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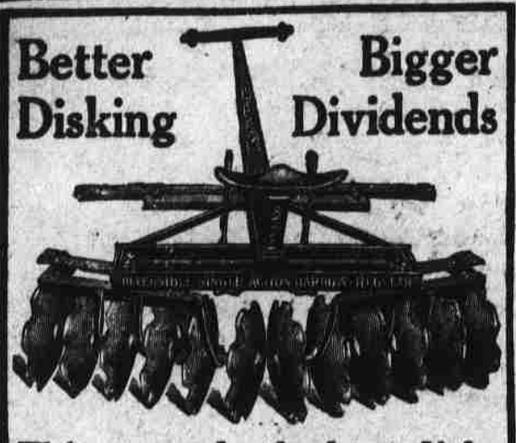

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Prize-Winning Fertilizer Letters

CUT OUT THE NITROGEN BILLS

Legumes and Humus the Keynote, and to These Must Be Added Study and Coöperation—First Prize Letter

TO BUY fertilizer judiciously for the many crops grown on a farm one must take into consideration their requirements on the soil, time of growing and the disposal of these crops.

If the crops are to be fed on the farm and the manure carefully saved and put back on the land, there will not be need of buying much fertilizer; but if they are sold off, then it becomes necessary to buy fertilizers to help keep up the soil's supply of available plant food, so as to make profitable crops.

Some crops draw heavily on soil nitrogen; others, the legumes, seem to do as well without it, if they have the bacteria in the soil which enables them to draw on the nitrogen of the air. Since we know these things—or ought to—it would seem foolish to use the same grade fertilizer for all crops, legumes and non-legumes alike, yet I know of farmers who are doing that very thing. They buy 20-cent nitrogen, when there are millions of pounds in the air to draw on if they only would read and apply the teachings of our up-to-date farm papers and bulletins.

It has been the writer's practice to use as many legume crops as possible in his rotations, and by so doing, he has not purchased a pound of commercial nitrogen for the general field crops, such as corn, oats, soy beans, cowpeas, clover, etc.; but has added nitrogen to his soil, increased the yield of these crops, and has got what is most needed in our Southern soils—humus. To get humus into the soil is the keynote to economical buying of fertilizers. With plenty of humus and liberal applications of acid phosphate and potash, our Southern farmers could cut their fertilizer bills one-half; for it is the nitrogen in a fertilizer that makes it cost.

In planning for my crops during the summer, I always have corn to follow crimson clover sod, or soy beans hogged down the fall before. By using high-grade materials—16 per cent acid phosphate, 50 per cent muriate of potash,—bought through our Farmers' Coöperative Union—and mixing my own filler-free fertilizers, I get my money's worth every time. I know what I am using when I get the materials and compound them myself, and save the extra expense for bags, freight, hauling and handling of a lot of worthless filler. The manufacturers are not so much to blame for this as the farmers; if the farmer would demand the filler-free goods, the manufacturers would be glad to cut fillers out.

In mixing fertilizer for corn after crimson clover or some other legume crop, I use 1,000 pounds 16 per cent acid phosphate and 200 pounds muriate of potash, making 1,200 pounds. This is sown broadcast with an endgate seeder, at the rate of 300 to 400 pounds per acre, and dragged in when preparing the seed bed.

For truck crops such as potatoes, garden peas and beans, I drill in the row, as I find it gives larger returns, since these crops are grown in a short time. I have tried four different kinds of fertilizers for potatoes. and have found one running high in potash gives best results. The kind I have found most suited for potatoes is one analyzing 5 per cent ammonia, 7 per cent phosphoric acid and 8 per cent potash. As I get more nitrogen into the soil by growing legumes I expect to cut down on the ammonia in my potato fertilizer.

Every farmer ought to do some experimenting each year to determine whether he is using the most economical plant foods or not. And what is more important, he must learn to use his brain more, read good progressive farm papers, get a supply of bulletins, and then get interested in them. The writer cannot estimate the value these papers and bulletins have been to him in bringing up a run down farm and putting it on a paying basis. Summed up, we have this: "Buying fertilizers judiciously, and principles of their profitable use," mean coöperation, reading and experimenting.

C. D. HAVERTY,
Smithfield, Va.

WE ARE LACKING IN KNOWLEDGE ABOUT FERTILIZERS

Mr. Davis Would Have Our Schools Teach How to Mix Fertilizers in Place of How to Mix Wines—Prize Letter

THERE is no doubt that millions of dollars are lost every year through the injudicious use of fertilizers. The reason is found in the lack of knowledge and experience of the average farmer.

And back of this, in a large degree, lies our faulty school system—a system that teaches pupils how to mix wines of different strengths and prices with water so as to make wine of a given strength, and ascertain the price, yet says nothing about how to make a complete fertilizer, having a certain analysis, by mixing substances containing stated amounts of nitrogen, phosphoric acid, and potassium; schools that ask, which is more profitable, United States 4's at 120 or United States 3's at 92?" yet never ask nor tell the pupil how to figure out a balanced ration for a milk cow.

I am glad to see that the best farm paper in the South—or anywhere else, for that matter—proposes to devote time, space and attention to educating farmers in the proper use of fertilizers. Don't be afraid that you will make your statements too simple.

There are a few facts with which the farmer must be more or less familiar, the more the better, if he would get the most profit out of fertilizers.

He should know that each of the valuable elements in a fertilizer serves a different purpose, and what those purposes are.

He should know the needs of his soil. Just here the average farmer probably suffers the greatest loss. It may be that his soil already has a sufficient or even an abundant supply of some one or more of the three important plant foods. If so, then, when he buys a complete fertilizer, he loses the cost of the part, or parts not needed. It has been demonstrated that potash is not needed in most sections west of Alabama, yet nearly all fertilizers purchased contain potash. The cost of the potash is a clear loss. It is gratifying to notice that the practice of using a fertilizer without potash is coming into favor here.

He should also know the requirements of different kinds of crops. He should know that tobacco, potatoes and certain fruits need relatively large quantities of potash; that corn can profitably use much nitrogen and phosphoric acid; and that the legumes generally need very little nitrogen, by reason of the fact that they are able to get their own nitrogen from the air.

Some of these things he can learn by reading government bulletins and farm papers, and that is a cheap way. But in adapting the methods and practices of others to his own conditions, he needs to back up his practice with experience as much as possible. I have talked with farmers who have been using fertilizers for 10 or 15 years, yet they have no experience in their use.

I asked one recently, "does your fertilizer pay you?" He replied, "some years, I know it does; others, I believe it is an injury. Sometimes I think its use is just a habit." It is safe to conclude that that man is not realizing from its use anything like what he ought. Before he can use it most profitably he must not only know that it will pay in an average year, but also know how much it pays.

He needs to experiment by trying various amounts and kinds on the same kind of soil under the same conditions in the same year, and year after year, and then compare yields.

For the last two years, I carried out some experiments with fertilizers under corn, cotton and Irish potatoes. Both seasons were extremely dry. According to my calculations and under my conditions I figured that it was very doubtful as to whether the fertilizer increased the yield enough to pay for itself and its application when used under cotton and corn. But with the potatoes, there was no doubt.

In 1913 I planted one-fourth acre of Irish potatoes in July in black waxy loam with clay subsoil. On the one-fourth acre I put two tons of stable manure and 100 pounds of 2-8-2 fertilizer, leaving two rows without either manure or fertilizers, putting manure only under two and fertilizer only under two. When I harvested, I measured the yields and compared them. The two tons of manure alone increased the yield 17 bushels; the 100 pounds of fertilizers alone increased it 10 bushels. I sold the potatoes for $1.50 per bushel, so I considered that one ton of manure brought me not less than $10, and 100 pounds of fertilizer not less than $12.

I was not sure but that the crop would need some potash, and I am not sure yet. I think I shall use some potash this season. But seeing that I could make a large crop in a dry season with barnyard manure, in 1914 I used about four tons of manure and five sacks (100 pounds to sack) of acid phosphate on one-half acre of the same kind of soil but the soil was rather thin. I was well pleased with the result. Where the crop was best I made at the rate of 270 bushels to the acre.

JOHN H. DAVIS,
Ripley, Miss.

COÖPERATIVE BUYING SAVES MONEY

(Prize Letter)

IN BUYING fertilizers (or anything else) if possible, buy of or through the representatives of your Farmers' Club or Farmers' Coöperative and Educational Union, for only by coöperation and buying in car lots or larger quantities can we hope to buy judiciously. The representative of your local order or other farmers' club of whatever name, is, or should be, posted on the different sources of supply and values, and can generally save from 10 to 20 per cent on ordinary retail prices, by taking car load lots and never buying ready mixed goods.

The elements generally deficient in soils are phosphoric acid, ammonia or nitrogen, potash and lime. Practically all soils of east Tennessee need phosphate for any crop, as it increases the fruit or grain. Potash is just as important, but is found in most soils (except low black land), but not always in available condition, and therefore small applications are sometimes profitable. Ammonia or nitrogen in some form is needed on all crops except peas, beans and other leguminous crops like the clovers that have the power of securing this element (nitrogen) from the air, but on thin soils I have found it profitable to use some nitrogen on everything—better in the form of barnyard manure, which supplies ammonia as well as some potash and phosphoric acid, and the humus which is so badly needed on such soils.

H. L. REYNOLDS,
Dayton, Tenn.