

Fertilizer Placement Influences Profit

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WHEN fertilizer is placed so it will not injure the sprouting seed or the root system of a plant, yet is readily accessible to the feeder roots, stands will be better and yields higher. This was definitely proven to hold true for certain Irish potato growers in North Carolina under the 1937 conditions. In six fertilizer placement demonstrations with Irish potatoes in eastern North Carolina, the fertilizer was placed by the band method to each side and slightly below the seed-piece level. This was done with a fertilizer-placement machine furnished through the cooperation of an implement manufacturing concern. The average increase was at

the rate of 15.2 barrels of No. 1's per acre over the check plot, which was fertilized by the old method of placing the fertilizer in the drill and mixing it with the soil before planting the seed.

The six demonstrations were located in Beaufort, Camden, Currituck, and Pitt Counties and were under the supervision of the county agricultural agent in each county. Since proper placement was the point to be emphasized in these demonstrations, no effort was made to get the growers to use a uniform amount and formula of fertilizer. The grower used the amount and mixture which he had found to be most satisfactory for po-



W. L. McGahey, County Agent of Beaufort County, inspects the demonstration plot on the farm of one of his growers. The potatoes in front of him were fertilized according to the old method, those in back of him, by the band method.

tatoes under his conditions. The same fertilizer and the same amount was applied, however, to the demonstration plot and the check plot in each instance.

The plots were an acre in size, and the grower applied the fertilizer to the check plot according to his own practice. This was done by putting the fertilizer out in the drill with a distributor and then mixing it with a plow, followed by bedding. On the demonstration plot the land was flat broke and dragged, leaving the land level. The machine was set to space the rows the same distance as the grower had used on the check plot, and to apply the same amount of fertilizer in 2-inch bands, 2 inches to each side and slightly below the seed piece. The machine planted the seed, placed the fertilizer, and threw up the bed on the demonstration plot in one operation. It was also used to plant the seed on the check plot so that the quantity of seed and the depth of planting would be uniform on the two plots. The fertilizer distributor was disconnected for this operation on the check plot.

Improved Stand

In a majority of the demonstrations and in other fields where placement was practiced, there was a definite improvement in the way the potatoes came up. The stand was more uniform in coming through and was definitely better when the fertilizer was placed to each side and below the seed piece. Where actual counts were made, the stands on the demonstration plots were from 10 to 15 per cent better than on the check. This can be observed in the accompanying photograph of one of the demonstrations in Beaufort County. County Agent McGahey is standing at the dividing line between the two plots. On the rows in front of him the fertilizer was put out by the old method. Behind him the fertilizer was placed as previously described.

The yields were as definitely improved as the stands. On placement plots the yields of No. 1 potatoes were increased from 4.2 barrels on the demonstration in Camden County to 26.4 barrels on one demonstration in Pitt County. The largest yield recorded was in Camden County on the placement plot, where the yield was at the rate of 94.8 barrels of No. 1's per acre. On the check plot 90.6 barrels were produced. The most outstanding increase of the demonstration plot over the check plot was in Pitt County, where the production was at the rate of 52.8 barrels of No. 1's on the check plot and 79.2 barrels of No. 1's on the demonstration plot.

Fertilizers Used

In Camden County, where the highest yield was made, Mr. H. C. Ferebee used 2,200 pounds of 7-5-5 per acre and planted in 3-foot rows. At the County Prison Farm in Pitt County, where the most significant increase was made, the grower used 2,000 pounds of 5-7-5 per acre and also planted in 3-foot rows. The accompanying chart graphically illustrates the results of each demonstration.

The average yield of No. 1's on all the check plots was 58.2 barrels. On the demonstration plots the average yield was 73.4. This is an average increase of 15.2 barrels of No. 1 potatoes. In all cases a barrel was figured at 165 pounds net. This is an exceptional increase, and over a period of years the results probably would not be so significant. But results from other States definitely bear out the fact that with quite a number of crops, yields can be increased by proper placement of fertilizer. In some instances the efficiency of the fertilizer can be doubled if it is applied so as not to injure the root system of the plant and yet be readily available to the feeder roots.

There is a definite, increased interest in fertilizer placement being shown by

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Soil Treatment Effects

THE plant does more than merely store what it takes from the soil. It uses these soil supplies as a help in running its plant machinery, and in manufacturing the more complex nutritional compounds as carbohydrates, proteins, fats, and vitamins not taken from the soil but yet so essential as animal feeds.

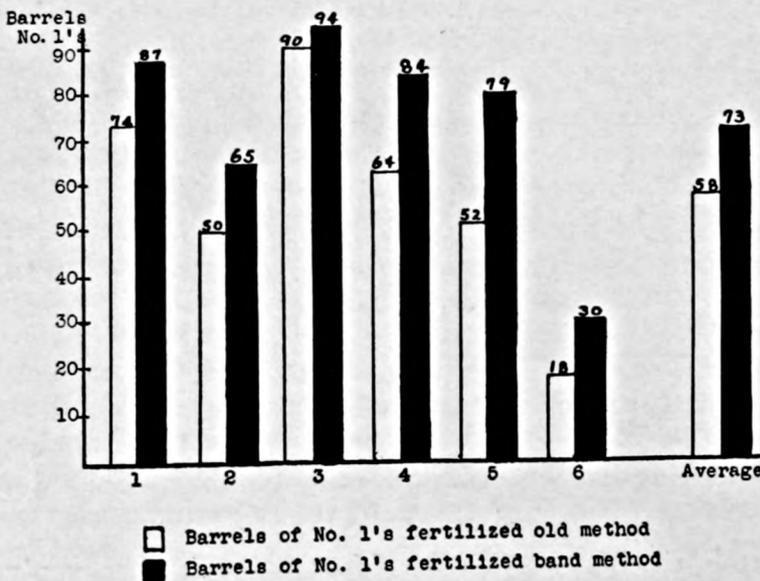
Lime treatment on soybeans doubled the harvest of protein per acre and almost doubled their content of this nutrient. To get a pound of protein a cow needed to eat but 7 pounds of hay from limed land, but was compelled to take 12 pounds for a pound of protein in hay grown on unlimed soil. When feeding on hay from limed soils, the cow was also taking more phosphorus, more potassium, and similar nutrient items. Carbohydrates are increased where young plants are grown on soil given soil treatments.

The plant factory more effectively uses the sunshine in manufacturing these complex substances when there are no deficiencies in the soil fertility. Young forage plants contain more energy, or heat, as shown by test, when lime for example is added to a lime-deficient soil. Not only protein and carbohydrate production by the plants, but even the plant's formation of the more elusive and less understood vitamins have been shown to be related to the soil fertility.

Soils deficient in potash are less effective in producing feeds rich in carotin, the forerunner of vitamin A. A complete fertilizer on wheat has increased the vitamin B content in the grain. All this indicates that the crop may be a defective feed on soils of low fertility but is improved in its feeding value when the soil is treated to correct these fertility deficiencies.

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growers of a varied number of crops. The growers' interest has naturally aroused the concern of quite a few farm implement manufacturers. As a result of this interest there are today a number of machines on the market which permit definite control of the placement of the fertilizer in reference to the seed. Transplanting machines are also being equipped so that the fertilizer can be placed to the side

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