Ultra-violet-light Tests.

Of the 1,990 examinations of perennial rye-grass seedlings, 512 were made as check tests of certified seed for the information of the Department, 765 on officially drawn samples for the purposes of commercial certification, and 509 on trade samples preliminary to entry for commercial certification.

Picric-acid Tests.

Of the 1,425 tests, 1,235 were made in connection with the certification of white clover and 190 on trade samples preliminary to certification entry.

Certified Seed: Purity Inspection.

A total of 2,353 samples were examined, and 107, or 4·5 per cent., rejected.

Canadian Seeds Act.

Approximately 500 samples were examined, and certificates endorsed as prescribed by the Act and by authority of the Canadian Department of Agriculture for importation into Canada.

Australian Seeds Acts.

During the year an increasingly large number of samples were examined, and the possibility of conformity of the lines to Australian Federal quarantine and the State Acts reported.

Seed Certification on Laboratory Test.

Perennial Rye-grass.—For the purposes of certification in the commercial class, officially drawn samples representing 639 machine-dressed lines entered for certification were examined under ultra-violet light. Of the total quantity of 110,052 bushels entered, 486 lines, comprising 83,389 bushels, conformed to the required standard and were accepted, and 153 lines, comprising 26,663 bushels, were rejected.

White Clover.—A total of 558 lines were entered and tested by the picric-acid method for certification entry.

Of the total of 583,150 lb. of seed, 351 lines, equalling 356,365 lb., conformed to the required standard of test and were passed as certified seed, and 204 lines, comprising 226,785 lb., were rejected. Of the quantity passed, 51,136 lb. were classified as mother seed and the balance of 305,229 lb. as permanent pasture.

Investigational.

Low Germination of Perennial Rye-grass Seed.—Work on this problem was continued during the year in collaboration with the Plant Diseases Division and the Grasslands Division of the Plant Research Bureau, and a report on the work has been published. The identity of the fungus causing the disease has not yet been definitely established, but it is tentatively placed in the genus *Helotium fries*. Specimens have been submitted to European mycologists for confirmation. The identity of the *Apothecia* discovered in 1937 has now been confirmed, and the main features of the life-history have thus been elucidated.

A brief survey was made of rye-grass-seed crops in the Hawke's Bay District. In very few of the crops visited was no trace of the disease observed. In two instances over 30 per cent. of the seeds in the samples taken were infected.

Examination of Green Sheaves ex growing Seed Crops, 1939.—A total of 621 samples of rye-grass seed were received in response to an invitation to seed-growers to submit samples prior to harvesting. These samples were examined and the rate of infection estimated. By this means the grower may be spared the expense of harvesting seed which shows a high rate of infection and which would, on this account, have so low a germinating-capacity as to be unremunerative.

The number of samples from different seed-growing districts was as follows:—

Manawatu	322
Hawke's Bay	19
Wairarapa	3
Canterbury	56
Otago	27
Southland	194

The rate of infection in some instances exceeded 90 per cent. A considerable number of growers, when informed that a crop was heavily infected, refrained from harvesting the seed, and promptly turned the crop into hay. This temporary service was very widely appreciated, and there is no doubt that as the possibility of control of the disease cannot so far be viewed at all optimistically the fact that seed-growers could be provided with a report as to potential germination capacity before harvesting will assist seed-growers materially.

Work on control in collaboration with the Plant Research Bureau is being conducted as follows:—

(1) The selection and breeding of resistant forms. During the past year a trial was made of an inoculation technique designed to facilitate this work.
(2) The elimination of sources of infection in the crop by seed-treatment and pasture-management.
(3) A survey of the experience of seed-growers in affected localities.