

for increasing the efficiency and improving the design of radio equipment operated by the Post and Telegraph Department and the National Broadcasting Service and, in addition, would contribute to fundamental knowledge on the propagation of radio waves.

Radar Propagation Research.—The Committee considered and recommended for implementation researches into the effects of rainstorms and other meteorological effects to be proceeded with at the conclusion of the Canterbury Project in December, 1947. The researches are of international significance, as the world-wide effects of weather on radar are fundamental to the design of standard radars for civil use, particularly on ships.

Development of Radars for New Zealand Coastal Shipping.—Proposals submitted by the Dominion Physical Laboratory for the development of specialized radars applicable to New Zealand coastal shipping for assistance in coastal navigation were considered and recommended for implementation (see page 60).

Grants to University Colleges.—The Committee considered and approved two grants to Canterbury University College for ionospheric research being conducted by students proceeding to honours degrees. Effect has been given to the Committee's approval.

Other radio research matters considered by the Committee and upon which action has been taken include assistance in solar and auroral research in the relation of these phenomena to radio; use of amateur radio operators for the collection of certain radio phenomena, and ionosphere absorption research.

TOBACCO RESEARCH

Officer in Charge: Mr. THOMPSON

During the past year four meetings of the Tobacco Research Committee have been held.

The past season has been in the main a dry one. The spring was late, and early summer cold. January, February, and March were dry and warm, with sunshine above the average, bringing about a rapid ripening of the leaf, and kilns were taxed to capacity. The Station crop was irrigated once during January. The yield should be above the average of medium-bodied leaf. The 1945-46 crop was a record, 18,517 lb. being harvested from 13 acres.

The research work this season, as in the past, has been a co-operative effort carried out jointly by officers of the Cawthron Institute and the staff of the Research Station. The Research Station has concentrated on the field side, which has included all types of fertilizer investigations, variety trials, seed-production work, plant-breeding, and disease investigations.

SOIL STERILIZATION

In addition to the Station requirements, a total of 200 cubic yards for fourteen growers was steamed during the past season. The total amount of seed-beds steamed showed a considerable increase on previous seasons on account of the operation of a private soil-sterilizing plant. Many of these beds were direct sown with seed, showing that growers are becoming aware of the advantages of bed-sown over pricked-out seedlings in the control of mosaic.

FERTILIZER EXPERIMENTS, 1945-46 SEASON

A brief summary of the main results is as follows:—

There was a general increase in yield resulting from the extra complete fertilizer up to 1,400 lb.

Where the percentage of nitrogen in the fertilizer was varied, the plots receiving the least nitrogen (2 per cent.) gave the lowest yield: nitrate of soda is the best form. Potash produces little difference in yield, but high potash produced clean and uniform leaf of good texture and body.

Magnesium had a beneficial effect on both yield and quality. Reserves of phosphate have been built-up in the soil as a result of previous heavy fertilizer applications and additional applications have little effect.