

APPENDIX No. 1

By Mr. Sproule :

Q. You did not give us a remedy for the cutworm in corn.

A. This cutworm usually hibernates in a pupal condition and if, during the winter by ploughing in the fall you can expose these pupal which are just beneath the surface of the soil a large proportion of the insects will be killed. The only direct method of destroying this species is to pinch the tops of the young ears of corn at intervals of several days and thus destroy the larvae which are inside.

Q. Suppose you turned that sod under in the fall? Do you regard that as a sufficient remedy for it?

A. Not entirely sufficient because natural sod is more compact than soil which has been cultivated two or three years. But if the sod is ploughed and then cross-ploughed a large number of these insects would be destroyed. It would not be advisable if it is found that the sod contains adult cutworms, which can be easily discovered upon examination, to sow corn or some other crops the following year, but such a crop as clover which is less likely to be attacked.

CORN ROOT APHIS OR LOUSE.

This is another insect which sometimes attacks corn in this country, the corn root aphis (*Aphis maidi-radici* Forbes). One frequently finds corn dying off owing to the attacks of these aphides or 'plant-lice' which occur on the roots. I mentioned this species not only because of its economic importance, but because it shows you an interesting relation which is sometimes found in the insect kingdom. On the roots of the green corn small plant lice are found feeding in small chambers.

By Hon. Mr. Fisher:

Q. Do you mean cereals?

A. No. I mean maize. These small plant-lice are placed there by ants. The plant-lice do not take up their positions on the roots of their own free will, but the ants, as some of you know, are very fond of the secretions of the aphides and they cultivate them just in the same way as the farmer raises and keeps cows. These small ants keep their cows in the shape of aphides. They take care of the eggs during the winter and when the young ones hatch out they are also tenderly cared for. The ants bring them to the surface occasionally to give them a little airing or exercise. When the corn is growing they carry off the young aphides and put them out on the roots of the corn just in the same way as the farmer takes out his cows and places them out in certain pastures. In view of very peculiar inter-relationship between the ants and the aphides, which one would hardly credit if he did not actually find it occurring, the remedy is to make the plants unpleasant for the ants. Professor Forbes, who made a very careful study of these insects, discovered a very good and simple remedy for preventing this corn root aphis, which is by using a solution of oil of lemon and wood alcohol. To one gallon of wood alcohol add a pint of oil of lemon. Six teaspoonsful of this mixture, that is, three fluid ounces are used to each barrel of corn, it is sprinkled over the corn and stirred in carefully. The solution creates an odour which is very objectionable to the ants and consequently they will not take the plant-lice, their small cows, onto the roots of this corn.

Q. You are speaking of the seed corn?

A. Yes, the seed corn. Worked out it costs less than ten cents per acre to use that remedy. Professor Forbes found that in some cases this reduced the number of aphides on the roots by eighty-nine per cent and reduced the number of ants by seventy-nine per cent.

Another insect of this family of bugs or plant-lice which is very injurious to crops is the 'green bug' or green aphis. It is especially injurious to oats. It is found, however, that it is very irregular in its prevalence, and this is due to the