

APPENDIX No. 1

fertilize naturally. From the larger plots so increased he makes comparative determinations as to yield and quality of hay, and finally transplants the superior new varieties into an isolated place and there increases them from the seed.

BREEDING AND SELECTION OF CLOVERS.

He has perennial red clover. He showed me some of his strains of red clover on plots that were five years old, alongside of American clover, English clover, Chilian clover, and some of the Russian clover. Some of the Chilian plants were still alive, after five years. There were also a few remaining plants of the so-called perennial red clover of England. The clovers from the other foreign sources had all died, most of them after the second year. The two selections of Swedish red clover looked as though they might have been the second year's growth. When we asked him if it was perennial, he said, 'Well, I don't know; this is the fifth year and it shows well this year.'

To produce these new sorts of red clover, Dr. Witte selects and transplants same plants of the hardy wild varieties in an isolated plot alongside of a selected plant of the best cultivated kind and lets the bees do the cross-fertilizing; then he sows the seed in an isolated place and when the crop is ready to come into bloom the following year, he hoes out and discards all the plants that are not of good quality and which do not give promise of hardiness. The seed from these is again sown in an isolated place. It is from the best and hardest plants that reproduce true to type that the Swedish red clover has been produced.

By Hon. Mr. Fisher:

Q. Has he any merchantable quantities?

A. Not as yet; Dr. Witte is sending me about three or four ounces of the seed.

POTATOES.

I spent half a day with Dr. Lundburg who has been working with potatoes for many years, giving all his time to their study. He has been endeavouring to overcome the potato blight. In Canada we know pretty well what potato blight is. His work of selection has been largely with a view to getting new varieties which will resist the blight. He had found that when potatoes are about ten or fifteen years removed from the seed itself, as distinguished from the tuber, they gradually become more susceptible to the blight. The disease on the variety would then tend to increase from year to year. After a potato has been removed from the seed proper for ten or fifteen years, it seems to have less vigour; perhaps like an apple tree, which, when it has reached 50 or 60 years of age, has passed the climax of its vigour and ceases to grow with the vigour it had when younger and therefore becomes more susceptible to disease. Likewise the potato tends to lose its vigour and, in the opinion of Mr. Lundburg who had charge of this work, should be reproduced occasionally from the seed itself. The system of selection of those vines and tubers which give the best results and which seem to be disease resistant is identical with that followed by the members of the Canadian Seed Growers' Association.

FIELD ROOT SEEDS.

They grow and select field root seeds. They have applied the same system of selection in the production of mangels for feeding as is applied in Germany for the production of sugar beet seed. They have mangels which they have selected specially for heavy clay land, and other sorts which they have selected for lighter soils; they have several different sorts. When I asked the manager of the General Swedish Company how much of this seed he would have to spare for the Canadian