

(3) *Seed and Plant Diseases ; Plant Breeding and Selection.*

A survey has been made of the losses incurred through plant-diseases, and a special committee has been set up to arrange for the establishment of a special research station in conjunction with the Agricultural College at Palmerston North. Details connected with this investigation have been worked out by the committee, and it is hoped that operations will commence at the new station when the Batchelar property is handed over to the College Council in June. In order to make the work of Empire-wide significance, contact with the Welsh Plant-breeding Station at Aberystwyth is being maintained. Research, breeding, and selection work connected with cereals will be centred at Canterbury Agricultural College, and in other matters connected with this branch of investigation co-ordination of effort will be closely maintained between Palmerston and Lincoln. Where conditions demand it, subsidiary out-stations will be established to facilitate the research done at the main centres.

(4) *Noxious-weed Investigations.*

Research work in this connection has been centred at Cawthron Institute, Nelson, and concentrated upon the control of such weeds as blackberry, ragwort, St. John's wort, foxglove, gorse, pteridium, and piripiri by entomological means. The control of the research is in the hands of a committee comprised of Mr. George Shirtcliffe, Dr. F. W. Hilgendorf, Mr. Q. Donald, Professor H. B. Kirk, Mr. D. Miller, and Mr. A. H. Cockayne. Dr. R. J. Tillyard is directing the actual research work at the Cawthron Institute.

Funds for this research have been secured by means of grants from the Empire Marketing Board and the New Zealand Government. Grants of equipment and services have been made by Cawthron Institute Trust Board. The total grants to date are as follows :—

	Annual Grant.	Capital Grant.
	£	£
Empire Marketing Board	2,000	1,333
New Zealand Government	1,000	667
Cawthron Trust	1,000	200
	£4,000	£2,200

The work at Cawthron Institute has been in active progress since December last, and most promising results have been obtained from *Tyria jacobaeae*, the insect which was imported by Dr. Tillyard to combat ragwort pest. Exhaustive trials on the host range of this insect have been almost completed, but the insect will not be released until the trials are extended to include one or two species of economic plants which have not been available since the parasite was introduced into New Zealand.

Shipments of *Apion ulicis*, the gorse-parasite, have also been received, and are at present undergoing trials in the Cawthron insectaries.

In order to deal satisfactorily with blackberry parasites, *Coroebus rubi* and *Bembecia*, which has been imported, larger insectaries have been deemed essential, and the Empire Marketing Board were approached for additional funds to allow of these being constructed. These funds have been granted, and the insectaries, together with necessary additional laboratories, are in course of construction, so that arrangements should be in readiness for operations on a more comprehensive scale to begin next spring.

At the inauguration of the above-mentioned work, Mr. A. Tonnoir, of the staff of the Canterbury Museum, was attached to the staff of the Cawthron Institute as Field Entomologist and assistant to Dr. Tillyard.

The work conducted at Cawthron Institute has been co-ordinated with investigations proceeding under the direction of Dr. Imms, of Rothamsted Experimental Station, Harpenden, England. Mr. Maldwyn Davies has been placed in charge of the field-work and despatch of insects parasitic to blackberry, gorse, and foxglove. He will conduct trials and investigations at the Rothamsted Station in collaboration with those in progress at Cawthron Institute under Dr. Tillyard's direction.

The first quarterly report upon the noxious-weed-control work both in England and in New Zealand already has been prepared, and indicates that good progress is being made.

Valuable reports upon blackberry and gorse parasitic insects have been prepared by Dr. Tillyard, and Mr. David Miller has submitted a detailed account of the insect control of lantana.

Mr. David Miller also is engaged upon the preparation of a pamphlet on the parasitic insects of New Zealand and their host range.

(5) *Mineral Content of Pastures.*

Negotiations were opened with the Empire Marketing Board in November, 1926, by Dr. Tillyard, in regard to securing funds to enable researches to be undertaken into the nutrient value of New Zealand grasses and fodder plants. The Empire Marketing Board agreed to vote £2,000 to this work, and £1,000 was provided by the New Zealand Government, in addition to the £1,000 already being devoted annually by the Department of Agriculture to the same investigation.

A committee consisting of Professor H. G. Denham, Professor W. Riddet, Mr. Q. Donald, Mr. Bruce Levy, and Mr. S. Fletcher was set up to consider the details of the proposed investigation. Mr. B. C. Aston was appointed to direct the research, and to co-operate with Mr. T. Rigg, of the Cawthron Institute, in regard to co-ordination of effort. Detailed reports have been prepared by officers of the Agricultural Department and of Cawthron Institute, and Messrs. Rigg and Grimmett have proceeded to Rowett Institute, Aberdeen, to ascertain the precise methods of research followed