



An Ontario plowing scene.

elements, and that no one or any two of themselves can support plant life. It does not matter how liberally the plant food materials may be used, if there is a scarcity of potash through a great abundance of nitrogen and phosphoric acid, the crop must fail for lack of potash. Potash is used in this case merely as an illustration; a scarcity of any one of the elements is just as fatal to profitable cropping.

From all this, the reader will have gathered that one of the most important points in feeding plants is the proportioning of the three elements, particularly in view with the special needs of particular crops. The composition of various crops will not be taken up here, but this information can be obtained from any agricultural paper, or from any experimental station. We are studying here the composition of manures and fertilizers. In this study we must omit nitrogen, for the reason that nitrogen accumulates in soils through the use of plants of the clover class, which have the power to take nitrogen from the air and change it into such forms that it is available as plant food. Potash and phosphoric acid have no such means of replenishment, and when removed from the soil are a dead loss.

Farmyard manure is practically a natural manure, as it is composed of the very crops removed from the soil in the course of regular cropping. One ton of average farmyard manure contains to pounds of potash and five pounds of phosphoric acid; that is, of the two mineral plant food elements, potash comprises 67 per cent. and the phosphoric acid but 12 per cent. This is a fair general standard so far as actual plant food is concerned, but phosphoric acid is likely to take insoluble forms in the soil, which lessens its availability. On this account, the application is at least doubled—that is, for general farming, the quantity of potash and phosphoric acid should be about the same.

This is pretty much all there is to the mathematics of manures, except that the same rules apply when fertilizers are used, and we all know we must use them sooner or later.—S. P. Cox.

Spring Plowing

There is a vast difference in the results obtained from a field well plowed at the proper time and one merely skimmed over in haphazard fashion. Hurry is responsible for much of the

poor plowing to be seen throughout the country. The spring opens and work must be rushed, so the land is turned over whether it is in fit condition or not. Weeds will be left upon the surface, the furrows be uneven and many spots will be missed altogether; under such circumstances it is impossible to get a proper seed-bed, and without that no satisfactory crop can be grown.

Where it is possible to avoid it, never use a plow until the land is in proper condition to be worked, that is, neither too wet nor too dry. To test it, take a handful of the soil and press it firmly; if it forms a ball that will not crumble, it is too wet, as it is also if the furrow slice looks shiny after the plow has passed. Heavy soils, if plowed when too wet, inevitably fail in producing a paying crop for the plant food is so locked up in the clods as to be unavailable to the plants during the entire season. Very light sandy soils, however, are better worked when a little over wet than when too dry.

In choosing a plow for light land or heavy, for sod or stubble, for shallow work or deep, there are several things to be considered, most of which are familiar to all practical plowmen. Lightness of draft and uniformity of work are important, but some lightness of draft may be very well sacrificed to completeness

of pulverization and uniformity (except in plowing grass land) is of less consequence than thorough breaking. When plowing to correct texture and to improve tilth much depends on the shape of the mold board, the wetness of the soil and the depth of the furrow slice. If a soil is too dry to puddle, a steep mold board will shear it into thinner layers and pulverize the soil most; if the soil is still drier the layers will be thicker and the granules coarser. When the soil is much too dry no shearing will take place, and the furrow slice will break into coarse lumps. If the soil is much too wet the pulverizing will be so great that the soil will be puddled.

With a given plow the deeper the furrow slice the greater will be the pulverizing effect and the greater the danger of puddling the soil if it is too wet. If the plowing is done with a low flat mold board, the pulverizing effect on the soil will be much less than if the plow with a steep mold board is used, and the danger of puddling not so great. It is clear from the mechanical action of the plow that its form should be adapted to the

class and condition of soil upon which it is to be used. If the soil has a tendency to be too open and porous and is naturally coarse-grained, like the sandy soils, it should be plowed with a steep mold board when a little over wet, and as deep as conditions will permit, so as to break down the granulation and secure a finer, closer texture. If the soil is generally too close in texture, is heavy and soggy, it needs to be plowed with a less steep mold board, and when the soil is a little drier, so as to shear into thicker layers and form granules of larger size. Should it be absolutely necessary to do the plowing when the soil is a little too wet, a less steep mold board should be used and the depth made as shallow as conditions will permit. If the soil has become too dry and is not pulverizing enough the steep plow run at a greater depth will do the work better.

Of course, there are other ways of improving the texture of the soil, and none, perhaps, so effective and so enduring as that of incorporating humus in various ways, but as Kipling would say, that is another story.

Test Your Seed Corn

Every farmer should look well to the condition of his seed corn before the hour of spring work begins. A few hours spent now in testing the germination of individual seed ears may mean the prevention of the loss of many dollars and much time. Testing a sample of bulk seed after shelling and mixing is of little value, for one is then powerless to improve the quality of his seed by the rejection of the ears of low germination. He simply has to discard all or none, and generally does the latter. By testing each ear in such a way that one knows exactly how it behaves, the worthless ears can be rejected and the quality of the seed greatly improved. While the germination test is not a substitute for the ear-row corn test, since ears which show equally good germination frequently vary widely in their ability to yield, yet it is of great value in that it will weed out ears more or less injured as a result either of too late gathering of seed, or of lack of proper care in drying out, or both, and this will pay any corn grower many times over for the labor involved. The farmer can do for himself as well, or perhaps better, than anyone else.

Why

A young lady who taught a Sunday school class of young boys was often nonplussed by their raised questions sometimes propounded by her young hopefuls.

One Sunday the lesson touched on the story of Jacob's dream in which he had a vision of angels descending and ascending a ladder extending from heaven to earth. One inquiring youngster wanted to know why the angels used a ladder, since they all had wings. At a loss for a reply, the teacher sought to escape the difficulty by leaving the question to the class.

"Can any of you tell us why the angels used a ladder?" she asked.

One little fellow raised his hand. "Please, ma'am," he said, "n'raps they was mounting."—Harper's Weekly.

In sewing the band to the neck of a garment, the neck should be held next to you and rounded over the band (not held full) as you sew. It is also necessary not to stretch the neck. If the two edges are held even the band is likely to be larger than the neck.—B. P. B.