

# WITH PLANT FOOD

September-October, 1960

20 Cents

# UNDERSTANDING SOIL TESTING

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# INTENSIFIED PROGRAM

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# **PROFILE WORK**

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# ON THE COVER .

... the auger and the spade are fundamental in the process of soil sampling and soil testing on the road to profitable farming. The two articles—"Understanding Soil Testing" and "Soil Test, A Gimmick Or An Effective Tool For Profitable Farming"—vividly describe the importance of soil testing and the results that one sizable region gained by applying the soil test in their overall soil fertility management. We strongly recommend these two articles.



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EFFECT OF RATE OF APPLICATION OF P YIELD OF WHEAT GROWN ON SOILS RATED "MEDIUM, LOW, AND VERY LOW." (North Dakota)

POUNDS OF AVAILABLE PHOSPHATE (P205) APPLIED PER ACRE

Figure 1—Effect of rate of application of P on yield of wheat grown on soils rated "medium, low, and very low." (North Dakota).

# UNDERSTANDING SOIL TESTING

By Armand Bauer Lowell Hanson John Grava

The general impression many people have of soil testing is that it is a rather simple procedure to determine which nutrients are in short supply in the soil—then add the needed fertilizer and abundant harvest is assured.

Let's take a closer look at modern soil testing and what it involves.

Soil tests might be defined as laboratory procedures which measure some fraction of the total supply of nutrients in the soil. To be valid, In Cooperation With NCR-13 \* Soil Test Technical Committee

these tests must be carefully calibrated with response of different crops to the application of fertilizers. Recommendations made to a farmer are based on the relationship between the soil test and the outcome of closely controlled fertility experiments.

<sup>\*</sup> NCR-13 is a technical research committee of the agricultural colleges in the following states: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin.



This chart shows the relative corn yield increases to various rates of broadcast K fertilizer at different soil test levels. The rate of K for the maximum profit per acre is based on corn at \$1 per bushel and  $K_2O$  at 6 cents per pound.

Figure 2—Effect of rate of applications of K on yield of corn grown on soils rated "medium, low, and very low." (lowa).

### **Complex Relationships**

As with many other things, a close look at soil testing reveals a rather complex set of relationships and procedures, involving precise chemical analytical methods and a vast amount of agronomic research. Soil testing can be compared to an iceberg since only 1/10 of it shows above the surface. Behind the obvious soil test and fertilizer recommendation lies much soil chemistry and fertility research conducted largely by agricultural experiment stations.

This research, much of it accomplished in the last 15 years, has brought soil testing from a hit or miss "gimmick" stage to the point where soil tests now provide a reliable basis for making efficient use of fertilizers.

Nutrient deficiencies are among the foremost soil factors adversely affecting crop performance. Methods of determining these deficiencies and steps for remedying them have been and still are the object of a high proportion of soils research.

The knowledge gained through this research in one soil area will not apply to all soil areas because of basic differences in soils. However, with adequate research in each soil area, the

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Figure 3—Relationship between soil pH and yields of alfalfa on Withee silt loam, Wisconsin, 1959.

fertility status of soils on an individual farm can be determined and the knowledge gained from research be put to use where needed.

Soil testing laboratories have been established to provide this service. Hence, a soil testing service provides a link between soil research and the individual farm.

### Soil Tests for a Specific Nutrient

Before a soil test for a specific nutrient can be developed for a general area, the deficiency of the nutrient must be found and the extent of its deficiency established. Deficiency symptoms when displayed by plants, can be recognized. But often plants are only stunted and this is a symptom common to many shortcomings. Too, plants may just be in the beginning stage of the deficiency and low in nutrients but show no signs at all. This is called "Hidden Hunger."

The only sure way to know is to conduct experiments on the soil where the suspected deficiency exists and/or remove some of the soil to the greenhouse for these experiments. Such experiments involve rates of application of a fertilizer containing an available form of the suspected deficient nutrient. Then the effect of its application to the test crop can be observed and evaluated. In these experiments other essential nutrients must be present in adequate quantities.

Once it has been established that a specific nutrient is affecting the performance of a crop, fertility trials are conducted over a general area, usually statewide, to determine the extent of



Figure 4—Illustration of the use of each of the three alternative rates of fertilization in Iowa.

the occurrence in other soils, the crops affected, and the soil and management conditions under which it occurs.

Sites for these field trials are carefully selected on farmers' fields, as well as on experiment station plots to represent all or the most important soil areas. Such trials are conducted over a period of years. Large numbers of trials are desirable because greater confidence can then be placed on the outcome, and this better insures the inclusion of soils that range from low to high in their capacity to furnish the specific nutrient under study.

Calibration of the test for a specific measurement then is the key to making the soil test work. An example of this calibration work on phosphorus is with wheat in North Dakota. (Figure 1). This shows the difference in phosphate response with different soil test levels. Other states have worked out similar relationships for their tests and crops.

Figure 2 shows how Iowa corn responded to potash as related to level of K in the soil. Also, Bray in Illinois, as well as others, have done much work in calibration of potassium soil tests.

Nitrogen recommendations take into account the past crops grown and characteristics of the soil. Available nitrogen for a specific crop is difficult to predict because of the effect of temperature and soil moisture on release of N in the soil. Nitrogen made available through incubation of samples is measured at the laboratories in Iowa and Nebraska, while most other states measure potential availCOMPARISON OF CORN YIELDS FROM FERTILIZER TREATMENTS SELECTED BY SOIL TEST AND COMPLETE TREATMENT



Figure 5—Comparison of corn yields from fertilizer treatments selected by soil test and complete treatment.

able nitrogen indirectly by determining organic matter content in the soil.

An example of how the past history and soil characteristics are used for nitrogen recommendations from Purdue University is shown in Table 1.

#### **Methods Used**

Various chemical and biological methods are used to extract the specific nutrients being determined. These methods must be precise because the amounts being determined are very small. For example, the range of available potassium in soil usually ranges from only 25 to 300 parts per million or .0025% to .03% of the total dry soil.

In general, it is much more difficult to develop procedures for determining the significant amounts of available elements in soils than in other materials. Getting a reliable representative sample of a bulky variable material such as a field is the problem. Also, as mentioned above, the relative amounts of the elements we are interested in are a very small part of the total.

A number of different chemical procedures have been developed. In the 12 midwest states alone there are a number of different procedures for phosphorus, for potassium, and for nitrogen. However, there are good reasons for these differences. Soils in this area range widely with all combinations of acidity, organic matter, soil temperature, texture, and type of clay mineral. These properties account for the fact that some procedures work on some soils but not on others.

For example, the use of 0.75 normal HC1 in extracting phosphorus works well on acid soils in Indiana but is of no value on the high lime soils of Nebraska and the Dakota's.

There is a definite trend toward fewer procedures, but some differences between states are necessary and will continue in the future.

### **Another Important Soil Test**

Soil tests to determine soil properties other than nutrient levels are used as a basis for recommending applications of soil amendments. The most important of these measurements is for soil reaction (pH). This test in conjunction with estimates of texture, type of clay, amounts of organic matter, and desired soil reaction to be attained is used most widely in determining the amounts of lime needed for correction of soil acidity.

The effect of soil pH on yields of alfalfa hay is illustrated in Figure 3.

### Making the Recommendation

One of the soundest bases for advising the farmer is to have a knowledge of crop response to different amounts of fertilizer on a soil of a certain soil test. But factors other than the soil test must be considered when recommending fertilizer. Such things as management practices of the farmer, available capital, and yield goals are important.

Iowa, for example, gives a farmer

three levels of fertilization from which to choose, depending on these factors. This is illustrated in Figure 4 and Tables 2 and 3.

Recommendations from Minnesota for corn on a low testing soil may vary from 40 pounds of N, 40 pounds of  $P_2O_5$ , and 80 pounds of  $K_2O$  up to 120 pounds of N, 80 pounds of  $P_2O_5$ and 160 pounds of  $K_2O$ , depending on the yield goal and part of the state.

These differences do not mean that the soil tests themselves are not reliable, but that other economic and climatic factors are very important in determining fertilizer use. Therefore, differences between recommendations for farmers with the same soil test should not cause concern. There are sound reasons for the differences.

Interpreting soil test results and recommendations to farmers is a continuing educational job. This is being accomplished by county extension agents industry agronomists and dealers, and Vo-Ag teachers. In many states, local agricultural leaders actually make the fertilizer recommendations and are al-

	Pounds of nitrogen (N) per acre			
Corn following	Light-Colored soils	Dark-Colored mineral soils	Droughty soils	
1. Good legume (alfalfa, sweet clover, red clover)	0 to 40	0	0	
2. Second year from good legume	60 to 80	40 to 60	20 to 40	
3. Third or more years away from good legume	80 to 120	80 to 100	40 to 60	
4. Poor legume <sup>1</sup>	40 to 80	40 to 60	0 to 20	
5. Grass sod <sup>2</sup>	80 to 120	60 to 100	40 to 60	

Table 1.—Nitrogen recommended for corn according to cropping and soil Purdue University

<sup>1</sup>Lespedeza or a thin stand or poor growth of good legume.

<sup>2</sup> Three or more years from good legume.

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Table 2.—Example of alternative rates of fertilization for Clarion soil testing low in nitrogen and phosphorus and medium in potassium.

Fertilizer Rate	Nitro- gen (N)	Phos- phorus (P <sub>2</sub> O <sub>5</sub> )	Potas- sium (K <sub>2</sub> O)
The second	lbs/A	lbs/A	lbs/A
"Low"	30	20	10
"Medium"	60	50	20
"High"	100	60	20

ways available for help in the soil test program.

Properly used and interpreted soil tests can be very valuable, showing where the fertilizer dollars should be spent. Figure 5 illustrates yields can be just as high with a fertilizer application pinpointed to the soil deficiency as when a complete heavy rate is applied. This does not mean that farmers will use less fertilizer after soil testing but that the money spent for fertilizer will be put to the best use.

A proper prospective of modern soil tests is that they are very useful in recommending practices that lead to economic fertilizer use for an individual field. They are certainly not infallible, because soils are a complex biological system and there are a lot of unanswered questions. Improved soil tests depend on continued soil fertility and agronomic research.

With the continued cooperation of experiment stations, extension services, and agricultural industry, the soil test is finding its deserved place as an essential practice in efficient soil management.

Table 3.—Returns from alternative fertilizer rates for corn shown in table 2

Fertilizer rate	Approx. cost <sup>a</sup>	Yield increase	Value of increase	Return per dollar	Net profit per acre
"Low" (30+20+10)	\$ 7.90	14 bu./A.	\$18.20	\$2.30	\$10.30
"Medium" (60+50+20)	\$15.30	23 bu./A.	\$29.90	\$1.95	\$14.60
"High" (100+60+20)	\$21.50	30 bu./A.	\$39.00	\$1.81	\$17.50

<sup>a</sup> Includes cost of fertilizer plus application costs, etc.

THE END

### COLOR SLIDE SETS

POTASSIUM HUNGER S
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### SOIL FERTILITY AND SOYBEANS

#### SUCCESSFUL ALFALFA

### SAFE, EFFICIENT FERTILIZER PLACEMENT

CONVENIENT ORDER COUPON ON PAGE 20

# SOIL TEST

# ... a "gimmick" or an effective tool for profitable farming?

## By P. J. Bergeaux University of Georgia

 $\mathbf{F}^{\mathrm{EW}\;\mathrm{STATES}}$  have put soil testing to the test that Georgia has for the past three years.

How this method of diagnosing nutrient needs for crops has weathered a highly intensified program is a story worth telling.

It all began back in the fall of 1957. They called it the Georgia Agricultural Extension Service Soil Fertility Program, guided by Director W. A. Sutton, first on a 6-county pilot basis, now expanded to include 54 counties.

Although the Georgia Soil Fertility Program is just now completing its third year, it early aroused regional and eventually national interest—possibly because of the unusual response of the people and the results they were soon getting.

Farmers and local businessmen alike received the program with enthusiasm. They liked it because they could understand it—its purpose and its potential economic value to all of them.

It is a simple program based on a 4-step plan of (1) soil testing with farmers following through by applying (1) the lime, (2) the mixed fertilizer, and (3) the nitrogen recommended from the tests.

Soil samples received by the soil testing laboratories have increased from 20,009 samples in 1957 to 54,550 in 1959—a 34,541 or 172% increase. But increase in soil samples does not tell the real story. The big questions were—and always are: (1) Did the farmers follow the lime and fertilizer recommendations they received from their soil tests? (2) If so, what happened to their yields and income?

To answer these questions, the Extension Agronomy Project—led by Ralph Johnson, Head of Extension Agronomy Department—prepared a questionnaire for a random selection of farmers who had their soils tested in the 25 counties that participated in 1958-59 program. Returns came from 21 of the 25 counties.

Each of the twenty-one county agents randomly selected about one-tenth of the farmers who had their soils tested in the current year. They discarded samples representing less than one acre to eliminate gardens and lawns.

The farmers were requested to answer the questionnaire completely. If necessary, the county agents made personal visits to help the farmer give the full picture. A total of 454 farmers completed the questionnaire. The story they told was essentially this: September-October 1960

### DO FARMERS FOLLOW LIME AND FERTILIZER RECOMMENDATIONS THEY RECEIVE FROM SOIL TESTS?

## IF SO, WHAT HAPPENS TO THEIR YIELDS AND INCOME?

THIS SOIL FERTILITY PROGRAM FOUND OUT



In one county seat, the program conducted a soil test contest by militia districts.

# Fertilized as Recommended

Sixty-six per cent of all crops were fertilized according to soil test recommendations—with 13 per cent fertilized at higher rates than recommended and 21 per cent at lower rates than recommended.

### FOLLOWING SOIL TEST FERTILIZER RECOMMENDATIONS

Followed Recommendations %	Used More %	Used Less %
83	5	12
66	4	30
70	9	21
42	54	4
67	12	21
39	33	28
68	23	9
	Followed Recommendations % 83 66 70 42 67 39 68	Followed Used More   Recommendations %   83 5   66 4   70 9   42 54   67 12   39 33   68 23

### Limed as Recommended

Farmers surveyed also followed through on their soil test lime recommendations. Results show 62 per cent of all crops were limed according to soil test recommendations—with 32 per cent receiving less lime than recommended and 6 per cent more lime than recommended.

In other words, farmers interviewed either followed soil test lime recommendations or used more lime than recommended on 68 per cent of the crops.

### FOLLOWING SOIL TEST LIME RECOMMENDATIONS

Crop	Followed Recommendations %	Used More %	Used Less %	
Cotton	71	10	19	
Corn	58	35	7	
Peanuts	77	6	17	

### **Comparing Per Acre Crop Yields**

### Fertilizer

This survey showed the majority of farmers are following soil test lime and fertilizer recommendations. What effect did this have on per acre yields? The following table compares the 1959 state average per acre yields of the major crops with the average per acre yields of farmers in the survey.

	State Average – Yields rop P/A I		Fertilizer Use			
Crop			Less Than Recommended	Followed Soil Test Recommendations	More Than Recommended	
Cotton	383	Ibs.	416 lbs.	500 lbs.	575 lbs.	
Corn	28.5	bu.	36 bu.	44 bu.	55 bu.	
Peanuts	1125	Ibs.	1158 lbs.	1306 lbs.	1434 lbs.	
Tobacco	1518	Ibs.	1550 lbs.	1542 lbs.	1836 lbs.	
Oats	32	bu.	39 bu.	51 bu.	41 bu.	
Wheat	20.5	bu.	23 bu.	26 bu.	29 bu.	

### PER ACRE YIELDS FROM FERTILIZER USE

Par Acra Yields Of Farmers Interviewed

This shows soil fertility management pays off. Even farmer-participants not fully following soil test fertilizer recommendations produced higher per acre yields than the state average, apparently using more fertilizer than the average farmer.

Individual crop yields were increased above state averages by as much as 59 per cent. In no instance did farmers following soil test fertilizer recommendations produce lower per acre yields.

Farmers using more fertilizer than recommended had higher per acre yields on all crops, except oats, than farmers who followed soil test fertilizer recommendations. This was not surprising, since soil test recommendations are not usually made for top yields.

The adage that "higher income crops receive the most fertilizer" is verified



in this survey. Fifty-four per cent of the tobacco farmers used more fertilizer than recommended and averaged 22 per cent higher per acre yields than the average for the state.

### Lime

The program also showed how lime pays off when needed. Farmers following soil test lime recommendations increased their yields 10% and better, depending on the crop. Those not filling their lime needs had lower yields.

	Per			
Crop	Less Lime Than Recommended	Followed Soil Test Lime Recommendations	Per Cent Increase	
Cotton	472 lbs.	526 lbs.	11	
Corn	42 bu.	46 bu.	10	
Peanuts	1188 lbs.	1348 lbs.	13	

### PER ACRE YIELDS FROM LIME USE

Since peanuts are a legume and very responsive to lime, they showed the highest percentage yield increase (13%), followed by cotton (11%), and corn (10%).

# Value in Dollars and Cents

### From fertilizer usage . . .

We have seen that the majority of the farmers surveyed followed soil test lime and fertilizer recommendations. In so doing their per acre yields were increased substantially over state average yields.



But—did their increased use of lime and fertilizer bring increased income? To answer this question, the specialists deducted additional fertilizer costs (the difference between state average fertilizer use and soil test recommendations) from the gross value of the increased yield to arrive at a per acre value of this increased per acre yield.

	VALUE OF	FOLLOWING	RECOMMENDATIONS		
Crop	Increased P/A <sup>1</sup> Yield	Gross <sup>2</sup> Value P/A	Additional Fertilizer <sup>3</sup> Cost P/A	Value of Increased Yield Less Extra Fertilizer Cost P/A	
Cotton	117 lbs.	\$38.30	\$3.85	\$34.35	
Corn	15.5 bu.	17.80	8.00	9.80	
Peanuts	181 lbs.	16.40	2.10	14.30	
Tobacco	24 lbs.	14.40	-1.40	15.80	
Oats	19 bu.	14.30	5.40	11.00	
Wheat	5.5 bu.	9.90	4.40	5.50	

<sup>1</sup> Difference between state average yields and yields of survey farmers who followed soil test fertilizer recommendations.

<sup>2</sup> Computed by multiplying increased per acre yield times average selling price as reported by Georgia Crop Reporting Service.

<sup>3</sup> Computed by deducting state average per acre fertilizer use from standard soil test fertilizer recommendations for crops listed. Fertilizer cost based on price of 14 cents per pound of nitrogen, 7 cents per pound of P<sub>2</sub>O<sub>5</sub> and 5 cents per pound of K<sub>2</sub>O.

Cotton gave the greatest return for each additional dollar invested in fertilizer. Cotton farmers following soil test fertilizer recommendations averaged 117 pounds more lint cotton per acre than the average Georgia cotton farmer.



They had to use approximately \$3.85 more fertilizer than the average Georgia cotton farmer to get this increased yield. But it was worth \$38.30 in increased income per acre. In other words, for every additional dollar invested in fertilizer, these farmers averaged a return of \$10.00.

Other factors, of course, must be credited along with increased fertilizer usage—such as proper insect control—but one fact can't be overlooked. That fact is this: that farmers who followed soil test fertilizer recommendations averaged higher per acre yields than the state average for *all of the major crops* grown in Georgia.

For other crops the return per dollar invested in additional fertilizer looked like this: peanuts—\$8.00 for each additional dollar invested; oats—\$3.00; corn and wheat—\$2.00.

Although tobacco farmers following soil test fertilizer recommendations used slightly less fertilizer per acre than the average tobacco farmer, they averaged slightly higher per acre yields. Since the difference (of 24 lbs.) was so slight, the specialists assumed there was no significant difference in per acre yields.

And it should be remembered that farmers who used more fertilizer than recommended on tobacco averaged considerable higher per acre yields than farmers following soil test fertilizer recommendations.

### From lime usage . . .

Farmers following soil test lime recommendations also profited. The following table compares the increased per acre yields of farmers who followed lime recommendations with those who used no lime or less than recommended.

Lime costs were deducted from the gross value of the increased yield to arrive at the per acre value of lime use based on soil test recommendations.



Candler County Agent, Otis Parker, right, and cotton farmer, Oliver Odom, left, pack some soil samples to send to the lab for testing. Odom realized more than  $1\frac{1}{2}$  bales of cotton per acre on the field that was soil tested.

Crop	Increased <sup>1</sup> P/A Yield	Gross P/A Value	Cost of <sup>2</sup> Lime	Value of Lime Use <sup>3</sup> P/A
Cotton	54 lbs.	\$18.50	\$2.65	\$15.85
Corn	4 bu.	4.60	2.65	1.95
Peanuts	160 lbs.	14.60	2.65	11.95

### VALUE OF FOLLOWING RECOMMENDATIONS

<sup>1</sup> Difference in per acre yields between farmers in survey who used less lime than recommended and those who followed recommendations.

<sup>2</sup> Calculated on basis of average use of 1 ton of lime per acre. Lime cost pro-rated over 3year period.

<sup>8</sup> Arrived at by deducting pro-rated cost of lime from gross value.

Cotton gave the highest dollar return from lime use. Peanuts was next highest. Corn gave the least return in dollars from use of lime.

### Summary

This survey clearly shows the value of following soil test lime and fertilizer recommendations.

Farmers who followed lime and fertilizer recommendations had higher per acre yields than farmers who used less than recommended, while *all* farmers surveyed averaged higher per acre yields than the state averages for crops compared.

It also showed that it pays in dollars and cents to follow soil test lime and fertilizer recommendations.

But—the real value of soil testing is in what farmers *think* about the soil testing in *their own farm operation*.

Ninety-five per cent of the farmers said soil testing aided their farm operation. Only 4 per cent reported no value, less than 1 per cent (one farmer) claimed soil testing was harmful.

In conclusion, soil testing is a well-proven tool in Georgia's Soil Fertility Program. It is a real blueprint for guiding the fertility needs of the individual farm. Ask Georgia's farmers. THE END September-October 1960

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Frank Boyd, left, and Ralph Johnson, team up to explain the Georgia Fertility, Corn and Pasture programs to a group at Millarden Farms, Woodbury, Georgia.

**By Charles Summerour** 

### "OUT OF THE HILLS OF HABERSHAM . . . "

Out of the hills of Habersham, Down the valleys of Hall, I hurry amain to reach the plain, Run the rapid and leap the fall . . .

THESE immortal words from the pen of that beloved poet of the Southland, Sidney Lanier, in his "Song of the Chattahoochee" are familiar to every person who as a child attended school in the Deep South.

To them it paints a picture of the beautiful Chattahoochee as it winds its course diagonally across the state of Georgia to join the Flint and form the Appalachicola which crosses Florida and empties into the Gulf of Mexico.

### Far from the hills of Habersham, Far from the valleys of Hall.

Not so well known now, but perhaps destined to mark a moment in the agricultural history of the nation which will rank alongside this poetic contribution in interest, is how a meeting in this county of Habersham at the headwaters of the Chattahoochee in Georgia, started the news about a program on its way to the farthest reaches of the country.

### September-October 1960

The story has its beginning in 1957 when an intensified soil fertility program was launched in six pilot counties in South Central Georgia. This effort was agreed upon after a series of planning conferences participated in by representatives of the extension service and of various segments of industries serving agriculture. It called for an aggressive campaign to urge adoption by farmers of practices which research and experience had shown would result in higher crop yields and, most of all, increased farm income.

Representing the agricultural extension service was its staff of agronomists composed of P. J. Bergeaux, Harold Gurley, Ralph Johnson, Frank McGill, and Ralph Wehunt. Commercial agronomists were Frank Boyd, David Howe, J. C. Morcock, Jr., E. M. Parker, J. F. Reed, and Irvin M. Wofford, representing the Georgia Plant Food Educational Society, the statewide organization of industry representatives. Valuable assistance was given by the National Plant Food Institute, the American Potash Institute, and by the press, radio and television.

The campaign was waged in the six counties simultaneously with teams consisting of representatives from each of the participating groups assisting the county agents who were in immediate charge in their respective counties.

The results of the effort were so satisfactory that the program spread rapidly. In 1958 twenty-five additional counties in Georgia organized campaigns and programs were launched in adjoining states. But it was in 1959 that the major break-throughs occurred that sent the story on its way to the farm and business leaders of the Southwest, the Cornbelt, the Bluegrass Region, the Pennsylvania Dutch country, and other great farming regions.

Continuing the plan of a team representing agriculture and industry, Ralph Johnson and Frank Boyd were in the midst of a campaign in which meetings were scheduled day and night when a delegation from Hopkins County, Texas,

# A SPECIAL INTERPRETATION OF GEORGIA'S INTENSIFIED SOIL FERTILITY PROGRAM



Bill Bradford, Manager of radio station KSST, Sulphur Springs, Texas, has helped spread the story of the Georgia program across the nation.

called on them seeking information about the program. After relating to them how it was organized and the results which had been achieved, it was suggested that they accompany them to the meeting which was scheduled for that night. It so happened that it was to be held in Habersham County, and had been organized by Sandy Gunnels, the county agent, and his co-workers. It was a typical "kick-off" meeting to launch the intensive soil fertility campaign in another county.

The Texas group was composed of Jack Barton, state extension agronomist; Brooks Emmons, county agent; Estes Hargraves, farmer-rancher; Dale Campbell, fertilizer industry representative; and Bill Bradford, radio station owner and operator of Sulphur Springs.

They went to the meeting and heard Ralph Johnson tell the story of what the soil fertility program had done toward raising crop yields and increasing incomes. Frank Boyd told them how. It was simple and direct, and made readily understandable by the use of illustrations and language familiar to everyone.

As the story unfolded Bill Bradford listened intently and kept his tape recorder going steadily, being careful not to miss a word. He could hardly wait to get back to his radio station to put it on the air, in full, just as recorded. Business and agricultural leaders called and wrote asking for more information, and radio stations throughout the county asked for copies. In a matter of days, the message had been broadcast and had appeared in print in many sections of the country. Requests for it "live" from the lips of the crusading agronomist, "Preacher Frank" as he had become known, poured in from many states.

What do you mean by a soil fertility program? Frank Boyd says that it means not only having your soil tested, and following other recommended crop production practices, but that it touches every farm production enterprise directly or indirectly. Maintaining and increasing the level of the fertility of our soils and following recommended practices are the first essentials in aiming at higher yields and more efficient production, he says.

The program was conceived in Georgia, but now, thanks to the effort and determination of many supporters like Bill Bradford, it has spread throughout the land, far . . .

Far from the hills of Habersham . . .

THE END

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BOOK BY CONVENIENT COUPON ON PAGE 26





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# A KIT-OF-THREE FOR YOUR SOIL FERTILITY WORK

### **ON PLANT FOOD REMOVAL**

This gives how much plant food your crops remove from the soil, a composite picture of the N, P, K contained in good yields of 28 important crops citing large removals by legumes, plant food sources, and the trend toward higher analysis plant foods.

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This clearly explains what a fertilizer is, why it is important, what the different types are, the difference between material and grade and ratio, a look at specialty materials, how they should be used.

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This gives the steps to good soil samples—the advice, what tools, how to divide field, depth by auger or spade, proper mixing, labeling, diagramming field, information, proper packing, etc.

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Shows typical potash hunger signs in field crops, vegetables, fruits, forage crops, and some ornamentals. Such common potash hunger signs as poor growth, leaf scorch, poor root development, weak and lodged plants, poor seed and fruit quality. Can supplement local slides.

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Assembled in cooperation with the National Soybean Crop Improvement Council. Covers nutrition, including liming, direct fertilization, rotational fertilization, and placement, as well as other factors in production. Tells a rather complete story—and can readily supplement local slides.

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WE SHALL attempt to predict the direction we will take in a few areas of livestock and feed production in the next ten years.

Needless to say, many of these predictions may never happen because factors beyond the control of man may alter their course. However, we hope that this may serve to stimulate thought and be of some guidance among those engaged in farming.

The advances that will be made in the field of animal and crop production in the next decade will be unparalleled in the history of the farming industry. The only sure thing about predicting the future is that there will be a change. Science and technology will replace the "art" and

# FEED AND LIVESTOCK PRODUCTION IN THE FUTURE . . .

By W. M. Beeson Purdue University

"eye" of both livestock and crop production.

Soil and crops are the fundamental bases of all livestock production and human life. Only a very small percentage of our basic crops such as corn, soybeans, etc., go directly for human food. Fifty to 60 per cent of gross farm income in the United States is from livestock and livestock products.

We are a nation of livestock product eaters—of meat, milk, and eggs and we will continue to be that way forever unless we become reckless and overpopulate the North American Continent.

The corn plant is the "King" and "Prime Minister" of all crops produced in the Midwest. More beef and milk can be produced from an acre of corn than any other known crop in the Midwest. There will be a definite trend to harvesting the whole corn plant. Of particular importance here is the need for research information on the fertility requirements with this practice.

Repeatedly at Purdue and throughout the Cornbelt, cattle feeders can produce a ton of beef from an acre of corn silage, but the best we have been able to do with grass and legumes is about 500 pounds of beef per acre. Grasses and legumes are complementary to corn and not competitive.

Some of the new innovations in raising livestock that will influence crop production and farming methods are as follows:

### Alfalfa Meal (Dehydrated)

Dehydrated alfalfa meal (17% protein) contains some unknown factor and/or factors that stimulate gain and improves the utilization of feed by cattle on both growing and fattening rations. Part of this is due to oestrogenic activity. Cattle require a minimum of 0.5 lb. of alfalfa meal per head daily, but many feeders are using 1 to 3 pounds of alfalfa meal or pellets to improve their cattle rations.

This discovery has increased and improved the utilization of poor quality roughages in cattle rations. No longer do we have to depend on farmproduced hay of varying quality to furnish sources of unidentified factors for ruminants. Now we can produce and furnish a standard product. Dehydrated pelleted roughages of all types will be more abundant in the future. *Weather will cease to play a part in preserving roughages.* 

### **Harvesting and Storing Feeds**

Eventually we will harvest and immediately store or preserve feeds in the form that they are to be fed to livestock. This will eliminate many of the in-between processes and numerous chores of handling the feed several times before it is fed to the animals.

The best example is the picking of high-moisture corn and directly ensiling it or grinding it into a sealed, oxygen-tight structure which will preserve the feed in a form that is high in nutritive value. Research at Purdue and Iowa has shown that the ensiling of high-moisture ground ear corn (30-32%) for cattle will improve its feed value about 10% on a dry matter equivalent basis as compared to low-moisture ground ear corn. Highmoisture shelled corn has a slightly higher feed value per unit of dry matter than low-moisture shelled corn for fattening cattle. Storing high-moisture shelled corn for swine results in an 8% reduction in feed value, but the daily gain of the hogs is not changed.

One consequence of the utilization of high moisture corn may be the development of the need for new longer season hybrids.

In the next quarter century machinery will be developed whereby we can harvest the corn crop, process it immediately in the field and store it in structures ready for automatic feeding. We will use either picker shellers or picker grinders. No longer will we go through the separate processes of picking, cribbing. shelling and grinding corn before it is fed to animals. Picking corn with high moisture content usually results in a saving of 5 to 7 more bushels of corn per acre, as this amount *is* ordinarily lost by the picker in the field.

Hay making by the baling process will gradually pass out of the picture, and we will have machinery which will dry and pellet hay in the field ready for feeding. Haylage (ensiling 45% moisture hay in an air-tight silo) is being tested in many feed lots and offers a new way of preserving the hay crop in a palatable and nutritious form.

Methods of preserving and storing all types of feed will be improved so that the original food value can be retained without deterioration. We are just on the brink of discovering antimold and anti-fungal compounds for the preservation of high-moisture grains and silage. Also, antibiotics and other substances are being developed which will control bacterial fermentation so that only the most favorable acids will be produced in silage.

### Pelleting

Research reports from several experiment stations have shown that the pelleting of poor grade havs and other roughages will increase the consumption by ruminants, improve the daily gain and feed efficiency. Tests at Illinois have shown that beef calves will gain 1.73 lbs. daily on a pelleted hay and only 0.63 lb. on the same hay baled or chopped. Two hundred twenty pounds of beef were made from a ton of pelleted hay and 115 pounds of beef from a ton of the same hav baled. Pelleting high-energy diets has not improved the daily gain of cattle but, in some instances, has increased the feed efficiency about 14 per cent.

A recent test at Purdue has shown that the pelleting of a diet containing 70% corn cobs and 30% concentrate improved the daily gain from 1.57 to 1.98 pounds, and the steers on the pelleted rations required 14% less feed per unit of gain. Similar diets containing 20-45% corn cobs showed no improvement in daily gain or feed efficiency.

There is a great interest in the pelleting of all types of roughages such as sorghum silage, corn silage, etc. and many large feed lots will adapt this method for their cattle feeding operations. Pelleting has gained in popularity in the formation of supplements for beef cattle. Cattle will usually eat pelleted feed much quicker than they will meal, and it also permits the simultaneous feeding of nutrients in a condensed form.

Although the fundamental reason is not known, it appears that diets high in fiber are more adapted to pelleting than those high in energy. Condensing a bulky feed like hay allows the animal to consume more, permitting a larger intake of nutrients above maintenance requirements.

### No Roughage Needed?

There is a possibility that the

Dr. W. M. Beeson is in charge of Animal Nutrition research with swine, beef cattle, and sheep and Assistant Head of Animal Science Department of Purdue University. He is Chairman of the Subcommittee on Swine Nutrition of the National Research Council.



roughage requirement may be lowered provided the diet is well balanced. Specific nutrients are partially replacing the factors formerly supplied by high quality roughages. For rapid fattening we can feed cattle essentially on concentrates.

Recent fundamental discoveries have shown that one of the basic functions of roughage is to increase saliva flow which is rich in bicarbonates. Experimental cattle and sheep are being fattened now by substituting a certain per cent of sodium and potassium bicarbonate for roughage. Maybe the sodium bicarbonate days will return.

Even without bicarbonate, cattle are being fattened on barley and a well-balanced supplement. A steer requires a minimum of 2 to 3 pounds of roughage (fiber) per head daily. Roughages are still a very important phase of cattle feeding. But at certain periods, we may want to speed up the rate of fattening after the roughage phase.

### Vitamin A

Vitamin A fortification needs more attention in cattle feeding. Old corn, poor quality hays, and overheated silages and grains are low in carotene (pro-vitamin A). Small grains such as oats, wheat, barley and milo contain no carotene (pro-vitamin A). Cattle require about 10,000 I.U. of synthetic vitamin A per day in addition to carotene from natural feedstuffs.

Something has changed the utiliza-

tion of carotene by beef cattle. Purdue produced a vitamin A deficiency in cattle by self-feeding them on 8 parts of ground ear corn and 1 part of soybean meal. These cattle gained poorly (1.62 lb. daily) and lost \$9.38 per head, while similar cattle fed Supplement A which is fortified with vitamin A made a gain of 2.44 pounds daily and a profit of \$23.36 per head. Part of this difference in profit and loss was due to vitamin A.

Neumann (Illinois 1960) has reported an occurrence of vitamin A deficiency in beef cattle on rations that are more than adequate in carotene, the precursor of vitamin A. In basic studies Pfander of Missouri (1960) has made similar observations. The change in the status of carotene conversion to vitamin A in beef cattle is intriguing phenomenon. High an nitrogen fertilization of crops has resulted in an increase in nitrates and nitrites in our crops. This partially interferes with the conversion of carotene to vitamin A in the animal.

### Conclusion

New discoveries in the production of crops and livestock are limited only by the ingenuity and brainpower of man. Research is the only way to permanent progress, and the application of new knowledge paves the road to more efficient production. THE END

### **KIT-OF-THREE**

FOR YOUR

SOIL FERTILITY

WORK

ORDER ON PAGE 19

## For Reliable Soil Testing Apparatus there is no substitute for LaMOTTE

LaMotte Soil Testing Service is the direct result of 30 years of extensive cooperative research. As a result, all LaMotte methods are approved procedures, field tested and checked for accuracy in actual plant studies. These methods are flexible and are capable of application to all types of soil, with proper interpretation to compensate for any special local soil conditions.

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# FROM A SMALL PACKET FROM A MISSIONARY

A BUNDANT proof that agricultural research is not an expenditure but an investment was the coming of Korean lespedeza to help our livestock farmers through the great depression of the 1930's.

From a small packet of seed sent to the USDA by an American medical missionary at the Korean capital, the Missouri University Department of Field Crops received a small sample in 1922. This was planted in small plots on the present site of the University Medical Center.

After five years of increase and selection, the Experiment Station was able to send out 5 pounds of this seed to each of 30 farmers in as many areas of the state. Under farm conditions, the new crop flourished, reseeding itself annually in its new environment.

By 1939 Korean lespedeza had become a prized crop on five million acres of Missouri farmland, and by 1955 it had covered more than 10 million acres. That same year an analysis of official crop reports indicated that this new crop in 21 years had added no less than \$1,250,000,000 to Missouri farm income.

Continued experiments developed one-year combinations of small grain and lespedeza—both crops pastured out. With moderate use of fertilizer this practice produced 250 to 300 pounds of beef per acre from 6 months of continuous grazing without supplementary feed.

Within a short time, this rotation and similar combinations of legumes and small grain and grasses were used successfully by more than half the farmers of the state.

Missouri's earlier "supplementary pasture" plan was succeeded by the "all-year pasture" system over a large number of counties. And by 1951 Missouri had gained top rank among nine north central states in total acreage of legumes on crop land.

> From The Announcer— University of Missouri

# **THREE NEW MOVIES**

### IN COLOR AND SOUND

# GROWING ALFALFA SUCCESSFULLY 16MM, 975 FEET, 25 MINUTES RUNNING TIME

Showing the value and uses of alfalfa... soil and nutrient requirements ... cultural methods ... latest management techniques ... with special timelapse photography to show how the plant feeds and grows.

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### EXACT DUPLICATIONS TAKEN FROM THE MASTER MOVIE, "GROWING ALFALFA SUCCESSFULLY"

### ALFALFA, QUEEN OF FORAGES

### 16MM, 368 FEET, 10 MINUTES RUNNING TIME

Showing its versatility of usage . . . its palatability and high nutrition . . . its long life . . . its soil building qualities . . . its high producing record.

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Showing the importance of soil testing and liming, as well as when to lime . . . what phosphate does to make vigorous alfalfa growth . . . how research is finding inadequate K fertilization major cause of alfalfa failure . . . and importance of boron on alfalfa.

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September-October 1960

# It's Weigh and Compare Time!



This fall, thousands of corn growers are finding which hybrids yield most by picking wagonload checks from equal areas.

### How Weigh and Compare Tests Are Made

Farmers plant Funk's G-Hybrids alongside other hybrids. At harvest, equal areas of each hybrid are picked with a compicker, weighed over the scales, moisture tests made and actual yields determined.

### The Results Are Predictable

Based on five years of farmer-reported Weigh and Compare tests, Funk's G-Hybrids have produced the highest yield in over 75 percent of the fields . . . have produced an average of 7.2 bushels more corn per acre which is equal to an EXTRA load of corn for each bushel of Funk's-G planted.



Consistently Good Year after Year!

THE PRODUCERS OF FUNK'S G-HYBRIDS "The prosperity of every man depends upon the prosperity of the average man. To develop a great civilization, we must develop the intelligence and efficiency of our average population through universal education. All the material resources—minerals, soil, water power, climate, forests, etc.—are valuable or worthless in proportion to the efficiency, intelligence, energy, and character of the average citizen.

Clarence Poe, 1900-1920

"When (Clarence) Poe first took over the (Progressive Farmer) magazine, farmers 'believed more in the moon than they did in the agricultural colleges." Poe spurred the fight to change all that."

Time Magazine

"If a list were drawn up of the half-dozen men who have done most for the South since 1900, it would have to include Dr. Clarence Poe, editor and publisher of The Progressive Farmer."

Richmond Times-Dispatch



### "The hope of the agricultural South lies in changing from this system of plant production only to a well-balanced system of two-armed farming—plant production plus animal production which will provide income producing work 12 months in the year instead of 6 months."

Clarence Poe, 1920-1940

# ONE CLEAR VOICE

On all sides today we hear the voice of the farmer's plight . . . the agony of the unsolved "Farm 'Problem" . . . even suave voices from high atop city editorial towers . . . painting the farmer as a greedy parasite gnawing hard at mama government's pantry door . . . sometimes belittling the dedicated efforts of official agriculture to meet the problem.

Perhaps a key is in a comment a member of Franklin Roosevelt's cabinet once made to Clarence Poe, senior editor and board chairman of *The Progressive Farmer* magazine:

"Dr. Poe, I think it is a good time now to re-think and restate our fundamental positions if we are to withstand the onslaughts of thoughtless persons who think we are going to find our way back to normalcy merely by appealing to the selfish instincts of people."

At the time—two and a half decades ago —Editor Poe had then been struggling with the plight of the farmer for more than three decades. Today he still struggles with it—five working days a week at his office "Soil fertility is the foundation of successful farming. That foundation in the South, as shown by the average yields of practically all crops, is weak. Efficient production methods, efficient marketing, and economic justice for agriculture will fail to develop and maintain desirable standards of rural life, unless we strengthen the basic foundation of all successful agriculture—rich and fertile soils."

Clarence Poe, 1940-1960

THE STORY OF AN AMAZING CHAMPION OF RURAL LIFE: CLARENCE POE

### **By Santford Martin**

Washington, D. C.

and often during weekends in his great greystone home overlooking Longview Gardens three miles east of the North Carolina state capital.

On February 10, 1961 his magazine, *The Progressive Farmer*, will celebrate its 75th anniversary. Exactly one month earlier, on January 10, Clarence Poe will be 80 years old, chief editor since 1899 and something of an institution in his own right, certainly as much so as Greeley of the Tribune and White of the Emporia Gazette.

Looking at the plight of today's farmer, Clarence Poe does not have *the* answer. But today's desperately searching specialists —many not born when this man started advocating "demonstration agents" in each county and "two-arm farming" instead of one-crop farming—might well find in his amazing life and crusades certain principles of changeless justice. And this is all that most farmers honestly seek, anyway.

For that reason, I am honored to tell this story of Clarence Poe. A story of one clear voice, a phenomenal champion of rural civilization who lifted himself from "I do not believe in 'socialized medicine' but I do believe our democracy will never be complete until we recognize the inalienable equal right of every person, rich or poor, high or low, urban or rural, white or black to adequate medical and hospital care whenever and wherever he makes the same grim battle against ever-menacing Death which sooner or later we must all make."

Clarence Poe, 1960-

extreme poverty of the late 19th century, with little formal education beyond the type Abraham Lincoln received, to a position of influence with hundreds of thousands of his fellow citizens, including four Presidents of the United States.

In fact, he has talked and advised with such men as Theodore Roosevelt, William Howard Taft, Woodrow Wilson, Calvin Coolidge, Herbert Hoover, Franklin Roosevelt, and Harry Truman.

I mention these facts merely to establish the stature of the man, who, to the casual observer outside the South, is a modest, almost shy individual.

### Back To A Rocky Soil

To understand why Clarence Poe has waged a relentless 60-year war on archaic agriculture and vicious credit systems . . . against feeble, inefficient educational programs and crudely inadequate medical facilities . . . against a "fire insurance religion" and contemptuous neglect of the poor . . . you must go with me on a brief journey back to lower Chatham County, North Carolina.

The year is 1895. The county is one of the poorest regions in one of the poorest states. Clarence Poe is 14 years old, born only 16 years after Appomattox. An impressionable teen-ager, modern psychologists might say. He is chopping cotton. It is a hot morning in June. The soil is rocky. He stops at the end of a long row to lean briefly on his hoe.

It is almost noon. Fifty miles away commencement exercises are well underway at the State University which two first cousins, one from an adjoining farm, had had the privilege of attending.

He looks back at his father a moment, William Baxter Poe, 56, former private of Company G, 48th North Carolina Regiment in Robert E. Lee's Army, son of Joseph M. Poe, a small Chatham County farmer who reared his boys "to eat no idle bread" and to work in the fields with the few Negro slaves on their place before the War Between the States.

Young Clarence stares intently at the back of his father bent to the plow . . . wondering why all this sweat for cotton bringing only 5 or 6 cents a pound for lint, meaning 2 and 3 cents for each pound as picked with the seed!

He starts down another row. Soon the chop, chop, chop of his hoe in the rocky row begins to sing in Clarence Poe's teenage ears—and mind. Memories, impressions, statements, the laughter and tears of almost a decade flood his bright young mind.

His mother: "Clarence, you can only hope to escape the poverty and hardship of rural life by getting an education. But high school academies seem out of the question for you. What you can't get from 11 weeks at the one-room schoolhouse and a little added subscription school and some winter sessions over at your uncle's place, you must get for yourself."

His father: "Clarence, I share your mother's ambition for you—hard work and hard study. Just make the best of every opportunity."

His Uncle Steve: "Clarence, if you will get in there and pick the left-over cotton in that field, I will give you a year's subscription to *The Progressive Farmer*."

Chop, chop, chop—"Clarence, although the college your more fortunate cousins have had is out of the question for you, Lincoln and other great men have educated themselves anyhow. They did it by self-directed study and reading the best books. From cousins attending Chapel Hill and Trinity (now Duke), you have inherited some excellent books on higher math, history, and languages, as well as biographies . . . plus some good magazines coming in, such as *The Youth's Companion* which you like so much and *The Progressive Farmer.* Read! Read! Read! Your mother is a fine teacher, a lady of culture, a lover of poetry who can guide your reading, having herself won a gold medal for scholarship at the same academy Walter Hines Page attended."

During his tenth year, Poe's family moved to the Piedmont Carolina city of Greensboro, where the young farm lad learned how city pupils could laugh at his "old-fashioned blueback speller," but later applauded his matching them. In less than a year, with their town venture proving unprofitable, the Poes returned to the old farm in lower Chatham to renew the struggle to pay off a mortgage that disastrous crop failure had piled on them.

When Poe's uncle ordered a year's subscription to *The Progressive Farmer* for him, the boy was 12 years old nearly three quarters of a century ago. He read every word in every issue, usually by kerosene lamp and pineknot at night, after dropping corn or plowing cotton all day.

And through that reading—in addition to listening to his parents and kinsmen talk—he learned that much of the drudgery which his mother and father and sister were forced to endure had something to do with elastic-conscience supply merchants growing rich taking mortgages on projected crops, often taking mortgages also on the land on which the crop was to be grown, sometimes on all the farmers' lands and chattels, with "time price" credit charges running more than 20% above cash price.

It had something to do with these merchants themselves being subjected to harsh terms by Northern wholesale dealers. Names like "Wall Street" and "Cotton Exchange" rolled around in the young Poe mind with much talk of trusts, monopolies, high interest and freight rates, and other "evils" Colonel L. L. Polk and the Farmers' Alliance were fighting. It had something to do with farmers like Bill Poe, his dad, trying to beat the system by plowing and planting more and more land to cotton, doubling their cotton production between 1879 and 1898 until they were glutting the market with so much cotton that its price fell to 5 cents a pound and less by 1898.

A man never got ahead, never got off the treadmill. He borrowed, planted, made his crop, and ended up ready to borrow, plant, and harvest again and again. Especially so when a disastrous drought nearly ruined farmers in Chatham, as it did one year Poe was a boy.

Lying in front of the open fire on winter nights, Clarence Poe would read—and think. He would also write. He started writing early— "school compositions," brief essays on "current problems," some stories and verses his mother and teachers would praise.

One evening he lay there doodling on tablet paper, restless with himself and his future. Sixty-four years later I was able to look over a 15-year-old plowboy's shoulder before an open fire one chilly November night in 1896 and read from the actual tablet what he then scribbled:

"Napoleon was Emperor of France at 35. Fulton was 28 when he launched the first steamboat. Jefferson was 33 when he drafted the Declaration of Independence. William Pitt was Prime Minister at 27. Daniel Webster was America's leading lawyer at 36. Bryant wrote his Thanatopsis at 18. Clarence Poe at 15 was \_\_\_\_\_??!! Great Scott!!"

Three months later he pulled out another tablet and started writing on the need for more public education. A state-wide election was before the people of his native state. The issue was one of supplying local taxes for public schools. Out of 3,300 districts, the issued was approved in less than 100 districts.

Poe, who had just turned 16, wrote

a strong article for tax-supported education for every child of every citizen in the state regardless of his "status, color, or creed."

He mailed the article to *The Progressive Farmer* editor, attaching to it a little note saying he had ambitions to be an editor, too, someday.

In a few days the business manager replied, explaining that he and the editor "happened to be taking on other jobs" to help meet ends and so needed "help of some kind." He invited Poe to come to Raleigh so he might meet the Chatham County boy and consider him for the job.

### Little Could He Dream

The teen-age Poe looked with big eyes at that letter, carrying it crumpled in his pocket to the field where suddenly the whole world seemed like a rainbow covered with snowy cotton so delightful to hoe!

Even so, little could the ambitious 16-year-old farm boy realize-even dream-that in less than 16 more years he would consult with two Presidents of the United States-would confer with a former Premier of Japan, Count Okuma in Tokyo-would enjoy a meal with the ranking member of the Emperor's cabinet in China, Yan Shao-vi -would meet a man named Llovd-George in England-would marry the daughter of one of North Carolina's greatest governors, Alice Aycockwould turn down two tempting offers to edit national magazines out of New York City (one coming from the son of Sidney Lanier)-would be named Chairman of the Board of Trustees of his state agricultural college-would be endorsed for U. S. Secretary of Agriculture by Northern and Southern press alike.

Little could he dream that in less than 32 years the magazine he bought after working on it only 5 years would be reaching nearly a million rural families through offices in four different states—that he would be the author of five major books, two of them

award-winners based on travels in Europe and the Orient-that he would be credited (with J. Y. Joyner) as the man most responsible for the 6-months school term in his state-that he would be credited by his World War I Governor Bickett as the man most responsible for the new state primary election law-that he would be the author of a resolution to establish America's first State Division of Markets, later followed by other states in the North and Midwest-that he would be cited by the Secretary of Agriculture as author of the recommendation causing the USDA to launch the now famous investigation of needs of farm women. forerunner of the National Home Demonstration Program-that he would be wearing (of all things) honorary doctorate degrees (LL.D., Lit.D., D.Sc., etc.) from five universities and colleges of the nation.

Little could he dream that in less than 64 years he would be completing one of the longest terms of service ever rendered on the Executive Committee of the University of North Carolina Board of Trustees-that a New York Dutchman named Franklin Roosevelt would send his name before the U.S. Senate for approval as a member of the National Board of Vocational Education-that a Missouri farmer named Harry Truman would ask him to serve on the International Development Advisory Board headed by Nelson A. Rockefellerthat he would be asked to serve on the Commission on Hospital Care in U. S. with former President the Hoover, the president of Vassar College, the top vice president of General Motors, the Dean of Columbia University's College of Physicians and Surgeons, and the vice president of the American Federation of Laborthat a candidate for vice president would present one of his editorials to the United States Congress-that onethird of the nation's state governors would request him to draft his concept of a balanced prosperity for their

region—that he would be serving with 100 eminent Americans as a Director of the Hall of Fame of Great Americans of New York University.

The boy chopped cotton with glee the day before he left to join *The Progressive Farmer*. When the morning dawned, he was already in his \$2.75 suit, ready for his first train ride to Raleigh.

#### With High-Water Pants

He hit town with pants high above the ankles, so naive that the second day he was at work he carried a couple of letters out to mail for his boss and headed for the fire alarm box, not sufficiently acquainted with the difference. His boss had said the mail box was on the corner. It was—a few feet from the fire alarm signal!

But he learned and rapidly—so rapidly, in fact, that in less than 10 years Teddy Roosevelt was asking for him at a reception in the capitol building honoring the President of the United States. But that's getting ahead of my story.

The first day on the job he was asked to write an editorial on the subject, "Be Systematic," followed by a session in subscription entering.

Since Editor Ramsey and the business manager both were taking on state jobs, Poe soon found himself carrying most of the editorial load, which he mixed with voluminous reading at the State Library. He read nearly all the greatest English and American classics and translations on their shelves in two years.

At 18, he was named editor of *The Progressive Farmer* and three years later, just after his 21st birthday, purchased the magazine from J. W. Denmark through a company composed of himself, Dr. B. W. Kilgore, J. W. Bailey (later U. S. Senator), Prof. C. W. Burkett, and T. B. Parker.

At the time, *The Progressive Farmer* was a shaky 8-page weekly, with physical assets of less than \$1,000 and 5,000 subscribers, many of them not

paid up and dissatisfied with the paper's over-emphasis on politics from which Poe had started weaning it before he became the 18-year-old editor.

During his first decade of publishing *The Progressive Farmer* (1902-1912), Poe did two important things in addition to editing the journal: published articles widely in the leading national magazines of that day and traveled throughout the U. S., to Europe twice, and around the world via Asia once.

### An Early Spokesman

During his 21st year, the young editor was becoming something of a spokesman for the South in major national magazines. His article, "Lynching: A Southern View" appearing in *The Atlantic Monthly*, impressed President Theodore Roosevelt so much that he wrote Poe and at a reception in the N. C. Senate Chamber singled out Poe for a long conversation and suggestions on race relations.

In addition to *The Atlantic Monthly*, other journals featuring his articles were *North American Review*, *The Outlook*, *Review of Reviews*, and *The World's Work*, all top ranking magazines of their day.

The articles ranged in subject from "Suffrage Restriction in the South" and "Farmer Studies for Farmer Children" to "What Is Justice Between White Man and Black" and "The Agricultural Revolution."

Newspapers and farm journals from many parts of the nation reported on the articles, on how young Poe was to be getting articles accepted by "the leading periodicals of the nation," calling them "scholarly", "entertaining", "practical".

It was a day of ill-tempered flings at the South by some widely read Northern writers—in fact, such extreme anti-southern articles that Teddy Roosevelt had exploded to the young editor about one such writer, "The answer to that is, Don't be a damn fool!"

Apparently some of the Ivy-Leaguetrained authors of the North were having trouble being objective in their interpretations and views of the South. It probably did not calm them any to have some reviewers refer to the informally-educated Chatham County plowboy as a "writer who has the ear of the North as no other Southern writer has it, going into the best, most thoughtful homes."

In that day (before 1910!), the mistake most Southern writers made in replying to temper-ridden jabs at the South was to answer in kind, boiling over themselves and dulling the edge of their argument.

Clarence Poe never returned anger with anger. As *The New York Times* early said, "No man in the North can find the least offense in Clarence Poe's fine defense of the southern spirit and attitude. He asserts and proves that the South, so far from being intolerant and bigoted, is the most broadly national section of America."

These views are mentioned only to establish the national impact the young editor's work was having so soon in his career. Here is a man who was being quoted widely by the national press in the decade *before 1910* and *in the 1950's* was still having his views repeated before the U. S. Congress.

### **An Early Traveler**

Out of his broad travels in Europe and Asia during the first decade with *The Progressive Farmer* grew his three most important books—A Southerner in Europe, Where Half the World Is Waking Up, and How Farmers Cooperate and Double Profits.

Much of his strong views on cooperation and cooperative marketing were gained in the two trips to Europe, especially the tours of Ireland and Denmark. In Ireland he became a lifelong friend of Sir Horace Plunket, one of the founders of the cooperative idea in the world. Plunket later called Poe's book on doubling profits through cooperation "the most important book published on the subject on either side of the Atlantic."

In these travels, he broadened his knowledge greatly. In Denmark he was invited to speak to a country folkschool. He found he was talking their language. Better business. Better farming. Better living. And they were living what he was talking.

He wrote his readers week after week of the conditions he was finding, often contrasting them with the eroded lands, the unpainted run-down farms, the archaic farming methods, the vicious credit systems, the clumsy marketing practices, the drudgery and profitless lives he had so often seen in his native South.

His book on his experiences in Asia -including India, China, Japan, Korea, and the Philippines-grew out of similar columns to his readers from that part of the world. The title he chose for it seems prophetic today-Where Half The World Is Waking Up. It attracted nationwide attention in 1912, receiving lengthy reviews in newspapers from New Orleans to Maine and Sacramento to Atlanta. It was described by one reviewer as "the first travel book on the Orient ever written for farm people."

In a day long before FAO, ICA, or any other world-serving agency was ever dreamed of, Poe was saying:

"When one comes to consider only the sheer economic causes of the difference between Oriental poverty and Occidental plenty, it seems to me impossible to escape the conviction that it is mainly a matter of tools and knowledge, education and machinery. In the Orient every man is producing as little as possible—in the Occident he is producing as much as possible. That is the case in a nutshell."

And then, after predicting impending swift changes in China, the brilliant editor advised, "The importance of bringing about closer commercial relations of the United States and China can hardly be overestimated."

That was in 1912.

He was no Monday-noon club chairman tinkling his glass with a spoon for attention to stutter out tired clichés on sociology. He had circled the globe (*on the ground*) in a day when world travel was uncommon, returning more educated than many ex-farm lads toting around two or three college degrees with hard-earned importance.

And he was telling his readers that America was not the only country on earth—not necessarily always first and that someday she might live to regret the air of superiority exhibited by some white travelers in the East. Heavy medicine for a young man not 15 years out of a lower Chatham County cotton patch.

### With Top Talent

Back home the young editor early showed marked ability to surround himself with top talent. The whole roll cannot be called, of course, but a few names stand out:

Dr. Tait Butler, who had founded the Southern Farm Gazette in Mississippi and had gone on to win national distinction as a USDA scientist and President of the Combined American and Canadian Association of Farmer's Institute Workers. He led in eradicating cattle tick in the South, in bringing TB and brucellosis in cattle under control, and in convincing southern farmers to grow the best pastures needed for a great livestock industry. (Dr. Butler's son, Eugene Butler, is currently president of The Progressive Farmer Company).

Dr. Ben Kilgore, the frail, kindly, tenacious little chemist from Mississippi who became the first Director of Agricultural Extension in North Carolina and led in the development of its Mountain, Piedmont, and Coastal Plains Experiment Station system. (The magazine is owned primarily by the Poe, Butler, and Kilgore families).

J. W. (Will) Bailey, brilliant lawyer and later U. S. Senator, whose office was next door to Poe's and who soon joined in almost daily horseback rides as they discussed all the political and social problems of the day.

After Poe had given free advertising to Wake Forest College for one year as an advance on tuition to attend there, Bailey was the man who advised him he already had the equivalent of a college education and had better stick to editorial work. Poe never collected from the college.

"I still have a year's tuition paid up —whenever I get ready to attend," he says.

The roll must include W. F. Massey, "the cowpea apostle," B. L. Moss, E. E. Miller, more recently W. C. Lassetter, Alexander Nunn, Joe Elliott, T. P. Head, Ed Wilborn, Romaine Smith, Mrs. W. N. Hutt, Sallie Hill, and Lucia Brown.

By 1910, the press all over the South was praising *The Progressive Farmer* editorially, calling it "reading matter calculated to advance farmers along all lines"..."a prudent, cautious, just paper"..."a farm journal along new lines, written by men not trying to fill up columns but to bring modern light to the modern farmer"..."a sound and reliable *farm and family journal.*"

In the first 20 years, Poe and company merged their journal with 14 small farm papers all over the South. usually after learning a paper wanted to sell out. By 1926, Clarence Poe was speaking through his paper to one in every four farm owners in the southern states, to more people than any three state dailies combined, and in the country to a circulation that gave his journal more than comparable rating with the Saturday Evening Post.

### **A Colorful Competitor**

Today *The Progressive Farmer* receives healthy competition from some excellent state-wide journals serving the states it reaches, plus two regional competitors—*Farm Journal* out of Philadelphia and *Farm and Ranch* magazine, published in Nashville, Tenn. by Tom Anderson, the colorful, often provocative, but always stimulating editor.

It is perhaps some credit to southern agriculture that it supports, makes room for, two such voices as Clarence Poe and Tom Anderson. Everything about them seems to be different their writing style, their political, economic, social outlooks—except one thing: their concern for the welfare of the farmer.

While Anderson shoots razor-sharp challenges at big government in defense of rugged individualism in agriculture, Poe tells the farmer he believes in rugged individualism, too, as long as it doesn't cause ragged individuals.

While Anderson beats the drum against "encroaching socialism," Poe tells the farmer he, too, abhors socialism but not social planning through which individual initiative can be retained by economic checks and balances that insure reasonable security for the farm family.

Any careful study of Clarence Poe will reveal that he has always looked upon government not as a profit-making business that must always balance its books and stay in the black, but as the protector and sometimes provider of the people's most fundamental needs.

Their methods are different, their motives perhaps the same, and the South a freedom-loving region for producing and supporting two such diverse voices.

When I mentioned Tom Anderson to Dr. Poe, the veteran editor's eyes crinkled slowly into a sly smile as he revealed his well-known sense of humor.

"You know," he said, "Tom says *The Progressive Farmer* stands for just three things: Co-ops, Christ, and crepe myrtles."

He then laughed heartily and added, even more slyly, "I certainly hope Tom doesn't dislike all three of them."

Poe is a walking reservoir of jokes and amusing, gentle anecdotes about great people, many of them his personal friends. But petty, time-wasting gossip seems to have no part in his life. In all my hours of talking with him, many of them out at his Longview Gardens estate (not a bad place to gossip), not once did he deal in gossip or personalities. I do not believe the man is capable of small talk —or small thoughts.

But he is not immune from pride in his children and his grandchildren. Mrs. Poe—the quiet voice behind the man—will tell you that he has always been happiest entertaining friends in his home and in playing with his children, now with his grandchildren. Dr. Poe himself will admit that he is a perfect example of the adage that "people are fools about their children and damn fools about their grandchildren." I believe he has been both.

#### **Scared Speechless**

The thousands of farm families who have taken *The Progressive Farmer* through the years seem to have great faith in it. And the magazine great faith in them. The reason for this mutual faith is not simply defined. It goes back many decades, perhaps to early 1906, to the night an awkward, stage-frightened young man stood before an auditorium full of "educated people" at what is now Duke University and said:

"The young man in journalism today must have a love for his work and for the people his work serves . . . must have courage . . . must not be a bully but possess the higher type of courage that leads him to do the right unafraid . . . must be a strong man who can turn down advertisements of fake concerns even when it means great financial loss . . . must not allow himself to be controlled by the counting rooms."

That was Clarence Poe's first public speech. He called it, "The Young Man in Journalism." He was scared almost speechless. In fact, two years earlier he had been invited to report to the North Carolina Press Association, had prepared his talk, then sent it in for a friend to read.

But readers who were reading what he had to say through his pen kept insisting that he make a speech somewhere. Once he got through the Duke experience, he told me, he felt a sense of exhilaration that writing had never brought him. The dikes were down. From then on he became a "speaking machine," carrying his "gospel" wherever people wanted to hear him.

And they have heard him! For more than a half century! Through hundreds of speeches. In hundreds of counties of every state in the South, in many other states, even in a little country school of Denmark. Before bodies ranging from the Southern Commercial Congress in Washington, D. C. in 1910 to the National Health Conference in New York City in 1952. In so many country school commencements that he can't count them. Rocking slightly on the balls of his feet, jiggling the change in his pocket all the while.

They have heard him urge Texas newspaper editors:

"You must dignify the farmer . . . we are never going to encourage the right sort of rural civilization until we give more space to the farmer who has the best field of alfalfa and the woman who unselfishly gets the country schoolhouse painted than we give to Mrs. Society Loafer who has given a tango dance or her banker husband who has just returned from New York on business."

They have heard him ease anxious fertilizer manufacturers who early feared Poe's two-arm farming crusade for balanced livestock production would unbalance some of their market:

"The short-sighted fertilizer man may think at first that if the South turns more largely to pastures, livestock, and soil-enriching crops, the profits of the fertilizer man will be reduced. I do not believe so. Instead of depending on selling fertilizer to a one-crop tenant buying his corn, hay, and meat from the West and very often bankrupting himself, the merchant, and the fertilizer salesman through his resultant poverty-instead of all this, the fertilizer man of tomorrow will sell to more prosperous cash customers whose pastures and 'cattle on a thousand hills' are part of a program giving southern farmers profits from livestock, dairying, and poultry as well as from all the Southern-grown cotton, tobacco, and peanuts the world markets will take. Remember: nobody can long prosper unless he has prosperous customers."

They have heard him tell the National Education Association in a Los Angeles convention:

'A school that is to enrich life, whether in town or country, must go beyond the three R's . . . to the three B's mentioned to me one day on the street in Raleigh by your great California-born poet, Edwin Markham, who wrote "The Man with the Hoe." The three B's are Bread, Beauty, and Brotherhood-bread to meet our physical requirements; beauty to meet our need for art and nature, music and drama, romance and poetry, play and recreation, all the amenities that ennoble life; brotherhood to fulfill our spirit of comradeship with our fellows."

### **A Courageous Policy**

The Progressive Farmer has succeeded, the record clearly shows, because it has been more intent upon helping the farmer than in making money out of him. It has never depended on prize offers, clubbing combinations, or catch-penny schemes of any kind to build circulation.

It has rejected thousands of dollars worth of phony stock food advertising, all forms of patent medicine fakirs (such as Dr. Williams' Pink Pills for Pale People), even beer and whiskey ads because of Poe's personal policy. Its rural readers early came to believe its advertisers as fully as they did their loyal champion, Clarence Poe.

The policy paid off, so much so that by the mid-1950's *The Progressive Farmer* was number one in the farm field in advertising (763,887 lines worth some \$5 million in one year), ranking third one year among all monthly magazines, headed only by *Better Homes and Gardens* and *Seventeen*.

A distinctive factor in the magazine's publishing history is its localized edition policy. Poe and staff pioneered the multiple-edition approach now practiced by other regional farm journals, as well as some national magazines.

Growth from an 8-page weekly with 5,000 subscribers to a 100-plus-page monthly with brilliant color covers and nearly a million and a half subscribers has made *The Progressive Farmer* a big business as farm publications go. But it still carries at the foot of its mast: "Serving no master, ruled by no faction, circumscribed by no selfish or narrow policy..."

### The Sheriff Calls

The Progressive Farmer has grown into a valuable piece of property, making Poe a highly solvent man. But it hasn't been easy. The magazine has had to weather three depressions—in 1907, in 1921, and the great one of 1930-34.

In 1930, *The Progressive Farmer* nearly overextended itself by merging with the *Southern Ruralist* of Atlanta, which brought its readership to 1,100,-000. As farm prices fell apart, subscriptions lapsed, advertising died, the Sheriff called on Poe at his commodious home at Longview, and the mildmannered editor moved his family quietly to a small house in town. He rented his \$62,000 home for \$75 a month, often unable to collect all that.

It was a hard blow for a man who had literally pulled himself up by his own muscles (of body and mind) to acquire a 700-acre farm on which he grew nearly all the crops his magazine discussed and the livestock he was forever urging farmers to include in their farming.

By 1933, Lawyer J. M. Broughton, later governor of his state, advised Poe to declare bankruptcy and get a fresh start. But Poe refused to accept voluntary bankruptcy, declaring positively that he would try to pay off every debt. At the time, he could not meet even the interest on the heavy debts hanging over him. One month the entire staff had to go without salaries.

Later Lawyer Broughton found a loophole by which Poe might have escaped or at least delayed \$20,000 of his burdens. He told Poe he had found a large note of \$20,000 on which the holder could not sue for collection because of the frequently-used Statute of Limitations. By some inadvertence Poe had not been asked to write the word "seal" after his signature on the note several years before. Broughton told him he need not do so now, but Poe quickly seized a pen and wrote the needed word, thus putting it on par for collection along with all his other debts.

Broughton, a vote-winning Baptist Sunday School teacher in a state where Baptist plurality is rivaled only by the English sparrow, expressed deep admiration for Poe's decision. Eventually through loans from the two banks in Raleigh and Birmingham that did not fail, Poe survived and went on to become the highly solvent citizen he is today.

And he returned to his Longview Acres to develop it into Longview Gardens, one of the most attractive residential sections in the South, with lakes, carefully retained virgin woods, a golf course, and pleasing homes on one-acre sites—strikingly, intentionally unlike an unpainted, rented house he has never forgotten in lower Chatham County.

### A Two-Arm Song

When you ask Poe what he considers to be his most important contribution to southern agriculture, he invariably refers to his "two-arm farming" campaign—literally decades of editorials and speeches urging proper balance between crops and livestock.

Perhaps the clearest capsule of that theme (indeed that obsession) was expressed by him to a ballroom full of southern agricultural workers in Alabama three decades ago:

"There are, as I have been saying with what Shakespeare would have called 'damnable iteration,' just two great arms for producing agricultural wealth.

"One is plant production, or crops; the other is animal production—livestock, dairying, and poultry. In practically all the richest farming states and countries, plant production and animal production—crops and livestock—are almost equally balanced.

For each \$100 the farmer gets from crops he gets another \$100 from livestock, dairying, and poultry.

"This has not been the case in the South, however—which with a onearmed 'crops only' system of farming has received only about \$20 from animal production or livestock for each \$100 from plant production or crops and this is mainly why Southern farm income has averaged less than the farm income in other regions.

"Nor is there anything magical or hard to understand about this. It is a simple matter of income-producing days, the number of days a year the man on the farm can so occupy himself as to be producing some cash income.

"The remedy for low income Southern farmers can never be found in mere multiplication or diversification of crops, for no crop-diversification alone provides a large enough number of income-producing days from October to April.

"The farmer may so completely diversify his crops that he grows all three of our chief southern cash crops—cotton, tobacco, and peanuts—but all three principally will call for labor and provide income-producing days from

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April to October inclusive with almost no important opportunity for moneymaking in the intervening period.

"The hope of the agricultural South lies in changing from this system of plant production only to a well-balanced system of two-armed farming plant production plus animal production which will provide income producing work 12 months in the year instead of 6 months."

But Clarence Poe's greatest contribution to agriculture embraces far more than a two-arm farming campaign, even as important as this was.

It involves his selfless willingness indeed, his courage—to voice the cause of the average farmer in every crisis that has faced him from 1900 to 1960 and the brilliantly cultured dignity his mind brought to these defenses often in the face of shrewd metropolitan lawyers and financiers.

Maybe some folks serving the farmer, and calling themselves agriculturists, were getting rich. But not the farmer—not the great masses of farmers whom Clarence Poe has always championed.

It would have been easy for him to sit back and edit a colorful, useful farm magazine, giving tips on everything from kitchen arrangements to the lastest milking techniques, contented to believe and hope that increased yields and healthy herds would fulfill the farmer's perennial quest for prosperity.

But Clarence Poe knew too much history and humanity—from prolific reading and hard living—to sit and publish a harmlessly functional journal. He chose to tell the farmer not only to be concerned about his yields and yearlings, but also about the treatment he was getting in the halls of legislation, of commerce, of education. And he told it so convincingly that the farmer soon came to trust him and heed him on many important issues.

The whole panorama of Clarence Poe's unusual life can be accurately pictured in four steps, each linked to the other by his strong conviction of their absolute inseparateness. They are the farmer's right to have:

(1) Sufficient education to do intelligent living.

(2) Efficient methods of producing the crops that support that living.

(3) A square deal at the market place when he goes to sell that crop.

(4) Adequate facilities for maintaining the health of his body and his soul and for multiplying the community happiness of his family and their neighbors.

### **One-Room-Shack Affair**

The year Clarence Poe became editor of *The Progressive Farmer* public education in the rural South was a one-room-shack affair served by pitifully paid-and-prepared teachers working in an atmosphere of considerable doubt about the farmer's need for "schoolhouse" education for his kind of work.

In 1903, Poe began an editorial with an expression of concern that sounds much like an NEA release of 1960, with one exception. He said, "As I read of the opening of the schools and colleges, of the crowded rooms, of the demands for more buildings and all that, I thought of you—you who did not go—you in North Carolina, to the number of 100,000, just one southern state."

The uniqueness of Poe has been his talent—indeed his genius—for carrying the same message in the same language to a University of Tennessee audience, a Washington, D. C. banquet, and a churchyard full of farmers at the foot of a southern mountain. They cheered him when he urged more practical education for the farmer there under the oaks of the Cool Springs Methodist church in 1915:

"We have taught men who were to be farmers Greek roots and Latin roots, and nothing about corn roots and cot-

### BETTER CROPS WITH PLANT FOOD

ton roots. We have spent our time learning about the construction of a 3rd century chariot only to get run over by a 20th century automobile.

"There is just as much culture and character-training in learning how to calculate a fertilizer formula as there is in learning how to calculate latitude and longitude-just as much culture in learning the food values of the various vegetables as there is in learning to parse French sentences . . . The idea that character and culture cannot be found in anything that has to do with sweat and horny hands, with the hiss of steam, the smoke of factories, and smell of plowed ground-this is an inheritance from the dudes, the fops, the perfumed dandies of royal courts that we have no more use for in democratic America than we have for powdered queues, gold snuff boxes, and velvet knee breeches.

"Let us make haste to add that we believe anything that enables one to find joy in his physical and intellectual environment, anything that gives a genuinely inspiring acquaintance with poets and sages and dreamers, is just as valuable in a 'practical' sense as anything that puts money in our pockets."

When President Theodore Roosevelt created his famous Country Life Commission to study farm conditions throughout the nation and recommend to the President measures for improving rural life, Poe accompanied them on much of their southern tour.

On the Commission were Walter Hines Page, Henry Wallace (Henry A's father), Liberty Hyde Bailey, and Gifford Pinchot.

The questions asked by the Commission in their session at Spartanburg, S. C. in 1908 were right down Poe's line. Among them: Are the schools of your neighborhood training boys and girls satisfactorily for life on the farm? Do the farmers in your neighborhood get the returns they reasonably should from the sale of their products? When Editor Poe recalled this experience with me, a gently mischievous twinkle came to his eye as he concluded, "No wonder Teddy Roosevelt's Cape Cod cousins were always in a stew about his 'socialistic tendencies'."

The Country Life Commission was the forerunner of many progressive movements in agriculture.

In his long life Poe has occasionally confronted the attitude by some of his fellow Southerners that their low-income neighbors are poor only because they deserve to be poor. He has never accepted that theory. He has given his life fighting it. And in that fight has reminded his followers that Abraham Lincoln and Andrew Johnson were classical examples of the abilities that can come from the so-called "poor white" class of Southerners—a term once traditional to a region acutely conscious of cousins and classes.

He has never been afraid to ask why certain agricultural areas have some of the world's richest soil but many of the nation's poorest people. And his questions have drawn sparks.

He invariably says proper education is the answer. I agree with Dr. William H. Nichols, president of the Southern Economic Association, who declares in his new book, Southern Tradition and Regional Progress:

"How different might have been the South's present level of economic progress, despite all of its legitimate handicaps, had its leaders heeded Clarence H. Poe's warning in 1910: 'The prosperity of every man depends upon the prosperity of the average man! Every man whose earning power is below par . . . is a burden on the community: he drags down the whole level of life, and every other man in the community is poorer by reason of his inefficiencies, whether he be white man or Negro . . . The law of changeless justice decrees that you must rise or fall, decline or prosper, with your neighbor.""

### The Head-But Not The Egg

Clarence Poe has never regarded a farmer as being just a cotton farmer or a corn farmer or a livestock farmer. Although he has fought vigorously in his journal and in the halls of commerce and government for fair prices on the various commodities farmers produce, his feeling toward them has been one of a neighbor intensely eager for them to take an interest in many of the things that interest him.

Their crops, of course. Their pocketbooks, naturally. But also their homes, the plights or pleasures of their wives and children. Also their schools, their churches, their health, their whole community, its looks, its attitudes, in other words its combined intelligence.

Clarence Poe is a highly cultured man who has managed to share with farmers his culture, his intellectual lights, his book-learning breadth without arousing their traditional resentments toward "eggheads." Poe is certainly no egghead. He has the head, but not the egg. He can match wits with any Ivy Leaguer coming down the pike.

In his fights for the *total* farmer, Poe's magazine has read like a complete library in the life and problems of rural society for more than a half century.

For example, in a 1924 issue would be a Poe-written editorial on "How May A Tenant Boy Become A Landowner," sitting a few inches away from a classical explanation of "The True Story on Teapot Dome," written by the same Poe.

While urging farmers to apply more fertilizer on this year's alfalfa in one column, the journal would open two columns for farmers all over the South to air their views on the kind of tax system they desired. And between columns on health and religion would be some of Poe's ablest, most discriminating editorials on the Bryan-Darrow scrap over monkeys at Dayton, Tennessee, revealing remarkable cour-

age because country people (from whom Poe's support was coming) with their two-and-three-church preachers shouting fire and brimstone at them were supposed to be the backbone of Fundamentalism.

No man now alive in America has done more than Clarence Poe to spread the reports and investigations of men in Agricultural Experiment Stations. He was one of the first to appreciate and publicize the early demonstration work of Seaman Knapp, founder of farm demonstration work, which led to the development of today's Agricultural Extension Service.

While urging "800 per cent greater productive power for the average southerner farmer," Dr. Knapp once said of Poe and his journal:

*"The Progressive Farmer* suits me. It is on the right track with a fast team and a good driver. I have not much time to watch the race, but I will try to be at the finish and do some cheering. Maybe they will let me tie on the ribbons."

Poe read everything Knapp wrote, attended scores of meetings to hear him, caught the zeal of Knapp, became his close friend and a champion of Agricultural Extension.

Poe early introduced the success story, reporting what the more successful farmers of the North and West were doing to improve their methods and results. To explain why the average Southern farmer was making \$500 less than the average Western farmer, he went, saw, and reported that the cause was simple efficiency (something today's experts still urge)—better implements, two-horse power (in earlier days) instead of one, 300 or 400 lbs. of plant food instead of a mere 100 lbs. where needed, etc.

In fact, it has often been said (I found in many documents as far back as 1910) that you could tell a *Progressive Farmer* reader by the looks of his farm, the home, the barn and outhouses, the landscape, the whole atmosphere, in fact.

### Human-After All

Poe did not do it all alone. He could not have. He insists that he was just one of a hard-working team. A staff of keen associates have helped make him what he is today. But no staff could have endowed him with the mind and the heart that he has dedicated to rural life for 62 hard-working years.

Sometimes he has been wrong. On one occasion after he had made up his mind on an important company problem, without properly regarding his associates, they surprised him by expressing their strong displeasure.

"I had thought I had done right," he told me, "but when I got down on my knees that night and sincerely asked to be shown whether I had been right or wrong, I rose to my feet with a clear answer: I had been wrong . . . I should promptly say so and reverse my action . . . I did . . . and this confession of a mistake gave me more satisfaction than having my own way could ever have done.

"Without any wish to be sanctimonious, I would like to say very frankly that I think the habit of prayer —genuine prayer rather than mere recitation—can do more than almost anything else to keep a man from getting on or staying on the wrong road, and it has nothing to do with dogma, creeds, and ritual."

### We'll See, Indeed!

Next to his two-arm farming theme and fight for public education in the country, historians will be hard pressed not to include his support of cooperative marketing among his top three or four contributions to rural life.

He has never forgotten the early autumn afternoon many years ago he stood at the corner of a cotton buyer's platform and watched the hot midday sun pour relentless rays into the sweating, squinting, unknowing eyes of a small one-mule farmer who had just driven up to sell a good pile of his year's labor: "Whatcha got on your wagon, there, man?" the buyer barked.

"Cotton, suh."

"What grade?"

"I don't know."

"What staple?"

"I don't know, suh." "What does it weigh?"

"I don't know."

"What price?"

"I don't know."

TUOITE KHOW.

"Well, pull it up here, we'll see."

We'll see, indeed! And see some did, quite often to the rankest disadvantage and sometimes robbery of the tired, ignorant little man on the wagon seat.

Clarence Poe did not like what he saw. And he went back to his paper to write over and over, year after year:

"You never heard of a merchant saying, 'I want to sell my stock of goods right away, so what will you give me for my calico, ginghams, sheeting, shoes, sugar, etc.? Come in and name your price.'

"Suppose each factory worker went out in the fall, loaded up a few wagons with all the manufactured goods he and his family had produced during the year and 'dumped' his year's crop of manufactured goods on the market, naming no price on it, but simply taking the best offer he could get according to the degree of his ignorance.

"Anybody knows that with such a plan of selling manufactured goods, prices of such goods would be cut all to pieces and profits would disappear. Yet that is the way we have been selling our farm products!"

One of the deadliest attacks he would make on the time-price system was to feature periodically results of southwide surveys conducted by his journal. He would insert blanks on which readers could report to him the difference between cash prices and "time prices" in their localities on standard articles like corn, flour, hay, meal, oats, lard, sugar, etc.

He found that the interest rates farmers were having to pay by buying their supplies on time ranged between 44 and 81%—from 44% in Arkansas to 81% in Mississippi. These percentages were based on the average time period of the loans, which started at a flat 20%.

With convincing indignation, he would lash out in editorials:

"The system becomes a vicious circle, ensnaring the poor and then keeping them poor. It breeds poverty and discourages character.

"For 50 years it has been one of the pitiful sights of the South to see men bearing the honorable name of 'farmers'—a name never supposed to signify (excessive) wealth but always freedom and self-reliance—a common tragedy to see such men cringing before their financial masters in town or city and asking what they should plant and when they should sell and how much they might buy."

He would urge every candidate for a legislature in the South to pledge himself to new laws restricting cropmortgage time prices to 10% above cash prices and requiring written memo of all such purchases be given the buyer for his record.

Although he and his World War I governor got a 10% law through their legislature, it was feebly followed because most tenant farmers were afraid to report any merchant that had overcharged them.

"Real release from this slavery," he contends, "did not come to the Southern farmer until Franklin Roosevelt had the courage to do something about it through the Production Credit Associations."

### Fighting "Governor-Bug"

If you have read this far, it should not be difficult to understand why such a person as Poe was someone's "man for governor" nearly every campaign from 1912 to 1940 in his native state, nor why he was endorsed for U. S. Secretary of Agriculture to two Presidents. The only time he nearly succumbed to the "governor-bug" was in 1940, when hundreds urged him to run. The appeals—especially those from "struggling small farmers"—nearly overcame him. The then-Governor Hoey told him, "I find such strong demand for you that I would urge you to consider." An ex-governor, Cam Morrison, kept telling him repeatedly, "The people want you and you *must* run."

In typical form, Poe told them he believed more in programs than in candidacies and in the process went so far as to suggest a program for "facing and finding the reasons for unjustified poverty in each county and coordinating all agencies in a 4-year program to enrich all people through diversified agriculture, industry, and cultural values."

The program was so practical in its idealism that the Southern Governors Conference meeting in Atlanta had invited Poe to appear before them. They had asked him to draft his idea into a 10-year campaign for the South, which he chose to call "Balanced Prosperity in the South, 1940-50."

America's entry into World War II punctured the campaign, of course, but not before the ambitious editor had had one more chance to swing a wide swath for rural civilization, this time selling it to one-third of the nation's state chief executives.

In all probability he would have been elected governor in a state where farmers swear by him, where many business and industrial interests admire him, because his homefolks by no means have ever considered Clarence Poe a wild-eyed radical or a capital-baiting "farmer-labor" advocate.

In fact, that is one of the enigmas in this phenomenal character. Much of his message through the years has been a highly liberal, extremely progressive philosophy preached to a region known for its conservatism, its love of state-determination, its struggle for individualism. Yet, that region has long acclaimed him with pride.

Perhaps the *Charlotte Observer* of the 1930's explained why:

"Dr. Poe was far ahead of the pack in some of the more plausible and essential phases of modern New Dealism as applied to agriculture.

"He was preaching the doctrine of diversification, of soil-saving, of cooperation and the building of better farm lands long before the young agricultural Napoleons now in Washington had shed their short pants.

"The South is laid under perpetual tribute to this agricultural leader for his quiet, persistent, but effectual labors in behalf of an improved rural outlook and for his prophetic voice lifted through the years in the name of an advanced agriculture."

In other words, Clarence Poe was urging a "new deal" for the farmer long before Franklin Roosevelt fell to his knees, a silver-spooned heir stricken with polio, in order to arise a few years later an unconquerable humanitarian.

The Secretary of Agriculture post in Woodrow Wilson's cabinet might well have gone to Poe if he had not urged a halt to the endorsements in a score of newspapers along the Atlantic Coast from New York to Atlanta in 1912. One reason: his hometown friend and a man he greatly admired, Josephus Daniels, was in line for Secretary of Navy in Wilson's cabinet. Two cabinet members could hardly come from the same state, let alone the same town.

Poe had met and talked at some length with Woodrow Wilson in the Daniels home when the Princeton teacher was running for President. He has never forgotten one of President Wilson's comments to him: "Poe, I want to thank you and all your friends for all you've done for me. But such confidence does not bring me a sense of elation but a sense of sobering responsibility."

After Wilson became President, he

kept in touch with Poe on Southern agricultural problems.

### A Friend Of Mavericks

Clarence Poe has been a noted defender of mavericks, of the characters who say too much or incur the wrath of university trustees or government officials, no matter how liberal, or how conservative for that matter, as long as the convictions expressed are sincere and the character is about to be "crucified" for his views.

During the various red herring hunts and witch baiting in university and government circles of several years ago, Poe was in there pitching with this philosophy:

"I believe our colleges are in ten times more danger from professors who are afraid to tell the truth, from men who are too much afraid for their jobs to speak out about matters of public welfare, than they are from having professors go to the other extreme.

"Our colleges had better risk some radicalism than develop faculties noted for timidity and intellectual dry rot. We must never forget that 'the tempest of democracy is better than the calm of despotism.'—and that every man, having discovered what he conceives to be truth, should be free to utter his soul's thought uncaring, whether it be followed by hissing or applause."

Strong words from a farm editor who never attended a college but who happened to read everything Thomas Jefferson wrote!

### Hooking The Hookworm

Poe's editorial stands often had a chain reaction effect. No one will ever know how many seeds he planted and how many programs today are the results of their successful germination.

More than a half century ago, he featured a series of editorials on the South's death rate compared to the rest of the nation. The figures were staggering, his own state's death rate higher than that of the rest of the nation.

The Mayor of Charleston, S. C. called Poe's editorials "claptrap" and "so much slander of the South." Some city newspapers wondered why he would advertise to the world the South's shortcomings.

By 1909 an organization called the Rockefeller Sanitary Commission, forerunner of the mighty Rockefeller Foundation of today, made a study of hookworm in the South, guided by Dr. C. W. Stiles in the states that would permit the study through their medical officials.

In Poe's state, alone, they found 42% of the 4,380 persons examined infected with the disease which was prevalent in 86% of the counties. Neither the governor, the state agricultural secretary, nor the state's leading newspaper liked the emphasis on hookworm—but that's what it was and what Poe continued to fight.

Walking out of church one Sunday, Poe felt a hand on his arm and turned to find the future Secretary of Navy, Josephus Daniels, smiling and asking, "Clarence, let me feel your pulse to see if you've got hookworm!"

Daniel's paper was the top daily taking strong issue with Poe. Later, in his autobiography, Daniels said he was wrong in his attitude toward hookworm among rural people, crediting Clarence Poe with much of the success of the health fight in the South.

More than three decades later, the remarkable editor was still battling for better rural health, this time as a member of President Truman's Committee on Health Needs of the Nation and as Chairman of his state's new Hospital and Medical Care Commission.

His governor had appointed him chairman of the historic body after he had returned from a memorable appearance before a U. S. Senate Committee on the nation's health needs.

When the Rockefeller Foundation

sent a committee to study the new commission, Poe explained, "We have launched this program to try to meet the serious problem we have of 34 counties out of 100 having no hospitals."

And he might have added that they were just one state in his South.

When the Hill-Burton Hospital Survey Bill was drawn up to help poorer (largely rural) counties of the nation secure hospital facilities, Poe grabbed on to it like a long-lost brother.

The going was not easy. Prominent leaders opposed the idea. Senator Taft of Ohio called the bill for providing hospitalization and health centers in rural areas "unconstitutional and uneconomic."

Editor Poe replied, "Well, Senator, in North Carolina the deaths from childbirth last year (1944) were only 15% less than in New York State and N. C. has 3½ million people compared to 13 million in New York. And just the other day I saw 53 young men leave for the Army and 35 return after being rejected as physically unfit.

"Now if our people in the South are healthier, they can buy more tires made in your state of Ohio and more automobiles made in Michigan. I don't look at it so much as an expenditure as an investment. Dead men don't buy automobiles, Senator."

Called to Washington by Senator Lister Hill to support the Hill-Burton Act with his vast knowledge of southern rural life, Poe held a large Senate committee room quietly in the palm of his hand as he recalled with eloquent poignancy the afternoon his mother took him as a 10-year-old boy across a hill behind their farmhouse to a "family plot."

He told the committee he would never forget the ages and causes in that plot: a 15-year-old cousin, a beautiful, bright girl, dead from diarrhea; a brilliant male cousin, just starting a promising law career, dead at 27 from typhoid fever; an uncle dead at 32 from the same cause; several cousins dead from diphtheria; a young aunt from childbirth.

He hesitated a minute, then said, "Gentlemen, the diseases are not the same today but in many areas the urgent need for adequate care is the same—and people die needlessly."

Then Poe stated his medical creed which he has since repeated in many places—high and low:

"Our democracy will never be complete until every person, rich or poor, high or low, urban or rural, white or black, has an equal right to adequate hospital and medical care whenever and wherever he makes the same grim battle against ever-menacing Death which sooner or later we must all make."

Then he suggested a program based on three principles: "The family that can pay its way should do so . . . the family that can partly pay its way should pay this, with government and philanthropy providing the remainder . . . whatever family poverty, illness, or misfortune has left honestly incapable of paying anything will nevertheless be helped by government and philanthropy to an equal chance with the rest of us."

### In The Fitful Thirties

Few voices were more active than Poe's in the great struggle to help farmers survive the fitful thirties. Multiple farm groups were forever urging him to serve as chairman of some emergency committee to go to Washington, to plead their case before endless Congressional Committees, USDA boards, and often at the White House itself—which he always did!

In 1940, when farm agencies in nine Southern states asked him to help voice their cause for lower freight rates on livestock shipments in the South, he brought to the Atlanta hearing an overwhelming array of materials, pamphlets, figures to show how he thought the livestock freight rates were "contributing to unbalanced agriculture in the South."

His testimony and the detailed cross-examination railroad attorneys from Chicago threw at him consumed almost a whole day.

The man Poe does not look too formidable—in fact, his rather quiet, scholarly manner is disarming as he moves about shaking hands and sharing jokes. But when he gets on a stand—or a pen in his hand—to talk for the farmer, brother, move over!

When Examiners Worthington and Haden of Washington opened the hearings that morning, Poe's pet refrain started flowing:

"If the South is to have prosperity, we must have a two-arm agricultural system—plants and livestock—with as much income from one as from the other. Now we have only the plant system.

"There are fewer livestock raised in the South today (1940) than there were 60 years ago, although our population has nearly tripled.

"In 1880 the nine southern states represented here today produced 10,-712,000 hogs and in 1940 only 9,912,-000 hogs. In 1880 there were 3,984,-000 sheep and in 1940 just 2,236,000. From 1880 to 1940, cattle increased only from 6,630,000 to 7,697,000 head —or just 1,067,000 head for three times the population of 1880.

"These southern states should be given equal opportunity to revive livestock raising. Our concentration on cash crops, such as cotton and tobacco, to the exclusion of livestock has resulted in soil and human erosion detrimental to the entire nation because it has lowered our buying power!"

He then turned directly to the railroad lawyers: "Gentlemen, with rates equal to other sections—not lower, not higher, but equal—you will put incentive and buying power into the hands of the southern farmer that will not only benefit the South and the rest of the nation—but you most of all."

Calling the farm editor's testimony "rank propaganda," the metropolitan attorneys frequently injected bitter protest to Poe's statements, urging the Board to strike them from the record.

But the Board retained them as one more step toward fairer freight rates and a real livestock industry for the southern farmer.

### Facing A Dinosaur

I asked him if he had ever been intimidated because of his progressive, sometimes militant views on the rights and conditions of the little farmer, the tenants, the folks who possess little of the world's goods and even less influence. He said, yes, he had.

It is a matter of record that Poe has spent much of his time urging the "landed gentry" of the South, the people of property and means, in other words the people in control, not to hold down their "lesser neighbor" but to lift him—better still, give him the chance to lift himself.

The haves and have nots, of course, are not limited to the South. So Clarence Poe was not surprised one morning when his advertising manager came in, much worried, with the message that one of the top officials of a huge manufacturing firm—which was also a huge *Progressive Farmer* advertiser—was very upset over the way Poe was supporting Roosevelt's New Deal which, as Poe put it, "was going all out to help the ill-housed, ill-clad, ill-fed one-third of the nation's people."

The advertising manager urged Poe to visit the man. So on a speaking trip he had to make to Indianapolis anyway, the editor went on up to Detroit.

He told me, "When I walked into the executive's office, I knew immediately that I was in the presence of one of the worshippers of power. He told me he believed in the law of the jungle.

"The thing that had chagrined him most was my editorial calling for a \$100,000,000 Federal fund to be redistributed to the states for public schools.

"I had been pounding pretty hard for help for rural schools, old age pensions, and unemployment insurance.

"He said I was dead wrong—in fact, must be a socialist. I told him, on the contrary, I was myself a businessman, the president of two corporations that I wanted to see prosper along with his business and all properly conducted businesses. I said I thought such a program would be the best safeguard against the dangerous radicalism feared so greatly by many conservative businessmen.

"I told him that I believed America had become a single economic unit and that a lack of training, education, and intelligence in any state was an injury and drawback to the people in all other states.

"Then, on his desk, I noticed a portrait of a fine looking young man—his 13-year-old son. He became somewhat less of a dinosaur as he described his boy to me. I told him of my two sons and a quote on power that I'd given the older one as he left for college. It was from an attorney of the American Tobacco Company I once knew. He could appreciate that, I felt. I have kept that quotation on my desk through the years. It runs about as follows:

"'Power of any sort, whether of wealth or intellect or social position, brings duty—the duty of truth, of fairness, of courtesy, of sanity; a duty to the weak, not to oppress them; to the credulous, not to mislead them; to one's friends, not to flatter or cajole them; to one's enemies, not to malign them; to the rich, not to be a sycophant; to the poor, not to be a demagogue.

"This, I assured him, was the spirit in which I had tried to work."

The Progressive Farmer—for some reason—retained that huge advertis-

ing account (and apparently this great businessman's respect), while its unique editor continued to talk on about social security, medical care for the poor, more funds for country schools, and fairer taxation for small farm-and-homeowners.

### **Caution To FDR**

Although espousing progressive programs, Poe has always urged caution in sudden steps. His advice to Franklin Roosevelt over the Minimum Wage Act under consideration in 1938 is a good example.

He told me, "I explained to the President that sudden application of the principle would be hurtful to the South. I urged the *gradual* raising of wage levels in the South. I told him I thought low wages in the South had had three results: employees becoming lax, employers tolerating laxness, the best workmen going to other sections for higher wages."

Strong opponents of the Roosevelt administration had put out a "hot" ad opposing the Act, which *The Progressive Farmer* accepted and ran.

Poe and the President had not been talking long in FDR's favorite White House room when the farm editor sensed that Roosevelt had read the ad.

He said, "Dr. Poe, the opposition's statement was viciously unfair."

Poe replied, "But, Mr. President, you must understand the message does represent the honest sentiments of many southerners who are afraid this Act will ruin their businesses."

Roosevelt replied, "Clarence, those fellows know better than that! They're selfish. They think they can stir up the people and beat me on this thing. If they want to turn to demagoguery, I can beat them at it and I won't have to wear red galluses to do it."

And he did-without red galluses.

### At Work For Peace

Poe's interest in World Peace has

been a major concern of his for over 40 years. He has not only written to his rural followers about it, he has worked at it.

In February, 1918, William Howard Taft wrote him: "Mr. Poe, I am writing to ask whether you would be willing to accept election to our Executive Committee (League for Peace) . . . and help us familiarize the farm population with the movement for a League of Nations and enlist them in its behalf."

Poe accepted, of course, and serving with him on the committee were Taft, President Lowell of Harvard, Dr. Anna Shaw of New York College, and Dr. Bolton Smith. Forty-one years later Poe told me that one of the greatest disappointments in his life was the treatment Woodrow Wilson's League of Nations dream received at the hands of a "few spiteful but all-powerful senators."

Out of the hundreds of messages Poe has written for world peace, I believe his letter to the United States Congress of April, 1952—which he called "I Appeal to 531 Modern Kings" —will not soon be matched by any farm journalists floating from the "agri-finishing schools" of today.

In it he urged for an underprivileged world what he had long urged for his underprivileged South. He was still talking about the average man. Through Vice Presidential Candidate John Sparkman, the Congress heard this superb appeal from a 72-year-old editor:

"Think of the average man in these underdeveloped areas—a man who can earn only 11 cents a day—must expect to die at 30—and to be hungry and half-sick most of those 30 years. Then let's think of our own vastly greater health, wealth, happiness, and life expectancy and ask ourselves, 'Do we have God's blessings in so much greater degree because we are so much better than these other peoples?' And the answer must be 'No! No!' "Primarily we Americans have our greater blessings not because we are better or more deserving, but because we have the tremendous virgin resources of a new continent to divide among only 150,000,000 skilled people, while in Asia nearly 1,500,000,-000 unskilled people must divide the meager last resources of a long-used continent.

"A great agricultural revolution such as Dr. S. A. Knapp conducted with such marvelous success right here in our own Southern States, 1901-1911—his sound, down-to-earth, grass-roots way of teaching better farming by 'Farm Demonstration Work,' selecting the best farmer in each locality and training him to demonstrate better and better farming to his neighbors—this is our greatest hope.

"The most heartening story of farm progress I have heard recently came from Dr. N. E. Dodd, of UN's FAO: the story of a 'shirt-tail Chinese farmer' helping other neighbor farmers increase their rice and food crops in this way—his pride in being selected to do the demonstrating and then his joy at finding us ready to help them in this way. Also we must help start everywhere programs of better farm credit and marketing, rural industries, industrial development, education, health, irrigation, and soil conservation.

"Recently Dr. Dodd told me of the first Chinese tenant farmer he asked, 'Why have you gone Communist?'

"'My family,' he answered 'has never known what it was not to be hungry. We have never known what it was to have shoes. The Communists promise to help us. Maybe they won't. But if they don't, at least we'll not be any worse off than now.'

"All of the 1,000,000,000 people in the statistics I have just given are subject to this propaganda—and John Foster Dulles says Russia is spending 10 times as much for propaganda as

we are. Our best propaganda is not to feed these millions, but to help them learn to feed themselves by farm demonstration and similar methods proposed in the mutual assistance and point 4 programs.

"We cannot safeguard world peace by buying other nations; bought nations will not stay bought. We can no longer intimidate other nations by our own military forces. Imperialistic acts will boomerang against us. We can win other nations to our side only by helping them help themselves and in ways that preserve their self-respect."

### A Religious Undertone

As evident in this plea for peace, Poe's voice through the years has carried a deep religious undertone. One reason: some of his earliest experiences in learning to read were with the family Bible. The truths remained with him. But little dogma. No orthodoxy in the narrow sense. No sanctimony or piety.

He is a Christian man who long ago grew beyond the weekly chant or concern for the salvation of his own soul to a plateau of daily compassion for his fellowman. Empathy is the word—the ability not only to sympathize with the underdog but actually to project himself into the shoes of "the needy when he crieth, the poor also, and him that hath no helper."

He has never been sentimental about it. He has been a man of action demanding action of church groups often more eager to raise \$5 to help the poor and sick than to support programs that might keep them from getting poor and sick.

Perhaps one thought he has repeatedly expressed on the emotionpacked race question in the South reveals as much of his religion as any man needs to know. He has often said, "If every person of every race would each day try to do some kind deed or say some kind word to some person of the other race, we should soon have a climate in which all problems could be gradually solved."

#### **The Greatest Shock**

On the morning of April 2, 1958 the then-78-year-old editor received the greatest shock of his life. At 7 o'clock his older son, Charles, and his only daughter, Mrs. Gordon Smith, Jr. drove up with Dr. Poe's doctor and the doctor of his editor son, William.

On a plane from Birmingham late the night before William D. Poe, his brilliant younger son and editor of the Carolinas-Virginia edition of *The Progressive Farmer* as well as a vice president of the company, had died in his seat of heart seizure. Seemingly in perfect health, hope, and vigor there had been no previous intimation of heart trouble.

William was 42 years old, the husband of Rosalie Richardson Poe and father of two children, William, Jr. and Jean Hunter. He died in the air above the South at a time when *The Progressive Farmer* staff was in deep gloom, when everyone's salary had been cut 10% during the 1958 recession, when the advertising staff was meeting in Birmingham to make plans and adjustments.

A few days before, Dr. Poe had heard William dictate a letter to the advertising manager asking for 10 minutes on the program. He felt he could give them a message of hope and encouragement. General Manager Dugger later said he had indeed made an "electrifying speech," then rushed from his hotel to the plane and thence to his Maker.

William Poe was a chip off the old block—in many ways. But father and son cannot be honestly compared. It is unjust to do so. After all, William, the son, never had the advantages that Clarence, the father, had.

William did not have to read hungrily everything he could get his hands on by pineknot in the backwoods of lower Chatham County. William never had to wear ill-fitting, high-water pants nor carry an old-fashioned blueback speller in front of snickering city kids. He enjoyed the best books. But he never had to slip up to the State Library every afternoon after a hard day's work to read Plutarch's Lives, Liberty Hyde Bailey's Principles of Agriculture, Milton's Paradise Lost, Darwin's Descent of Man, Sir Henry Drummond's Ascent of Man, Adam Smith's Wealth of Nations, Thoreau's Walden, Emerson's Essays, or Dante.

Even so, William Poe had developed into a man much like his father, with a remarkable capacity for winning friends not only among farmers, but among all kinds of people in all walks of life. His family, his magazine, his southern people miss him but, most of all, a veteran editor who rode to work with him every morning and that editor's lady, Alice Aycock Poe, in whose presence you sense the southern ladyhood about which Margaret Mitchell wrote in *Gone with the Wind*.

One day while having lunch with Dr. and Mrs. Poe in their home at Longview, my mind played tricks on me. This gracious lady. Her distinguished husband. The soft accents. I could swear an aroma of magnolias and honeysuckle hung heavy over the room. A banjo in the distance. A fast trotter hurrying a carriage up the drive. A houseman rushing through the hall to meet the carriage. And—and then Dr. Poe said:

"You know, Martin, Thomas Jefferson was one of my heroes. And one of his greatest statements, I think, was one he made to his landed gentry friends of Virginia when he said, 'The masses of mankind were not born with saddles on their backs nor were a favored few booted and spurred to ride them, by the Grace of God.'"

The banjo, the magnolias, the trotter, the houseman—they evaporated! This was Clarence Poe—the great democrat, with a little "d" and the hope of crepe myrtles *for everyone*, not magnolias and housemen for just a favored few.

### From A Helicopter

If Clarence Poe could take a leisurely, year-long helicopter trip from Maryland to Texas—hovering closely over the land and people he has worked so hard so long to lift—he would see a panorama of cattle, not on a thousand hills, but on a hundred thousand hills . . . the tick in them long gone . . . hog cholera controlled . . . good markets for livestock and many products other than cotton, tobacco, and peanuts.

He would see farmers with money in the bank, as well as in bonds and other investments . . . farmers meeting operation expenses through loans from good banks and other legitimate lending agencies at reasonable interest rates.

He would see large consolidated country school plants, sitting on landscaped hillsides with fleets of buses to transport their children to wellequipped teachers, classrooms, and laboratories that at last compare to the city child's chances.

He would see new brick medical clinics, erasing the scourge of hookworm and other "rural maladies" forever, often standing at cross roads where a "time merchant's" store once preyed . . . and not far away a freshly painted church landscaped with evergreens and one bright crepe myrtle in the corner of its yard.

He would see electric power providing hot and cold water for the humblest farm wife, irrigation for thirsty fields, convenient water supply for livestock . . . very few mules, but thousands of tractors plowing in all directions.

He would see mechanical cotton and corn pickers . . . combines and huge driers handling the rice crop . . . mammoth machines cutting off sugar cane at the ground, topping it, piling it for loading cranes to gather

. . . automatic hay balers raking the hay as they go, baling it, and loading it on trucks behind.

And there—in his birth county of Chatham on the Deep River—flocks of white broilers replacing fields of white cotton.

He would see rice, lespedeza, pastures, cover crops seeded even from planes flying over the fields . . . grain fields topdressed with fertilizer-poison combinations to kill weeds, boll weevils, sugar cane borers . . . airplanes gliding almost crop-high to expel needed defoliants on huge cotton fields.

He would see new, well-managed crops of pines and hardwoods covering thousands of unused acres, with foresters and agronomists working side by side on ways and means to fertilize such tree crops.

He would see once raw, red gully lands now green in kudzu, sericea, tall fescue, and other soil-saving crops . . . great pasturelands of alfalfa and Coastal Bermudagrass . . . millions of rolling acres in the uplands terraced to slow washing waters, millions in the lowlands ditched to hasten the flow.

And, in the twilight, as he approached the end of his journey, he would see a well-lighted home in the country with a live TV screen visible through a large living room window looking down a freshly graveled drive to a paved road.

On the table beside the lamp in the window, Clarence Poe would surely declare that he saw a copy of his *Progressive Farmer* magazine.

If there was no one in evidence at the field to greet that helicopter when it landed in Texas, there would be a chorus of thousands unseen, quiet, shy countryfolk, now gone, but once the grateful beneficiaries of this man's tireless fight to free them (and himself) from the bonds of human greed and ignorance.

I am sure Clarence Poe would hear the chorus—and would know.

THE END



Fig. 1. Large disc plow used for mixing dolomitic limestone and superphosphate to a depth of 26 inches in the soil.

# MODIFYING THE SOIL PROFILE FOR DEEPER ROOT PENETRATION

Soil profile modification in North water can be stored which is avail-Carolina is a method of altering the soil profile to cause a deeper root distribution, increasing the efficient use of the annual precipitation.

Getting root penetration into the subsoil is necessary to fully utilize available moisture. When root penetration is no more than 8 to 12 inches in the soil, only one or two inches of

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able to plants. On such soils, costly droughts can occur in a period of two weeks, even when annual precipitation may be 40 to 50 inches.

Many soil profiles contain horizons or layers immediately below the plow zone that impede root penetration. The cause of the root impedance varies greatly with the different soils. It may be due to cementation of soil particles, compaction, poor aeration, soil acidity, toxicity, or nutrient deficiency.

In order to improve the profile for better root growth, the problem or problems in each horizon must be recognized and measures taken to alleviate or correct the condition.

In the Coastal Plain region of North Carolina, many soils have been



Fig. 2. Incorporating dolomitic limestone and superphosphate to a depth of 26 inches in the soil.

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found to be droughty. After heavy rains the same soils may be excessively wet. Tobacco frequently drowns on such soils, even on slopes. Numerous discontinuous spots have been noted in the fields where crops did not suffer as readily either from drought or excessive water.

### Penetrating The A<sub>2</sub> Horizon

Examination of a number of fields indicated the roots of most crops did not penetrate the  $A_2$  horizon of the Norfolk and similar soil series. Small areas of better plant growth were recognized as old stump holes where the pitch pine roots had been burned or decayed slowly. The top soil in these conditions had filled in the root cavity and bridged the  $A_2$  layer.

Careful field examination followed

by laboratory studies indicated that the  $A_2$  layer was very high in sand and almost void of organic matter. It was compact but not tightly cemented. Mineralogical analyses by McCracken and Weed with an X-ray spectograph indicated the presence of a vermiculite-like 14 angstrom unit mineral. The  $A_2$  horizon was found



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### From Modified Soil

From Non-Modified

Fig. 3. Corn from 100 feet of row from modified soil on the left and the non-modified on the right.

to be relatively low in both iron and aluminum oxides.

Chemical analyses by Coleman, Ragland, and Craig indicated the layer was acid in reaction (pH 5.0 to 5.3), almost void in magnesium (<.04 me/ 100 gr.), low in calcium (<1.0 me/ 100 gr.), and very low in available phosphorus (<5 ppm by Mehlich procedure).

Greenhouse studies showed that good crop growth could be obtained on the  $A_2$  layer when adequately limed (dolomitic limestone) and fertilized.

Since neither lime nor phosphate move appreciably in the soil, the question arose as to how best to get adequate amounts of these materials into the  $A_2$  horizon which occurs below the normal plow depth. A large disc plow (concave discs 44 inches in diameter —manufactured by Towner Plow Co.) was used for this purpose (Fig. 1).

Laboratory and greenhouse studies were used as a guide to determine the rates of lime and phosphate that should be applied. The question of duration of the beneficial effects also must be considered in choosing the rates of application, since deep plowing each year is not likely to be economical.

### To 24-Inch Depth

Phosphate fixation and lime requirements are relatively low on the Norfolk and similar soils. Therefore, these soils were selected for the field trials which were initiated in 1959. The studies indicated that about 750 pounds of P<sub>2</sub>O<sub>5</sub> and two tons of dolomitic lime per acre would be needed to make the soil optimum for root growth to a depth of 24 inches. About two thirds of the lime and phosphate was broadcast and disced into the topsoil before the field was plowed to a depth of 24 to 26 inches (Fig. 2). The remaining lime and phosphate was worked into the surface following the deep plowing.

Fig. 4. Crop roots (corn in picture) on the modified soil penetrate the soil to a depth of more than 30 inches.

The cost of such an operation is about \$100 per acre, plus or minus \$25. Size and shape of fields, depth to plow, texture of the soil and the amounts of lime and phosphate that must be applied determine the cost of the profile modification. The big discs generally did a good job of mixing all of the soil mass to the depth plowed. Samples taken after plowing showed the phosphate was fairly well mixed throughout the profile. Better mixing apparently was obtained on the shallower depths of plowing.

### **Effects of Modification**

In 1959, corn, cotton and tobacco was planted on "modified" areas. This was a good season to determine if more moisture would be available to plants as a result of profile modifica-No rain was received on the tion. area from June 4 to July 1. Then it rained almost every day during July. Crops, especially corn, were badly hurt by the 26 days of drought on non-modified areas. Difference in the yield and quality of corn between the modified and non-modified plots can be easily seen in Figure 3. Corn on the modified area yielded about 90 bushels as compared to 50 bushels per acre on the normally treated area. The yield of tobacco was increased about 300 pounds per acre by profile modification.

Following harvest, pits were dug to study root penetration. The results are shown in Figures 4 and 5. Both corn and tobacco roots penetrated to a depth of 25 to 30 inches on the modified soils.

The removal of moisture from the soil was studied by the use of the slow neutron technique. During the 26 days of drought, almost two more inches of subsoil water were used by the corn from the soil on the modified area than on comparable adjacent non-modified area.

Fig. 5. Crop roots (tobacco in picture) do not penetrate into the  $A_2$  horizon which occurs at 8 to 10 inches on the non-modified soils.



Plowed 24" Plowed 10"



### **Private Company Tries It**

The McNair Seed Company of Laurinburg, North Carolina, purchased one of the large disc plows, and during 1960 modified almost 300 acres of land with it. This program was based on the results obtained in 1959. All fields, prior to plowing, were carefully sampled by horizons to a depth of 24 inches. Laboratory tests were made of each laver and recommendations for lime and fertilizer were made on the basis of the test results. The lime and phosphate were broadcast by spreader trucks, and then disced into the A<sub>p</sub> layer before deep plowing. Another 100 to 150 pounds P2O5 and 1,000 to 2,000 pounds of lime were applied to the treated areas and worked into the soil after deep plowing. From 100 to 200 pounds of muriate of potash were also broadcast before planting on all areas. Magnesium potassium sulfate was applied on some areas that were particularly low in magnesium and low in exchange properties.

Crops planted in the 1960 season on modified areas included tobacco, cotton, corn, coastal bermuda and soybeans, with small areas of tomatoes, watermelons, sweet corn and lespedeza. Also a 50-acre peach orchard was established on a modified sandy area by Mr. H. R. Currie of Derby, North Carolina.

### Some Problems Uncovered

In general, the 1960 season was not a good one to obtain maximum benefits from soil profile modification. Rainfall was sufficient in most areas and drought was not a serious factor. Nevertheless, some striking results were obtained, but, at the same time, several problems were uncovered.

First, it was observed that land should not be plowed deeper than the plow can do a good job of mixing. On deep sandy soils the tendency is to plow deeper which results in a bulldozing action and a poorer job of mixing. Care should be exercised not to plow sandy soils when they are too wet. Although they can be readily plowed when wet, the small amount of clay present is puddled. Excessive discing should be avoided after deep plowing to avoid formation of a compact layer near the surface.

Since the surface soil has been mixed with the subsoil, a little heavier rate of nitrogen will be needed for most crops than normally applied, especially early in the growth.

### **Results Look Favorable**

Although harvest data is not complete for the 1960 season, the results in general look favorable for the profile modification program. Crops on the area plowed in 1959 and without further treatment continued to show a superiority over the non-modified areas. Corn yields for 1960 were 96.2 bushels per acre for the modified area compared to 75.7 bushels per acre for the non-modified area.

The 25 bushel per acre increase in yield during the 1960 season for the non-modified area compared to 1959 indicates the extent of better rainfall distribution. The differences in yield on the modified areas was less than 5 bushels per acre in 1960 compared to 1959. This small difference indicates the extent to which moisture was eliminated as a factor during the drought of 1959.

Corn roots did not penetrate the A, horizon in the non-modified area during either the 1959 or 1960 season. Good root penetration was obtained in the modified areas both seasons. This indicates the benefits from profile modification will continue for several years. The length of benefit will be related to the residual effect of the phosphate and lime. With greater root penetration, the organic matter level in the upper two feet should be somewhat increased eventually. Because of this, the physical condition should improve over a threeto five-year period. Only time will tell how long the benefits will continue, but it is anticipated that it will be at least 10 years.

### Long-Range Investment

Soil profile modification should be considered a capital investment in the improvement of the land. Considering the increased yields that are likely to be obtained over the 10-year period, the initial cost would appear to be a good investment.

Much more research is needed before going to the field with profile modification on the heavier Piedmont and Mountain Valley soils. The same is true of the heavier Coastal Plain soils. The Piedmont and Mountain soils usually are high in iron and aluminum. Phosphate fixation will be a problem on such soils. Much heavier rates of limestone will also be required.

The results to date indicate soil profile modification has excellent possibilities to improve many of the soils of the Southeast, so that full benefit can be obtained from the high annual precipitation. If greater efficiency in the use of the annual rainfall can be effected, the average crop yields should greatly increase and the one big crop production hazard (drought) should be reduced.

THE END

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# STARTER FERTILIZERS

Proper application of mixed or complete starter fertilizers is a must in helping young, struggling corn roots take up enough nitrogen, phosphate, and potash. Without these nutrients, the roots won't make the grade on cold, wet soil.

These pointers are from Merle Halverson and Curtis Overdahl, extension soils specialists at the University of Minnesota.

They say fertilizer must be far enough from the seed to prevent injury, yet near enough to be available after the seed germinates. Best location, for most soils, is two inches to the side and somewhat below the seed.

For soils low in phosphate and potash, start with a broadcast application of these nutrients, the specialists advise. Naturally, as roots spread throughout the soil, less of the total root feeding area will be in contact with the starter fertilizer.

In other words, the more the corn grows, the less it depends on starter and the more it needs adequate levels of phosphate and potash throughout the soil. It would have paid you to plow down a broadcast application last fall or earlier this year.

Extra nitrogen is also a must for profitable corn yields—if the soil was not raising legumes last year or didn't get a heavy manure application. But amount of nitrogen, and time and method of adding it depends on several things.

For example, pre-plant nitrogen applications are as good as sidedressing on heavy soils. But on sandy soils, nitrogen has a tendency to leach more during the spring rain season, meaning sidedressing is a better application method.

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