

disease showed little or no infection in the mature tobacco plants. This result must have been greatly influenced by the drought which persisted through the latter half of January and throughout the whole of February.

(5) *Collar-rot*.—Experiments relating to the control of collar-rot (*Sclerotinia* fungus) in seedling beds at the Tobacco Research Station have been continued. Chloropicrin, formalin, copper sulphate, and D.D. were all tested as soil treatments, and Bordeaux mixture was tested as a spray on the tobacco seedlings. None of the treatments gave a control of the *Sclerotinia* fungus which had previously been inoculated into the soil. Copper sulphate, however, appeared to reduce the amount of infection.

In another experiment carried out in boxes at the Cawthron Institute, further chemicals were tested for the control of the fungus, but no treatment proved entirely satisfactory. Best results in reducing infection on the tobacco seedlings were obtained from copper sulphate (used as a soil treatment prior to pricking-out the tobacco seedlings) and from Shirilan A.G. (used as a spray on the seedlings eight days after pricking out).

SEED PRODUCTION AND PLANT-BREEDING

Seed supplied to manufacturing companies continues to show an increase, being 42 lb., compared with 36 lb. in the previous season. The seed supplied is from once-tested single plant selections, as experience shows that such a check is essential before seed is distributed for commercial use. Plant-breeding to obtain mosaic-resistant varieties is progressing. Some very promising types which have many of the characteristics of the flue-cured parent were grown, and these have again been back crossed to the commercial type. Progress has also been made in breeding varieties resistant to black root-rot. Promising resistant types were selected from the hybrid material and back crossed to the flue-cured parent. Two American varieties resistant to black root-rot confirmed under trial the good results obtained last season and can now be recommended for any areas suspected of being infected with the disease. A third variety tried out for the first time this season has also shown definite promise, as also has a new variety from Canada.

FIRE-CURED TOBACCO

Moderate success was obtained last season in the growing and curing of a small area of fire-cured tobacco. Another area has been grown this season and the crop in the field is much better than the previous one. With the experience gained in curing it is hoped to produce a much better sample of leaf.

KILNS AND CURING

Much information was gained last season by officers of the Dominion Laboratory about the physical conditions pertaining in a kiln during curing. This has been followed up during the past season by making radical changes in the arrangement of flues in a kiln and by introducing a fan to obtain positive circulation of the air. A wealth of additional information has been gained, and indications are that definite improvements in the flue-curing process are possible.

SOIL SURVEY OF TOBACCO LANDS

Tobacco soil maps for the Brightwater - Spring Grove section of the Wai-iti Valley have been prepared and copies made available to the Tobacco Research Station, tobacco-manufacturers, and the Tobacco-growers' Federation. Soil mapping has been continued in the Wakefield-Belgrove sector, and this part of the Wai-iti district will shortly be completed. A commencement has been made with soil mapping in the Motupiko-Tapawera district, where there is a considerable area of soil texturally suitable for flue-cured tobacco.

Owing to lack of staff it has not been possible to revise the tobacco maps showing the exact distribution of tobacco in the Nelson District, but a study of the acreages applied for by growers which were made available by the Tobacco Control Board shows the following changes : 1944/45, 3,367½ acres ; 1945-46, 3,557½ acres.