

A consideration of the total acreage falling into categories 1 to 4 and its present utilization for different crops suggests that there should be no great difficulty in securing an extension in the Waimea County of the flue-cured-tobacco industry to 6,000 acres yearly if prices remain satisfactory.

DISTRIBUTION OF TOBACCO IN THE 1948-49 SEASON

Although it has not been possible to revise the tobacco maps showing the exact distribution of the crop in the Waimea County, a study of the acreages applied for by growers and made available by the Tobacco Control Board shows some changes in comparison with the 1947-48 season and an increase in the 1948-49 season of 148 acres.

(See tobacco soil investigations under Cawthron Institute.)

WHEAT RESEARCH INSTITUTE

Chief Executive Officer: Dr. O. H. FRANKEL

WHEAT-BREEDING AND WHEATGROWING

As in recent years, the Institute operated on its own station at Lincoln—where it has fourteen acres under wheat plots—and on 5 acres of leased land in a high-fertility area at Tai Tapu, about six miles from Lincoln: there were 8,236 plots at Lincoln and 1,247 at Tai Tapu. At the branch station selections are made that are designed for the wheat areas with high fertility in Canterbury and North Otago. In these districts Dreadnought gives high yields, but gives difficulties in harvesting. All the more advanced breeding lines are tested at both stations.

The breeding material included the fifth generation of the cross Hilgendorf $\times$ Cross 7, from which it is hoped to select a wheat with the best characteristics of both parents—viz., an all-round high-yielding wheat with highest baking quality. Some of the selections look promising: one had a protein content of 18.5 per cent., which probably is unprecedented in New Zealand.

A heavy attack of mildew (*Erysiphe graminis*) made extensive observations possible on the degree of infection on breeding lines and in the collection. Resistant types were found, and some of these have been crossed with our standard varieties. These studies will shortly be extended in co-operation with the Plant Diseases Division.

Six new lines, from a number of compound crosses, have shown promise in tests at Lincoln and Tai Tapu, and will be included in the regional trials of the Department of Agriculture.

In this year's Extension Division trials the lines 202,01, from the cross (Cross 7 $\times$ Dreadnought) $\times$ (Cross 7 $\times$ Lin Calel), and 192,01, from the cross (64,02 $\times$ Cross 7) $\times$ (Tainui $\times$ Cross 7), again showed good promise. The latter line was found to consist of a number of types, which have been separated and will now be tested individually.

Hilgendorf, the Institute's new wheat, was released during the past season. Seventeen crops were sown, totalling about 220 acres. Reports indicate that with few exceptions farmers were satisfied with the new variety, in spite of the fact that the extended spring drought was a severe handicap for this early-maturing wheat. The seed available for the sowing of 1949 is sufficient for an area of between 3,000 acres and 3,500 acres. To encourage extensive trials by farmers with this high-quality wheat, the Government and the Flour-millers' Society have agreed to a continuation of the premium of 1s. per bushel for the coming year, the millers and the Government each contributing one-half of the premium.

Another new wheat, WRI-Yielder, is not yet ready for general distribution. A nucleus area of 9 acres did not prove sufficiently pure for distribution, and a further reselection has been provided.