana felt that Stauffer's yields were exaggerated so in 1924 a field day was held on the farm just before digging time. Three hundred Indiana, Ohio, Illinois and Michigan farmers came, saw, and went home satisfied that the 375 bushels of potatoes per acre were really there without any question.

"There's no secret to my success," Stauffer said. "We owe our large yields to the use of an abundance of seed per acre, rich soil which has been heavily fertilized, for without the potash the crop would be a failure, to level shallow cultivation and to spraying.

"Any farmer who will go a little further than he thinks necessary and use good seed, good soil, liberally fertilized, and good culture can grow a real crop of potatoes."

That the gospel has spread in Indiana was clearly shown this year in that more than 300 cars of potatoes for sale were grown on muck soil. These potatoes, all grown with a liberal supply of acid phosphate and potash, have been shipped as far east as New York City and have topped the market on central and eastern markets in competition with the best the country grows.



One hill-16 No. 1's, 7 seconds

We Know Cooperation Pays

By Robert McCormick

Manager, Gallia County Fruit Growers'
Cooperative Association, Gallipolis, Ohio



The Manager Himself

THERE are still a few farmers in our section who do not believe in cooperation. But their numbers are decreasing every year, and we believe that the time is not far distant when all of them will fall in line and adopt the only plan whereby they can realize a profit on their investment.

There was a time when farmers could go it alone, but that time is past. The increased cost of labor, equipment, and transportation has made it so the average farmer, with small capital, can hardly make expenses, much less any money.

As the result of cooperation, several apple growers of our county, who until three years ago were plodding along in the old way, are now getting the best prices for their apples and are

making a good profit every year.

The Gallia County Fruit Growers' Cooperative Association was formed three years ago with three of the leading apple growers of the county as members. Since that time two more have joined, making a total of five of the most extensive and prosperous growers in the county. We are looking for others to join us later, and we are confident that all the apple growers of the county will sooner or

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Friday made easy in the farm home

Why

By Arthur P. Chew

United States Department of Agriculture

IN an age of rapid electrical progress, farm electrification in the United States is proceeding at a snail's pace. This country develops more electric power than all other countries combined, and does it cheaper. The average cost of electricity to the American consumer today is 8 per cent less than before the war, while other family expenses have increased 65 per cent. Fuel, a big factor in the cost of producing electricity, has doubled in price. Nevertheless, electricity has hardly begun to play a part in agriculture although it is revolutionizing urban life.

Hope for a remedy may be seen in the fact that people whose views and actions have weight are diligently seeking one. Public utility companies are not content that electric service should be monopolized by city dwellers. Farm organizations, spurred by the demand of their members that the conveniences of civilization should no longer be denied to them vigorously, are taking up the matter. Agricultural engineers and scientists

are urging farm electrification because they have a lively appreciation of what it can accomplish. Aside from pressing economic problems, there is hardly a question of interest to farmers that is more discussed today than the question how to electrify the farm.

The first step in curing any ailment is to get it diagnosed. A whole host of diagnosticians are studying the farm electrification problem. They are approaching it from a hundred angles. They are inquiring what is the responsibility in the matter of the power companies, the farm machinery manufacturers, the farmers themselves, and the government. Their studies have already cleared up many obscure aspects of the problem, and pointed out the general lines on which a solution must be sought.

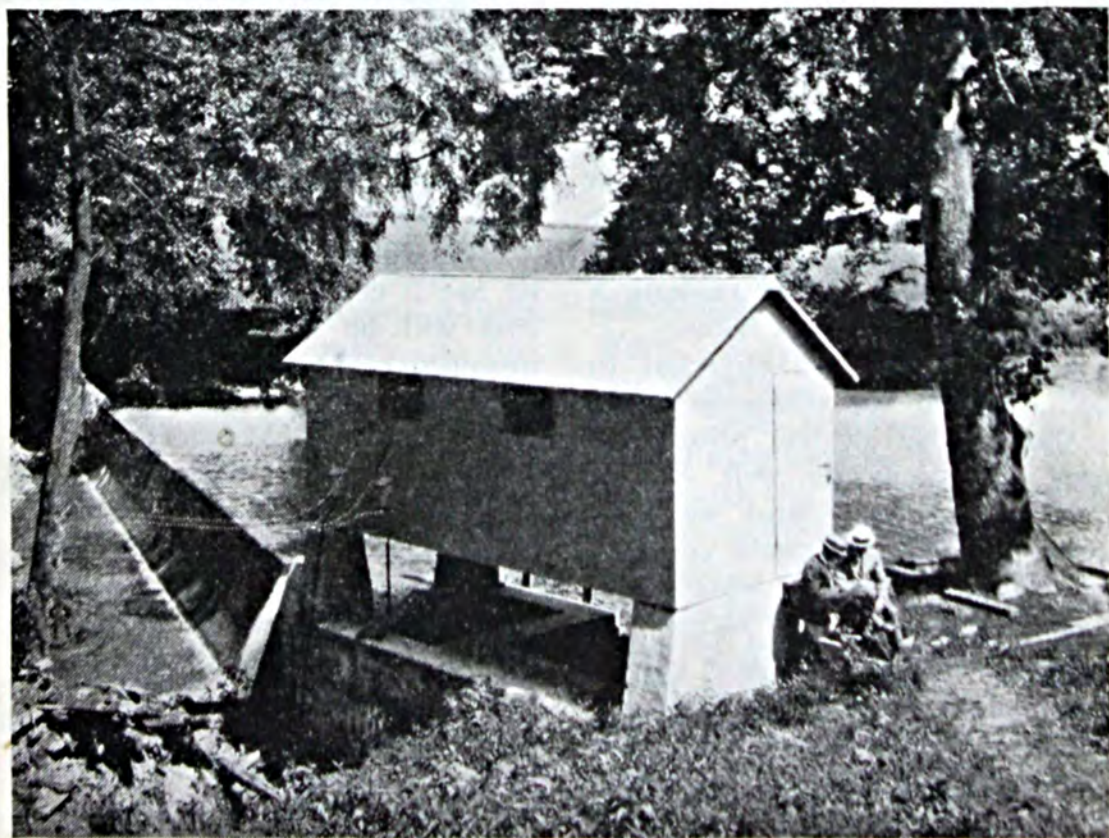
Electricity was first supplied to farms in this country about a quarter of a century ago. This progressive step aroused hopes that have not been realized. Only about 500,000 of the six and a half million farms in the United States to-

¶ *Chew discusses the cost of "juice."*

Farm Electrification Drags

day have any kind of electric power equipment. The others are still unable to take advantage of such inventions as the milking machine, the power churn, the power pump,

the power-driven washing machine, the vacuum cleaner, and the electric flat-iron, to say nothing of electric light. From 1890 to 1924 the primary horsepower used on



A farmers' cooperative electrical power plant in Pennsylvania

farms practically doubled, but very little of the increase was represented by electrical energy.

It is the farm women, of course, who have chiefly suffered by the failure to electrify the farm. Electric power is the only kind of power available for lightening the burden of house work, but field work can be lightened by animal and gasoline power. Indeed, the fact that there are substitutes for electric power in nearly all the farm jobs that men have to do is the chief reason why electric power has not yet been made generally available to farm housewives. This is not a charge of selfishness against the men. It has not been in their power to speed up farm electrification, because heretofore they have lacked sufficient uses for it outside the home.

Electric power can not be furnished cheaply except in large volume. This was discovered by the power companies when they began supplying current to farmsteads located near their transmission lines. They found that it didn't pay to put in transformers and service lines to farm homes simply to furnish power for lighting and operating the washing machine. They consequently declined to do the necessary installation work, or demanded prohibitive charges for it. Sometimes they asked as much as \$1,000 or \$1,500 for running a service line to a farm home.

When the farmers objected to such charges, the companies said to them, "Use electric power for farm operations as well as for work in the home and we shall probably be able to quote you better terms." Usually, however, it paid the farmer better to rely on gasoline power, since it was cheaper as a rule and also available for traction as well as stationary uses, whereas electric power was suitable only for stationary work.

Farm electrification moves slowly because the power companies

cannot get the average farmer to use enough current to give them a reasonable return on their investment without making a very high charge for the energy consumed. Farmers, naturally, will not substitute electric for other forms of power without inducement in the shape of attractive rates. The result is that farmers number only a small proportion of the new customers gained by the power companies every year.

NEARLY two million new users of light and power became customers of the electric companies in 1924. The percentage of farmers among them has been estimated at less than 5 per cent. In a few states, under exceptional conditions, farm electrification is making headway. In California cheap power and the fact that most farms need electricity for irrigation or drainage pumping have brought the number of farmers using current up to nearly 50 per cent of the total.

The many uses for electric power in dairying have given a boost to farm electrification in Wisconsin. In other States, however, the movement is marking time. Moreover, it is likely to continue to mark time until additional uses for electricity are developed on the farm. While its use is confined to the home, its cost will be high and sometimes prohibitive. Volume is necessary for the economical production and transmission of electricity.

This is so well realized by the electrical industry, by farm organizations, and by State and Federal agencies that joint investigations are under way in more than 15 States to find new agricultural uses for electricity. Power companies, manufacturers of electrical equipment and farm implements, and farm organizations are co-operating in the work.

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Reclaiming the East

By
Frank George

United States Department of
Agriculture



Hubert Work

*¶ A look in-
to the future.*

RECLAMATION for a growing nation of 110,000,000 people should, from now on, include recapture and restoration of lost soil fertility."

This principle enunciated by Secretary of Interior, Dr. Hubert Work, is to be the keynote, henceforth, of the Government's reclamation policy. As a first step in putting it into effect, a comprehensive study is to be made into the entire subject of the reclamation of lands which have been lost to agriculture through disuse.

Of the 1,000,000,000 acres of arable land in the United States, there are 452,000,000 acres of un-

cultivated land, much of which consists of neglected, exhausted or abandoned areas, according to Dr. Work. A considerable portion of this land is situated at the doors of the great cities of eastern and central states and can be reclaimed easily with the use of fertilizer and proper cropping systems.

"Within sight of the city of Washington," he says, "are thousands of acres of neglected lands in the state of Virginia, worn out and abandoned, yet susceptible of regeneration. In North Carolina 22,000,000 of the State's 31,000,000 acres are unimproved. Only 8,000,000 acres are in farms. Out of

19,500,000 acres in South Carolina but 5,000,000 acres in 1924 was crop land, scarcely more than one-fourth. Tennessee cropped less than 8,000,000 of its 26,000,000 acres.

"In the New England states several million acres of land have reverted to pasture. Of the 3,000,000 acres in Connecticut 497,435 acres were harvested in 1924. Vermont harvested 1,124,000 acres in 1924. Added to this were approximately 1,000,000 acres of unimproved land in this state lost to agriculture through non-use. Its pasture lands total 2,175,000 acres. New Hampshire cropped in 1924 but 542,846 acres out of 2,262,000 acres in farms. The pasture lands in this state comprised over 1,000,000 acres. Maine, with an area of 5,164,000 acres in farms, cropped only 1,659,000 acres last year.

⁶⁶THE major portion of this untilled land is susceptible to being reclaimed. Much of it already awaits the plow. Other portions need clearing of second growth. In most of these states are thinly-peopled regions, the inhabitants living on a soil skimmed of its cream, that with fertilizer may be made producing farms. Large concentrated populations afford a ready market for food products from these lands, with short truck hauls and consequent low rates for transportation."

The new program does not contemplate taking away from the West its eastern markets. The rapid industrial growth of the West which is now taking place will mean the development of new markets there which will consume larger quantities of farm products. Ultimately, most of the vast irrigated areas of the West will be required to take care of his local demand.

Meantime, the population of the

rest of the country is also gaining at a rapid rate—an increase of 1,400,000 people annually for the country as a whole—and these people will have to look to new sources for much of their food supply. Reclamation of the vast areas of unused arable land near these increased centers of population is seen as a solution of the problem.

The time will come eventually when all the Nation's arable lands will be needed for agricultural production. It is this long time view which the Government is now taking, and which is receiving the approval of economists everywhere. It contemplates, also, the development of production closer to consumptive outlets,—a fundamental economic principle, the operation of which will go far in helping solve distribution problems.

"In 150 years," Dr. Work says, "a virile, resistless, acquisitive people have swept our country from the Atlantic to the Pacific Ocean. From Jamestown and Plymouth they have pushed the frontier before them until it has vanished. The wild turkey vanished before the domestic hen. Sheep replaced deer. The buffalo gave way to better beef breeds; grains and fruits were substituted for nuts and wild berries.

"We now realize that those people who have traveled for generations with the sun in their faces, have depleted the soil, exhausting and abandoning much of it. Already it must be artificially fed even in the Middle West, where it was once thought to be inexhaustible. In New England it has largely reverted to pasture. In the South, even the renter has left the hills, too poor to sprout grass roots to hold the earth, to erode in the rain. We have mined the soil from both sides, its surface and beneath it, until thoughtful men are alarmed for our future resources.

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Sixteen spraying outfits in one Indiana County

RENOVATING *the* Farm ORCHARD

By C. L. Burkholder

Purdue University, Lafayette, Indiana

¶ *The third and last story of this series.*

NOWADAYS an apple tree simply must be sprayed if any edible fruit is to be expected. The labor of pruning, fertilization and straw mulching the farm orchard is wasted if insects and diseases are permitted to harvest the crop.

The equipment and actual operation of a barrel sprayer is no more difficult than many other farm practices. However, the great drawback comes from the necessity of applying the summer sprays at very definite intervals and mostly during the rush of

spring plowing and seeding on the farm.

As the farm orchard is primarily for the production of fruit for home use only, it seems logical that the size of the orchard be reduced to not over ten or a dozen trees. This will simplify spraying

to the point where the application of any one of the summer sprays should not take over two or three hours at the most, provided a properly equipped barrel sprayer in good working condition is available.

Cheap farm tools are always a poor investment and this is just as true of a barrel spray outfit. It should be one that is easily and quickly removed from the barrel as it is important always to slip the pump out of the barrel after using it and to pump clear water through both it and the hose rod and nozzle.

Never buy less than 30 feet of $\frac{3}{8}$ inch special spray hose. The length of the rod will depend on the height of the trees to be sprayed. Rods under eight feet in length can be made of ordinary gas pipe. Long bamboo rods are light and good for tall trees. Always use a 45-degree angle disk nozzle with this type of spray outfit.

A shut-off at the base of the rod completes the equipment. A fair sized apple tree is easily capable

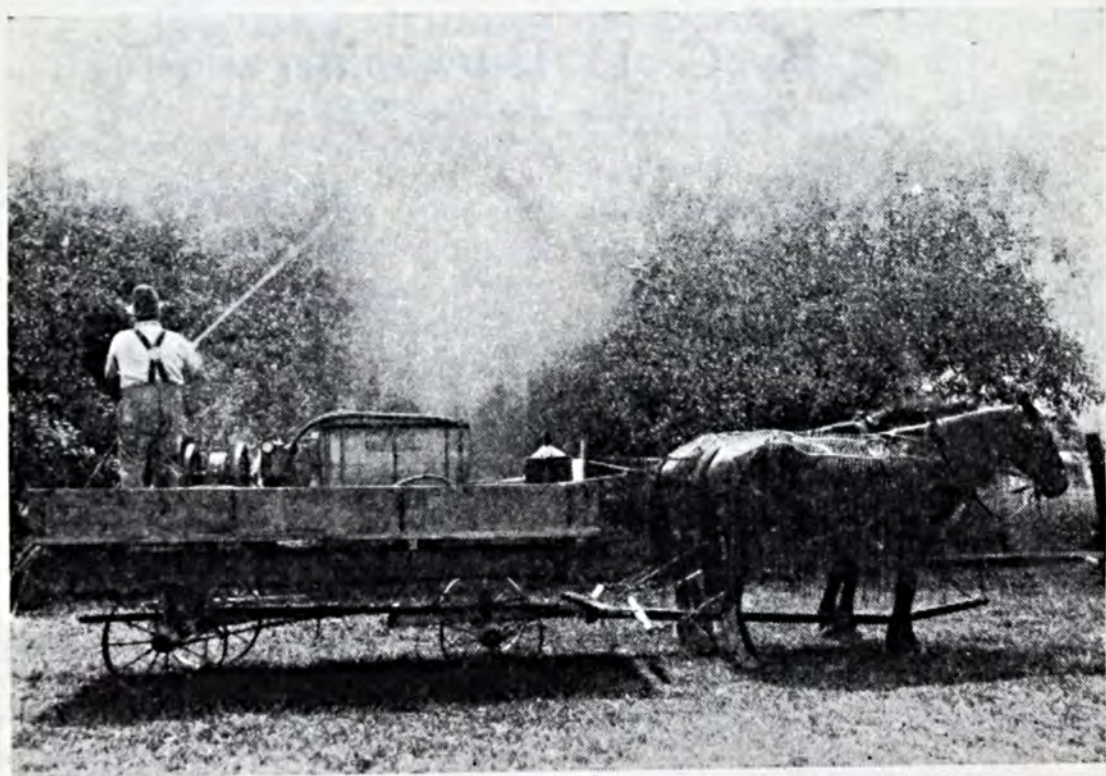
of producing 20 bushels of fruit and at \$1.50 per bushel, one year's crop from one such tree will more than pay for this equipment if the work of mounting the pump is done at home.

Where San Jose Scale is prevalent it is necessary to apply a dormant spray which can be done any time after the leaves have all dropped in the fall and before the buds open in the spring. In the central western states the summer sprays on farm orchards are applied when, (1) the blossom buds are beginning to split open, (2) immediately after the petal fall, (3) two weeks after the petal fall and (4) during the early part of July.

It is best to follow the spray schedule outlined by each State Horticultural Department. A copy of such schedules are sent out free of charge by all State Extension Departments.

All sprays must be applied from the inside of the tree and then by walking around the outside of the tree with the spray rod the entire surface of the tree inside and out

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A convenient outfit for the farm orchard

¶ *Read why this orchardist believes in "setting a good table" for his apple trees.*

FEED

Hungry Trees

By William L. Reed

Sebastopol, California

FOR some time past my King apple trees—32 years old—had not been doing well, making practically no new growth, but showing considerable die back; this die back extending well back into the old wood. These trees bore a crop only every other year. The apples produced were of good size, with an average production per tree of from 400 to 500 pounds. However, they were of indifferent quality, and showed a large proportion of water core. In the off years, the trees produced nothing.

In the Fall of 1923, having come to the conclusion that it was not a diseased condition, but a lack of plant food that was causing the trouble in my orchard, I ordered one ton of a commercial fertilizer with a guaranteed analysis of four per cent Nitrogen, 10 per cent Phosphoric Acid and 10 per cent Potash. The Potash was from the German Sulphate of Potash, which, as soon as received, was applied to a block of 100 King apple trees.

Application was made in order to get the benefit of the winter rains, as this place is not irrigated. The wisdom of this fall application was plainly shown, as where the same formula was applied in the Spring, after the heavy rains were over, comparatively little showing was made.

The first result noted was an excellent setting of fruit in the Spring of 1924, which should have been the off-year. The crop harvested averaged 400 pounds per tree as against nothing from those untreated. The apples were larger, of better color, and finer flavor than usual, also were free from water core.

THE condition of the trees was much improved in every way. The tendency to die back ceased. Foliage was a deeper green with larger leaf. Fruit spurs and bloom buds filled out plumper than before they ever had been. This improvement in bud and spur was

(Turn to page 47)

Beautifying



Where a beauty specialist is required

66 **W**

E have set out to beautify the grounds surrounding our farm homes. That's what farmers in Medina county, Ohio, told me.

I found that quite a number of farm families in the country were really working at this job in earnest. I found, also, that they were doing this under the leadership of H. C. Brunskill, county club leader.

Before taking his present job, Brunskill had served the county for several years in the capacity of cost accountant, helping a group of farmers keep records on their farming operations. Being a real human sort of a fellow he became rather intimately acquainted with many of the hopes and desires of the farm families with whom he worked.

It had developed during the conversations in connection with the farm business that the farmers, their wives and children desired that their home grounds should be more beautiful. Some of them had done a little planting but they had not gone about it in any thorough manner with a view of having a complete and systematic layout when the planting would be completed.

Brunskill showed a keen interest in their landscaping problems. Perhaps the fact that farm engineering had figured strongly in his college education gave him something of a natural aptitude for this work. He was willing to do anything that his training or experience might make possible in helping out on this project. He also

the FARM HOME

By H. E. Mc Cartney



Setting out shrubs at the Fenstermaker home

offered to secure expert help from the specialists of the agricultural college. This help would consist in laying out the planting and in suggesting the trees, shrubs or plants that should be used.

"Every farm home offers an opportunity for individual planting," the Medina county folks said. "No two of our farm yards are exactly alike in size, shape and slope. There's where we have a big advantage over the people in the cities. Our city cousins usually live in homes where their only opportunity for landscaping consists of a small square area in front of the house. Each yard on any street is very much like the others in the same row of houses."

The idea grew and took more and more definite form as Bruns-

kill visited each of his farmer co-operators each month in regard to the farm records. By the time the project of keeping cost records had been completed, quite a number had lined up to make over the grounds surrounding their farm homes. Also the county needed a club leader. The position was offered to Brunskill and he accepted.

THE landscaping as it had been worked out in the plans made at the various homes called for more than front yard planting which, too often represents the main effort at the farm home. It took into account the sides and the rear

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Miss Smith

WINS

By

C. E. Gapen

United States Department of Agriculture

TO the long list of important Smiths who have contributed to the development of America, beginning with the well-known John, there is now added the name of Frances, eighteen-year-old farm girl of Blaine county, Oklahoma.

A few weeks ago she made a triumphant return to the Smith farm three miles west of Gerry, Oklahoma, bringing with her honors won at the International Livestock Exposition, Chicago, where she had been selected as the outstanding 4-H club member among 600,000 in the United States. Reports from the neighborhood say that Gerry and nearly the whole county turned out to welcome this outstanding club girl.

MISS SMITH has spent 17 years of her 18 on this Oklahoma Farm. She is the oldest of a family of five children, and now is senior in the Gerry High School. A bankers' scholarship which she won in club work will start her off at the Oklahoma A. & M. College next fall.

This is the second year that the big cup brought home by Miss Smith has been won by Oklahoma. Last year the cup, offered then for the first time, was won by Ford Mercer of Wellston. It is to be given each year to the farm club member displaying "greatest quality of leadership in home, club and community life."

FRANCES SMITH has been a member of the willing workers club at Good Hope Country School 7 years. Her work has been varied beyond that of most club boys and girls, including 7 years of poultry projects, member of corn, pig, grain sorghums, potatoes, sewing, canning, food preparation, and home improvement.

During the years as member of the club she has won prize money totaling \$478.25 at community, county and State fairs; 6 trips to the Oklahoma State fair; and 300 ribbons. Two thousand three hundred dollars is the estimate she put on the sale value of her farm and home products produced in the last 7 years. She has earned her way through high school.

Better Crops' ART GALLERY *of the month*



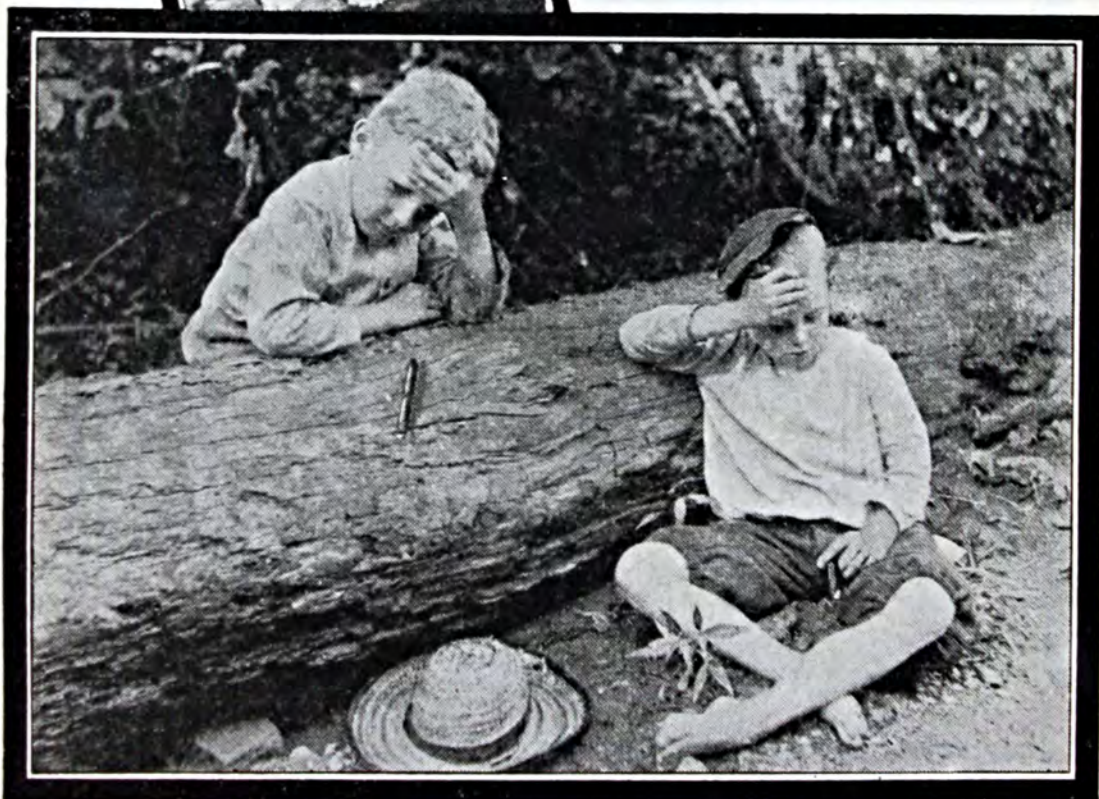
Introducing Miss Smith—Miss Frances Smith, the 18-year-old Oklahoma club girl who is the winner of the 1925 leadership contest.



Old mountain Chief of Glacier National Park reservation, who grows wheat where he used to kill buffalo.



Cooperation is this farm-yard theme—a prize collie dog and his two friends.



THE FIRST CIGAR.

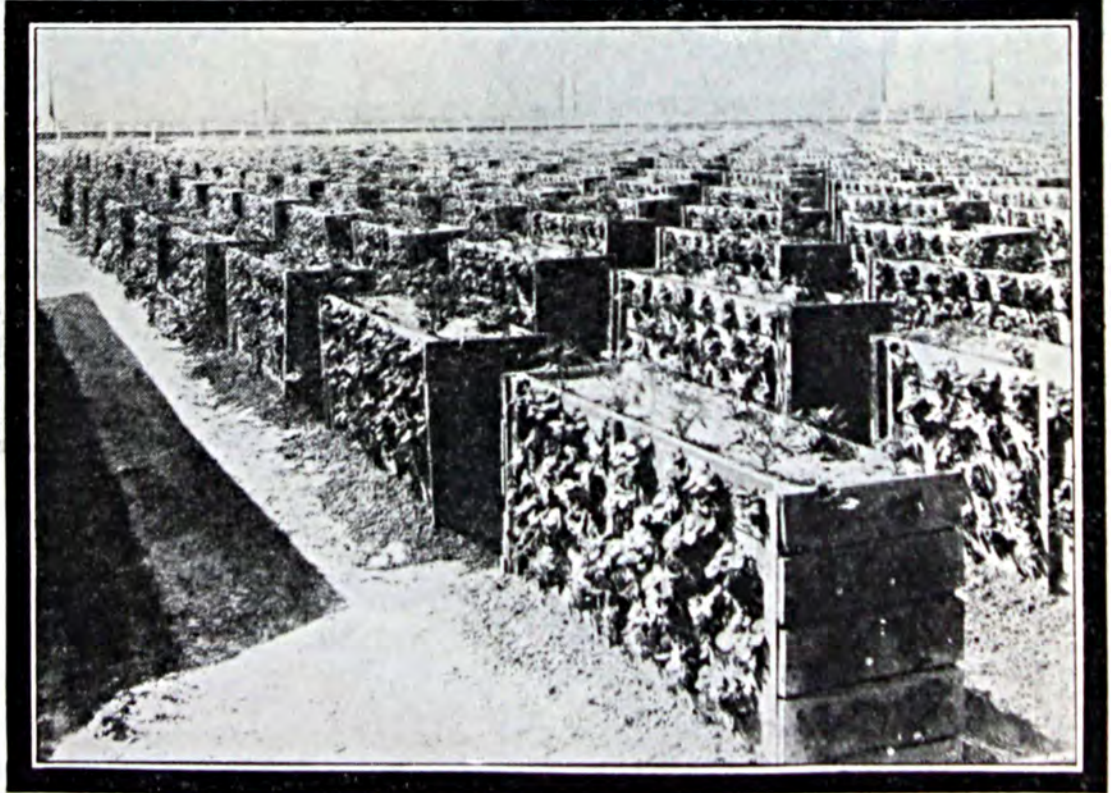
Reminiscent of every man's boyhood is this picture of "adventure". All that is lacking are the resolves being formed.



Some distinguished "milkmaids"
in a recent Indiana contest.
(See page 63)



Gov. McLeod of South
Carolina honoring Willie
Beland, who grew best
10-inch corn in seven
Southern States.



Three acres of strawberries in one—Florida's newest wrinkle in growing first quality
winter berries with more sunshine and freedom from dirt.

Farming in



3511 Die Jungfrau von Interlaken gesehen

Ruggedness is built into the very frames of Simmental cattle grazing on the grassy slopes of these peaks.

One end of this structure houses the Swiss farmer's family and in the other is quartered his herd of Simmental cattle.



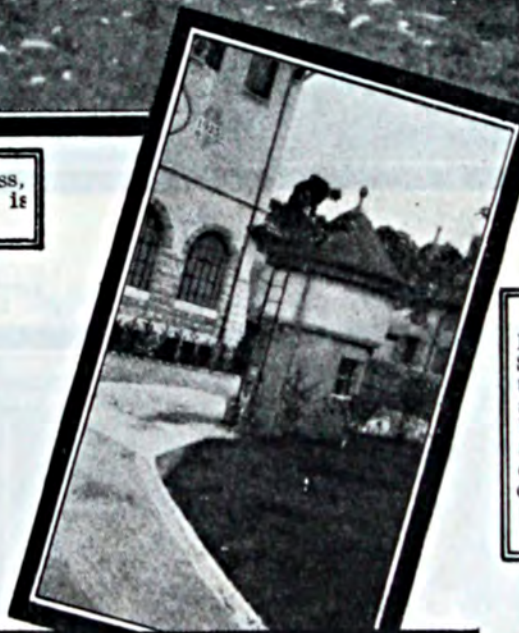
"DOGGONE" TIRED

City milk delivery is an unknown or lost art in European population centers. Milk is delivered in bulk, and the dog wagon is a common sight.

other Lands~



Not infrequently the Brown Swiss, like the famous Simmentaler cow, is called upon to do double duty.



Into this Swiss whey tank, whey and excess buttermilk are run for delivery to outlying farms.



MILK FOR LONDON

Milk from this English push cart is drawn from a faucet or dipped from the can as the customer orders. Dairymen predict the early passing of this system.



Miss Opal Code of Texas, plowing her way through college. Miss Code earns her own living as well as that of six members of her family.



Members of extension staffs of eastern and mid-west agricultural colleges in conference with Secretary Jardine at Washington. The conference pertained to forestry.

A Word About— Reviews

WITHOUT doubt county agents and other agricultural extension workers find it difficult, as we do, to keep up with the developments in modern agriculture. Valuable information is now published from a great many centers, the chief of which are the United States Department of Agriculture and the 69 agricultural experiment stations.

THESE bulletins represent the results of the soundest work in a variety of agricultural fields—chemistry, soils and fertilizers, bacteriology, plant pathology, genetics, field crops, horticulture and forestry, entomology, animal husbandry, agricultural engineering, rural economics, and so on.

WE, ourselves, must keep abreast of all that is doing in the broad field of CROP PRODUCTION. In future issues, in our Review section, we intend to pass this information on to our readers. We purpose that it become a reliable reference and save the busy extension man time in getting information on the most recent developments in crop production all over the United States.

IT has always been our policy to review some of the bulletins each month. With this issue, however, we have added to them and made the first list. When properly organized, during the next month or two, our Review section will carry short editorial comment upon some of the most practical and important bulletins, and list all recent publications of the United States Department of Agriculture and the state experiment stations relating to—SOILS, FERTILIZERS, ECONOMICS, CROPS, CROP DISEASES and INSECTS.

THUS by following this section of BETTER CROPS, our readers will have a clear picture of what is being done in these five particular fields of more profitable agriculture.

Farm Crop Costs Estimated Higher

LOWER yields resulted in a higher cost of production for the majority of South Dakota farm products in 1925 according to estimated figures issued by the farm economics department at South Dakota State College.

The cost figures are based on actual cost records kept on a number of farms in Kingsbury county during 1922, 1923 and 1924 with the 1925 estimated yields of the United States Department of Agriculture substituted for the yields of 1924. The cost records include man and horse labor, machinery, land rental, seed and twine, and interest charges.

THE cost of producing alfalfa hay in 1925 was estimated at \$10.35 per ton. The cost in 1924 was only \$8.13. Barley cost 50 cents per bushel last year and it is estimated that the same cost will hold for this year. Potatoes were produced in 1924 for 44 cents while this year it is estimated that the cost was 53 cents per bushel. Wheat cost 82 cents per bushel in Kingsbury county last year, but cost around \$1.05 this year. Flax also showed an increase in cost of production from \$2.16 in 1924 to \$2.75 in 1925. It was estimated that oats were grown for 33 cents last year and increased to 35 cents this year. Corn cost 64 cents per bushel last year and 75 cents per bushel in 1925.

“THE basic factors of production, such as labor, use of land and equipment, seed cost and interest charges do not vary a great deal from one year to another”, the farm economists state. “Differences in production will raise or lower the harvesting cost somewhat but labor and other factors this year compared favorably with 1924. The reason for the increase in cost of production in most cases has been due to the lower yields of nearly all products than was the case last year.”

The acre yields used in making this cost estimate are as follows: wheat 22 bushels, corn 25 bushels, oats 48 bushels, barley 30 bushels, flax 6.19 bushels, potatoes 83 bushels, and alfalfa hay 1.3 tons per acre.

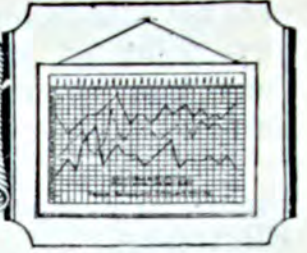
Farmers who have produced crops this year that average more than these figures indicate have probably produced their crops at a lower cost than those given. This means that many farmers of South Dakota were probably able to produce wheat, potatoes and alfalfa hay at a profit this year. Oats, barley, corn and flax were probably grown at a loss on many farms.

“SUCH figures emphasize the fact that good cultural methods and farm management practices that increase acre yields also tend to

(Turn to page 60)



AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Why the "Pop"?

Scientists of the Department of Agriculture are not exactly certain as to what makes pop corn pop but they think it is the steam generated from the moisture within the starch grains. Formerly it was supposed that the great explosion in the kernel when heated was due to the expansion of oil.

Now it is thought that steam generated within the cells exerts great force before being released by the breaking of the tough covering of the kernel. The expansion of the air inside the kernel is also thought to be a factor in the popping.

In order to have corn pop nicely there must be a certain amount of moisture. Old corn sometimes does not pop because it is too dry, but the popping quality may be restored by sprinkling corn lightly with water or it may be left outdoors until it absorbs moisture from the air.

Area TB Testing Saves Pigs

The Department of Agriculture and the various states have been pushing the area tuberculosis testing program with great vigor during the past few years and results obtained amply justify the enthusiasm for this method. Packers have offered better prices for hogs from regions free of tuberculosis and figures now obtainable from various sections show that this is good business.

In Kansas and Nebraska where counties have been accredited, reports show that the percentage of hogs from those areas retained by

inspectors on account of tuberculosis has been reduced. At the Kansas City market records show that the number of hogs in these areas has been reduced 89½ per cent and in the percentage of condemnation in hogs from these counties the reduction has been 62½.

Buckeye Farmers Use Better Fertilizer

The Ohio Agricultural College has been trying for some time to induce farmers of the state to buy approved high-grade fertilizer and has recommended what has become to be known as the Ohio Standard Dozen Fertilizers, these fertilizers being considered sufficient to meet the needs of practically every Ohio farm.

In 1922 farmers of that state bought 122,414 tons of commercially mixed fertilizer and only 16 per cent of this quantity was of the fertilizers listed in the state's standard dozen. During the past year, however, Ohio farmers bought more than 164,000 tons of commercial fertilizer, 47 per cent of which represented those analyses recommended by the state.

The Ohio soil specialists say that if fertilizer companies would concentrate on fewer analyses the price of fertilizer could be cut. At the present time there are more than 100 different fertilizers, from the analysis standpoint, on the market in that state and 64 of them during the past year had a total sale of only 12,000 tons. Those not included in the dozen were eliminated either because they were too dilute to be economical,

were not satisfactory from the factory point of view, or because there was no real demand for them.

Plants Not Speeded by Electricity

Man has been able to go much faster himself than he traveled when the ox was his principal assistant; he has been able to make pigs and cattle and sheep grow faster, but plants, although the yield per acre has been increased, cannot be made to move much faster. For nearly a hundred years he has thought about the possibilities of electrical treatment of the air and soil to make plants speed up.

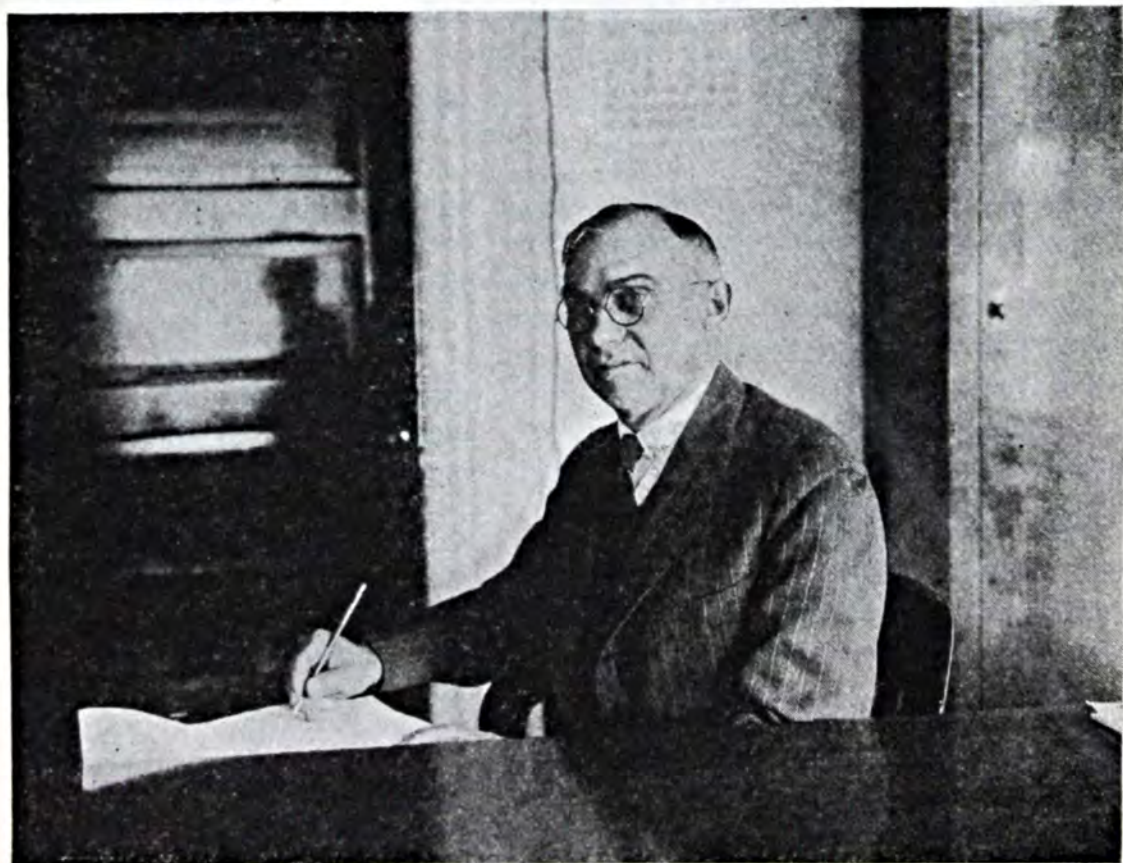
In the last few years, stimulated by reports from England of the successful use of a charged wire network above growing crops, the United States Department of Agriculture has been doing work along this line, but without en-

couraging results. The department has carried on tests of this sort for eight years and in no case has it been able, either through treatment of soil or air, to produce any measureable response in plants.

Ten Tons of Tomatoes

Last summer the Ten Ton Tomato Club of Hancock county, Indiana, demonstrated that the average grower of that crop is not getting anywhere near what his land is capable of producing. The two leaders in the club were John A. Cottey and George Rabe, who produced yields of 15.88 and 14.03 tons per acre respectively. The packing company, which has been encouraging the club, distributed \$2,000 in bonuses at the rate of \$1 a ton to all members who secured a yield of ten or more tons to the acre on an area of not less than three acres.

(Turn to page 54)



Dr. Joseph T. Duvel, in charge of Grain Futures Administration, United States Department of Agriculture



Foreign and International Agriculture



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy—both of facts and their interpretation.

RECENTLY two conferences on the farm surplus problem came to exactly opposite conclusions. The Illinois State Conference met in Chicago. The resolution adopted was as follows: "We join with the other Agricultural Surplus States in asking Congress to enact a resolution under which the farmers may secure an American price for that portion of our crops consumed in America independent of the world price for the surplus."

The Fourth National Conference of the National Council of Farmers Cooperating Marketing Associations met in Washington, and on January 16 went on record as opposed to any legislation at this time dealing with farm surplus products.

This shows the difference of opinion that exists on vital problems. Undoubtedly one of the great needs is accurate data on worldwide crop production. In all such discussions, the export of the crop surplus seems to invite a more unanimous opinion than any other proposed solution.

What parts of the world could absorb the surplus? For the ultimate solution of the problem on a scientific basis, it is of vital and practical importance to know thoroughly what crops other countries produce, what their crop needs are for the maintenance of their population, and what their

crop requirements are from other countries.

For these reasons, the work of the International Institute of Agriculture at Rome has much more than an academic bearing on such problems.

As an instance of this usefulness, we have received recently the International Yearbook of Agricultural Statistics 1924-25, a ponderous, dry-looking volume, perhaps of some 475 pages. Yet it probably represents the soundest knowledge available in one volume on the crop producing capacity of the total arable land of the world. Such statistical work might well be, and undoubtedly will be, extended from a statistical viewpoint, but in the meantime it is very gratifying to know that such a comprehensive basis of fact is obtainable. The Yearbook contains a very interesting little table showing each continent's percentage of the total area and population.

	Area	Population
Europe	7.3	24.5
North and Central America	17.0	8.2
South America	14.5	3.5
Asia	31.9	55.8
Africa	22.8	7.5
Oceania	6.5	0.5

Another table shows the very interesting fact that 39.2 per cent of the world's area is inhabited by approximately 80 per cent of the

world's population, while over half of the world's area, namely 54.3 per cent, is inhabited by only 19.2 per cent of the world's population.

Area	Population
39	80 Europe-Asia
54	19 N. & S. Amer.-Africa

These few figures bring out very clearly the fact that there are two types of surplus, namely a surplus of human life in some parts of the world and a surplus of crops, or the means of sustaining life, in other parts.

The problem is clearly to obtain an equilibrium between population and the food crops to maintain life. In other words, an excess of crops is built up in some parts of the world and people are in too great numbers in other parts. The conclusion arises, can an equilibrium between the two be obtained in one country alone without reference to others. Can any solution of the problem of surplus crops in one part of the world, hastily conceived and planned, be of any permanent advantage? Any real solution of the surplus of human life in one part of the world, or surplus of crops in other parts, demands years of hard study and actual facts, the conclusion of a great deal of data and the most impartial application of the scientific methods of statistical analysis.

Any effort, therefore, to gather together the world's figures is a beginning, the importance of which cannot be overestimated. Such work merits the support of the keenest minds, not only because of the fact that such data is collected in one place, but because it stimulates a greater interest in such work and a uniformity of vital statistical method, which is all-important.

It is interesting to note that the population of the world, between the years 1913 to 1924 has increased by 67,000,000 people. All

the continents have increased their population, with the exception of Europe, which has decreased by 2.8 per cent. North and Central America has increased by 13.8 per cent, South America by 16.5 per cent. Thus the trend of growing population is in a measure slowly adjusting itself to a better equilibrium between population and crop production.

Another very important part of the book gives the apportionment of acres, agricultural production and numbers of live stock in various countries. These tables "assist in forming pictures of the agricultural physiognomy in each country." The details are comprehensive. In total they represent 92.2 per cent of the population of the world and 79.6 per cent of the territorial area. Of the 40 countries listed, Canada has the largest total area, Brazil the second and the United States third.

The highest percentage of arable land of the total land area of each country is Denmark 61 per cent, Hungary follows with 58 per cent, and the Indian States 58.6 per cent.

Another part of the book gives the area of production of the various crops. These figures are given in two groups. The first group gives separate figures for the different states, the second contains summaries for each continent and hemisphere and for all countries combined. Useful tables show the excess of imports over exports. Other details give prices of the leading crops, rates of ocean freight, fertilizers and chemical products useful in agriculture.

The Yearbook is thus a very comprehensive survey in great detail of the facts concerning the vital statistics of crop production, and as such is a valuable contribution to the basis on which some of the important agricultural problems will eventually be solved.



REVIEWS



Fertilizers

It is interesting to observe to what extent farmers have followed the high analysis recommendations adopted during the last few years. Bulletin No. 270 "Report on Inspection of Commercial Fertilizers," 1925, Connecticut Agricultural Experiment Station, New Haven, Conn., shows that of 255 official samples of complete fertilizers examined, somewhat less than half have fallen in the "New England Standard Nine." The proportion of "standard formulas" being used has increased. In Connecticut the proportion was 36 per cent in 1924 and 44 per cent in 1925.

Texas Bulletin No. 335 entitled "Commercial Fertilizers in 1924-25," Texas Agricultural Experiment Station, College Station, Texas, also shows that the use of the 11 standard formulas recommended in Texas has increased in 1925. It would seem, therefore, that this movement to simplify and standardize the analysis of mixed fertilizers is making progress in influencing the kind of fertilizer used. Both these bulletins also contain interesting information on the total sales of fertilizers in Connecticut and Texas, the analysis of samples and fertilizer sold by different manufacturers, explanation of all terms used and other useful data.

The report on fertilizers used in Arkansas, published by the Department of Conservation and Inspection, Little Rock, Arkansas, shows that the consumption of fertilizer had increased in that state from 25,000 tons in 1908-09 to 122,742 tons in 1924-25. Thus is the con-

sumption of commercial fertilizers trending westwards.

Two other bulletins discuss the very important matter of substituting commercial fertilizers in the place of stable manure.

Rhode Island in Bulletin No. 201, Agricultural Experiment Station, Kingston, R. I., shows that the yield of early truck crops was larger when 16 tons of manure and fertilizer were applied than when 32 tons of stable manure alone were used. Figures are given for cabbage, tomatoes, lettuce, beets, spinach and celery.

Along the same line an interesting Bulletin No. 48, published by the Virginia Truck Experiment Station, Norfolk, Va., shows that on spinach in Virginia, stable manure is no longer widely used. As the result of experimental work, it is advised that instead of delaying fertilization until the plants had been thinned, it is better to apply the fertilizer broadcast before the buds are formed. The materials and pounds per acre that should be used, are given. Subsequent top dressings which depend upon various factors are recommended. It would seem from this work that it is possible to profitably substitute commercial fertilizers for part of the manure commonly used on truck crops.

Bulletin No. 155, "The Results of Some Fertility Experiments on Oklahoma Soils" of the Oklahoma Experiment Station, Stillwater, Oklahoma, gives some preliminary results on experiments with fertilizers, both commercial and farm-yard manure. This series of experiments were conducted on the Kirkland loam and Kirkland silt

loam. One very interesting experiment is the continuous growth of wheat since 1898. The yield after 26 years when no manure was used, was 12.84 bushels per acre. The results of this work are very practical and show that in Oklahoma the use of a crop rotation is essential. It has given a good increase in yield for all common crops.

Attention should also be called to two technical bulletins, both by the Agricultural Experiment Station, Michigan State College, East Lansing, Michigan, namely bulletin No. 71 "Growth of Lettuce as Influenced by Reaction of Culture Medium" and Bulletin No. 73 on the "Adsorption by Activated Sugar Charcoal." These are valuable publications for research workers.

Two very practical little circulars have just been issued by the North Carolina Extension Station on the "Composition and Fertilizing Value of Farm Crops and other Farm Materials" and on "Fertilizer Recommendations for North Carolina Soils." They are well arranged and contain in a small space a great deal of information.

Soils

Great economic loss is evidenced by vast areas of productive soils going on the scrap heap because of alkali injury. Circular 292 "Alkali Soil" by P. L. Hibbard, Agricultural Experiment Station, Berkeley, California, presents in brief form best available information on alkali soils with respect to origin, nature, effect, treatment and cropping. By proper attention to certain aspects of cultivation, fertilization, drainage and cropping damage from alkali may be negligible.

Other helpful information is to be found in:

"Fruit Tree Soils," Ohio State University, Columbus, Ohio, *Timely Soil Topics*, No. 91, December, 1925, M. V. Bailey.

"What the Illinois Farmer Can Do to Learn About His Soils," University of Illinois, Agricultural College and Experiment Station, Circular No. 302, November, 1925, E. E. De Turk.

Crops

At this time of year, one of the chief interests of the agricultural mind is the 1926 crop production. What crop will make best use of the land? What new information has been brought forth on rotations, cultural practices, and profitable management?

Among the recent experiment station publications in this trend is a September, 1925, Bulletin 133, "Corn and Soybeans as a Combination Crop for Silage," by W. L. Slate, Jr., and B. A. Brown of the Storrs Connecticut Agricultural Experiment Station.

The conclusions in this bulletin are based on four year's work and indicate that \$10 per acre may be added to the value of the silage by planting soybeans with the corn. However, the authors do not feel that the combination is practical unless the soybeans can be planted at the same operation with the corn, on land not weedy enough to necessitate hand hoeing, when cultivated only one way, and where a binder can be used for harvesting.

"Cotton Variety Tests in Oklahoma," Bulletin No. 154, Oklahoma Agricultural Experiment Station, Department of Agronomy, Stillwater, by Glen Briggs, is a new bulletin full of information for the cotton growers. The Oklahoma Experiment Station, as a result of its experimental work, is in an admirable position to give advice regarding varieties and the source of pure seed.

Other bulletins include:

"The Growing and Handling of Head Lettuce in California," University of California, College of Agriculture, Agricultural Experiment Station, Berkeley, California Circular 295, September, 1925. H. A. Jones and E. L. Garthwaite.

"The Fruiting Habits and Pruning of the Concord Grape," Agricultural Experiment Station, Michigan State College of Agriculture and Applied Science, Horticultural Section, Technical Bulletin No. 69, October, 1925. N. L. Partridge.

"Flax Facts," *Agricultural Experiment Station, North Dakota Agricultural College, Department of Agronomy, Circular 26, November, 1925. Theodore Stoa.*

"Prune the Bearing Apple Tree," *Agricultural Experiment Station, University of Wisconsin, Madison, Bulletin 378, October, 1925. R. H. Roberts.*

"Commercial Dehydration of Fruits and Vegetables," *United States Department of Agriculture, Department Bulletin No. 1335. P. F. Nichols, Ray Powers, C. R. Gross, W. A. Noel.*

The Quarterly Bulletin, Agricultural Experiment Station, Michigan State College of Agriculture and Applied Science, East Lansing, Michigan, Vol. 8, November, 1925.

Economics

To know the exact facts goes a long way to solving any problem. Modern methods of statistical analysis are helping to establish problems on a "fact" basis. Recently F. V. Waugh studied series of statistical tables relating to tobacco production in the Connecticut Valley.

As a result, he has put the serious situation that faces the tobacco industry of the Connecticut Valley on a sound basis of fact. It is shown just to what extent the demand for cigar leaf tobacco has decreased, how long the present stocks will last, and the causes for this depression in the industry. This study is discussed fully in Bulletin 134, Connecticut Experiment Station, Storrs, Conn., "An Economic Study of the Agriculture of the Connecticut Valley." The work was done under the Purnell Act as part of a comprehensive study of the agriculture of the Connecticut Valley.

"Possibilities and Limitations of Co-operative Marketing," *University of California, College of Agriculture, Agricultural Experiment Station, Berkeley, California, Circular 298, October, 1925. H. E. Erdman.*

"Farm Profits," *Oklahoma Agricultural & Mechanical College, Agricultural Experiment Station, Stillwater, Oklahoma, Station Circular 56. C. T. Dowell.*

Diseases

Among the diseases of tobacco, probably blackfire, mosaic and wildfire are the most dreaded. They

are of bacterial origin and are controlled by careful attention to soil and seed bed sanitation. In Virginia alone, during 1920, blackfire caused a loss of over 20,000,000 pounds of tobacco valued at over \$5,000,000.

Control may be effected by (1) soil disinfection (2) seed bed sanitation (3) rotation (4) care in field cultivation (5) destruction of diseased material that may come in contact with the seed bed or plants. Interested farmers should read carefully Extension Circular 65, by C. W. Edgerton, Louisiana Agricultural & Mechanical College, Baton Rouge, Louisiana.

Insects

Vast areas of corn land in the corn belt are infested with the European corn borer. Damage from the insect varies from year to year apparently dependent upon favorable climatic conditions, sometimes entire loss of crop is caused. The Ohio State University, Columbus, Ohio, in their circular "Crop Talk" No. 29, gives practical measures for "The Control of the European Corn Borer," by T. H. Parks and W. E. Hanger.

"The Present Status of the European Corn Borer in Michigan," *Agricultural Experiment Station, East Lansing, Michigan, Circular Bulletin No. 70, by R. H. Pettit, throws further light upon this dangerous pest.*

Other bulletins:

"Potato Spraying and Dusting Experiments in Michigan," *Agricultural Experiment Station, Michigan State College, East Lansing, Michigan, Technical Bulletin No. 72, October, 1925. J. E. Kotila and G. H. Coons.*

"Some Important Grape Insects," *Agricultural Experiment Station, Michigan State College, East Lansing, Michigan, Special Bulletin No 148, October, 1925. L. G. Gentner.*

"Service and Regulatory Announcements," *United States Department of Agriculture, Washington, D. C. S.R.A. Insecticide 53, December, 1925.*

Beautifying the Farm Home

(From page 27)

as well as the front. The usual procedure was for Brunskill to assist the family in its planning until a general outline would be developed. This outline would be sent to the specialist at the university who would complete the details and have a blue print made.

A TYPICAL case in the development of this project is that of the C. C. Fenstermaker home, Homerville, Ohio. The house, which naturally forms the center of the landscape development, was built 15 years ago. It is modern and quite a comfortable home. Some planting had been done but without any idea of complete landscaping. A small part of this material was left in place but most of it was taken up and reset as a part of the new plan.

Along in the winter, Brunskill sent a picture of the house and grounds together with some sketches to the university. At that institution they were called to the attention of H. L. Hedrick, specialist in landscape work. From the picture and sketches Professor Hedrick worked out the plan and had a blue print made which was sent back to Brunskill.

With the blue print in hand, Brunskill and the Fenstermaker family set about in a businesslike way to do the planting. They located each plant as indicated on the blue print. They spaded for each to a depth of 16 inches and worked well rotted manure into the soil as they tamped it around the roots of the plants and shrubs.

On the 28th of April the family made a day of it and set out the entire number of 98 shrubs and plants as outlined on the blue print. In completing the work of

setting out the shrubs, a mulch was placed around each plant. Mr. Fenstermaker insisted on using a three inch layer of saw-dust for this purpose and it seems to have done its duty very well in keeping the weeds down and in retaining moisture. Other farmers in the county used straw for a mulch and they, also have secured satisfactory results.

The front porch was ornamented by a planting of "Thunberg's Spirea" at the left of the entrance and with "Anthony Waterer Spirea" at its right. At the end of the porch a clump of five "Coralberry" was set out on the left and five "Snowberry" at the right. In an angle formed by the walk to the side porch, they placed 10 "Regal's Privet." On the opposite side where the kitchen porch joins the house they set out "Summersweet."

AT the very front of the yard and at the right they placed a cluster consisting of eight "Mock Orange." On the left at the border they put 10 "Goldenbell." Immediately to the rear of that and also on the border they put "Snowball Hydrangea," then "Morrows Bush Honeysuckle." Following that came a bed of roses secured from previous plantings. All this was accomplished at an expense of only \$28.05 for shrubs.

At the rear of the house they arranged a service yard just as suggested in the blueprint. On the farther border and, also, at the right of the service yard is to be a grape arbor. The planting of this and the construction of the arbor is being left for another season. This will shield effectively

from view the barns and orchard. At the left of this screen they added a touch of ornamentation by setting two small clusters of "Fragrant Bush Honeysuckle."

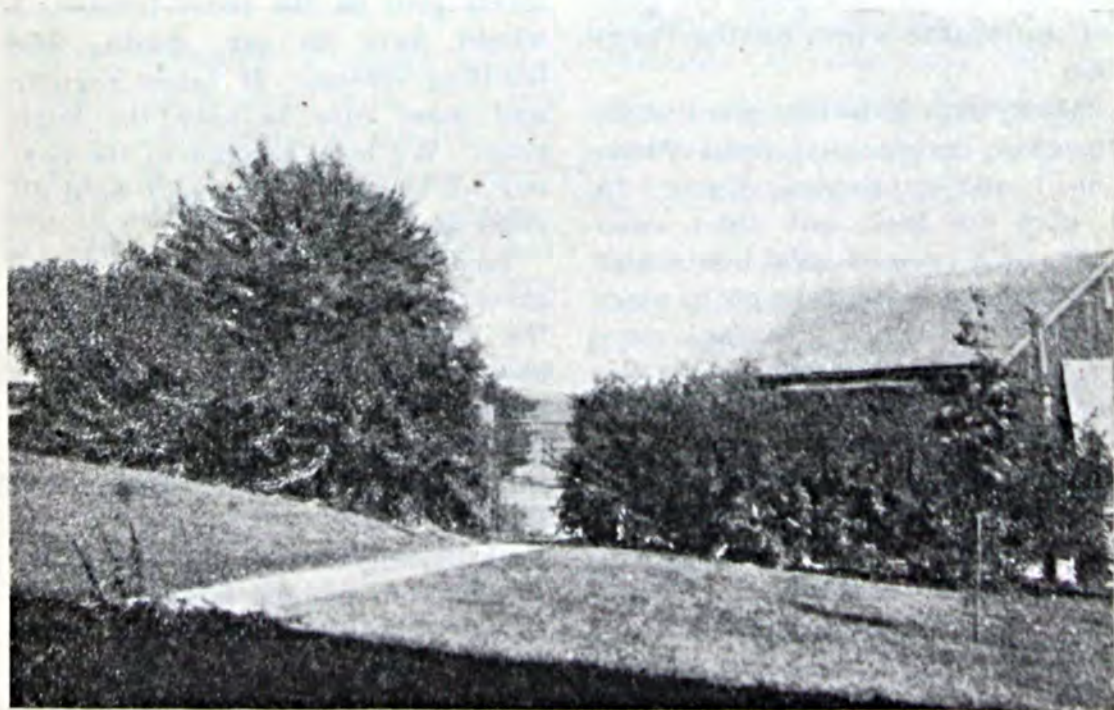
IN using the grape arbor screen as part of the plan would seem to lie one of the important principles of landscaping a rural home. This is to enable the farmer to be away from his work just as completely and thoroughly as is his city friend when he goes from his place of business to his home. A screen, be it a grape arbor or other planting of a growthy nature, goes a long way toward accomplishing this purpose.

The plan as followed left a nice open space in front of the house. The clumps and clusters and groups of plants were always set in nice graceful curved lines. Care was taken to set the taller plants in the background and the shorter ones in the foreground.

In a similar manner to that followed in the case of the Fenster-maker home, the others who took

up this project were helped. Each home represented its individual problem as well as opportunity. Sometimes more of an effort was required to screen the fence or buildings than was necessary with others. Always the planting already on the ground was taken into consideration and was used to the fullest extent possible. Likewise the personal preference of the members of the family. Thus if the lady happened to have a preference for roses, a rose arbor very likely would be planted for some appropriate location.

THE farmers who took up this project have, in reality, become community demonstrators. They are besieged by others who would beautify their own grounds. Brunskill's advice and help is very much in demand for this work. Making a county project of rural home landscaping gives them an opportunity to secure really capable suggestions without any great expense being involved. The project is highly pleasing to the people of the county.



Planting which shields farmyard from view

Lambing Time

(From page 12)

bran and alfalfa leaves just to pass the time away, in a place especially prepared for him. This place is so constructed as to permit lambs to enter but excludes the mothers.

"After a lamb is a month old his appetite and capacity increases. Feeds such as corn, oats, bran and alfalfa become palatable and are demanded in the ration of a lamb, if given an opportunity to acquire and appetite for them. Furthermore corn, oats, hay and pasture push the lambs rapidly toward their goal, the market.

"Early lambs and strong lambs are always good 'doers.' Lambs don't get a chance to present their appearance on the farm after March 20th because the ram is removed from the flock 5 months preceding this date. The ewes get a pound of grain per ewe, per day in winter, when most folk feed only a half pound or none at all. The thin prospective mothers are removed from the rest of the flock and given a little extra feed, and care and access to a good rye pasture in winter when weather permits.

"My system is to buy good western ewes, preferably from Montana, Idaho or Oregon. Ewes 2 to 4 years are best, but older ewes will raise a crop of good lambs and are often fat enough to go to market with the lambs. In fact, during the extremely high prices for sheep, I used old ewes entirely and when the depreciation in the sheep business came in 1920 my losses were small. By good care and feeding the death rate of these old ewes has not exceeded 7 per cent, which is only a normal loss of breeding sheep during a year.

"The main reason for using western ewes is the fact they are reasonably free from internal para-

sites. In mating the flock each year, we flush the ewes by placing them on good luxuriant pastures and supplementing with a little grain consisting of corn and oats. By so doing the ewes gain in flesh, come in heat regularly and are more apt to settle in lamb at the first serving.

"During the lambing season either my wife or myself stays close to the flock and separates the ewes as soon as the lambs are dropped from the main flock by using four foot hurdles. By keeping the ewe and her new born lamb or lambs closely confined together for a few days they get acquainted with each other.

"If the ewes are to go to market, we continue to feed them grain even after they go on pasture. A field of early sown winter rye is an ideal place for the ewes and lambs before the blue grass gets a good start. The lambs go to market in May or June, thrifty, prime, and of good market weight.

"If you insist on knowing when sheep give us the most trouble, I would have to say, during the lambing season. It takes regular and good care to save the lamb crop. We have a room in the corner of the barn that will hold 12 ewes and their lambs.

Last winter when it was 6 degrees below zero outside this room, the temperature was 27 degrees above zero inside without artificial heat. The sides and top are made of two thicknesses of matched lumber with building paper between.

"I arranged with my insurance company to hang a lantern in this room in cold weather but have never needed it since the room was constructed four years ago. Lambs have never chilled in this room regardless of weather condition."

Feed Hungry Trees

(From page 25)

very noticeable after the leaves had fallen as compared with the untreated trees. The unfertilized trees showed no change from their previous condition.

IN the winter of 1924-5 these trees, including all my King apples, received an application of a fertilizer containing 21 per cent available Phosphoric Acid and 21 per cent Potash, the Potash from German Sulphate of Potash (0-21-21) at the rate of 10 pounds per tree. Nitrogen was supplied in the form of chicken manure, which went on at the rate of 30 pounds per tree. The trees bloomed profusely, but owing to heavy April and May rains during blossoming time, set a very light crop. Nevertheless, they made a much better showing than other King orchards in the vicinity that had received chicken manure only.

GRAVENSTEIN apple trees, 33 years old, received in the Fall of 1924, an application of the 0-21-21 at the rate of 10 pounds per tree, and, in addition to this, 30 pounds of chicken manure. On 60 of these trees, the application of the 0-21-21 was doubled, but no increase was made in the chicken manure. The result was, in spite of the damage to the blossoms from the heavy spring rains, these 60 trees set a 100 per cent crop, being about 10 times as much fruit as set on the trees that received only 10 pounds each. That this increased application proved very profitable, goes without saying.

The quality of all the apples

from the trees receiving the 0-21-21 was unexcelled, the fruit being unusually crisp, of finer color, and noticeably sweeter to the taste than that from trees that had received chicken manure only. This comparison also proved good when made with apples from other orchards that had received chicken manure only.

IN keeping tests made with Gravenstein apples, those receiving the 0-21-21 held up remarkably, developing no Baldwin spot which showed up badly in those receiving chicken manure only. Also they were much firmer in texture, remaining firm and solid long after the others had become soft and punky.

At date of writing—October 23rd, 1925—all my trees receiving this phosphate and potash treatment are in a splendid condition, with every indication that they will produce a bumper crop next year.

Outside of fertilizing, all the trees in this orchard received the same treatment in regard to spraying the cultural methods."

(NOTE: Next year, Mr. Reed hopes to give us an account of the results from the use of high grade Phosphate and Potash fertilizers on his Hoover and Rome Beauty apples. This treatment was begun in the Fall of 1924. The improvement in these trees is already quite marked. It is evident, from the analysis of the fertilizers Mr. Reed is using, that he believes in high quality fertilizers as well as high quality apples.)

We Know Cooperation Pays

(From page 17)

later realize the benefit derived from cooperation and join the association.

The greatest advantage of cooperation in our case is that with a minimum cost to each member we have been able to procure the equipment with which the grading and packing of apples are done efficiently and with dispatch.

OUR grader was paid for the first year by assessing each member so much on every barrel of apples they hauled to the packing house. The cost of this machinery and the additional cost of erecting or renting a building could not have been met by any of our members single-handed.

We have rented a large building from the Tobacco Growers' Association in which we have placed our grader. A track from the main line of the Hocking Valley R. R. has been run to the packing house. The cars in which the apples are shipped are run under a shed connected with the building. The grading, packing, and loading for shipping are all done under the same roof.

PACKING house expenses, and all other expenses for that matter, are paid by assessing every member of the association according to the value of the apples they bring to the packing house. That is, the more money a member gets for his apples, the more he is required to pay toward defraying expenses. The plan is similar to our present income tax law, only there is no way for the members of our association to dodge the payment of his

tax. This plan is fair to all, as each member pays according as he is able to pay.

BY using the grader and employing expert packers, we get from 25 to 50 per cent more for our apples than we used to get when the work was done in the orchard.

We separate our apples into two general grades, A and B. The A grade specifies as to color. That is, this grade must have the color specified for the variety. The B grade must be perfect in every other respect excepting the color. The sizes of the A grade run from $2\frac{1}{4}$ to $3\frac{1}{2}$ inches, and the B grade from $2\frac{1}{2}$ inches upward. Both the A and B grades are shipped, while all of our defective apples are sold in the home market.

WE employ on an average of 30 people at our packing house during the apple season. A great many of these employees are women and girls. We have found that women can do the grading as well, if not better than the men.

The apples are placed on the rolls of the grader just as they come from the orchard. They are carried along on the rolls and are graded while in motion. For instance, two girls stand at the mouth of the grader and pick out all of the defective apples, placing them in a shoot which carries them to a man who puts them in boxes and barrels. Farther along the line are the A and B graders who place these grades on small rolls which carries them to other machines where they are classified as

to size. Of course, defective apples sometimes get on the wrong rolls and are carried into the A and B grades, but they are finally picked out by the man who runs the machine that grades the apples according to size. Our grader is run by electric power.

We handle from 6,000 to 15,000 barrels of apples a year, depending, of course, on the size of the crop. This year about 10,000 barrels of apples were handled at our packing house. We loaded from 2 to 3 cars daily.

We sold our last year's crop to the Federated Fruit and Vegetable

Growers. This year's crop was consigned to a broker.

Gallia is one of the banner apple counties, both as to quantity of production and the quality of the fruit. Our best sellers are the Grimes Golden, Jonathan, Stark, Delicious, Styman Winesap, Gallia Beauty, and Rome Beauty.

The apple growers of Gallia county are getting their eyes open. This is shown by the fact that practically all of them are getting out of the old rut and are adopting new and improved methods. Great things are in store for the apple growers of this section.

* * *

Renovating the Farm Orchard

(From page 24)

can be covered. The under surfaces of the leaves must be covered with a film of spray as well as the top surface.

The entire orchard should be given the dormant spray from two directions with a shift of wind. If the wind was in the south when the trees were sprayed first, they should be sprayed again with the wind in approximately the opposite direction. This is extremely important if the trees show a considerable infestation of scale.

Many farmers would much prefer to hire someone to spray their orchards for them but this practice has not been very satisfactory even in the rare cases when such a man is actually available. In recent years some communities have organized spray rings. Such a ring usually has a membership of about 10 farmers.

At a cost of not over \$30.00 a piece a small power sprayer is purchased. Someone in the community is hired to operate the sprayer and see to it that the orchards of the members are sprayed

thoroughly and at the proper time. Clinton county, Indiana had 16 such rings in operation last season. The total cost of operating these rings including all labor and spray material averaged 88 cents per tree for a dormant and four summer sprays.

One man with the power sprayer does the work of two men with a barrel pump and the sprays can be much more thoroughly applied with this type of equipment. Over two carloads of spray material were used by 11 of these rings in 1924 and naturally the cost of spray materials is greatly reduced even where only one ring is operated. In most of the rings enough fruit is being sold to pay operating expenses as well as pay for the original interest in the ring outfit in addition to providing plenty of clean, wormless fruit for home use.

Spraying is the one thing which simply must be taken care of if the farm apple trees are to produce anything better than wormy crops of knarly cider apples.

Why Farm Electrification Drags

(From page 20)

A national committee representing the American Farm Bureau Federation, the National Grange, the National Association of Farm Equipment Manufacturers, the American Society of Agricultural Engineers, the General Federation of Women's Clubs, the American Home Economics Association, and the Federal Departments of Agriculture, Commerce and the Interior, has been organized.

Broad investigations are under way by the National Electric Light Association. Special electrical surveys are in progress by State agencies in Minnesota, Wisconsin, Illinois, Indiana, Kansas, Alabama, Ohio, New Hampshire, and other states. All this research is focussed on the problem of introducing electricity as a major source of power in agriculture.

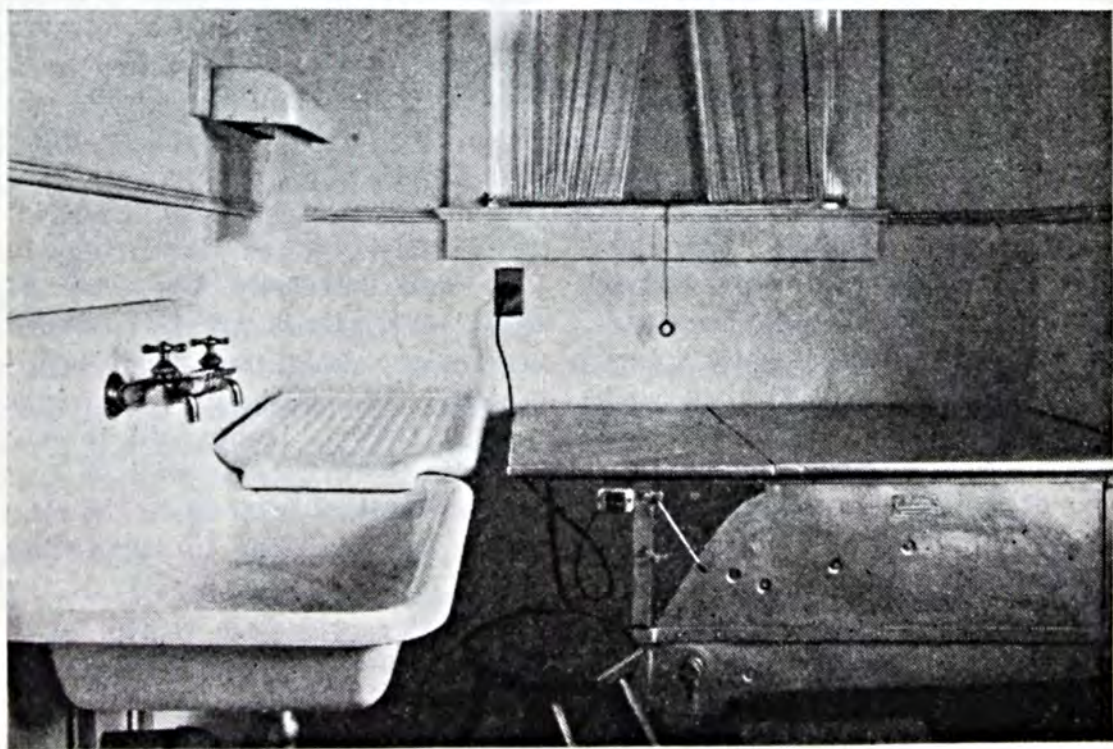
The total primary power used in American agriculture, according to an estimate by the Department of

Agriculture, is about 50,000,000 horsepower. This is divided as follows:

	H. P.	Per cent
Work animals....	21,660,000	or 44.1
Gas tractors.....	8,000,000	" 16.3
Steam tractors...	2,500,000	" 5.1
Trucks	7,120,000	" 14.5
Stationary engines	7,320,000	" 14.8
Windmills	500,000	" 1.0
Electricity	2,080,000	" 4.2

Of the electric power 1,180,000 horsepower is furnished by central stations and 900,000 by individual plants, of which there are estimated to be around 350,000 on farms. This is a mere nothing, compared with the possibilities open for the use of electricity in agriculture.

Not all the farms at present without electricity could use it profitably. Certainly, however, a large proportion of them could. It would be costly to get it to them.



An electric dish washer in a New Jersey farm home

To supply 1,500,000 additional farms with electric current would necessitate the construction of at least 500,000 miles of transmission lines. At a cost of \$1,000 a mile this would mean an investment of half a billion dollars for transmission equipment alone. Additional power house and other equipment would also be required.

Yet the necessary initial expenditure, large though it might be, would not prevent the work from

being done, if its profitableness to the power companies were assured. As already said, the difficulty from their standpoint is the heavy expense in proportion to revenue that must be incurred for distribution, because of the long distance of transmission in proportion to the number of customers.

(Next month Mr. Chew will discuss the solution of this farm problem.)

* * *

Southern Ways with Irish Potatoes

(From page 10)

WHILE many different fertilizer analyses are used, a 7-5-5,* 7-6-5, or an 8-5-5 are the three most commonly used. In the South Carolina belt the 7-5-5 is used almost entirely. In Virginia the 7-6-5 is preferred. Other sections like the 8-5-5 and some use an 8-4-4, but this is generally considered by the better growers as being too low in potash and ammonia.

Growers find it advisable to have the ammonia in the fertilizer coming from both organic and inorganic sources. Sulphate of ammonia is considered one of the best of the inorganic sources. Nitrate of soda is also considered a leader in this class, a part of the ammonia should come from these quickly available sources in order that the young plants may have some of the plant food for their

immediate use. Some of the ammonia should come from dried blood, meat scrap or other organic sources which are more slowly available and which serve to distribute the available ammonia throughout the growing period of the plants.

LARGE yields of Irish potatoes cannot be secured on soil devoid of organic matter. Growers, therefore, find it desirable to follow the early crop of Irish potatoes with cowpeas, velvet beans, soybeans, corn, or some other crop which will add to the organic content of the soil. One of the most common methods is to plant cowpeas or soybeans, either broadcast or in rows to turn under. In the lower part of the South beggarweed is sometimes used. Crops of clover

* (The percentages are stated in the following order: phosphoric acid, nitrogen, potash.)

turned under make a very noticeable addition to the yield.

VERY often, however, potatoes can be grown year after year on the same soil and the organic content kept up by planting cowpeas or soybeans after the early potatoes are harvested and then turning under. This is not the most desirable method, as of course, rotation should be practiced, but in case it is desirable to grow potatoes on the same land two or three years in succession, then the organic content may be kept up by growing crops and turning them under as outlined above.

Often a crop of corn is planted and soybeans, velvet beans or cowpeas planted with the corn. This will give a good crop of corn as the large amount of fertilizer given to the potatoes will result in a good corn crop. This system also gives a large amount of organic matter to turn under.

The three leading varieties of this early Irish potato crop as grown in the South are Irish Cobbler, Triumph, and Spaulding's Rose.

The seed is ordinarily planted from 10 to 14 inches apart in the drill. In rows 3 feet wide and the hills 12 inches apart, 15 bushels are required to plant an acre, when the pieces are about one ounce in size. Approximately 19 bushels are required when $1\frac{1}{4}$ ounce pieces are used in such rows, and about 23 bushels when a piece $1\frac{1}{2}$ ounce is used. Many growers have not used as much seed as they should. It is generally believed by many of the progressive growers that from 18 to 23 bushels per acre should be planted.

The growers are thoroughly aware of the fact that there is a direct relation, up to a certain

point, between the size of the piece of potato planted and the yield. Many experiments and tests show that $1\frac{1}{2}$ ounces is about the most economical size piece to plant. The piece of potato is usually covered from 3 to 4 inches deep as the early crop should not be covered as deep as the later crop.

Before the potatoes are planted, the seed is usually disinfected with corrosive sublimate or formalin in order to control the various diseases, such as scab which attack the surface of the potato. Most growers use the corrosive sublimate as this material is effective in controlling black scurf infection as well as scab.

SPRAYING and dusting are resorted to, to control blight and bugs. The early blight, causes more trouble than the late blight but neither of these are as serious pests in the South as in the North. Bordeaux mixture is the standard liquid spray for the diseases to which the arsenate of lead is added, in order to control eating insects.

Harvesting of the crop commences in Florida the latter part of February. In the Hastings section it is usually early April; in the Carolinas in May, and early June; and in Virginia in June.

While the growers of the Irish potato often fail to make a profit, and sometimes have a considerable loss, yet those who stay in the business year in and year out usually find it quite a profitable crop to grow. None of the growers, however, would think of trying to grow it without making the condition for rapid growth as nearly ideal as possible. Hence the absolute necessity of thorough preparation of the soil, the planting of good seed and the use of large amounts of high-grade commercial fertilizer.

Reclaiming the East

(From page 22)

"Heretofore conservation was applied to untouched natural resources, while complete exhaustion of large areas of farm lands was being accomplished without effective protest. Great forests have been razed in Mississippi, Wisconsin, Michigan, and Minnesota during the last half century. The land lies idle. The soil in some localities requires only stumping to prepare it for the plow, and within shipping distances of New Orleans, Birmingham, Atlanta, Memphis, Detroit, Cleveland, Milwaukee, Minneapolis, St. Paul, Chicago, and other large metropolises.

"Reclamation of these humid regions does not require the expenditure of millions of dollars for irrigation works. Their water supply comes from the clouds and is spread without cost. The Federal Government has spent \$200,000,000 to build irrigation works to provide water for 1,805,000 acres of arid and semi-arid lands in the West. Sixty million dollars will be required to complete these works, and a like sum is to be spent in proposed new projects. Expenditure of lesser sums for fertilizers in the restoration of exhausted lands would make quick returns and eliminate the long haul.

"Reclamation is a national problem in conservation and should be so treated. It should be applied to the older sections of the United States as well as to the newer ones. A broader conception of reclamation must embody the reclaiming of every character of land capable of producing crops. We should farm less and farm better. No conservation policy, in its broad sense, that does not deal primarily with production of human food near to the place of consumption is sound."

Dr. Work is not deluded into the belief that the Government's new program will be easy of accomplishment. It is appreciated that the same problems facing Federal reclamation of attracting settlers, and assisting them in erecting homes applies to the East in providing fertilizer, buying farm implements, and establishing attractive agricultural communities. The problem is both an economic and a social one, the solution turning on the establishment of a profitable agriculture, and supplying to agricultural communities the social attractions which towns and cities provide.

Already North and South Carolina have joined with the Federal Government in making surveys of neglected agricultural areas within their borders with the ultimate object of restoring the soil and settling the land. Other states, having wide stretches of unoccupied and un-peopled arable lands, are being invited to join in this work of regenerating idle acres.

* * * * *

An inscription frequently seen on old English drinking vessels.

The Old Farmer's Toast

*Let the wealthy and great
Roll in splendor and state
I envy them not, I declare it;
I eat my own lamb,
My chickens and ham,
I shear my own fleece,
And I wear it.
I have lawns, I have towers,
I have fruits, I have flowers;
The lark is my morning alarmer:
So my jolly boys, now
Here's God-speed to the plow,
Long life and success to the
farmer.*

Agricultural Developments

(From page 38)

Mr. Cottey produced an average yield three times that for the county. Some of the reasons given for his success are: liberal fertilization, deep plowing, extraordinary good seed bed, careful planting of strong plants followed by resetting to insure perfect stand, and liberal cultivation.

Fifteen growers joined the club last spring and four of them came through with 10 tons or more per acre. The club members used an average of 500 pounds of fertilizer to the acre and the average yield was 6.59 tons. The non-members used 400 pounds of fertilizer to the acre and their average production was 4.8 tons per acre. Growers who used no fertilizer at all got an average yield of 3.65 tons of tomatoes.

Corn Testing

One of the best demonstrations of the value of seed corn testing will be spread before the corn growers of the Middle West early next summer. Then those who did not make individual ear tests of their seed will have an opportunity to test their patience while replanting, if they have seed to do it with.

The Department of Agriculture and many states have already emphasized the importance of careful seed testing because of the poor quality of seed corn as the result of early freezes. Tests already made at Iowa State College show emphatically the need for careful scrutiny of every ear of seed corn in regions where fall weather was not suitable for ripening of good viable seed. Tests were made on 45,903 ears collected from 17 counties and germination was found to be strong in only 53 per cent of them.

Missouri Eggs Through Minnesota Exchange

An indication of the increasing perfection of cooperative marketing facilities is shown in the recent arrangement whereby a Missouri egg producers' organization is to have its products marketed through a Minnesota cooperative distributing concern. The Minnesota Cooperative Egg and Poultry Exchange of St. Paul, which is to handle the eggs for the Mark Twain Poultry Producers' association of Hannibal, Mo., is a selling agency with a traffic department, a supply department, and an accounting department. The Missouri association, which is just being developed, is to have one representative on the board of directors of the Minnesota organization which is made up of local associations.

Milking Three Times a Day

Recently the Department of Agriculture reported that investigations by the Bureau of Dairying had shown that milking cows three times instead of twice daily increased milk production as much as 18 per cent but the investigators were not ready to say that the increase throughout the year would be enough to make the practice profitable.

However, the New Jersey College of Agriculture says the practice is profitable for the average dairy farmer during the winter months—if he can find the time. The college offers as evidence two experiences. When the college herd failed to supply the demand for its special milk, milking three times a day was resorted to in the hope that the increase would make up the deficiency. It did.

Although the cows had been

milking from three to six months, the average daily production immediately went up 4 quarts per cow per day. If the cows had been fresh, says the dairy specialist, the increase would have been greater.

A breeder of purebred Holsteins in Cumberland county, New Jersey, who had the most productive herd in the local cow testing association last year as the result of milking three times a day, is the other example cited. The owner of this farm, D. Morton Davis, says that by milking a group of 10 cows three times a day instead of twice daily he is able to ship an extra 40-quart can of milk daily.

The New Jersey college says that for humane reasons heavy producing cows should be milked three times a day. It also contends that a 15 to 20 per cent increase can be expected from cows producing 40 pounds a day, and that heifers milked three times have their future productivity increased

as well as yielding more immediately.

Possible Profit in Chestnut Stumps

Searches for new and better sources of tannin, large quantities of which are used in the tanning of leather, have resulted in some interesting facts regarding the distribution of this substance in chestnut trees. The Bureau of Chemistry has found that the stumps and roots of this tree are particularly rich in it, some samples of root bark containing as high as 30 per cent and root wood more than 20 per cent. Only from 7 to 9 per cent of tannin is found in the ordinary chestnut wood of commerce. The slabs are said to yield more of the extract than the rest of the tree.

Various other sources have been investigated, among them the bear clover, a plant which grows extensively over the Sierra Nevadas.



Peasants of Irak, Persia, going out to harvest crops

Canners Seek Benefit of Government Warehouse Law

CERTAIN canners of fruits and vegetables have requested the United States Department of Agriculture to extend the Federal warehouse act to public warehouses that store canned fruits and vegetables. Whether or not this can be done will depend largely on the interest shown and the demand made by the industry as a whole, the department says. Canners who have asked to have the warehouse act extended to canned fruits and vegetables believe such action would tend to stabilize prices by facilitating orderly marketing. They believe steadier markets would be created not only for the canned products but also for the farmers' raw materials.

"Markets for canned fruits and vegetables have been more or less demoralized at times," declared H. S. Yohe, in charge of administration of the warehouse act, "due to inadequate financing of the large surpluses and packs in recent years. The pack last year was one of the largest in the history of the canning industry.

"Representations have been made to the department, that if the warehouse act were extended to canned goods the organizations that are not sufficiently financed to enable them to carry goods pending orderly marketing could take their warehouse receipts to banks and be properly financed, thus avoiding the dumping of more stock on the market than can be readily absorbed.

"If this could be accomplished," he said, "it is felt that it would have a stabilizing effect on the mar-

ket for the farmers' raw products. The aspect of stabilization of the market for canned goods as well as for the raw products appeals to the department as having merit. But whether or not canned goods shall be placed on the eligible list for storage under the warehouse act depends mainly upon the interest shown and demand made by the industry."

Mr. Yohe declared that Federal warehouse receipts for commodities which have been on the eligible list for some time have gained an enviable reputation among leading credit bankers. They have resulted, he said, in securing not only wider money markets but larger advances at better terms. They have been recognized by Federal Reserve banks as a type of warehouse collateral which makes paper supported by warehouse receipts desirable for rediscount purposes.

One of the Federal Reserve banks has ruled that it would accept no paper supported by warehouse receipts covering agricultural products if such products were storable under the warehouse act, unless the warehouse receipts were issued under that law. The Governor of another Federal Reserve bank has indicated that he regards the Federal warehouse receipt as the best agricultural warehouse paper the country has ever had. Bankers in leading financial centers have taken the same attitude.

"With such a viewpoint on the part of bankers," Mr. Yohe said, "the Federal warehouse act, if extended to canned goods, should offer a real service to the canning industry."

Split Pits in Peaches

By B. E. Maynard

San Jose, California

Editor's Note:—This result, obtained for one year, is published, not as final conclusions, but as a stimulus to further work along these lines.

Regarding the effect of fertilizers in overcoming the splitting of pits in the peach, the following data was taken from a series of five experimental plots carried out on tuscan cling peaches on Mr. M. J. Newkom's place about four miles south of Yuba City, California. The plots consisted of 10 trees each, which were treated as follows:

Plot No. 1, received 10 pounds per tree of a fertilizer containing 5 per cent Nitrogen, 10 per cent Phosphoric Acid and 15 per cent Potash (K_2O)—(5-10-15).

Plot No. 2, received 10 pounds per tree of a fertilizer containing 5 per cent Nitrogen, 10 per cent Phosphoric Acid, but with ~~the~~ Potash left out—(5-10-0).

Plot No. 3, received 10 pounds per tree of a fertilizer containing 5 per cent Nitrogen, No Phosphoric Acid, and 15 per cent Potash—(5-0-15).

Plot No. 4, received 10 pounds per tree of a fertilizer containing No Nitrogen, 10 per cent Phosphoric Acid, and 15 per cent Potash—(0-10-15).

Plot No. 5, received no fertilizer whatever. This was known as the *Check Plot*.

Split pit count was taken from each of the plots, and the number of peaches examined was recorded. These peaches were taken as picked from different parts of the plots:

Plot	No. 1	No. 2	No. 3	No. 4	No. 5
Fertilizer treatment	5-10-15	5-10-0	5-0-15	0-10-15	0-0-0
(10 lbs. per tree)					
Split Pits	17	40	192	167	163
Sound fruit	510	390	252	271	286
Number examined	527	430	444	438	449

The percentage of split pits and sound fruit from each plot is as follows:

Plot	No. 1	No. 2	No. 3	No. 4	No. 5
Fertilizer treatment	5-10-15	5-10-0	5-0-15	0-10-15	0-0-0
(10 lbs. per tree)					
Per cent splits	3.23	9.30	43.24	38.13	36.31
Per cent sound	96.77	90.70	56.76	61.87	63.69

As a further test, one tree was picked out in Plot No. 1 (5-10-15), which—according to the men picking and making comparisons with trees in a similar condition throughout the orchard—should have been full of split pits. Three boxes were taken as picked from this tree and a close examination of the peaches resulted in the following:

Number of split pits.....	14	Per cent splits	3.59
Number of sound peaches....	376	Per cent sound	96.41

Total number 390

The conclusions drawn from the results, as far as these experiments have gone, are that nitrogen and phosphoric acid are the controlling factors in overcoming this split pit trouble, since in Plot 3 (5-0-15) where the phosphoric acid was left out; and in Plot 4 (0-10-15) where the nitrogen was omitted, the number of split pits increased greatly. Potash, in combination with these two, also seems to have had some beneficial effect as Plot 2 (5-10-0) where potash was left out shows a 6 per cent increase in split pits over Plot 1 (5-10-15) where potash was used. Noting the difference in favor of Plot 1, a larger number of peaches were examined from this plot, which, including the peaches from the tree examined separately made a total of 917 out of which there were found only 31 splits.

The peaches examined were all from the first picking. This makes the second year that the fertilizers were used on these plots. No observations were made last year in regard to the effect on splits. It is intended to continue the fertilization of these plots so as to keep them under a longer period of observation.

* * *

County Agents Test Seed Corn

Many of the County Extension Agents of Nebraska have already started their plans for local seed corn testing stations in their offices. They propose to test all samples of seed corn brought into them by the farmers of their counties. They will do the work promptly and return the results to the farmers as soon as the tests are completed. The Agricultural College is helping them with suggestions about equipment and methods of testing.

The seed corn situation in the state is the most serious since 1917, state agronomists say. Only forty-five per cent of the seed corn which was in the field October 26 will germinate strong, according to the average of more than 300 tests made at the college from samples from every part of the state. Corn in all parts of the state was frozen during the zero weather of late October. Farmers are being urged to get their seed corn for this spring as near home as possible. Careful selection and then testing will help them pick out the ears that will grow.

Invoicing Days Arrive For South Dakota Farmer

Invoicing days for South Dakota farmers are here. R. H. Rogers, farm management demonstrator at South Dakota State College, says that the best time to take an inventory on the farm is during the first three months of the year when most of the cash crops have been sold and the farmer has time to make a check-up on his records before the next crop year begins.

During the past year, over 19,000 copies of the farm record book compiled by Rogers and distributed by the State College extension service for the cost of the printing, 15 cents, have been sent out. Most of these have gone to eighth grade pupils in the rural schools. However, county agents report 715 record books distributed to farmers and it is estimated that at least 300 farmers are keeping farm records.

* * *

Much of this talk about an impending cold wave is only hot air.

Mississippi Complete Results of Fertilizer Tests for Cotton

By E. B. Ferris

Asst. Director, South Miss. Branch Expt. Station, Poplarville, Mississippi

RESULTS of experiments conducted at the South Mississippi Branch Experiment Station for 1925 have been submitted for publication in the form of circulars and reports and these will soon be available for general distribution. In order to comply with the law which required competitive bids on all publications of this kind, the printing of these results will necessarily be delayed, so in order to get the salient facts about these results promptly to the people, we hope to issue a series of Press Circulars giving the outstanding facts about the year's work.

Some of the figures that we will give differ from those reported from time to time in previous articles written by us, for the reason that different values have been given cotton in the final report to those used in the preliminary ones, due to a serious decline in the cotton market, and also to the fact that a different method has been used in comparing yields due to fertilizers with the check or unfertilized plats. Heretofore we have compared the yields of check plats with the nearest unfertilized plats, but the U. S. Department of Agriculture in Bulletin No. 33 has worked out a method much better than the one heretofore in use in making these comparisons and this has recently been adopted by all the experiment stations in this state.

Soil fertility is the most important factor in successful agriculture, and in South Mississippi this soil fertility hinges largely around the proper use of fertilizers. Work with fertilizers has, therefore, been the outstanding feature of the year's results. It may be interesting to know just how the many tests with fertilizers under cotton resulted in terms of net increases per acre over and above the cost of those fertilizers.

* * *

FERTILIZERS are sold according to the amount of available phosphoric acid, nitrogen and potash which they contain and these are indicated in the analysis under which they are guaranteed. For instance, an 8-4-4 fertilizer is one that is guaranteed to contain 8 per cent phosphoric acid, 4 per cent nitrogen or ammonia and 4 per cent potash. A mixture of 300 lbs. acid phosphate, 150 lbs. nitrate of soda and 50 lbs. sulphate of potash will give approximately an 8-4-4 fertilizer. At least in our work here we have assumed that it would and have varied the mixtures in easy multiples of these amounts. By adding to or subtracting from the above constituents, we have made quite a number of combinations to be used under cotton, corn, sweet potatoes and tomatoes.

Of course these results are not

final and not always consistent, but they do give a good indication as to the proper fertilizer for use in these soils to grow a particular crop. Our people are perhaps most interested in cotton and below we give the net value per acre of cotton produced as a result of the use of these fertilizer mixtures, 600 lbs. per acre being approximately the quantity used: 8-4-0, \$40.33; 8-4-2, \$38.40; 8-4-4, \$28.40; 8-4-6, \$20.37; 8-4-8, \$16.78.

These results indicate no need for potash, but were obtained on land which had grown no cotton for a number of years and on which there was no tendency for cotton to rust. On other land here where cotton had been grown for three years in succession, cotton without potash rusted badly and the addition of 50 lbs. of sulphate of potash to acid phosphate and nitrate of soda gave a very material increase in the yield of cotton, more than 200 lbs. of seed cotton per acre, an investment of \$1.25 in potash giving an increase of \$15.12 in cotton. This shows that every farmer must use judgment in the selection of his fertilizer for his particular soil and crop and that no one can do more than give him very general advice.

An 8-4-4 fertilizer as indicated above gave a net increase \$28.40; 8-6-4, \$30.60 and an 8-8-4, \$40.33, showing the need of a fertilizer rich in nitrogen, much richer than

the average farmer is now generally using, and considering that our results for years past have gone to show the same thing, we have no hesitancy in stating that these results are approximately correct and show the real need of our soils.

To show the relative importance of phosphoric acid in a fertilizer mixture, these results gave for an 8-4-4 mixture a net increase of \$28.40; a 6-4-4, \$22.93; and a 4-4-4, \$18.86, showing the need of a fertilizer relatively rich in phosphorus. Really, phosphorus, according to past results at this station, is the most seriously deficient element in Coastal Plain soils.

An effort was made in 1925 to determine the most economical amount of fertilizer to be used per acre under cotton and resulted as follows: 600 lbs. of an 8-4-4, \$28.40; 1,200 lbs., \$39.10; 1,800 lbs., \$32.08; 2,400 lbs., \$14.34. Apparently the most economical amount lies somewhere between 1,200 lbs. and 1,800 lbs., possibly around 1,200 lbs.

We wish it to be distinctly understood that these results are merely indicative of the true needs of South Mississippi soils and that every farmer must be his own judge as to just how closely they are to be followed. Under different weather conditions they might vary greatly, but they are certainly in line with results obtained here during many previous years.

* * *

Farm Crop Costs Estimated Higher

(From page 36)

cut down the unit cost of production and make farming a profitable undertaking", says R. H. Rogers, farm management demonstrator at the college. "Although these figures are for Kingsbury county conditions, they will apply, in a general way, to the greater part of eastern South Dakota. In the extreme

northern and western portion of the state or elsewhere where more extensive methods of farming are carried on, the labor and overhead charges would be lower. Smaller yields in these sections however, would tend to increase the unit costs to approximate those given above.

Nebraska Hay School

The first hay grading school in Nebraska was held in January at the Agricultural College in Lincoln. It lasted two weeks, giving information and actual training and practice in grading hay according to the new standard hay grades that were recently adopted by the U. S. Department of Agriculture.

While the primary purpose of the short course was not to make hay inspectors, those who qualified at the end of the course are eligible to become licensed inspectors. The chief purpose of the school was to give growers, dealers, and others interested in hay an opportunity to gain practical knowledge of the quality and the marketing of hay. No fee was charged.

More than 100 bales of prairie and alfalfa hay were collected from different parts of Nebraska and adjoining states to illustrate the various types and grades of hay.

The United States Department of Agriculture cooperated with the

Nebraska Agricultural College and furnished men to instruct the classes. Edward C. Parker, the man who is quite largely responsible for the present hay standards, had charge of the school a part of the time.

* * *

Edward Ruml Wins Watch at Crop Show

Edward Ruml, a corn club boy from Charles Mix county, South Dakota, who has been doing club work for four years, won the gold watch offered by the Aberdeen Chamber of Commerce for the champion corn club exhibit at the South Dakota Crop Improvement show recently in Aberdeen. Edward is a brother of Charles Ruml who not only won the corn club sweepstakes prize last year but also won sweepstakes for the entire show. The corn exhibited by Edward Ruml this year will be used in the exhibit car that is being sent through Minnesota, Iowa and Illinois.



Nearly 100 farmers within an 8 mile radius of Holmen, Wisconsin, put up a summer's supply of ice from a cooperative owned ice field during the second week in January

Thoroughness

(From page 8)

tographer's name to merely his initials.

Thus, under Monsieur Bok's smiling phiz appears "© U. & U."—which means "Copyright Underwood and Underwood."

How simple! How American! How it saves time, effort and space! How *un-thorough* it is.

The aim of writing and printing is to convey from one mind to another a thought, an emotion, or a fact. That is, as Webster says, "the quality of achieving completeness." It is the end. The method is unimportant. Methods are not much—results count.

And, I contend, in my simple and amateurish way, that abbreviation is merely a form of thoroughness, which is, after all, a relative matter.

HENRY FORD, the world's richest man, was touring through one of his new plants one day last September.

He came upon a room crowded with clerks. "And what are these chaps doing?" he asked of the manager.

"We are accumulating here some valuable and *thorough* records for you. When finally completed they will show *thoroughly* and with intimate detail a flow-chart of each department with graphs depicting the daily output."

"Fire 'em all!" exclaimed Henry, "and burn up what they've done. I don't want to see it. And I don't want anybody else to waste their time milling over the stuff. It is water gone over the dam. Take off their white collars and put 'em to work building cars. We're behind in filling orders. If any of 'em won't go to work—*fire* 'em. And that's that!"

He strode out.

Thoroughness? Yes. But only where it counts—in *the car*. Purely American act—this little strategy of Ford's. Some folks are so cluttered up with *thorough* records they cannot cut clean and sharp through to the essentials. Not Ford. He may not be thorough—and how he would offend Bok!

To achieve the end. *Desideration!*

AMERICA does it. Americans do it. And in doing it they commit daily acts of thoroughness which, translated into Bokese, means they are careless.

A gentleman by the name of Gregg; another by the name of Pittman; and several more whose cognomens escape me at the moment, devised certain well-known systems.

A devotee of one of these systems sat for years at the side of Edward "Waggish" Bok, tremblingly converting into heathenish pot-hooks the words of wisdom that fell from his lips, and for which American Womanhood—or that portion of it which ponied up Two - Dollars - the - year for the Homely Ladies Choinal—anxiously awaited.

Accursed feminine specimen of un-thoroughness! Knew ye not that the Big Chief abhorred the thought of abbreviation? Why had you the colossal temerity to convert into a mere twitchy curve a beautiful American word like "success"? Why not spell it out! S-u-c-c-e-s-s.

Alas! Out with your stupidity. "Whatever is worth doing at all is worth doing well," and

shorthand, while convenient and time-saving, is but another dreadful American habit which typifies that failing of ours to achieve results with the least effort and in the shortest time—that dire tendency to gloss over, to ignore the charm of completeness, to carelessly abbreviate!

* * *

AMERICANS are the most thorough people on the earth. They go *through*. They get *results*. They slash right and left through encumbering debris—and get to the goal.

Results count.

When a Dutch boy sees some apples in a tree and wants them, does he make a ladder of teakwood, put together with hand trimmed dowels of ash, neatly Valspar the affair and then lean it carefully and thoroughly against the trunk of the apple-tree?

I believe he does. That is Dutch thoroughness. And that is why the Dutch boy often gets no apples!

For about the time he gets around to the final job of climbing *thoroughly* up in the tree on his *thorough* ladder, he finds to his dismay and chagrin that some unprincipled, untutored, rough-neck American kid, unversed in Dutch thoroughness, has seized the nearest club and knocked all the apples down! He has filled his pockets and is going down the road yelling that “methods aren’t much—results count!”

The American has learned when to short-cut to results, and when to be thorough. He is as thorough as any other nationality when he sees that thoroughness will bring more results than quick action. But he saves time, cuts corners and cans the frills when they are not necessary.

“American lack of thoroughness.” Doesn’t it beat the Dutch!

Distinguished “Milkmaids”

(From page 31)

THE “Milkmaids” ready for the start in the amateur milking contest held in the judging pavilion at Purdue University before a capacity audience during the Agricultural Conference.

They are from left to right:

Walfred Lindstrom, Pleasant Lake, Indiana, Chairman of the Agricultural Committee of the Indiana Bankers’ Association; Dean J. H. Skinner of Purdue University; President E. C. Elliott of Purdue University; R. C. Jenkins of Orleans, Indiana, President of the Indiana State Board of Agriculture; F. E. Schortemeier, Secretary of State, Indianapolis.

Mr. Lindstrom was declared the winner, although many of the audience thought Dean J. H. Skinner should have had this great honor. F. E. Schortemeier gave an excellent exhibition of a city man trying to milk a cow. In the four minutes allotted he was able to produce only a few ounces of milk.

* * *

KICKER OR PULLER

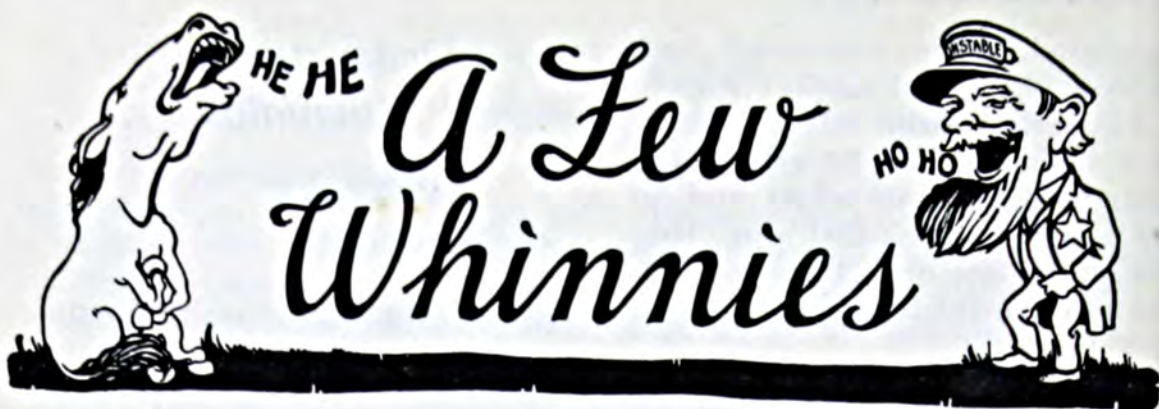
No horse can kick and pull at the same time. When he commences to kick he stops pulling. When he commences pulling you may be sure he has stopped kicking.

* * *

A HINT

Wife (reproachfully): “John, you’re kinder to dumb animals than you are to me.”

Hubby (getting ready to dodge): “Well, you try being dumb and see how kind I’ll be.”—Farm Life.



Valentines

ONE of the brand new ideas this department is introducing this year is the custom of sending around mushy little cards bearing sweet love-verses on St. Valentine's Day. We know this idea will be accepted with universal acclaim by our readers, and we are bold to submit a few sample verses which will be found quite appropriate:

* * *

I. (In the poignant mood):

*Sure as the flivver
Is hard to start,
Our parting will probably
Break my heart.*

II. (In the confidential mood):

*Menus are read,
Taxis are blue,
Shows are expensive
And so are you.*

III. (In the complimentary mood):

*Your eyes are so lovely,
And so is your nose,
But I pity the man
Who pays for your clothes.*

* * *

Of course there will be some who do not care for these sickly sentimental verses. Advertisers, for instance, will want to send a few Valentines to their customers, utilizing some well known sales method. For such we submit the following:

* * * * *

The seed catalogs are here, and Ike Dusenberry is trying to rent two hundred more acres of ground so he can have plenty of room to raise twenty hills of Giant Mammoth Tomatoes he ordered from one of them.

I. (By the direct, or high-pressure method):

*White or colored,
Plain or clocks,
Always purchase
Bunkum's socks.*

II. (By the subtle, or insinuating method):

*Sure as it's hard to
Accumulate wealth,
You should take Bill's Pills
For your health.*

III. (By the method of flattery),

*Your neck's like the swan,
Your eyes are like stars,
Say, why don't you buy
One of Skinnem's Used Cars?*

* * *

Farmers will find the Valentine suggestion quite useful and convenient. Verses like these might be used:

* * *

I. (For a neighbor):

*With deep respect
Let me repeat:
Please keep your cows
Out of my wheat.*

II. (For the hired man):

*I send you out
To hoe the rows,
Not to stand still
And scare the crows.*

III. (For a son at college):

*There's just one thing
That strikes me funny:
You never write
When you don't need money.*

BETTER

The Pocket Book

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WINNERS



Oliver Plows Wins Two Firsts at the Forty-Seventh Annual Wheatland Plowing Match

From all outward appearance most plows look very much the same, but that there is a difference in the quality of their work is evidenced by the judges' decision in the 47th Annual Wheatland Plowing Match. First honor in two classes was awarded to operators of Oliver plows.

Competition between drivers was very keen in the various classes. However, Mr. G. H. Wright who operated an Oliver plow, was outstanding in the manufacturers' class and won first honor with the decisive lead of 5 points over the outfit which won second, and 12 points over the winner of third place.

First place in the boys' class was awarded to Forrest George, Jr., who also operated an Oliver plow.

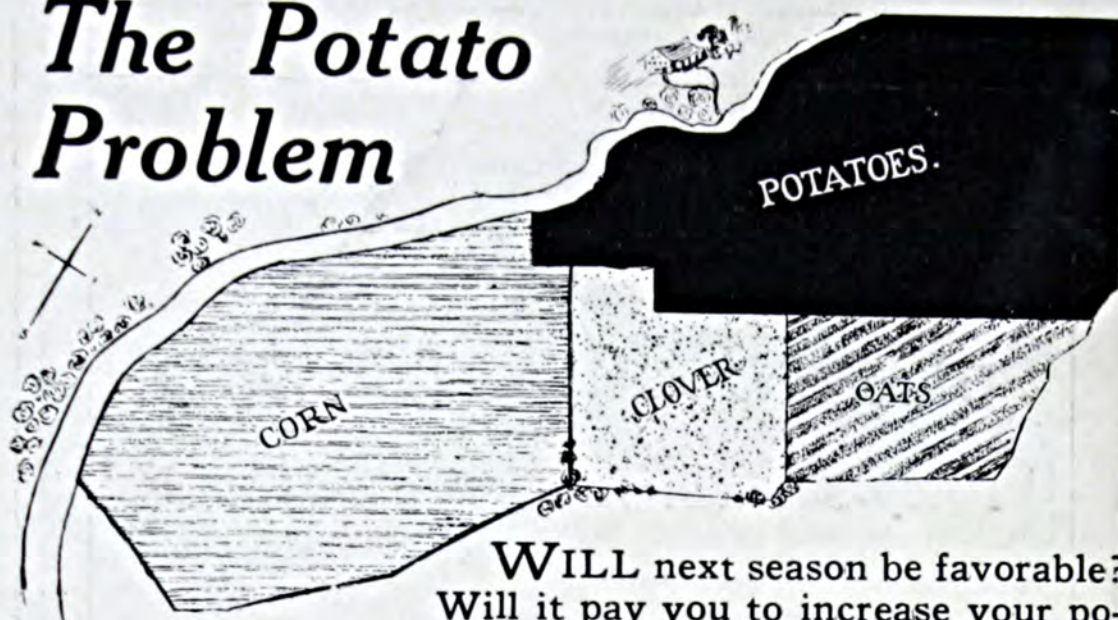
Farmers appreciate the advantage of owning a plow capable of doing championship work not only in the hands of master plowmen but also in the hands of the average farm operator—in day by day work.

OLIVER

OLIVER CHILLED PLOW WORKS

South Bend, Indiana

The Potato Problem



WILL next season be favorable?
Will it pay you to increase your potato acreage and cut down on other crops?

In other years after a good marketing season, the tendency has been toward increased acreage—often followed by overproduction and low prices.

The best solution is: increase your yield per acre—reduce your production cost per bushel.

Through careful cultural methods—proper selection of seed, spraying, and other details—and through careful soil management such as crop rotation and the use of high analysis fertilizers, you can increase your yield per acre and reduce your production cost per bushel.

The results of many experiments show that 80 to 100 pounds of actual potash per acre, applied with the proper quantities of nitrogen and phosphoric acid, give profitable returns.

On this basis at least 1,000 pounds per acre of a high analysis complete fertilizer containing 8 to 10% potash, or 2,000 pounds per acre if the potash content is 5%, are required to supply the necessary potash. Many successful growers prefer sulfate of potash in their mixtures.

FREE


Potato growers interested in higher yields per acre—at lower production-cost per bushel—will find helpful information in the newly revised booklet "Better Potatoes." You can obtain free copy by writing to the address below.

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