

keep the weeds in check, and to prevent excessive loss of moisture by evaporation. When the field has been put into the desired condition, the rows should be laid off and the fertilizer drilled in the row. The fertilizer should be well mixed with the soil before transplanting. The root system of tobacco being comparatively small, better results are usually obtained in hastening the growth and maturity of the crop by drilling the fertilizer than by sowing it broadcast.

In low-lying fields it is often advantageous to throw up a light ridge just over the fertilizer. The tobacco is then set on that ridge and in times of heavy rainfall there is not so much danger of the plant drowning, or of having mud washed over the heart or bud of the plant.

ROTATION.

On account of plant diseases and insect enemies peculiar to tobacco and the fact that, in any system of farming, it is necessary to grow a succession of different crops in order to maintain the fertility and humic content of the soil and thereby secure the maximum yield with every crop, a good system of crop rotation should be followed by every tobacco grower. As a rule, the quality of the tobacco produced will depend almost as much on the rotation followed between the successive crops of tobacco as upon the fertilizer used and the cultivation given directly to the tobacco.

On the heavier types of soil such as are found on the Harrow Tobacco Station, a four-year rotation of corn, tobacco, some cereal, and grass has been found quite satisfactory. The corn preceding the tobacco tends to remove any surplus of ammonia (nitrogen) in the soil and thereby check the tendency of the tobacco to become too coarse and heavy. Since, on these soils, the use of clover has been found to have an adverse effect upon the quality of the tobacco a mixture of timothy and red top is seeded for hay.

On the lighter types of soil, on the Station, where the tendency is to produce a thin leaf lacking in body and weight, it is found that the above rotation should be altered in such a way that the tobacco does not immediately follow the corn, in order to obtain a leaf of better body and a larger yield.

FERTILIZING THE CROP.

No crop produced on the Harrow Tobacco Station gives larger returns, per dollar spent for the judicious use of commercial fertilizers, than does tobacco. The results of three years' experiments have always shown an increase in yield and often an improvement in quality of the leaf when fertilizers were used; and the net profit has ranged from three to four dollars for every dollar spent in fertilizer.

Due to the adverse effect of slowly available plant foods on the colour and quality of flue-cured tobacco, a commercial fertilizer containing readily available plant foods is especially adapted to, and valuable in, the production of this type of tobacco.

On most soils of the above-mentioned Station, a complete fertilizer—that is one containing nitrogen (commonly spoken of as ammonia), phosphoric acid, and potash—is needed; and, as none of these materials can substitute for another, a maximum yield cannot be obtained unless all three are present in a sufficient quantity. Moreover, since these materials not only affect the yield of tobacco but the quality as well, it is not only important to have them present in a sufficient quantity but also in the proper proportion.

On the Station, an excess of ammonia has been found to give a coarse, dark, late-maturing tobacco with a tendency to become flecked with reddish, dead spots in hot, dry seasons; while a deficiency of ammonia results in a thin, small, light weight leaf.

No decidedly adverse effects have been observed, on the Station, from excessive applications of phosphoric acid or potash; and since practically none of those materials is lost by leaching and we have found that an excess of ammonia may be overcome to