

TIMELY FARM SUGGESTIONS.

By TAIT BUTLER.

WILL acid phosphate injure oats if it comes in contact with the seed as put in by a grain drill with fertilizer distributor? No injury will result to the seed oats from coming in contact with the acid phosphate in this way.

IT IS a mistake to wait until the crop has made the greater part of its growth before applying nitrate of soda. This fertilizer is used for the nitrogen it contains, and nitrogen is chiefly useful in the growth of the stalk and leaves. Many people are still applying nitrate of soda to cotton. It may appear to do some good when applied late in causing the plant to continue green and make larger growth, but it is doubtful if that late growth does much good and in many cases it probably does harm. When nitrate of soda is to be applied it should be put on when the plant is young in order to increase the size of the stalk growth. A good stalk is necessary to a large yield, but to encourage the growth of stalk when the time for fruiting has arrived is not good practice.

IF I MAKE a heavy application of stable manure this fall to land that will make from one-half to two-thirds of a bale of cotton or 25 to 30 bushels of corn per acre, should I plant only corn, or may I plant both corn and cotton on such land? On land that is inclined to make rather a large stalk of cotton a heavy application of stable manure may increase this tendency to such an extent as to make the planting of cotton the first year undesirable. On ordinary land, even a heavy application of stable manure is not likely to have such an effect, especially if some acid phosphate or ground phosphate rock is added to the manure. Stable manure is deficient in phosphoric acid, as compared with the nitrogen it contains, hence the wisdom of "balancing" the fertilizer by the addition of phosphoric acid. This is especially important when heavy applications of stable manure are made to cotton lands. Corn is a lover of nitrogen, as furnished in stable manure, and the humus added also enables the land to hold more water which is also acceptable to the corn plant. For these reasons heavy applications of stable manure are especially suitable for the corn crop.

Making Oats a Profitable Crop.

A READER asks: "Do you regard oats a profitable crop?"

The average crop of oats is not profitable in the South. The average yield per acre in the South Atlantic States for the past 45 years has been around 15 bushels. In the South Central States, during the same time, the yield has been around 20 bushels per acre. With Kentucky, Texas and Oklahoma excluded, the yield in these South Central States has not been more than two bushels per acre better than in the South Atlantic States. These are not profitable crops; but for that matter, the average crops of cotton, about 180 pounds per acre, and of corn, 15 to 20 bushels per acre, are not profitable. This merely means that the average Southern farmer does not produce profitable yields of crops, but it has no bearing on the question as to whether the Southern farmer should grow oats.

I believe the oat crop could and should be made profitable on Southern farms. Generally, oats have been sowed on the poorest lands and not given that intelligent consideration necessary to make any crop profitable. Moreover, spring-sowed oats or those sowed late in the fall do not yield as well as those sowed in October. The greatest difficulty with the fall-sowed oats is winter-killing, but, except in the Southeast, little has been done to overcome that difficulty.

The advantages of the oat crop are that it furnishes a good cover for the land during our open winters; furnishes some green feed during the late fall, winter and early spring; makes an excellent feed for all farm livestock and is off the land in time to permit of making a crop of peanuts, cowpeas, soy beans or lespedeza the same season.

It is probable that 30 bushels of oats and 25 bushels of soy beans are equal to 50 bushels of

corn in feeding value. The oats and soy beans can be made about as cheaply, and land that will produce 50 bushels of corn per acre should produce much larger yields of oats and soy beans than those stated. On the other hand, land that will not produce more than 20 to 25 bushels of corn will produce more feed in oats and soy beans, and these crops will not remove as much nitrogen, the most expensive plant food, from the soil.

When oats are sowed in the fall, on good land well prepared, fertilized properly, and put in by the open-furrow method, so as to prevent injury by freezing, they are a profitable crop. As to whether the crop is profitable depends most largely on the yield, and this depends largely on the man and the land.

Fertilizers for Oats.

WHAT fertilizers do you advise for oats? On soils where commercial fertilizers pay under other crops, we advise the use of acid phosphate at time of sowing and a top-dressing of nitrate of soda early the next spring on soils of average fertility. If the soil is rich, or if a crop of some legume has been grown recently, the nitrate of soda may not be required, but the growth of the crop is the safest and best guide as to the need of nitrogen.

From 100 to 300 pounds of acid phosphate should be used when the oats are sowed. It may be put in with the seed drill when sowing the oats, and if it comes in contact with the seed no injury will result.

When the oats are sowed early for grazing, it may pay to apply some nitrogenous fertilizer at the time of sowing, but as a general rule more profitable results will be obtained by applying from 75 pounds to 150 pounds of nitrate of soda per acre broadcast early in March. If the oats make a good growth and look vigorous and of a dark green color, they probably do not need nitrogen, but unless such conditions exist, it usually pays well to use nitrate of soda on fall-sowed oats. We do not think spring-sowed oats profitable, as a general rule, throughout the Cotton Belt, but when spring sowing is practiced, the same fertilization is probably desirable, with the exception that the nitrate of soda may need to be applied a little later.

In a proper rotation, with legumes occupying a prominent place, no commercial nitrogen will be needed on the oat crop.

Oat Smut and What Causes It.

AT A MEETING of farmers which I recently attended, I heard one of the most successful oat growers of Alabama express the opinion that oat smut is due to the planting of immature oat seed. Several farmers present supported this erroneous idea. I do not know how such an idea originated; but it is plainly a mistake. It may be that immature seed, or seed from oats cut too green, favor the prevalence of smut; but that this is the real cause, is not true. Without the smut fungus, there will be no smut, no matter what the other conditions of the seed. With no spores (or seeds) of smut, there will be no smut; just as certainly as with no seeds of oats there will be no oats. The smut fungus is a plant, just as the oat is a plant; but this fungus is what is known as a "parasite." That is, it is a plant living in or on another plant. The cow has other animals living upon her, the ticks and lice. The oat has other plants living on it, smut and rust.

It is always a pity when errors like this,—that smut is due to immature seed,—are put forth, or allowed to go uncontradicted. Harm is always done, for the reason that many will believe the false theory, because it is given out by a so-called "practical" man. As a matter of fact, it is pure "theory" and has no real basis for its existence. Verily, verily! the greatest "theorists" are usually those who claim that they are "just practical men."

Oat smut does more harm than is generally suspected. The loss in the oat yield is frequently tremendous and yet it is easily prevented. Unless the seed are known to be free from smut, it will

always pay to treat them. The treatment is neither difficult nor expensive and yet is very effective. The black powdery masses which appear in the place of the grain are the spores (or seeds) of the smut fungus. These get on the oat seed and when planted with the seed produce smut in the plants that grow from these infected seeds. But, as stated, these smut spores are easily killed and smut effectually prevented by treating the seed just before sowing.

Probably the best treatment is to moisten the seed with formalin solution, one ounce to three gallons of water. The formalin can be bought at from 75 cents to \$1 a pound and one pound is sufficient to treat 40 to 50 bushels. The seed may be moistened by dipping the sacked oats into the solution, or by spreading them out on a floor and sprinkling the solution over them. While the sprinkling is being done the seed should be shoveled or stirred so that every seed will be wet. The seed should then be covered with an old sheet, canvas or blanket wet with the same solution and allowed to remain from six to eight hours. They should then be spread out in a thin layer about two inches thick and be stirred occasionally until dry.

Care must be taken not to re-infect the seed with the smut spores. It is well to re-sack them in sacks that have also been treated with the formalin solution.

If the quantity of seed is large, the drying may be aided by mixing air-slaked lime with the seed and then removing the lime by running through a fanning mill, when such a machine is available.

Many think this "too much trouble," but since the oat yields are reduced from 10 to 20 per cent by smut, it is evident that it pays well to take the trouble.

Loss of Plant Food by Leaching.

THE loss of plant food from the soil by leaching is considerable in all sections of average rainfall, but there are many reasons why it is of unusual importance in the South

1. The larger the amount of rainfall, the larger the amount of plant foods lost by leaching, other things being equal. The rainfall is unusually heavy in the South, hence leaching is likely to be excessive other things being equal. There is greatest loss by leaching in the summer because the nitrogen in the soil is being made soluble more rapidly in the summer. Warmth is favorable to bacterial activity which plays an active part in rendering nitrogen soluble. Our summers are long, warm and rain is abundant. Moreover our winters are warmer and wetter than in most sections thereby setting free more nitrogen and leaching more of it from the soil.

2. The character of the soil and its ability to absorb and hold water largely control the leaching of plant foods from the soil. A clay soil will hold water better and consequently suffers less from leaching, but a larger proportion of our soils are light or sandy and since our rainfall is heavy we suffer extensively from the leaching of plant foods from the soil because of their inability to hold moisture. Clay soils also exert a greater amount of chemical action by which plant foods are combined and leaching is prevented. Our large areas of sandy soil, therefore, suffer more severely from leaching.

3. But another and greater reason why our soils fail to hold moisture well and therefore suffer more from leaching, is the general lack of humus or organic matter. The water-holding power of soils is tremendously increased by an abundance of decaying organic matter, and, in a measure, to the extent the water-holding power is increased, the leaching is decreased. But Southern soils, because of climatic conditions—heat and moisture—and our cropping systems, are deficient in humus and consequently are more subject to leaching.

4. The condition or combinations in which plant foods exist in the soil also largely influence their leaching from the soil. If soils with a large amount of nitrogen in soluble forms did not hold water better than other soils they would of course, lose more by leaching, but such soils are usually well supplied with humus and in condition to take up and hold a large amount of water before leaching begins.

Losses of plant foods by leaching must be carefully distinguished from the loss of soil and consequently fertility by washing, but both are important sources of large losses of plant foods from Southern soils.