

ials with a sufficient quantity of inorganic salts, to make the effect of the whole equally as immediate.

The reader knows that the nitrogenous materials such as blood, tankage and bone are not so readily available as the nitrogenous chemicals, owing to the fact that they must necessarily decompose to varying extents in order that their contained plant food may be liberated in forms that may be readily assimilated by the plant.

Bearing the foregoing points in mind, the reader will appreciate at once the economic and permanent value of a mixed fertilizer in which an essential 'plant food' element is derived from different materials which liberates same gradually and at all times needed, which ceases to liberate it when not required by the plant and which carries the natural surplus, that is what is not taken up by the crop to which it is applied, safely over till the next season for the benefit of crops which are to follow:

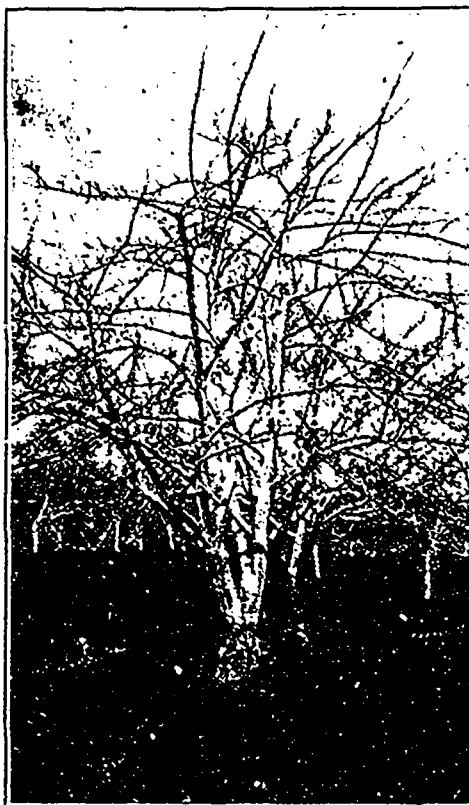
In brief, the process is as follows: The nitrate of soda owing to its immediate effect, gives the plant a good start and, during the time it is exerting its beneficial influence, the blood goes through the necessary stages of decomposition, whereby its plant food is liberated and when the effect of the nitrate is about over, assumes the responsibility and carries the plant through the second period of its growth, abundantly supplied with essential food until the time when the tankage present is ready to continue the good work and eventually place the plant safely in the hands of the bone, which gives it the finishing touches and ensures it giving the bountiful harvest we farmers so greatly appreciate. The small amount of nitrogen in the bone while sufficient to furnish the maturing plants full requirements is not in excess and will not retard maturity. Owing to the cessation of decomposing processes in the soil the liberation of the plant food in the mixture is discontinued until the next season.

The reader will see that by making a number of applications of a mixture containing the above materials you will year by year gradually raise the level of the excess fertility that is carried over to the next season and thus eventually restore your soil to the original high state of fertility, and only small applications of fertilizer will be required to ensure the constant production of maximum crops, where soil fertility is a deciding factor.

The writer is aware of at least one brand of ready-mixed fertilizers prepared from materials such as the above, which is manufactured in Ontario, and for sale at very reasonable prices to farmers in all parts of Canada. The results farmers are reporting from their

use go to prove the truth of the foregoing assertions regarding their superiority over the home-mixtures which as stated above are advocated mostly by those who are only in a position to offer the farmers raw materials.

The mechanical condition of any fertilizing material simple or compound deserves the serious consideration of farmers when articles of a similar chemical character are offered for their choice or when they contemplate "trying" to do their own mixing. The degree of pulverization controls almost without ex-



A Well Sprayed Tree---Not Much Chance for Insects Here

ception under similar conditions the rate and solubility and the more or less rapid diffusion of the different articles of plant food throughout the soil. The poor mechanical condition a farmer obtains with a shovel and a sand screen is without a doubt a great deal to do with the poor results obtained by home-mixing. The fertilizer manufacture is a necessity the farmer cannot do without, and let me say here that it is not necessary for the farmers of Ontario or other parts of Canada to go outside of their own province to obtain their fertilizers. Conserve the fertility of Canadian farms by using fertilizers prepared from materials which have come direct from the farms themselves, including pork packing house by-products, and so forth.

Some of the statements made by Dr. Dandeno deserve special attention. For instance, "the value (of a commercial fertilizer) depends chiefly upon whether

the original bacterial life has been preserved and whether the constituents of the fertilizer are favorable to the development of nitrifying bacteria of the soil and to those organisms which prey upon plant excretion."

To the writer this seems a very rash statement. Materials that are recommended for use in home mixing certainly have no bacterial content, but it would be hardly fair to say that the shortcomings of this practice are altogether due to this fact. In the manufacture of high grade mixtures such as indicated in the illustration here published, the raw materials have necessarily to be heated to high temperatures in order to extract the fat, which would be a decidedly harmful ingredient in a fertilizer, and are then dried in such a state that insures them from spoiling due to bacterial action. When the mixture is applied to the soil, however, it becomes subject to bacterial action, depending upon the bacterial content of the soil, and these organisms render the essential elements in the fertilizer available as plant food. Other than the method of supplying cultures of bacteria for inoculating the seeds of legumes there is no practical process at present in use for providing the right kind of bacteria for soil inoculation. It is questionable whether the 'original bacterial life,' even though it were preserved, would have any beneficial effect in a fertilizer, and most certainly the value of a fertilizer which is primarily a source of 'plant food,' does not depend upon its own biological characteristics.

"The use of commercial fertilizers has been one of the most baffling questions with which the farmer and fruit grower has had to contend." The writer thoroughly agrees that it is a 'has been.' The farmers of Ontario particularly have been slow to realize the advantages to be derived from the use of such materials, but it is evident that they are awakening in this regard as more and more commercial fertilizer is being used each and every year. We need to bear in mind when placing our orders for fertilizer that it is the analysis of the material offered that should be taken into consideration and not the brand name or so many dollars and cents. The brand names, "Potato Special," Early Vegetable, etc., do not amount to anything and the amount of dollars and cents will vary according to the amounts of plant food in the mixture. For instance, a three-eight-six (meaning three per cent. ammonia, eight per cent. available phosphoric acid, and six per cent. potash) will not cost as much as a four-eight-six or a three-eight-ten, but more than a three-eight-five or a three-six-six.

(To be continued)