

100 p. c. of its weight. Thus, soils containing a large proportion of vegetable matter are much less liable to suffer from drought than those deprived of it by careless cultivation. The cracking of the land in dry weather, which occurs so frequently in run-out heavy soils, is thereby prevented, as humus, owing to its great absorptive power does not bake and become hard, but remains spongy.

We can see from this rapid review how desirable is the presence of organic matter in our soils. No land can be fertile without it. It is therefore of the utmost importance for every farmer to study the means by which humus can be returned to the soils and its loss prevented. Then only can fertilizers be applied to the soil, if needed, with some chance of profit.

Humus can be restored to the soils by the use of farmyard manure and by green manuring. But the first, no matter how carefully kept, is not always in sufficient quantity to supply the needs of the soil. We must then have recourse to the latter, which consists in burying down a crop sown for that purpose. Leguminous crops, such as clover or peas, which join to the advantage of a vigorous growth that of gathering an extra supply of nitrogen from the air, are the most satisfactory. But clover will not grow on lands nearly destitute of humus. On such it must be preceded by rye or buckwheat which have a stronger power of attacking potential plant-food. This stock brought to our command, we are enabled profitably to manufacture the raw material of the soil into a product for which there is a demand.

When the growth of clover has been rendered possible in our soils by the addition of humus, our supply of this element is not likely to run short, if carefully managed. Clover grows strong fleshy roots which in decaying enrich the soil with organic matter very rich in nitrogen. On some farms very good results have also been obtained in plowing down a second crop of clover once in the rotation. At the Ontario Agricultural College, clover occupies the land 2 years in a rotation of 4. The second year's growth is left as a pasture and plowed down in the fall. By this method lands formerly considered as exhausted have

seen their fertility restored.—Where manure is scarce, 2 or 3 pounds of clover seed per acre may be sown with each grain crop and the clover plowed under (very shallow) in the fall. Surprising results are obtained from this practice. (1)

Thus, in order to maintain the supply of humus a systematic rotation must be followed in which clover will make up for the deficiency of farm yard manure. Frequent deep plowings must also be avoided for they tend to deplete the soil of humus and turn the valuable portion of the surface soil out of the reach of plants. If necessary the sub-soil plow should be used, but on an ordinary loam, the strong roots of clover will loosen the sub-soil, and shallow cultivation only will be required.

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### STATE OF THE CROPS IN JULY.

(From the Depart.—Bulletin).

*Grains.*—The average for the province of the appearance of the grains is 74 for wheat, 77 for barley and 80 for oats. Last year, at the same date, it was 78 for wheat, 82 for barley and 87 for oats. It is therefore slightly lower this year. In the 2nd and 8th groups, that is to say, in the older parts of the province, it is lowest, and in Bonaventure and Lake St. John it is highest as in former years. This is a constant and noteworthy circumstance. Does it originate in the fact that the farmers in the older parishes are closer and more exacting in judging the value of their crops than those in the new parishes? I do not think so. It is probable that it arises from exhaustion of the older lands and their insufficient manuring, while the newer lands still retain all their richness.

At this time last year the average for oats at Lake St. John rose to 93, and at Bonaventure to 92, while in the Eastern Townships it was only 73.

Little rye is sown; for this grain the average is 73

*Buckwheat.*—Nothing particular; general average, 74.

*Flax.*—General average, 73.

*Peas and beans.*—If the appearance this year be compared with that of past years, it will be

(1) And the frequent repetition of clover will obtain results still more surprising. Ed.