

AGRONOMY DIVISION

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The Agronomy Division is concerned with the improvement of arable crops, and this objective is approached by plant-introduction, plant-breeding, and pure-seed production; during recent years the main effort has been directed towards the raising of pure seed, but it is hoped, in the near future, to extend again all other activities.

Approximately 78 acres of crops were grown in the past season.

All crops were grown for the production of pure seed unless otherwise indicated.

WHEAT

The production of nucleus reselected stocks of pure and relatively disease-free seed for distribution under certification is a routine procedure, and during the past year the following varieties were grown from hot-water-treated seed: Cross 7, S.S. Tuscan, Fife Tuscan, College Hunters, Hunters II, Dreadnought, Jumbuck, Marquis.

OATS

Reselected stocks of Garton's Abundance, Algerians, and Binder, a short, stiff-strawed white oat introduced from Holland, were increased to provide nucleus material for a proposed oat certification scheme.

Eighteen F_8 hybrid lines derived from a cross between Resistance and Onward were grown in a replicated drilled trial; the best of these are again to be tested with a view to isolating a high-yielding, good-quality milling oat resistant to lodging.

Fifty-seven F_6 hybrid lines from a cross between Algerians and Resistance were studied with a view to isolating an Algerian type resistant to lodging.

Royal Scot and Early Miller, two recent introductions, were grown for observation in comparison with Garton's Abundance.

BARLEY

Several high-yielding malting barleys introduced by the Division were again increased by the Canterbury Seed Co. with a view to large-scale malting tests. Golden Archer and Victory are regarded as being promising varieties.

Pioneer, an autumn-sown malting barley introduced from Great Britain, was grown for observation; its performance was satisfactory, but the small unnetted plot was severely attacked by birds in the later stages of maturity; it warrants further trial.

For the coming season arrangements are being made to grow nucleus areas of Spratt Archer, Plumage Archer, and Chevalier to provide material for a proposed barley certification scheme.

A further increase area of Newal, the smooth awned, six-row feed barley obtained from Canada, was propagated.

RYECORN

Ryecorn is being grown to some extent in the southern provinces for green-feed purposes, and an attempt is being made either to introduce or to develop a type more suitable than that at present available. Several lines were obtained both from Great Britain and from Australia and these were sown recently as single plants for selection purposes.

GARDEN PEAS

In accordance with normal procedure, reselected stocks of garden peas were grown on contract for merchants; the following varieties were propagated: Greenfeast, Onward, William Massey, Pioneer, and the new hybrid type, Greencrop.

Hybrid material grown for observation and further selection was as follows: William Massey \times (Greenfeast \times Greaterop), 169 lines; William Massey \times [(Greenfeast \times Greaterop) \times Harrisons Glory] 26 lines; Greenfeast \times Greenfeast rogue (mosaic resistant), 42 lines; Greenfeast rogue \times (Greenfeast \times Greaterop), 27 lines.

A further series of crosses was made in which Onward was crossed with William Massey, Greenfeast, and Greencrop, the object being the development of a higher-yielding Onward type which might be suitable for canning as green peas.

Several varieties introduced from America and Australia were grown for observation.

FIELD PEAS

To provide material for certification purposes, nucleus areas of Mammoth Blue, White Prolific, and Mammoth White were grown.

Hybrid material grown for observation and further selection was as follows: Partridge \times Lima, 9 lines; Partridge \times White Elephant, 18 lines; Partridge \times Black Eyed Susan, 60 lines. These crosses are being investigated with a view to the development of an improved Partridge type, but only a few lines from the Partridge/Black Eyed Susan cross show much promise. In a further attempt to effect such an improvement Partridge was crossed with Mammoth Blue, Dutch Blue, and an introduced variety known as Mansholts.

Several White, Blue, and Partridge types received either from America or Australia were grown for observation.

In a trial between Blue Prussian, Mammoth Blue, and Dutch Blue the following relative seed-yield results were obtained: Blue Prussian, 100; Mammoth Blue, 135.3; Dutch Blue, 67.2.

RAPE

Nucleus areas of both B.L.E. I and B.L.E. II [(Giant \times B.L.E. I) \times B.L.E. I] were grown and the produce passed over to the Department of Agriculture for further increase under certification. A digestibility trial with B.L.E. I, B.L.E. II, Giant, and Giant \times Chinese Cabbage was undertaken by the Grasslands Section.