Liming.

A series of grassland trials carried out in Canterbury clearly indicated the importance of lime in conjunction with superphosphate on grasslands. In 1931–32, 85 per cent. more lime was used in Canterbury than in the previous year. It is fairly certain that this increase is largely due to the demonstrations provided by the experiments mentioned.

Potatoes.

A large number of manuring experiments on the potato crop in the South Island have been carried out. These have shown that the increase due to the use of 3 cwt. superphosphate in forty-eight experiments conducted since 1925 was on the average 19 cwt. of table and 6 cwt. of seed potatoes per acre.

The addition of 1 cwt. sulphate of ammonia gave a further increase of 10 cwt. table and 6 cwt. seed potatoes per acre.

In 1928–29 the proportion of the crops fertilized in the South Island was 50 per cent., while in 1934–35 approximately 60 per cent. of the area sown in potatoes was fertilized. Moreover, the average quantity applied—viz., 3 cwt. per acre—was the same in both the seasons mentioned.

The fact that the proportion of crops treated has increased in spite of difficult times may be largely attributed to the good results secured from fertilizers in the Department's trials.

A fuller report on the field experimental work of the Division as prepared by the Crop Experimentalist is attached.

Experimental Farms.

Situated in various parts of the country the Division has control of seven experimental farms whereon important investigational work of an intensive nature is carried out. At times special experiments and demonstrations on a scale and of such an intricate nature that they would be impossible for a co-operative trial require to be carried out, when these farms have a very definite value. The Ruakura Farm of Instruction trains annually a number of students in all branches of farming-work and at the same time provides an excellent grounding in the more theoretical aspects of rural lore.

Seed Improvement.

Close co-operation has, as hitherto, taken place between the agronomical section of the Plant Research Station and the Division in regard to effecting improvements generally in agricultural seeds, and some of the major activities in this connection are given.

The Production of Pure Wheat.

From the viewpoint of the miller and baker it is important that pure, sound wheat should be available. From the viewpoint of the farmer it is important that his crop should be pure, uniform in type, and free from disease. The production annually of pure smut-free seed wheat on the Government Pure Seed Station is a direct and effective means of attaining these desired results.

Oat Improvement.

The oat crop in New Zealand is both impure and heavily infected with smut. To meet the present need, pure seed of all the standard varieties has been raised, and pure smut-free, certified seed oats will be available to the farmer in 1936–37.

Oat Variety Introduction.

New Zealand devotes 80 per cent. of the oat area to two varieties. It is unlikely that these two varieties are best capable of serving, as they do at present, virtually the whole requirements for feed oats, milling oats, chaff, and green feed in all the various climatic conditions of both Islands. Steps are being taken to determine in several centres the agronomic value of the more promising varieties from the wide range of material obtainable from other countries.

Rape Improvement.

The rape crop is a very important adjunct to the fat-lamb industry. We import rape-seed to the value of £10,000 annually, yet we can grow excellent seed, and its production could be made economically sound. The best rape types have been selected, mother seed has been produced, and this seed distributed to farmers willing to undertake seed-production.

Turnip-seed Growing.

The possibility of growing in New Zealand excellent swede and turnip seed had been proved, but it yet remains to induce the merchants and growers to give preference to locally produced seed. In the meantime activities are directed to the production in New Zealand, under certification, seed of those varieties possessing resistance to club-root, so as to ensure that the seed distributed is of a club-root resistant strain.

Field-pea Production.

The field-pea crop of New Zealand affords a very useful export trade, the expansion of which lies in the direction of reduced costs and the production of a type of pea for which there is a demand overseas. The Partridge pea is by no means the most satisfactory for all purposes, and an extensive breeding programme is in hand the object of which is the raising of varieties superior for certain specific purposes to those now generally grown.