

GRASSLANDS DIVISION.
(Director: E. BRUCE LEVY.)

The various activities of the Division have progressed well during the year, the increased work necessitating an increase in staff. The new building at the Tiritea Area was occupied by the end of January, and officially opened on the 31st March, 1938. The following are the reports for the various sections :—

(1) STRAINS AND PLANT INTRODUCTION.

Strain Ecology and Certification.

The number of tests for strain identification and certification purposes have been as follows :—

Perennial rye-grass	537	Red clover	246
Italian rye-grass	149	White clover	930
Cocksfoot	169	Subterranean clover	4
Brown-top	187		

Pedigree-seed Production.

Pedigree selections from this Station are proving their superiority in the field and already there is a demand far in excess of the supply of seed produced annually.

The following quantities of nucleus stock seed have been harvested at the Station this year and passed on for increase :—

Perennial rye-grass ..	18 bushels.	White clover	100 lb.
Italian rye-grass ..	10 „	Red clover	80 lb.

Previous nucleus stocks have been increased to supply commercially some 5,000 bushels of perennial rye-grass and 1,000 lb. of white clover at the one harvesting.

Strain Trials.

The introduction and trial of all useful strains of grasses and clovers available commercially has always been part of this Station's work. Already there are 172 species and strain trials and 68 subterranean clover strain trials in progress on many different soil types in New Zealand. For further field trial 47 bulk lots of seed, representing mostly pedigree selections made by overseas research stations, have been obtained. These will be compared with material selected by the Dominion.

Plant Introduction.

A definite scheme for plant introduction has been commenced. Seed samples of some ninety-seven grasses and thirty-five clover or clover-like species have been received from various sources. Each sample is being grown and studied carefully, with a view to providing material for regrassing any depleted areas.

Research Projects.

Perennial Rye-grass: Plot and Single-plant Trials.—In plot trials no imported line has been superior to the New Zealand certified type.

Station selections and Government stock and “pedigree” seed grown from these selections have shown marked resistance to attacks of leaf-rust and stem-rust. The selections are giving increased leaf production, together with improved palatability, when compared with the present “Certified Mother Seed” strain. A trial comparing plants of some forty Certified Mother Seed lines from South Island areas, which are now five years old or over, with nineteen samples representing Hawke's Bay Old Pasture Mother Seed areas has demonstrated the fact that the individual lines comprising the certified Mother Seed class are remarkably similar in single-plant type and performance, and the fact that the Mother Seed has been harvested in Hawke's Bay certainly does not warrant the payment of a premium for that seed.

Low Germination Problem.—Further experiments concerning susceptibility to the disease have been carried out. Control by seed-treatment has been attempted. Some inoculation work designed to assist in the finding of disease-resistant perennials has been commenced.

Italian Rye-grass.—In the testing of New Zealand material two interesting samples have been located and are being studied closely. These have made excellent growth following establishment and also have recovered exceptionally well after cutting back.

Cocksfoot, Timothy, Meadow Fescue, Dogstail, Chewings Fescue, Brown Top, Prairie Grass, and Phalaris tuberosa.—A definite but limited amount of strain investigational work has been carried out with each of the above species.

Red Clover.—A special single-plant study of the early flowering and ordinary later flowering types is in progress. The aim is to study all available material and then to improve on commercial material by selection and breeding.

White Clover.—A mass selection of Type 2 plants has been seeded under isolation, and seed supplies are being increased. This strain is designed for use in districts where Type 1 is too aggressive.

Subterranean Clover.—Small plot trials have been continued, and a duplicate series of trials have been conducted at the Pure Seed Farm, Lincoln. Seed supplies of the Nangeela and Burnerang strains are being increase grown at this Station. The Department of Agriculture, Melbourne, has generously assisted by supplying seed-supplies of strains unprocureable commercially. Two lines of New-Zealand-grown seed have been passed as being of a type suitable for certification.