

Agriculture and Colonization.

for this reason, that it was particularly deficient in humus or vegetable matter—a heavy clay soil for instance. Or it might be an exceedingly light soil, that we were considering, or a soil which was not in any way deficient or below the average in phosphoric acid or potash but needed vegetable matter and nitrogen. We can understand that in such cases clover would be an advantageous manure to use. On the other hand if our soil and the crop we are manuring—because we have always to take that into consideration—required available forms of potash and phosphoric acid, the barnyard manure would give us very much better results. However, the point principally lies in the fact that on most farms barnyard manure is not produced in sufficient quantity to properly fertilize the fields, under such circumstances green manuring should be adopted. In connection with that matter of green manure, I think it is always well to bear in mind that it should be supplemented with some manure which will supply the other elements of fertility. For instance, I always advise the application of wood ashes. They contain one of the essential elements of plant food, potash, and they are obtainable in most parts of Canada very cheaply. I have brought this matter of the value of wood ashes before this committee on previous occasions. However, I may add this,—that the clover while it can obtain its own supply of nitrogen from the air under favourable conditions, is a plant which makes large demands for potash. It responds well to potash fertilizers. Manuring consequently with wood ashes or with kainit, muriate of potash, sulphate of potash, or some other form of potash, will give excellent returns. When the clover is ploughed under this store of potash is not lost, it is there for future crops.

Value of Wood Ashes.—It seems to me a pity that our people do not realize more than they do the value of wood ashes. The commercial value of potash is between 4 and 5 cents a pound. Our wood ashes, I suppose, contain an average of from $5\frac{1}{2}$ to 6 per cent of potash. They are parted with for a mere song, a bushel of ashes in exchange, it may be for a bar of soap, or a tin pail, or something of that character, worth but a cent or two. These wood ashes go over to the States and are greedily bought by the farmers in the Eastern States at 25 or 30 cents, knowing that they get very good value for the money. To my mind it seems like killing the goose that laid the golden eggs to part with this source of fertility at such a ridiculously cheap rate.

By Mr. Pridham :

Q. How would rape do ploughed down? Is it very easy to obtain?—A. There are other green manures besides clover—rye, buckwheat, and rape. These are all excellent in supplying a large amount of humus or vegetable matter, and also from the fact that they have converted by their growth a large amount of insoluble plant food into forms assimilable. But there is this distinction between rape, and buckwheat and rye, and so on, on the one hand, and clover on the other hand,—that the former have not taken anything from the atmosphere; there is no distinct gain. By the use of one of the legumes we can supply the soil with the most costly of the fertilizing elements in a very cheap way.

To revert for one moment, before I leave the questions of soils, to these suggestions for general treatment, I would point out that in addition to wood ashes there are many soils in Canada which would be benefited by the application of lime. I do not wish to be understood to imply that our Canadian soils are deficient in lime, but there are undoubtedly many—and I say this, drawing the conclusion from the data we have amassed during the past few years, there are many which could be benefited by an application of lime in some form, either as such or in the form of marl or gypsum. Undoubtedly the injudicious use of lime without the concomitant use of other fertilizers would be injurious, because the first action of lime is to render more available the soil's store of plant food; hence the tendency, in time, by repeated applications would be to exhaust the soil if applied alone. If, however, the other elements of plant food are given in addition we could increase the fertility of soils. This deduction is not only from the results of analyses but from the experience of practical farmers who have been advised by us in this matter.