

Short Talks About Fertilizers.

A READING COURSE.

VI-When and How to Use Green Manures.

A PART OF almost every crop that is grown is returned directly to the soil and thus becomes a green manure; but the crops grown especially for this purpose are comparatively few. Those most commonly grown in the South are cowpeas, crimson clover, bur clover, and rye. In some sections red clover is also a highly-prized green manuring crop, and large areas of lespedeza—Japan clover—are also utilized this way. Other winter crops sometimes used are the vetches, turnips, and wheat or oats. Of these, the cowpea and Japan clover are summer-growing crops, red clover is a biennial—that is, lasts two years,—the others are winter-growing crops.

The Best Way to Use Manure Crops.

All of these crops are valuable for feed; and as a general proposition, it may be said that any crop that can be profitably fed to live stock will pay better when so used than when returned directly to the soil. This is because when the crop is fed the feed value is, of course, secured, and there may be saved in the manure from 60 to 85 per cent of the plant food that was originally in the crop. This plant food, too, is usually in a more readily available condition for the use of the following crop in the manure than in the turned-under crop.

The ideal way, then, to utilize crops grown for manuring is to feed them to stock and to return the manure to the soil, thus securing their full feeding value and from two-thirds to three-fourths of their original fertilizer value.

While this is true as a general proposition, however, the fact remains that in many cases it will pay to return a crop directly to the land on which it was grown—that is, to plow it down or otherwise incorporate it with the soil before or after maturity. The cases when this is advisable will mostly fall under three heads.

When It Pays to Plow Under a Green Crop.

The first is when the crop is so light that the expense of harvesting it would amount to more than the difference between the combined values obtained from it as feed stuff and as stable manure and its value when used directly as a green manure. Such cases are very common on the poorer lands of the South. Many old fields can be most economically started on the way of improvement by sowing a crop of cowpeas, for example, in the spring, fertilizing this crop with phosphoric acid and potash if these elements are needed, working it into the soil when mature, and plowing it with a winter crop, like rye or crimson clover, to be turned under also before anything is removed from the soil. This will, however, be the plan to be recommended only on very poor lands much lacking in humus, or under other exceptional circumstances.

The second case in which the direct application of a crop as a green manure is to be advised, is where the land needs the humus and there is little chance of its being returned to the soil if the crop is removed. If the owner of the land, for example, has not stock to which to feed a crop of cowpeas and can only sell the hay and buy commercial fertilizers to feed his land, it may pay

him to plow the crop under, even though he could sell it and buy more plant food in other forms after getting pay for the extra work of saving and marketing the crop. This scarcity of live stock to consume the crops grown makes green manuring a necessity in many cases where it would be much better if the crop could be first fed.

A third case is where if the fertilizing crop is left to mature it will be in the way of the succeeding crop. For example, if a cover crop of rye is to be followed by cotton, it may often be necessary to plow the rye under before it makes growth enough to make its harvesting profitable. A similar problem is often presented with winter-growing crops, such as rye and crimson clover, that while useful for feed to a certain extent, have also some features that make their use objectionable. Rye is an excellent crop for cutting and feeding green; but if it must be made into hay, it will usually pay better to plow it down. Crimson clover makes good hay if cut at exactly the right stage; but if allowed to get too ripe, it may be a dangerous feed, especially for horses, and in such cases, is best plowed under.

Some Points to Observe in Using Green Manures.

The great value of green manures in adding to the humus of the soil has been spoken of; but they sometimes produce injurious effects also and, like other fertilizers, must always be used with reference to the crop that is to follow their application.

The plowing under of a large amount of vegetable matter as a preparation for, or a short time before, the sowing of wheat or oats in the fall, is never to be advised. The undecayed mass makes the soil "puffy" and unsettled and prevents the formation of that fine, firm seed bed which these crops so much like. Indeed, it is nearly always better to

have green manures mixed with the soil in time for them to have partially decayed at least before the succeeding crop is planted. This is not always practicable, however, and with some crops, corn for example, is not of great importance. The plowing under of a heavy crop of green vegetation often results in too much acidity in the soil when it begins to decay. For this reason it is usually better when a rank crop is to be turned down to allow it to fully mature. Soil acidity produced by this may be corrected, however, by giving the soil a top dressing of lime after the crop has been plowed down. Green manures are most profitably used as a preparation for such gross-feeding and humus-needing crops as corn, or for those, like the Irish potato, and other root crops, that need plenty of soil moisture, do not mind a little sourness in the soil, and are sometimes injured by the application of stable manures.

Cover Crops for Green Manuring.

The crops most generally profitable as green manures are those that are grown during the winter to protect the soil, and are then turned down in the spring in time to be followed by cotton, corn or other hoed crops. Rye, for example, is most profitably used, as a rule, by pasturing or soiling in the early spring and then turning under; while it is often more profitable to plow a crop of crimson

clover in for the benefit of the corn crop that is to follow than to try to make hay of it. A summer-growing crop, such as the cowpea, should, on the other hand, be first used as a feed, unless the land is very poor indeed, or there is no other chance of getting the humus the crop contain into the soil.

To sum up, then: The most profitable green manuring crops, as a general rule, are those that grow during the winter and are turned down in the spring; it is usually better when practicable, to let a crop mature than to plow in it green; large quantities of green matter turned under sometimes sour the soil and are always objectionable just before seeding oats or wheat; where a crop can be profitably saved for feed and the manure returned to the land this should always be done.

Next week's talk will be about barnyard manures, their composition and usefulness.

Buy Garden Seed Early.

In buying garden seed, it is better to buy from a dealer who handles seed in bulk, or order from some reliable seedsman. This will insure you fresher seed as well as more reliable as to trueness to name. Do not put off purchasing your seed until planting time and then run in town and risk the little five and ten cent packages from the store.—Prof. D. C. Mooring.

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