

Experimental sowings have been made on open range, in rabbit-free plots, and in prepared nursery ground. The most promising exotic grasses to date are tall-oat grass, bluestem (*Agropyron smithii*), thick-spike wheat-grass (*A. dasystachyum*), and cocksfoot. Native blue-grass (*A. scabrum*) has germinated and grown well. Various hardy strains of lucerne are under trial and show good promise.

Seed-production areas have been established at the Waiwhetu Experimental Area and good harvests secured. Some 700 plants of different forms of native blue-grass are under observation for selection of the best strains.

WILD LIFE

The stomach contents of 92 opossums trapped in the Orongorongo Valley have been examined for the Wildlife Branch of the Department of Internal Affairs. It has been possible to identify nearly all the material, by far the greater part consisting of leaves of 20 species of trees and shrubs. There were also remains of fruits and seeds from 10 species and flowers from 5 species of plants. The stomach contents of some wallabies, 1 deer, and some quail and chukor were examined and identified. A report was prepared on the weed beds of Lake Ellesmere.

PHORMIUM

The period has been one largely of planning long-term phormium research in consideration of the fact that there is likely to be a serious jute shortage. This Division will maintain liaison with other Divisions of the Plant Research Bureau, with the Soil Bureau, the Plant Chemistry and Dominion Laboratories, and with industry on various aspects of the work.

Work on breeding and selection has continued at Moutoa. The trace-element experiment in connection with yellow-leaf has been examined without promising results and a yellow-leaf incidence survey made. A preliminary paper on yellow-leaf is almost complete. Work has also commenced on the embryology of phormium and on seed storage and germination.

ENTOMOLOGY DIVISION

Director: Dr. D. MILLER

GRASS-GRUBS (ODONTIA SPP.)

Researches in the Ashburton area have been inaugurated.

Field surveys for the determination of flight periods of beetles and population fluctuations amongst the larvæ have been carried out. During the period of beetle activity there were indications of possibly two flight periods last season; by the close of January very few beetles were found either on the wing or in the soil. A comparison of the numbers of adult beetles sheltering in ploughed or unploughed land offered nothing from which conclusions could be drawn. The location of the different larval instars in the soil in relation to soil moisture, &c., has been studied.

Detailed studies have been carried out toward the development of a laboratory technique for the handling of adult beetles, eggs, and larvæ in relation to work upon parasites, a search for which is being made in Australia and Patagonia. Insectarics have been prepared and the turf infested with larvæ.

The cultures of the nematode parasite (*Neoaplectara glasseri*) have been maintained.

Experiments with insecticides were also carried out in relation to their influence upon the insects.

PORINA GRASS-CATERPILLAR (OXYCANUS)

Population counts have been made concurrently with those on the grass-grub, and the evidence shows a high population in most of the lighter lands examined, while there seemed to be no sign of the caterpillars in the heavier lands under observation.

On account of the shortage of bran for the poison baits, other materials such as gristed oats, chaff and flour, and sawdust and flour are being experimented with. Also, D.D.T. and Gammexane dusts, as controls alternative to paris green and arsenate of lead, are being experimented with.