

*Crop Trials.*—The value of serpentine-superphosphate on wheat and potatoes is being investigated, and trials using Clarendon phosphate are being conducted in Otago and Southland. Serpentine-superphosphate applied at the same rate as superphosphate is giving equal yields, while Clarendon used at double rate of sowing as other fertilizers appears to be giving equivalent yields on brassica crops.

Problems in connection with cauliflower-production on Services' vegetable-production areas are being investigated through small-scale field trials involving applications of a number of plant nutrients. A general survey covering all cauliflower and broccoli crops is also in operation.

A series of pot experiments was carried out at Ruakura, where the value of serpentine-superphosphate, Clarendon phosphate, and other fertilizers on turnips was investigated.

*Experimental Technique.*—Plots of white clover have been established to study the effect of lime, phosphate, and potash on plant-growth.

A range of plants is also being grown in pots and plots with a view to ascertaining the most suitable indications to show optimum responses to lime and fertilizer applications. It is proposed to extend the scope of this work in order to employ a suitable technique in future field trials.

#### FERTILIZERS

*Rationing.*—The fact that supplies of rock phosphate coming forward are limited has necessitated the continuation of rationing. The method of rationing has remained unchanged and farmers are obtaining the same allocation as last year—i.e., 28 per cent. of the annual average quantity of fertilizer used for top-dressing during the two-year period ended 31st May, 1941. Provision was made at the start of the rationing year (1st July, 1943) to consider cases of hardship. Returned servicemen are given special consideration by fertilizer committees.

*Importations.*—Limited quantities of sulphate of potash, sulphate of ammonia, muriate of potash, and nitrate of ammonia continue to be imported into New Zealand. With the exception of muriate of potash, the use of the majority of the materials has been restricted to market and home gardeners, tobacco-growers, and orchardists.

*Clarendon Phosphate.*—The British Phosphate Commissioners have continued to deliver limited quantities of rock phosphate from the Clarendon deposits to manufacturers. It appears that supplies from this source cannot be expected to continue to come forward, as further workable deposits have not been found.

Investigational work on the deposits of phosphatic sandstone (10 per cent. to 12 per cent.  $P_2O_5$ ) has been continued, but drilling failed to confirm the existence of large quantities of material of a sufficiently high grade to be economically workable under present conditions. One quarry was, however, opened, and some 10,000 tons of ground material has been delivered to mixing plants and farmers in the Otago and Southland districts.

*Official Samples.*—A further seventy-six official samples of fertilizers have been taken and analysed.

#### SEED CERTIFICATION

The production of certified seeds has continued to increase in volume, while the proportion of seeds of pedigree strain included in that certified has risen very appreciably.

Pedigree strains of the five major grass and clover seeds—perennial and Italian rye-grasses, cocksfoot, and red and white clovers—are now firmly established and in demand by farmers.

*Brassica-seed Production.*—As a result of the steps taken at the outbreak of war, New Zealand continues to be independent of overseas supplies of the various brassica seeds. There has been no complaint as to the strain quality of the seeds produced, but nevertheless careful selection work in all lines is in progress in order to further improve the quality of the seed being produced.

*Linen Flax.* The linen-flax acreage for the 1943-44 season, which is grown under the direct supervision of Fields Division officers, has fallen to approximately 10,000 acres. This reduction is accounted for, firstly, by a reduced acreage required to maintain factory production in those areas where crops in past years have been universally successful and where reserves of straw have been built up, and secondly, by the difficulty in obtaining an adequate acreage of land suitable for flax-production in those districts showing a relatively low proportion of successful crops in past seasons.

*Medicinal-plant Production.*—The United Kingdom having indicated that internal production of dried medicinal-plant leaf had increased sufficiently to meet the demand, it was decided, with the concurrence of the British Ministry, to discontinue the production of this material locally. The material which has been produced has been very satisfactory from a quality aspect, but production costs have been high in comparison with material produced elsewhere.

#### SEED-TESTING STATION

*Routine Operations.*—For the calendar year ending December, 1943, a record total of 23,964 samples were tested, necessitating the working of approximately 76,000 separate tests.

The number of samples received for the purposes of certification were approximately as for the year previous, with the exception of Montgomery red clover, the total of which was nearly three times that of the previous year. A large proportion of the samples contained an unusually high percentage of internally-fractured embryos, which fact not only reduced the commercial value of some hundreds—possibly thousands—of sacks, but also rendered the seed unfit for export. The weekly output of the Station was also substantially reduced through the handling of this difficult material. The question of "broken growths" arising from internal fractures has been widely discussed, mainly with the trade, and as a result necessary attention will this year be paid to the drum-setting of the header-harvester combines.

With the exception of perennial rye-grass, the quality of all other seed was about normal. The incidence of blind-seed disease was relatively fairly high in all districts, South Canterbury and Otago and Southland especially so.