

During the year a new stripper with tail-stripper attachment, adapted from a sisal decorticator, was completed in collaboration with the Bureau of Industry. In commercial trials the throughput was satisfactory. Costs are less, and the product is of higher yield and quality than with the stripper at present in use. A final model is under construction. With the knowledge of the yields per acre of the new varieties, the conditions of minimum insect attack, and the use of the new stripper it is now safe to state that phormium can be produced at a price which will meet world markets. More knowledge is desirable from the soil and water-table point of view, but sufficient is known to justify a definite long-range forward move.

RADIO RESEARCH.

During the year a fully representative Radio Research Committee of the Council of Scientific and Industrial Research was set up with the following objectives:—

- (a) To co-ordinate the radio research activities of the Broadcasting, Post and Telegraph, Defence, and Aviation Services, and of the several University Colleges.
- (b) To establish liaison with the radio research organizations in other parts of the Empire, notably with the Australian Radio Research Board, so that research in the Southern Hemisphere may be carried out in the most profitable way.
- (c) To promote the development of radio research in New Zealand in its scientific aspects and with special reference to local geographical and meteorological factors in this country.

Research is at present proceeding along three main lines—namely, in connection with the ionosphere, the reception of distant signals, and the propagation of wireless waves over the earth. Research on the ionosphere, which plays a predominant part in the propagation of wireless waves over any considerable distance, is being actively pursued at Canterbury and Victoria University Colleges.

At the request and with the co-operation of the British Radio Research Board, research on the reception of distant short-wave signals is being undertaken. Much scientific and practical importance attaches to this work—*e.g.*, in relation to the location and arrangement of aerials for receiving or transmitting short-wave signals from or to England. Preliminary work has begun at Auckland University College, and the full programme of research will be developed as soon as a man capable of carrying out the highly specialized technique can be secured.

A considerable amount of valuable and interesting data has been accumulated in the course of a study of the field strength of signals from North Island broadcasting-stations and the distortion produced by obstacles of various kinds.

TOBACCO RESEARCH.

Following upon representations by the Nelson Provincial Tobacco-growers' Association urging the establishment of a tobacco research station in the Nelson Province to investigate problems relating to the culture and manufacture of tobacco, steps were taken during the year to set up an organization for tobacco research with finance contributed by the industry through the Tobacco Control Board and subsidized £1 for £1 by the Government.

In order that the research work should be closely related to the needs of the various phases of the industry, an advisory committee was set up to represent the growers and the manufacturers and the Tobacco Control Board on the one hand, and the State Departments and scientific institutions concerned on the other—*viz.*, the Departments of Scientific and Industrial Research and Agriculture and the Cawthron Institute.

A Tobacco Research Officer was appointed, and a programme of work on the control of tobacco diseases, particularly mosaic disease, and chemical work on tobacco soils and factors relating to the quality of tobacco-leaf, was drawn up. A grant was made to the Cawthron Institute for assistance, and special facilities made available for the study of tobacco diseases, and for a detailed survey of tobacco soils to be carried out in co-operation with the Department of Scientific and Industrial Research.

Arrangements were also made for the lease of a suitable area of land at Motueka for the purposes of the Tobacco Research Station.

A survey of the incidence of tobacco-mosaic disease in a large number of tobacco-fields has been carried out, and the relative importance of a number of factors operating in its dissemination has been determined. A full report of this work will be published shortly in the *New Zealand Journal of Science and Technology*.

A number of selected soil samples have been analysed for plant food status, and as a result there are indications that in certain cases harm has resulted from the excessive application of lime and wood-ash. Preliminary investigations of the relation between the quality of tobacco-leaf and its chemical composition will be developed more fully in the coming year.

WOOL MANUFACTURERS' RESEARCH ASSOCIATION.

The advantages to be gained from a combined research organization for the purposes of investigating problems pertaining to the woollen-manufacturing industry in New Zealand were recognized by mill-owners in a practical way during the year by their consent to the formation of a Wool Manufacturers' Research Association. The amount contributed by the industry is being subsidized in the usual way by the Government on the basis of £1 for £1 expended.