The following papers have been published :—

(1) Review of Cockayne's " The Vegetation of New Zealand " (in the *Journal of Agriculture*).
(2) Review of Cockayne and Turner's " New Zealand Trees " (in the *Journal of Agriculture*).
(3) " The F_2 Progeny of the Cross *Coprosma propinqua* g × *robusta* o " (in *Genetica*).
(4) Abstracts of various papers on New Zealand Botany (in Biological Abstracts).

A paper is in the press on hybridism among the introduced plants of New Zealand.
My assistant has a manuscript in an advanced state of preparation on " Sexuality in *Coprosma*."

Seed-testing Investigations.

For the calendar year 1928, 10,149 samples were received for testing purposes, representing a decrease of 619 on the number received the previous year. The reduction in the total is almost wholly accounted for by the lesser number of rye-grass, white clover, and red clovers submitted. Two hundred and six samples were received from sixty-five farmers and seed-growers. It is of interest to note that the greater number of samples submitted by farmers represented purchases made under the vendor's guarantee of purity and germination, which figure approximately 20 per cent. failed to reach.

The distribution of the samples received was as follows : Southland, 2,950 ; Wellington, 2,221 ; Auckland, 1,191 ; Canterbury, 1,189 ; Otago, 732 ; Taranaki, 328 ; Hawke's Bay, 238 ; Marlborough, 174 ; Gisborne, 23 ; Nelson, 13. The remainder of the total number was made up as follows : Seed-merchants, 8,509 ; Government Departments, 365 ; laboratory tests, 890 ; retests, 115 : the whole necessitating the making of 10,060 duplicate germination tests and 2,594 purity tests.

With the exception of rye-grass, the standard of purity and germination shown was very satisfactory. The depression in the germination of rye-grass has been marked for several seasons ; although in 1928 an improvement was shown in southern and Sandon seed, this improvement, in the general average, was offset by the depressions in Hawke's Bay and Canterbury seeds. Sandon rye-grass has, in most cases, for several seasons now failed to germinate up to a merchantable standard, and some attention has been given to seed-production in this district. The 1929 seed has in about 60 per cent. of the crops shown a decided improvement in growth, and where inquiries have been made it has been found that the higher-quality seed has been the result of a delayed cutting. This survey of all the areas harvested this year is being continued, and with the data collected covering crops harvested in previous years it is thought that it will be shown that in the majority of cases the unsatisfactory germination is due primarily to immaturity at times of harvest—that is, under average climatic conditions.

Two thousand five hundred and eleven tons of grass and clover seeds were exported during 1928, a reduction of 2,000 tons on the quantity for the previous year, which, on account of the heavy exportation of rye-grass, was a record year. Taking the export figures over the four years 1925–28, substantial decreases for 1928 were shown in rye-grass, red clover, and white clover ; while the quantity of brown-top shipped has been more than doubled.

The experiments commenced in 1928 in dusting Chewings fescue with Semesan to overcome loss in vitality are being continued, six parcels having been sent to Washington and Cambridge during the twelve months. Tests made at those places and at the New Zealand station have shown that, to date, the treatment has in no way checked losses in vitality.

A number of white-clover samples collected from the various seed-production districts have been examined, and indices of dominance, frequency, and constancy of occurrence of the individual species of impurities tabulated.

Laboratory experiments, designed to test the effect of atmospheres of different degrees of humidity, the rates of adsorption, and loss of moisture on stored seeds are being carried out.

With the present organization and accommodation, research work bearing on seeds and seed-production is necessarily limited.

From the commencement of the year 1929 all brown-top samples have been tested under the proposed international testing system, as were all samples of seed certified under the recently introduced system of seed-certification. It has been repeatedly shown during the year that the retention of the almost obsolete testing system in New Zealand has been the direct cause of many disputes in the seed trade, both import and export seeds being involved. It was mainly for this reason that the Continental system was adopted for brown-top. It is to be hoped that in the interests of the seed trade and in the seed-testing station itself opportunity will, in the near future, be provided for the complete reorganization of the station so that it may give the full services required of it. It may be added that the adherence of the New Zealand station to the Irish system was a subject of discussion at the Conference of the International Seed-traders' Association and the International Seed-testing Association at Bologna and Rome respectively during 1928.

The tabulation and issue to the trade of periodic reports covering average purity and germination percentages have been continued, for which general appreciation has been shown. The station has acted in an advisory capacity in connection with trade disputes, quality standards, seed-production, identification of seeds, seed storage and shipment, &c. A large number of tests (approximately six hundred) have been made on behalf of the Mycological Section in connection with its investigation into the control of seed-borne diseases, and approximately two hundred for the Agrostological Section.

Entomological Investigations.

A certain amount of dislocation in connection with entomological work was inevitable consequent on Dr. Miller's resignation at the commencement of the year and the transfer of this section to Palmerston North. Apart from the above, however, the work for the past year, though necessarily curtailed, has proceeded as usual. For convenience the past year's activities are dealt with under two heads—(*a*) Routine, (*b*) research.

Routine.—This involved (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