



What Farmers Want to Know

By W. F. MASSEY

It Cannot Be Done

"I HAVE 50 bushels of Bliss Triumph potatoes which I wish to keep for seed next spring. Please tell me how to store them?"

Irish potatoes dug at this season may possibly keep till late fall if put in a cool and perfectly dark cellar. But to keep them till next spring I do not think can be done, even in cold storage. Better spread out on the ground and cover with pine straw and plant as they sprout, as I have told in *The Progressive Farmer*. Then you can get a crop that will be easy to keep for seed.

WHEAT AND OATS

Soils That Are Suited to These Crops, and Some Suggestions That Will Help in Getting Good Yields

WHETHER wheat or oats should be the main small grain crop with any farmer will depend to a great extent on his situation and the character of his soil. With good farming, wheat can be made a profitable crop on nearly all the red or black clay uplands of the South. Wheat needs an airy situation, freedom from excessive humidity and a strong clay loam soil.

Hence wheat can seldom prove a commercial success in the light soils and humid climate of the South Atlantic Coast section. Not only is the general character of the soil too light for wheat, but the humid climate favors the growth of the rust fungus, and wheat attacked by rust will never make the best plump grain.

But while wheat is not the best crop in the coastal region, the winter oat crop thrives in the warm soils there better than in the upper country, and when grown in an improving rotation of crops the oat crop can be made a very profitable market crop. Of course some wheat can be grown in the coast region, but I am simply discussing its value as a commercial crop. I have known a crop of 30 bushels an acre grown in the upper part of the coast region, but that was a very exceptional crop, and was on a clay soil and somewhat back from the coast.

But the one drawback to the production of either wheat or oats in the South, aside from what lack of fertility there may be in the soil, is late and imperfect preparation of the soil. Sowing in loose, half-prepared soil is one of the greatest causes of winter-killing. Both wheat and fall oats need early preparation of the soil and perfect fining of the surface. In short, the plowing should be done early enough to have it settled and not lumpy below, while the disk and the spike harrow used repeatedly make the surface fine.

Wheat can be sowed on a well prepared fallow or after a summer hoed crop like tobacco or corn. In the famous farming county of Lancaster, Pennsylvania, they grow great crops of cigar leaf tobacco, cutting it at the ground for curing. Then the tobacco land is simply harrowed fine and wheat drilled in, and they make great wheat crops, too. I have often seen the fields of that section with the tobacco stumps showing down the wheat fields while the wheat was small and green. They let the spring plowing for tobacco remain settled and merely fine the surface.

This should be the case whenever small grain is sowed after a hoed crop. The cultivation of the hoed crop makes the summer fallow. But if the wheat crop is to be sowed on fallow the plowing for wheat should not be later than the middle of August so that the soil will get settled before seeding time. Then the sur-

face should be kept lightly stirred, and the more harrowing and fining of the surface the better the stand and the crop as a rule. The heaviest wheat crop recorded in the eastern part of the United States, 64½ bushels an acre, was made on a clover sod broken in May, and kept harrowed all summer to destroy a bad weed, and when the wheat was drilled in there was just dust enough to cover it.

The same is true of oats. Early preparation and tramping and fining the surface will do more to prevent winter-killing than anything else. Late, hasty plowing and rough seeding are responsible for a great deal of the winter-killing.

Early sowing is essential to success with oats. This means that in the upper South the sowing should be done in September, and southward in October to November. Wheat is always safer if not sowed till after there has been a white frost. Earlier sowing would give a better growth, but would be almost invariably attacked by the Hessian fly.

As to varieties, I would always sow in the South a bearded variety of wheat, as it is less liable to be damaged by the summer storms when

have made more humus material in his soil, but the object was a wheat crop, and I suggested the treatment above mentioned with the addition of 400 pounds of acid phosphate an acre. He wrote me the next summer that he followed my advice and made thirty bushels of wheat an acre.

There is no money in making ten or less bushels of wheat or twenty-five bushels of oats an acre. There is profit in wheat over twenty-five bushels an acre and in oats over thirty bushels, and by good farming forty bushels of wheat are possible and fifty or more bushels of oats.

HOW TO GET RICH LANDS

XXXI.—Legumes: Their Place in Soil Improvement

By TAIT BUTLER

THERE are over 7,000 species of legumes—trees, shrubs and herbs. There is no more important class of plants in agriculture. Corn, wheat and cotton are much more largely in the public mind, but if soil improvement, or the maintenance of soil fertility, is important, then the legumes must take the first place of importance in our farming.

In fact, legumes are the only plants which actually add plant foods to the soil. Plants which take their nitrogen, phosphorus and potassium from the soil add nothing of these to the soil, even when plowed under. Of course, they add humus-forming material and this contains plant foods, and when this material decays these plant foods become available for feeding succeeding crops. And this decay may also make available plant foods in the soil which would not otherwise have been in condition to feed the crops. But if the requir-

mediately succeeding. But, it is also true, that in other cases, the increase in yields has not been as large as expected and in some cases an actual decrease in crop yields has resulted from the removal of a succession of legume crops from the land.

These varying results are not difficult to understand if we remember two simple facts: 1. That while there may be considerable quantities of plant foods in the soil these may not be in a condition in which the crops can use them, and 2. If the supplies of phosphorus and potassium in the soil be already small, the amounts removed, in the removal of succeeding crops of legumes, may so far reduce the supplies of these plant foods as to deprive other crops of the needed available supplies.

If there be an abundance of phosphorus, potassium and lime in the soil, the growing of a crop of legumes, even though the tops be removed for hay, may greatly increase the yields of other crops. This may be and perhaps generally is due to the effect produced by the decay of the roots and stubble of the legumes making plant foods available, rather than because of the addition of nitrogen to the soil. While this is probably generally true, in certain cases and with certain legumes the supply of nitrogen in the soil may be actually increased, even though parts of the legume plants are removed from the land. In some cases the nitrogen in the roots and stubble, or the parts left on the land, which was taken from the air may be greater than the nitrogen in the parts removed that was taken from the soil. In such a case the nitrogen left in the soil may be greater than before the legume crop was grown. But on the other hand, in some cases the conditions may be exactly reversed and then the supply of nitrogen in the soil is decreased instead of increased by the growing and removing of the legumes.

But in no case are the supplies of phosphorus, potassium and lime increased, and when any part of the legume crop is removed these plant foods left in the soil are always decreased.

Legumes are of much greater importance in the agriculture of those parts of the South having a heavy rainfall than in the drier and colder sections of this country. This is due to the more rapid decay of organic matter and the greater leaching of nitrogen out of the soil, because of our warm climate and heavy rainfall. But nature has provided for our greater needs, by giving us a larger number of legumes to fill all these varying needs, and by a climate which makes it possible to grow some of these during the entire year.

The question is often asked, just how much nitrogen is added to the soil when a crop of legumes is grown: first, when the crop is plowed under and second, when the tops are removed for hay?

This can never be answered definitely. A legume growing on a poor soil, while making less growth, will take a larger proportion of its nitrogen from the air than will the same legume growing on a richer soil. In fact, more nitrogen in actual pounds might be taken from the air by a legume on a soil of moderate fertility. (Concluded on page 13, column 1)

THE BUSINESS FARMER'S CALENDAR: FIVE THINGS TO DO THIS WEEK AND NEXT

BUY a grain drill for the fall seeding. If you haven't sufficient acreage to purchase a drill for your own use, go in with your neighbors and get one. Drills are of too great value in increasing yields for us to be without them.

2. If lime is to be used on any of the fall crops or the pasture, now is a good time to order it, thus making sure that it will be on hand when needed.

3. Will you have a fall garden or a weed patch? This question must be answered right away now.

4. Don't let any weeds go to seed anywhere on the farm. Now is a good time to cut closely those in the fence corners, on the ditch banks, around stumps, and in other out-of-the-way places.

5. Plan for a big fall grain acreage, and order seeds and fertilizers early.

blooming than the bald-headed varieties. In the upper South and the Piedmont section I believe that the Virginia Gray turf oats are safer than the Rust-proof varieties, as being hardier than other oats. In the coast section, the best oats section, the Texas Red Rust-proof and its varieties will give the heavier crop.

Where a small grain crop follows the corn crop the farmer will of course cut and shock the corn in rows as wide apart as convenient so as to give more open room. Then the shock rows can be sowed in spring oats. But do not sow either wheat or oats on rough land and depend on the harrow to put them in. This is not only bad preparation but a waste of seed, for much will get covered too deep and much not covered at all. Fining the surface and the sowing with a grain drill is important for the best results. As a general rule I would sow five pecks of wheat an acre and two and a half bushels of oats.

Where wheat is to be sowed after peas it is far better to cut, cure and feed the peas than to turn them under, for the turning under of a mass of vegetation so late will prevent the proper settling and compacting of the soil. Cut, cure and feed the peas and use the manure as a top-dressing in winter, and merely disk and harrow the pea stubble fine.

Several years ago a farmer wrote that he had a field of peas where he wanted to sow wheat and asked if it would be best to turn the peas under. Doubtless the turning under would

ed plant foods of the soil are nitrogen, phosphorus, potassium and calcium and a plant takes all of these required for its growth from the soil, the growing and plowing under of such a plant adds nothing to the amounts of these required plant foods in the soil. It also follows that such plants, when removed, reduce the plant foods in the soil just to the extent to which they use these plant foods in the growth of the crops or parts of crops removed.

The legumes do exactly as other plants, as regards all of these plant foods, with the exception of nitrogen, except they may require and take from the soil larger quantities in their growth. When legumes are grown and removed from the soil, in part or in whole, the store of these plant foods, phosphorus, potassium and calcium, is reduced and the soil made just that much poorer in these plant foods, to just the extent that the legumes use them in their growth.

In other words, there is no difference between the general relations of legumes and other plants, to the plant foods in the soil, except as to nitrogen. Let us not forget this fact. Forgetting or ignoring it has led many people into error and resulted in much disappointment in their attempts to build up their soils or increase the production of other crops, by growing and removing legumes from the soil. Any careful observer has found instances where the growing of legumes, even when removed for hay, have greatly increased the yields of the crops im-