

Tobacco Dusts.—With a view to testing the value of waste tobacco for insecticidal purposes, samples of ground tobacco have been mixed with finely-ground limestone, dolomite, magnesite, and kaolin. When these mixtures were exposed to the air for a period of two months no loss of nicotine occurred.

Soil Survey of Tobacco Lands.—(See Soil Survey report, p. 24.)

WHEAT RESEARCH INSTITUTE

Advisory Committee.—Dr. H. G. Denham (Chairman), Mr. F. R. Callaghan, Mr. C. S. Sapsford, Mr. R. B. Tennent, Mr. R. K. Ireland, Mr. R. J. Lyon, Mr. J. P. O'Connor, Mr. C. E. Boon, Mr. G. R. Harker, Mr. A. H. Yarrow, Mr. W. W. Mulholland, Mr. J. Carr, Mr. P. R. Talbot, Mr. W. O. Rennie, Mr. G. Fleetwood. Director: Dr. F. W. Hilgendorf (till 24th September, 1942). Acting Chief Executive Officer: Dr. O. H. Frankel. Chief Chemist: Mr. E. W. Hullett.

DR. HILGENDORF

Dr. F. W. Hilgendorf, the first Director of the Institute, passed away on the 24th September, 1942. It was largely from his previous work on wheat that the idea of the Institute emerged. He carried through its establishment, defined its spheres of activity, and was largely instrumental in gaining the confidence of the wheat industry. His wide knowledge and experience on all matters connected with wheat were invaluable to the Institute and its staff. His wisdom and knowledge of human nature made him an admirable scientific leader. His death is an irreparable loss to the Institute; the tradition he created will live after him.

WHEAT-GROWING

The threshing returns from the 1942 harvest were analysed as usual. Cross 7 continued its advance from 41.6 per cent. to 48.7 per cent. of the wheat area, and contributed 51.5 per cent. of the wheat crop. Fife-Tuscan increased from 120 acres to over 2,000 acres, and sowings in 1942 are estimated at 11,000 acres. Tainui has become the dominant wheat in the west coast counties of the North Island, where until two years ago Jumbuck was the principal wheat. Tainui yields distinctly better (in Rangitikei County by 8.5 bushels an acre) and it is suited for heading, whilst Jumbuck is not.

PLANT-BREEDING

Owing to the absence on military service of the geneticist, sowings at Lincoln were greatly reduced in scope. They consisted mainly of small-scale yield trials. Six hundred and sixty-nine lines were tested in twelve two- or three-dimensional lattices. These include the first of the new compound crosses made from 1935 onward after the success of Cross 7 became apparent. The normal scope of wheat-breeding work will be resumed during the coming season.

LABORATORY WORK

(a) *Moisture Testing.*—For the harvest of 1943, stations were again available for farmers, merchants, and others at Blenheim, Christchurch, Ashburton, Temuka, and Timaru. In addition, the co-operation of the Seed Testing Station, Palmerston North, made a service possible for North Island growers, and that of the N.Z. Wool Manufacturers' Association facilitated one for South Otago.

(b) *Milling and baking tests* were carried out as in previous years.

(c) *Work for the Armed Forces.*—Army bakers received instruction in the method of using dried yeast which had been devised by the Institute and in the baking of bread under hot climatic conditions. Other activities included work and consultation on the packing and storage of flour and Army stocks and the inspection of bread supplied to various Air Force stations.

(d) *Research Work in Progress.*—The investigation on water-vapour pressure of wheat of various moisture contents has been resumed and the chemical study of baking quality is being carried on. The research programme is curtailed owing to the partial absence of the chief chemist on war work.

RESEARCH WORK AT AGRICULTURAL COLLEGES

Grants were made by the Department during the year to Canterbury Agricultural College and Massey Agricultural College for a number of projects, which are reported on below.

CANTERBURY AGRICULTURAL COLLEGE

SUBTERRANEAN-CLOVER INVESTIGATIONS

The fourth grazing season on the Ashley Dene trial area was completed at the end of March. The autumn of 1942 was very dry—especially in April, when only 0.5 in. of rain fell—and only a moderate establishment of the clover occurred. The winter was mild and a very favourable lambing season was experienced. The rainfall in August, however, was only 0.69 in., and the growth of the pastures throughout the remainder of the season seemed to be adversely affected by the lack of moisture in August. The number of stock which were wintered on the plots was considerably higher than in previous seasons, and