

is extremely difficult. If fine soil is the dominating element the penetration of water is difficult and the soil may be considered as essentially resistant, since the permeability of a soil depends upon the quantity of coarse sand that it contains. But we know that the greater the fineness of the soil the less active are the disintegrating agents; consequently fine sand from the point of view of the constitution of the reserves of nutritive elements, is preferable to coarse sand. It follows that a soil suited to tobacco culture must contain in due proportions a mixture of fine and coarse sand; the fine sand is useful for the maintenance of reserves, the coarse as a means of permeability. It is the admixture of these two almost contradictory characteristics which constitutes a good tobacco soil.

Oats are less exacting than any of the cereals, and practically they succeed everywhere. By this crop one can increase the depth of ploughing for it likes a deeply-stirred soil. This would not suit wheat which requires a firmer soil in order to avoid exposing the roots. Lastly, oats better than any other cereal, stands an insufficient preparation of the soil which is a valuable property in Canada where climatic conditions are not always favourable to farm work.

There remains barley. Barley is like tobacco, a plant of rapid growth; it requires therefore a rich and well worked soil. Of all cereals it requires the greatest stirring of the soil, and if it were not also so exacting it would do admirably for a crop succeeding tobacco in the rotation, because a hoed plant on account of the numerous workings that the soil receives leaves the land clear and well stirred.

Amongst these four cereals we are inclined to prefer oats, believing that this cereal best fulfils the purpose we desire it to accomplish. Owing to their small requirements, oats will give a yield without manure and will utilize the phosphoric acid produced, phosphoric acid being doubtless of little use to the tobacco, but being indispensable to growth as we have already seen.

Rye is not much grown in Canada, especially in the province of Quebec, and it is hardly grown in Ontario, except for the distillery. As to barley, it is too exhausting.

We sow clover with the oats in the spring. We recommend a mixture of red with white clover. This last is common enough and succeeds in almost any soil. It is also strongly resistant to drouth and grows well in silicious soils, in fact it is in these soils that it gives the finest yields.

Red clover requirese a soil rich in clay; yet it will succeed in tobacco soils, since the last named plant also requires a subsoil which ensures the necessary moisture. Lastly, red clover being finer than white, will improve the quality of the fodder. If one is careful not to abandon the clover to pasture after the harvest, it will have every chance of giving a good erop. I have several times noticed that in many places farmers put their cattle into the young clover. One sees the defects of this practice from the trampling of the animals. Nevertheless and in the special case we are now considering pasturage owing to the excrements of the animals could be practiced and would be a fairly good operation. We may choose between the two practices according as to whether our object be to enrich the soil with humus or to obtain a good erop of fodder. The latter plan seems to me to be preferred, it being understood that the farm has enough meadows to supply the food requirements of the stock.