The above programme has involved the sowing of approximately two thousand five hundred plots and in reporting on these individually during the year. Measurement trials have been instituted to test pedigree lots against the standard certified material. Some new work has been inaugurated on the improvement of timothy, prairie grass, crested dogstail, *Lotus* sp., and strawberry clover.

(*h*) *Field Strain Trials.*

A total of 416 trials have been sown and 249 are still in operation. These are laid down and reported on by the Instructor in Agriculture, Department of Agriculture, and cover a wide range of soil and climatic types. They serve as excellent demonstration material, and give guidance to the progress of our breeding for the particular district in which they are laid down.

(*i*) *Sets of Species and Strains for Study by Schools.*

These sets are very popular, and two hundred and fifty sets have been supplied.

(*j*) *Plant Introduction and Seed Exchange.*

A total of three hundred and ninety samples of new introductions have been critically studied, and limited supplies of seed have been harvested for trial here under broadcast conditions. One hundred and fifty of such plots have been autumn sown, and these will be grazed by sheep to determine swarding capacity, palatability, and persistency under grazed conditions.

Requests for New Zealand seed from overseas have increased, and all lots sent are followed up to learn how these have performed under the conditions of the test.

(*k*) *Substation at Lincoln.*

The substation at Lincoln is proving very valuable as a testing and demonstration centre. The trials cover approximately 2 acres, and the area is worked under the general management of the Agronomy Division. Seven acres for nucleus pedigree-seed production has also been sown at Lincoln.

Some reciprocal service at Palmerston North has been instituted on behalf of the Agronomy Division in the growing of certain of its crops.

(2) Pasture Surveys.

The general pasture map of the North Island has been printed, and *Bulletin No. 79* has been published incorporating the pasture map. Detailed pasture surveys of Hawke's Bay Land District (over 4,000 square miles) are now completed, and a map of a portion of this district has been published. Pasture surveys of Banks Peninsula and the Matakaoa County have also been done. Reports and maps are in course of preparation.

(3) Sheep Pasture Research.

This work is being undertaken in collaboration with Massey Agricultural College, on whose property the trial is laid down. The prime aim is to study animal thrift in relation to luscious, high producing pasture. These consist of two groups: (1) Pedigree strains versus ordinary certified strains, both under a programme of high soil fertility maintenance; and (2) certified mother seed strains of perennial rye-grass and white clover under a differential manurial programme where simple and light manuring is contrasted with complex and heavy manuring.

The Grasslands Division undertakes the measurement and recording of—

(*a*) Botanical composition over the year.
(*b*) Rate of growth of species.
(*c*) Total herbage available at any time to act as a guide to stocking density.
(*d*) Total production of herbage.
(*e*) Collection of botanical samples for chemical study by the Plant Chemistry Laboratory.

The 47 acres sown in 1939 are now fenced into 1 acre blocks, and pampas is being planted for shelter-belts, each paddock to have shelter on two sides. The pastures and stock to date are in excellent condition.

(4) Dairy Pasture Research.

Over the past few years work has been concluded on feed taints, and preliminary work has been done on the nutritive value of perennial rye-grass and Italian rye-grass (stall fed). Pure perennial rye-grass pastures have also been compared with permanent rye-grass - white clover, pure cocksfoot, and cocksfoot - white clover. This autumn 30 acres have been ploughed and resown to provide feed for the commencement of spring lactation. The programme is being modified to study single versus complex pasture mixtures, and dairy cow reaction to these as far as quality and quantity of dairy products are concerned. The above swards consist of (1) perennial rye-grass - white clover, (2) cocksfoot-white clover, (3) complex association of species. The above (1), (2), and (3) pastures will be under grazing, and there will be an indoor feeding trial of (1) and (3) to study appetite as derived from feeding simple versus complex pasture feeds.

The Grasslands Division undertakes (1) laying down of pastures, (2) joint management of pasture, (3) botanical analyses of all paddocks and feeds fed, (4) measurements of yield of pastures, and (5) collection of samples for chemical determination.