

Agricultural Botany.

Large numbers of specimens have been received for identification from farmers, officers of the Department, and even some from children, obviously showing a genuine interest in the science. The notes sent by the inquirers often throw much light on the local behaviour of weeds, and on their real status in New Zealand, which often is totally different from that of the same plant in other countries. Unusually large numbers of weeds have been sent in that have not been previously recorded. One of decided importance is a Japanese blackberry-like plant known as strawberry-raspberry (*Rubus illecebrosus*), which has appeared near Dargaville, and is being watched in regard to its potentialities as a weed by Mr. W. A. Christie, the local Inspector of Stock. An article was written for the *Journal* (January, 1927) dealing with this weed. Constant use has been made of our valuable and expanding herbarium, and its upkeep demands increasing attention. Special mention must be made of the work done—particularly during the last few months—in collecting weed-seeds for the preparation of reference cards, for which there is a keen demand. Officers of the Department and farmers throughout the Dominion have been appealed to, and thanks are due to them for their help, while unusually large quantities of seeds have also been, and are being, secured locally.

Blackberry Investigation.

Some progress has been made with this investigation but the initial problems it presents are by no means simple. Few private persons are doing any experimental work towards finding a means of eradicating the weed: there are very few intending applicants for the £10,000 bonus up to date, and of them, not one has brought his experimental work towards anything like finality.

In regard to the Department's experimental work several important facts have been demonstrated during the past twelve months. Goats have been proved of great value in the control of the weed; on certain country they can, in a comparatively short time, convert a dense hillside of unworkable blackberry to an easily workable and controllable block. Goats have been experimented with in the Wairoa County with very good results. They have now been transferred to Opoutama, where their uses may be better and more profitably demonstrated.

The effects of many chemical compounds used as sprays, &c., have been tested, and, though none has been found capable of effecting complete eradication, two have been singled out as of special value for purposes of control, and it has been shown what great use these cheap chemicals are in reducing large areas to a condition in which the weed can be subsequently dealt with.

A very extensive survey of the main blackberry-infested areas of the North Island has been made with a view to ascertaining as complete a list of parasites attacking the weeds as possible, and the amount of damage that may be done by individual parasites or by combinations of parasites. So far no parasite of any outstanding value has been found, and the damage done in the field by them is of very minor importance.

Cutting and burning experiments have been continued every four weeks as usual, and the result has been to prove that the late summer and autumn is without doubt the best time to cut or burn blackberry, and, further, that cutting and clearing is of far greater benefit than cutting and burning.

Entomology.

No *Cryptolaemus* for the control of mealy-bug were reared in the insectary for distribution. The beetles can now be secured at Whangarei, where they are abundantly established. Several consignments of the pear-midge parasite were received from Europe, and the work of establishing the *Platygaster* was carried out through spring, summer, and autumn. *Alysia manducator* was imported from London for use in the control of sheep-maggot fly, and successfully reared from maggots in the insectary. Several field liberations have been made during the late summer both in the North and South Islands. Apart from the use of parasites, the control of sheep-maggot fly is being undertaken from the insecticide aspect. Attempts are being made to locate certain species of parasites of North American Scarabaeidae that might be of value in the control of New Zealand chafers. Experiments with calcium cyanide in the fumigation of citrus trees have been carried out, and the use of this insecticide is being extended to the control of field insects. For instance, work on the insecticide control of earwig has been undertaken, and the results are promising. Observations on the hedgehog as a possible means of earwig-control are also being made. A considerable amount of work has been done upon forest- and timber-infesting insects, and the parasitic control of *Goniapterus* and *Sirex* is being undertaken. The usual routine work has demanded a considerable amount of attention.

Mycology.

Plot experiments on the control of the smuts of wheat, oats, and barley have been continued on the lines of the previous two seasons' work, some 200,000 plants having been sown and harvested individually. The combined results over the three seasons show definitely the relative advantages of the various control methods at present known. Future work need be directed only to improvement in the practical efficiency of the best of these methods, and to the testing of new materials and methods as these are evolved. Co-operative field-scale experiments were carried out on smut-control with wheat at Ashburton and Leeston, on barley at Leeston, and on oats at Leeston, Milton, and Gore. These gave valuable information on the practical methods to be adopted in reducing or eliminating the large annual losses from cereal diseases. Further experiments with take-all were conducted this season on lines similar to those followed last year, but results were negative, in that all plants were badly