

At Ruakura Farm there is one potato manuring trial and one variety trial, while a comparison of different varieties is also being made at Ohakune.

(f) *Turnips and Swedes*.—The effect of soluble phosphates on the germination of the turnip crop has been studied for several years and has enabled definite recommendations to be made relative to the use of superphosphate and lime. The possibilities of using "reverted super" have not been overlooked, however, and one brand of this fertilizer was tried out during the previous two years but gave results inferior to the super and lime mixture. During the season under review two different brands of "reverted super" were compared, and whereas one was highly efficient in overcoming germination injury, the other, which was identical to the brand tried out in previous years, was relatively inferior. It is evident that until some standardization is adopted or until some improvement is made in the manufacture of the last-mentioned product no general recommendation to use "reverted super" on the turnip crop can be made.

Several variety trials with swedes are being conducted. Some of them investigate the merits of club-root-resistant varieties, while others include commercial varieties and aim to get information on palatability and keeping-quality as well as yield.

(g) *Sugar-beet*.—Investigations regarding the commercial production of sugar-beet have been confined to five experiments in Canterbury. These are being conducted on a field scale and aim to get information on yield and on the costs of production under New Zealand conditions. During the previous two seasons some very satisfactory yields were obtained from such trials, and the information secured has been passed over to the Bureau of Industries for inclusion in their report.

(h) *Linen Flax*.—Working in collaboration with the Agronomy Division of the Plant Research Bureau, over sixty ecological trials with linen flax were laid down in districts throughout the South Island. From the information secured it will be possible to determine the districts most suitable for cultivation of this crop. The material harvested has yielded data relative to the type of fibre likely to be obtained under different conditions.

(i) *Onions*.—Methods of controlling onion-smut in the Canterbury District have been investigated in co-operation with the Plant Diseases Division, Plant Research Bureau. A fair measure of success has been obtained by the use of formalin, and the results of this investigation are to be published shortly. Two manuring and two variety trials with onions were carried out.

(j) *Maize*.—A large number of varieties, both imported and local, are being compared at various centres in the North Island. The growing of maize for pig-feeding is receiving more attention, and efforts are being made to obtain fairly quick maturing varieties for districts outside the main maize-growing areas. One maize manuring trial is being carried out at Dargaville Demonstration Farm.

(k) *Peas*.—An experiment with late Partridge peas was carried out in Canterbury, but the yield secured was not superior to the commercial variety. Several varieties of peas suitable for lamb-feeding were included in two North Island trials.

3. Miscellaneous.

(a) *Pampas-grass*.—Observations were continued on many farmers' crops of pampas-grass on dairy-farms as well as the specially planted experimental areas on hill country. In certain localities this species shows promise as a supplementary winter feed.

(b) *Ragwort-eradication*.—Experiments to investigate the botany of the ragwort-plant were continued at Ruakura, where an officer of the Plant Research Bureau was stationed for the purpose. The main features of the work have been the study of life-history, the effect of pulling, distribution of seed by wind, effect of grazing by sheep, and the effect of burying the roots and plants by ploughing.

Other experiments carried out by an officer of the Chemistry Section investigated the chemical control of ragwort under various conditions.

The experiments have been supplemented by trials carried out by field officers in the South Auckland district. Interim results on both the botanical and chemical investigations have been published recently.

(c) *Pig-feeding Experiments*.—Pig-feeding trials have been continued at Ruakura Farm, where a very large programme of experimental feeding was undertaken during the year. The main object of these investigations was to adjust feeding to produce the correct type of export carcass. One trial on the winter feeding of pigs was carried out at Dargaville Demonstration Farm.

(d) *Other Trials*.—Experiments not classified above include several experiments on the eradication of various weeds and trials on grass-seed production.

4. General.

The experimental work of the Fields Division continues to expand, and in spite of a good deal of additional work in other directions many Instructors are still able to carry out a large programme of experiments.

SEED CERTIFICATION.

The Fields Division has continued during the past year its activities in regard to the certification of superior strains of seeds.

It has not been found necessary to make any radical departures from the organization which has been in existence for some time, with the result that the complete scheme of seed certification functions in a smooth and efficient manner with the minimum amount of effort necessary to produce these results.