overlap, the full acreage must be treated at a maximum cost, but with upright mature varieties or younger trees less cyanide will be required, until a minimum is reached in a newly planted orchard or in a nursery. It is not known at present just what the exact cost of treatment with calcium cyanide would be, but in any case the results here recorded, together with the reduced price of the granules, show that at least young orchards (or even some mature ones) and nurseries, where isolated, could be economically treated at present.

That ordinary winter cultivation, if carefully carried out, will reduce the numbers of midges emerging in the spring has been proved (*Journal*, August, 1921), but no concerted attempt has been made to follow this line of treatment, which requires that orchards be well kept throughout the year, so that the thorough turning-in of the midge-infested surface soil is made possible during the insect's hibernating-period. Not only is the pear-midge so reduced in numbers, but also other insects hibernating underground.

THE PEAR-MIDGE PEST.

SPRAYING EXPERIMENTS AT HENDERSON.

R. H. MAKGILL, Auckland.

THE damage caused by the pear-midge in those parts of New Zealand which this pest has reached is so great, and the control is so difficult, that the writer ventures to record even the small measure of success he has obtained by repeated spraying in his orchard at Henderson, near Auckland.

In the annual report for 1919 of the Bristol University Horticultural Research Station Mr. A. H. Lees, Research Entomologist, describes a nicotine-paraffin insecticide spray having the following composition: Soft soap, 15 lb.; paraffin, 2 gallons; nicotine, ½ lb.; water, 100 gallons. He advocates the use of this spray in summer-time against woolly aphis.

In conversation with the writer Mr. Lees suggested that it might be found of service against pear-midge, not with a hope of destroying the well-protected larvæ, but in order to deter the adult female from laying her eggs. Trials were accordingly made in 1922 and again in 1924, but on both occasions in place of paraffin and soft soap given in the formula a miscible oil ("Olene") was used in a strength of two parts per cent. As the paraffin is used chiefly as a carrier and spreader of the nicotine, it was thought that this change was of little consequence, and it simplified the making of the spray. Certainly the modified mixture acted well when used against woolly aphis, and its application for that purpose would have been continued had not the introduction of *Aphelinus mali* made its use unnecessary. If the mixture were carefully made no scorching of leaves resulted. However, it was found that if the nicotine (Black Leaf 40 being used) were put into the oil emulsion without previous dilution a certain amount of the oil was thrown out of suspension and floated as a scum. If this scum was sprayed on the leaves, especially of P. Barry, a certain amount of scorching resulted.