

the original selections made, the stage has now been reached when the produce of next season's crop will be passed on to selected growers for increase and introduction into general commerce after the season 1932-33.

Wheat.—Pure lines have been raised of all standard varieties. The original selections are in the process of multiplication, and further selections are being made annually to replace those going into the hands of growers. It will be two or three years before sufficient seed will be available for distribution of any one pure line, and in the meantime some of the varieties in commerce are badly sized and others are heavily infected with loose smut. To fill this immediate want, those pure lines which are not required for further selection, but which possess no serious defect, have been bulked. Sufficient seed of these bulked lines is now available for the sowing of nearly 100 acres, and tentative arrangements have been made with the Canterbury Seed Co. to grow these lines.

All seed distributed is smut-free, and the following varieties are represented: Solid-straw Tuscan, Velvet Ear, Major, Hunters, Dreadnought, Red Fife, Velvet Chaff, Marquis.

Peas.—Precisely similar methods are being adopted in the improvement of garden and field peas. Several hundred selections are being multiplied, and it is anticipated that the selection work in field peas will be of considerable value.

Malting-barley.—Pure lines of all the standard varieties of malting-barley have been raised, and sufficient seed, bulked from single-plant selections, is now available for the sowing out of about one acre of each. It will be a couple of years before pure-line seed is available. All lines produced are smut-free, and the work is being undertaken in co-operation with the Canterbury Seed Co. (N.Z.), Ltd.

Other Crops.—In co-operation with the New Zealand Cattle Cake and Oil Co., Ltd., selection work is being undertaken in the "Bill Moose" variety of linseed. This variety yields heavily on the better-class land, and the percentage of oil extracted is considerable higher than that obtained from the common variety. The shortness of straw, however, renders harvesting difficult, and the objective is to remedy this defect without sacrificing the other qualities. The work done so far would indicate ample scope for selection.

A very large proportion of the New Zealand onion crop is grown in the vicinity of Christchurch. The keeping-qualities of the varieties used leave much to be desired, although there are one or two notable exceptions. Selections from these long-keeping types have been seeded this season. In addition to this, the best-keeping English and American varieties are under trial, and seed will be raised from any which show promise. It is the practice of onion-growers to raise their own requirements in seed, so that if a superior type is produced its rapid distribution is assured.

A commencement is being made this season in the production of pure lines of oats.

CERTIFICATION.

It is essential that the production of pure lines should be closely interwoven with an organization for supervised distribution. This supervision is being effected by means of certification. Seed distributed is followed up by inspections, and while it remains pure and healthy the produce is hall-marked for seed purposes.

Potato-certification.—This has met with considerable support from both growers and merchants. Moreover, some very interesting and valuable evidence has been obtained and a great deal of constructional work undertaken by officers inspecting crops. There has been a very active decline in the number of crops rejected during this (the second) year, and a considerable increase in the area under certification. Approximately 1,000 acres have been entered in Canterbury, and this represents about 7 per cent. of the potato-growing area of that province and about 4 per cent. of the total area in potatoes in New Zealand.

Potato-certification is to be extended to the North Island next season, and it will then be possible to set Dominion standards for certified seed in respect to purity, disease, and grading.

Wheat-certification is undertaken in co-operation with the Wheat Research Institute, and is now in its second year of operation. Virtually all the improved seed wheat has in the past been produced by the Lincoln College, and probably all that accepted under certification has originated from that institution.

Solid-straw Tuscan and College Hunters were the only varieties found sufficiently pure for acceptance under certification. Of the others, nothing approaching pure seed is available in any quantity, but the selection work now under way by the Department should remedy this deficiency, and in a year or two seed of all the main varieties of sufficient purity for certification will be in distribution. Growers whose seed wheat is accepted are granted a bonus of 6d. per bushel above the ruling market-price for milling-wheat on the 31st March. This amount (and all expenses entailed in transport, dressing, commissioner, &c.) is charged forward. The bonus granted to growers is in the nature of a prize for efficient farm-management. Mr. Veitch, Government Grader, Christchurch, has been responsible for the grading and distribution of seed wheat, and most of the success must be attributed to his painstaking work.

White Clover.—A commencement has been made this season in the certification of old-pasture white-clover seed, mainly with a view to stimulating the export trade. A few acres have been accepted as a preliminary trial, the produce of which will be sealed and exported as "Certified New Zealand old-pasture white clover." Samples from each line will be tested out at various stations in Great Britain and also in this country, with a view to determining the relative value of white clover from pastures of different ages. It is hoped to extend this phase of the work in the near future.

Other Pasture-plants.—Work recently conducted by the Agrostologist has demonstrated very clearly the necessity for correct categorization of the various grass and clover seeds used for our pastures or exported overseas. Preliminary work is being undertaken with a view to future certification work, a certain amount of which will be inaugurated next season.

It seems possible that certification of grass and clover seeds is likely to develop into the most important phase of the work in its effect upon the export trade and the economic establishment of the pastures of the Dominion.