

Tests show that a high-quality product is being made. In addition to the dehydration of vegetables, investigations on apple dehydration have been made in this Laboratory, which formed the basis of dehydration on a commercial scale at Hastings. The factory is now in full production. A problem closely connected with dehydration is the determination of vitamins in plant materials. Methods have been adapted for carotene, ascorbic acid, thiamin, riboflavin, and nicotinic acid. These methods can now be used for routine determinations. The necessity of a convenient, accurate, and rapid method for measuring the moisture content of dehydrated material has led to an investigation of different methods. Wide variations in apparent moisture content as determined by various methods have been observed, and this is subject to further investigation.

Vitamin Extraction.—The production of sweets from parsley concentrate gave a very palatable sweet, but the loss of ascorbic acid in manufacture was high, about 50 per cent. being lost in the cooking. Attempts are to be made to produce a soft sweet at a lower boiling temperature. Spray drying of parsley extract was not successful on account of the hygroscopicity of the final product, although its ascorbic-acid content was high. The preparation of a palatable B-complex concentrate from waste brewer's yeast has proved successful, and large-scale production is planned. Lack of suitable equipment in the meantime has led to the production of a much less palatable product which can, however, be used for therapeutic purposes.

Silage and Pasture.—In collaboration with the Grasslands Division, investigations on silagemaking and pasture-production have continued.

General.—A method is being worked out for the determination of fructose in the presence of large quantities of glucose. Some success has already been achieved.

PLANT RESEARCH BUREAU

Plant Research Bureau Committee.—Mr. A. H. Cockayne (Chairman), Professor G. S. Peren, Professor E. R. Hudson, Sir Theodore Rigg, Dr. E. Marsden, Mr. E. J. Fawcett, Mr. R. B. Tennent, Mr. C. A. Marchant, Mr. Alan Grant, Mr. F. R. Callaghan (Secretary and Chief Executive Officer).

The Plant Research Bureau now comprises five Divisions and one Section, viz.:—

				Location.	Director.
Agronomy Division	..	..	..	Lincoln	*Mr. R. A. Calder (Acting-Director).
Botany Division	..	..	..	8 The Terrace, Wellington	Dr. H. H. Allan.
Entomology Division	..	..	..	Cawthron Institute, Nelson	Dr. D. Miller.
Grasslands Division	..	..	..	Tiritea, Palmerston North	Mr. E. Bruce Levy.
Plant Diseases Division	..	..	..	Owairaka, Auckland	Dr. G. H. Cunningham.
Sugar Beet Section	..	..	..	Lincoln	†Dr. O. H. Frankel.

* Mr. J. W. Hadfield, Director, was seconded to Linen Flax Section, Industries and Commerce Department, as from 1st June, 1940.
† Research officer.

Participating in the Bureau are (1) the Department of Scientific and Industrial Research and its several research sections; (2) the Department of Agriculture and its various Divisions; (3) Massey Agriculture College; (4) Canterbury Agricultural College; and (5) Cawthron Institute.

AGRONOMY DIVISION, LINCOLN

Acting-Director: Mr. R. A. CALDER

The chief aim of the Division is to develop and make available improved types of arable crops, and the advance to this objective is along three main approaches—crop-introduction, plant-breeding, and pure-seed production. During recent years, however, long-term investigations have been suspended and the main effort has been directed towards the raising of pure seed of both farm crop and herbage species.

Approximately 63 acres have been under crop during the past season.

WHEAT

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

The produce from the Division is increased mainly by Lincoln College and is distributed as certified wheat.

OATS

Although for some years now the acreage sown in oats has shown a steady decline, the crop is still of sufficient importance to warrant efforts directed towards its improvement; selection, hybridization, and the testing of new introductions are the methods adopted at the Division for this purpose.

The development of reselected lines of Garton's Abundance and Algerians is now in the final stages, and increase areas of each are to be grown this coming season.

Several seventh-generation selections from a cross between Resistance and Onward were grown in a replicated yield trial; some of these show promise of being good milling types, but further testing is necessary. S.17, a selection from a cross between Garton's Abundance and Ruakura, was grown at Lincoln College and on neighbouring farms, and its behaviour confirmed the opinion that it is a satisfactory early chaff oat.