

ENTOMOLOGY SECTION.

For convenience, entomological work for the year 1929-30 is dealt with under the two separate headings—"Routine" and "Research."

ROUTINE.

This involves (1) the identification of numerous insects sent in, and supplying all available information as to their economic significance and methods of control where known; (2) The investigation of minor problems in the field as they are brought under notice from time to time; (3) attention to and care of entomological collection and literature; (4) observing and reporting on progress of cinnabar moth (*Tyria jacobaea*). The results of these observations have already been sent to the Director of the Plant Research Station at Wellington.

RESEARCH.

Diamond-backed Moth (*Plutella maculipennis*).—A good deal of investigation has been carried out during the past year relating to this pest, and the results will be published at an early date.

Pear-midge (*Perrisia pyri*).—The pear-midge parasite (*Mysocyclops marchali*) introduced from Europe for the control of the pear-midge has not come up to expectations.

Field-cricket (*Gryllus servillei*).—This insect has been the cause of occasional serious attacks on pastures on the Hauraki Plains and in parts of Northern Wairoa. During the past season, however, the crickets were not in sufficient abundance as to constitute a pest. A broad outline of their life-history has nevertheless been obtained.

Potato Virus Diseases.—This work includes—(a) a survey of potato crops to determine characteristic insects. This phase is now completed, and the following characteristic insects have been found: (1) *Macrosiphum gei*; (2) *Myzus persicae*; (3) *Myzus pseudosolani*; (4) *Melanophthalma gibbosa*; (5) *Thrips tabaci*; (6) *Erythroneura* sp.; (7) *Collembola*—(i) Fam. Sminthuridæ. (ii) Fam. Entomobryidæ. The dipteran *Lauxania bilineata* is also fairly common on the foliage. The aphid predators *Coccinella 11-punctatae* and *Melanostoma fasciatum* are present wherever the plant lice are sufficiently abundant. (b) Under laboratory conditions rearing and determining which of the characteristic fauna is a virus vector. Everything is now in readiness for the prosecution of this work, and it will be commenced as soon as the mycological section can supply us with the so-called virus-free potatoes. It is proposed to experiment with insects 1, 2, 3, 5, and 6, named under section (a).

Dry-rot in Swedes.—Laboratory experiments are in progress to determine whether the normal spread of dry-rot in a crop can be attributed to insects. Two insects are being used for this work: (1) a beetle of the family Staphylinidæ. These insects are present in comparatively large numbers on infested swedes. (2) A dipteran which breeds freely in the rotting bulbs.

SEED-TESTING SECTION.

During the calendar year 1929, 9,153 seed-samples were received for testing purposes, representing a decrease of 996 on the number tested for the previous year. With, however, the increase in the number of purity analyses made, the actual number of tests put through during the year amounted to 12,244, or 3 per cent. less than the number for 1928. The reduction in the number of samples received is accounted for by the fact that the 1928 seed harvest was generally smaller than is usual.

Generally the quality of most species of grass and clover seed was very satisfactory. A distinct improvement was shown in the growth of perennial rye-grass, the growth of which for several seasons past has been unsatisfactory. Nearly one-third of the samples germinated 90 per cent. or over, as compared with only one-tenth for the previous year.

Most of the low-germinating samples were received from Hawke's Bay and Poverty Bay, and, although an improvement was evident in the general average, the seed from this district is still failing to reach the high standard in growth always associated with Hawke's Bay rye-grass a few years ago.

FARM ECONOMICS SECTION.

The following projects have been completed during the year under review:—

(1) *Survey of the Poultry Industry*.—This work was undertaken at the request of the Hon. the Minister for Agriculture, and was published in book form in February of this year.

(2) *Survey of Dairy-farms in North Auckland*.—A large number of farms in Dargaville, Ruawai, and Whangarei were surveyed for the season 1927-28. This material has been analysed during the current year, and two articles are now in course of publication, one dealing with sixty-nine farms at Ruawai and the other with 110 farms near Dargaville.

(3) *Hill-country Sheep-farming on the East Coast, North Island*.—The results of this investigation were published in the *Journal of Agriculture* for January, 1930.