

# MANURES AND FERTILIZERS.

BY

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## THE INCREASE OF FERTILITY THROUGH THE USE OF FARM MANURES, THE GROWING OF CLOVER AND THE APPLI- CATION OF FERTILIZERS.

It may be useful in these days, when we are seriously considering all possible means that may lead to a profitable increase in our crop yields, to review the more important conclusions that have been reached on the Experimental Farms from experiments conducted towards the increase of soil fertility.

This investigation has included trials with manure, fresh and rotted, fertilizer ingredients singly and in mixtures, applications partly of manure and partly of fertilizers and experiments to ascertain the manurial values of the aftermath and of the residues left by clover and by several other of our more important legume crops. Many of these experiments have been conducted over a period including several complete rotations.

For the most part, these trials have been carried on at Ottawa, on a rather light and sandy loam, somewhat poor in humus and apt to suffer seriously in times of drought. But there have also been, to a limited extent, similar experiments on several of the branch Farms, on heavier soils, so that considerable weight may be attached to the conclusions as being more or less generally applicable.

### MANURE: THE MOST EFFECTIVE FERTILIZER.

Our work has emphasized the value of barnyard manure. The yields of our staple crops have been higher on plots dressed with manure at the rate of from 10 to 15 tons per acre, than on our plots receiving commercial fertilizers applied in various mixtures and proportions according to the best known practice.

### MANURE: THE VALUE OF FREQUENCY IN APPLICATION.

the after effect, that is, the influence on subsequent crops, of manure is more marked than in the case of fertilizers, it is evident that comparatively small applications at short intervals are more effective than larger dressings applied yearly. Thus, on most soils, but more especially light loams, 5 tons per acre every second year will give better return than 10 tons every sixth year.

### KEEP THE MANURE NEAR THE SURFACE.

The larger number of the feeding roots of our staple farm crops in humid districts are within the first 6 inches of soil, indeed for many crops the foraging ground may be restricted to four inches. For districts where methods of so-called "dry farming" must be employed and the roots seek moisture at greater depths, this statement must be modified. Nevertheless, taking the country as a whole, there is no economy in burying the manure at any great depth. Its equable and uniform distribution, as by a manure-spreader, and thorough incorporation with the surface soil, as by shallow ploughing, or perhaps better still by disc harrowing after the manure has been spread on the partially prepared soil, appears to be the most profitable practice.