

The following introductions were again grown for trial and increase:—

- Victoria* × 524; obtained from Canada and now called Achilles; is highly resistant to leaf and stem rust and gives a high yield of good-quality grain of the Algerian type;
Binder; obtained from Holland; is a high-yielding, good-quality milling oat with short, stiff straw;
Line 834; obtained from Belgium; is a high-yielding, good-quality milling oat.

BARLEY

Both the two-row malting barleys and the six-row feed barleys are under consideration, the work being concerned mainly with the testing of new introductions and the selection of single plants of the most promising as the basis of future nucleus lines. Increase areas of the best two-row types are being grown by the Canterbury Seed Co. with a view to full-scale malting trials when sufficient seed is available; Newal, the smooth-awned feed type obtained from Canada, was increased both at Lincoln College and at the Division.

GARDEN PEAS

Garden peas for seed are grown largely for export, and thus a high standard of varietal purity is required. The Division undertakes the production of reselected stock which is grown on contract for merchants, and during the past season the following varieties were propagated: Greenfeast, William Massey, Onward, Little Marvel, and Harrisons (Glory).

The new variety, "Greenerop," developed from a cross between Greenfeast and Greaterop, was increased by the Department of Agriculture for distribution to merchants; a nucleus area was also grown at the Division.

Approximately one hundred selections from the cross (Greenfeast × Greaterop) × William Massey were grown for observation and further selection, the object being to isolate a high-yielding early variety.

FIELD PEAS

The main field pea types grown in New Zealand are—

- (a) *Partridge*.—Used either for stock-feed, for pigeon-feed, or for splitting for soup;
 (b) *Blue*.—Used chiefly for boiling purposes; and
 (c) *White*.—Used almost entirely for splitting.

(a) *Partridge Peas*.—A renewed effort is being made to develop an improved Partridge type, and of the hybrid material grown for observation during the past season Partridge × White Elephant and Partridge × Black Eyed Susan show promise.

(b) *Blue Peas*.—Approximately 2,000 bushels of Mammoth Blue (Blue Prussian × Harrisons (Glory)) were distributed; a mother-seed area was grown by the Department of Agriculture and a nucleus area at the Division.

(c) *White Peas*.—Approximately 300 bushels of White Prolific (Blue Prussian × Greenfeast) were distributed and a mother-seed and a nucleus-seed area were grown by the Department of Agriculture. Mammoth White (Victoria × Stratagem) has not yet been released.

RAPE

Sufficient certified rape-seed for all local requirements is now produced annually under the supervision of the Department of Agriculture. Reselected stock is raised at the Division, and during the past season nucleus- and mother-seed areas of both the Giant and Broad Leaf Essex types were grown. A small nucleus area of a new type developed from a cross between Giant and Broad Leaf Essex and now called B.L.E.H. was also propagated; this is to be released shortly.

KALE

The two marrow-stem kale types developed at the Division have now been named "Giant" and "Medium-stemmed," and seed stocks, increased under the supervision of the Department of Agriculture, will be available commercially this coming season. Nucleus- and mother-seed areas were again grown. A considerable amount of hybrid kale material is under observation, and some promising crosses are marrow-stem kale × thousand-headed kale, marrow-stem kale × cabbage, and marrow-stem kale × kohlrabi.

SWEDES

Owing to the difficulty experienced in over-wintering selections successfully at Lincoln, only a limited amount of breeding-work on swedes has been undertaken. A new type, however, selected from a cross between Grandmaster and Sensation has given indications that it might be a satisfactory type for Canterbury conditions; it is a deep-rooted, somewhat fangy, yellow-fleshed swede. A small increase area is being grown this year in Central Otago to provide seed for large-scale trials.

SWEET LUPINS

Nucleus areas of sweet blue and sweet yellow lupins are grown each year, and single plant selections have been made with a view to improving the fodder-production per acre. Great difficulty has been experienced in judging the value of individual selections because of extensive damage caused by hares and birds, which, in common with other live-stock, seem to find them extremely palatable. Fencing against hares, and netting against birds until they are 8 in. to 10 in. high, is apparently not sufficient for small plots, because, when the bird-netting was removed at this stage, birds trimmed back the leaflets almost to the petioles, and then ate all the main-stem flower buds from one selection block 11 yards square, although this was in a 2-acre block of sweet blues. The relatively high incidence of mosaic in the selections compared with the main block increases the difficulties of selection. It is suggested that birds may be the agents for distributing the virus, since aphids have not been found on them, and the Plant Diseases Division have failed to transmit the disease experimentally to lupins with thrips.