

Antibiotics.—The fabrication of the pilot fermentation plant and ancillary units is suffering serious delays through shortages of essential materials. Work has therefore been confined to the culture of antagonistic organisms in static and shaken cultures on a small scale. Considerable experience has been gained of the behaviour of the organisms and of the environmental conditions necessary for antibiotic production.

The microbiological section, which deals with this work, has also been called on for help by industry and by other research institutions.

Nitrogenous Metabolism of Green Leaves.—During the year considerable progress has been made with the problem of the treatment of plant tissues for analysis. It is already clear that no one preparative procedure is adequate for all analyses, and that for active metabolites, such as the soluble sugars and the simpler nitrogenous compounds, no drying method gives results which agree with fresh preparative methods.

A very full study of the ammonia and glutamine content of green leaves from a wide variety of sources and under widely varying environmental conditions has led to the conclusion that there is present an ammonia-yielding material which is even more labile than glutamine.

PLANT RESEARCH BUREAU

Chief Executive Officer: Mr. F. R. CALLAGHAN

Reports from the five Divisions appear below:—

AGRONOMY DIVISION, LINCOLN

Acting-Director: Mr. R. A. CALDER

FIELD CROPS

Wheat.—To provide nucleus stocks for certification purposes, reselected lines of the following varieties were grown from hot-water-treated seed: Dreadnought, Solid Straw Tuscan, Hunters II, Tainui, and Jumbuck.

Oats.—Reselected stocks of Gartons Abundance and Algerian were increased for distribution under certification and small areas of Onward and Duns were grown for reselection.

The following recent introductions were compared with Abundance and Onward: Binder, Royal Scot, Spitfire, 10/3 (Resistance × Grey Winter received from Great Britain), and three Aberystwyth varieties, S. 84, S. 147, and S. 172.

Additional hybrid material is under observation.

Barley.—To provide nucleus stocks for a proposed barley certification scheme, increased areas of the following malting varieties were grown: Spratt Archer, Plumage Archer, Chevallier, Research, and Kenia.

Of the feed types, Wong, Prefect, Campton, and Smooth Awned Cape were propagated to provide seed for further trial and Newal was increased for distribution; due to severe bird attack, no seed was obtained from Wong.

Breeding-work is being maintained; this has for its objective the development of a high-yielding, high-quality malting type which might be suitable for heading.

Ryecorn.—Selection work has been undertaken on material from Great Britain and Australia.

Garden Peas.—The demand for reselected stocks of garden peas, which are grown under contract for merchants, has increased steadily over the past few years and extended areas of the following varieties were grown: Greenfeast, Onward, William Massey, Pioneer, Little Marvel, and Greencrop. A Dutch strain of Harrison's Glory, which is the type of Marrowfat pea most popular in Great Britain, was also multiplied.

Several recent introductions were grown for observation.

A comprehensive breeding programme is in operation, efforts being directed towards the development of a high-quality early variety, a Greenfeast type resistant to pea-mosaic and an improved variety for canning at the green-pea stage.