Nucleus-seed Production.—The season was again a most unfavourable one for seed-production in the Manawatu, and the late spring put all the crops back. Sufficient seed, however, has been produced to sow the necessary increased areas at Lincoln. A small area of Long-rotation rye-grass was harvested for trial purposes.

Testing for Certification.—The number of samples for plot testing again increased this season, and with the inclusion into certification of more and more species and strains of those types that cannot be determined by any laboratory method this increase in plot testing is to be expected.

In certain cases where contamination in the field was suspected single plant analyses of these lines were made. Contamination in some of these lines was definitely proven.

Field Ecology

Influence of the Animal in Pasture-production.—The outstanding feature of the grazing trials at Lincoln, where return and non-return of animal residues was being studied, was the marked differential response in the species of the sward. Where full return of residues was permitted under an intensive system of grazing, the rye-grass was so stimulated as to subdue very greatly the red clover in the sward. On the other hand, where the rye-grass was weak owing to non-return of stock residues the red clover abounded and in the summer period the non-return plot yielded double the summer production as compared with the full-return plot. This indicates a very important aspect of farming in Canterbury, where special treatment should be meted out to those pastures designed to produce summer feed.

In comparative manurial trials at Lincoln under non-return and full return of stock residues, the animal has had more influence in soil-fertility building and in production than has the artificial manures applied in both cases.

Pasture-measurement Technique.—Some useful results have already been obtained from the series of trials at Lincoln and progress towards the evolution of a technique that can give a reliable measure under the influence of the grazing animal has been made. The trials to date rather indicate that there is no simple technique that can give reliable data from small plots within a common enclosure. Where sufficient land is available, the separate per treatment enclosure with moveable frames within the enclosure gives good results with a modicum of simplicity in carrying out. The minimum size of these enclosures is $\frac{1}{10}$ acre and the minimum size of the frames is 10 ft. by 10 ft.

Dry-matter Economy under Four Systems of Farm-management.—There are now established at Palmerston North four small farm systems, thus—

(1) All-grass farm, bringing in extra stock to consume *in situ* excessive feed in the spring.
(2) All-grass farm, with conservation of excess spring feed as hay and silage.
(3) All-grass farm, with use of special-purpose pastures, spelled pastures, and specially manured pastures for out-of season grass.
(4) Grass plus supplementary crops for out-of-season feed.

An effort is being made to determine the most efficient system as to (1) the total production of dry matter and (2) the most economical exploitation of dry matter under the four systems.

From work on hay and silage that this Division has carried out over the past eight years there appears to be a serious dry-matter loss in any system that calls for preservation of feed. From an analysis of these results the surmise is that the hay-silage farm will produce less and there will be a loss of soil fertility as compared with any of the other systems. The question is, can this farm loss be measured, and, if so, is it significant?

Digestibility and Nutritive Value of Feeds.—During the year, both at Palmerston North and at Lincoln, feeding trials have been conducted with fodders on behalf of the Agronomy Division to arrive at relative digestibility and nutritive value. The trials are still proceeding. The institution of a satisfactory feeding technique for this work applicable to fodders and pasture plants is being sought for more intensive feeding trials on improved grasses and clovers.