

In New Zealand, surveys were made of grass-grub infestations to locate suitable areas for liberation of parasites, and the different species of parasites were tested in the laboratory on New Zealand grass-grub to obtain an indication of possible usefulness. The parasites are not amenable to mass production in the laboratory and the procedure is to liberate the imported material in the field. Over 1,100 females belonging to five species were liberated in the Nelson district and at Raetihi, the choice of locality being determined by the availability of grass-grub infestations at a suitable stage. A few parasite individuals have been recovered from the field at Nelson and Ashburton, indicating that the parasites have completed one generation on the New Zealand grass-grub, but it is not yet certain that they are permanently established.

Nematode Worm Parasites.—Large-scale rearing of the nematode (*Neoaplectana glaseri*) introduced from the U.S.A. is now under way in preparation for field trials of this organism against grass-grub. Another native nematode is also being studied.

Chemical Control.—Tests of soil insecticides against the grubs have been carried out with several materials. Of these, Chlordane is the most promising as regards efficiency and cost, but high cost is still a serious obstacle to the use of the material under Canterbury conditions, though on the higher-productivity dairying pastures of the North Island it may be economic.

Field tests have also been made of the effectiveness of insecticidal treatments in killing beetles during the flight period and of the effect of the reduction in beetle numbers on the number of grubs produced. Significant reductions in both beetles and grubs were obtained, but the efficacy and practical economics of the treatments have yet to be assessed.

Biology and Ecology.—Information is being accumulated on the flight period and habits of the beetle. A large experiment was laid down in co-operation with the Department of Agriculture designed to show the effect of irrigation on the abundance of grass-grub.

GRASS-CATERPILLAR

The results from large-scale field trials this year indicate that the use of gammexane incorporated in superphosphate as an autumn top-dressing will replace the use of the poisoned bran baits used previously. This is an important development which has immediate effects on production. The new control measure gives better results than the old one for the same or a lower cost, and avoids the impasse due to shortage of bran. It has been taken up immediately by farmers, and a move has been made to have the gammexane incorporated with the super at the fertilizer-works.

MANUKA BLIGHT

Over the past three years the insect believed to be causing the death of manuka in South Canterbury has been widely distributed in both Islands by farmers. In at least some cases the insect has become established in these new localities. In one case, where the insect is established from liberations made three years ago, some of the manuka has already been killed. There are strongly differing opinions on the desirability of this spread, but there is at present no legal ground for preventing it. No success has been obtained in determining the origin of the insect—whether native or introduced.