

In the case of the third type of parasite (*Apanteles plutellae*), six consignments of 8,380 cocoons of the diamond-back-moth have been received, and a seventh is expected. The first four consignments yielded 12 per cent. of parasites; the remaining consignments are yet in cool store.

Before field liberation of *Apanteles* can be made it will be necessary to ascertain what influence it may have on *Angitia*, since both are larval parasites. It has been decided that more information should be secured by Farnham House in England regarding these parasites and their interrelations before any mass consignments are sent to the Dominion.

*Lucerne-flea*.—A survey during 1937–38 has established that the lucerne-flea (*Sminthurus viridis*), which is in Australia a serious pest of clovers and lucerne, is present and widely distributed in both North and South Islands. In the North Island there are isolated occurrences at Pokeno and Maraekakaho, and it occurs throughout the area from Dannevirke to Eketahuna and Palmerston North. In the South Island it occurs from Temuka to Gore, but has not been found north of the Rangitata River.

The insect is believed to have been established in both Islands for a period of years, possibly ten years or more. In general the extent of damage to clovers and lucerne is not serious. In the case of the occurrence at Maraekakaho slight damage was done to subterranean clover, and at Pokeno considerable damage was done to the clover components of a pasture shut up for hay. It is difficult to forecast the seriousness of the pest, particularly on the white-clover pastures of the northern half of the North Island, but it is believed that the damage on pastures subject to grazing will not be great.

In Australia the bdellid mite (*Biscirus lapidarius*) is considered a useful predator on the lucerne-flea. This mite is already present in New Zealand—in the North Island at least. It is therefore proposed to watch the position of the lucerne-flea until experience indicates that some method of control will have to be adopted.

*Insect Pests of Wheat*.—A survey of the insect pests of wheat has been undertaken in Canterbury. The Hessian fly (*Mayetiola destructor*) was found to be widely distributed, but the percentage of damage caused by it varied, being obviously destructive in certain localities of South Canterbury and of North Otago, but becoming of decreasing importance northwards until of minor importance in North Canterbury. It would appear that an important factor in the incidence of Hessian fly is farm practice, though the influence of climate has not yet been studied. From the data so far secured it would seem that parasites, though present, have but little influence in the control of the fly, owing to the extremely low percentage of parasitism. Attention was given to the susceptibility of wheat varieties to Hessian-fly attack, and it appears that some varieties are more susceptible than others; for example, Dreadnought and Hunters showed a higher percentage of infestation than did Tuscan and Cross 7, though this was not constant for all localities.

As an outcome of this preliminary survey it was found that the wheat sheath stem maggot (*Cerodonta denticornis*), which has been recorded from rye-grass in New Zealand, has been found attacking wheat in Canterbury; this insect damages grasses, oats, and wheat in the United States of America and in Europe. It was considered to be causing very little damage to wheat in Canterbury during 1937–38; it occurred also in barley.

Frequently associated with both Hessian fly and stem maggot were the larvæ of the Argentine wheat-weevil (*Hyperodes griseus*). This weevil has been already found in New Zealand. The available data show that this weevil is not yet a serious pest, but, as with the other wheat insects, more information is required.

Other wheat insects dealt with are the larvæ of species of noctuid moths, which damage the heads of the developing crop, and a larva boring in the stems. Mention should be also made of the so-called "wheat-bugs," which puncture and injure the grain.

*Other Problems*.—During the year the depredation of grass-grubs (*Odontria*) and grass-caterpillar (*Porina*) have been giving some concern, and it is desirable that an adequate study of these problems be undertaken. Though there are much data available concerning grass-grubs, knowledge of the grass-caterpillar situation is very meagre. However, observations are being carried out as far as possible.

A special study of the sheep maggot-fly problem is being undertaken by the Division in co-operation with the Cawthron Institute and Department of Agriculture. An extensive trapping experiment has been established in Marlborough to ascertain the seasonal incidence of the different species of blow-flies. A monograph on these flies will shortly be presented for publication.

An insect reported as causing serious damage to cocksfoot seed has been recorded from Mid-Canterbury; this is a species of midge of the genus *Stenodiplosis*. This species is apparently a new one not previously recorded, and thus no information is yet available concerning it. The problem is being studied, and the possibility of utilizing parasites attacking related seed-midges is being gone into.

The maize-seed beetle (*Clivina rugithorax*), which has been present in the Dominion for many years, caused serious damage during the year to maize at Hastings; the losses due to the insect amounted to 25 per cent. to 75 per cent. of the planted maize-seed. It was also reported as damaging strawberry-fruit in the same area.

*Routine*.—A considerable volume of advisory work has been attended to, involving the identification of insects sent in by private individuals and Government field officers, as well as furnishing information and advice on the pests concerned. A very valuable co-operation is maintained with the field staff of the Fields, Horticulture, and Veterinary Divisions of the Department of Agriculture.

*Summary*.—The major problems to which the Division is giving detailed attention as the leading avenues of research are the white butterfly, diamond-back moth, grass-grub, and grass-caterpillar.