

CHEMISTRY OF CURING

In 1943 three experiments to study changes occurring in tobacco-curing were carried out. These showed that appreciable losses of dry matter occurred in the colouring stage of the curing operations, these being of the order of 10 per cent. to 15 per cent. It is interesting to note that the moisture content of the leaf remains practically constant during the colouring stage. No further losses of dry matter occurred in the later stages of curing. Determinations of glucose, fructose, and sucrose on samples taken at different stages indicated that in the colouring stage a large increase in glucose content and an appreciable increase in fructose content occurred. Later on a further small increase in fructose content was found, but it may be said that in the colouring stage the transformation of reserve carbohydrates to reducing sugars was almost completed. At later stages of curing, changes in reducing-sugar content were negligible. Sucrose throughout remained at a low figure.

In 1944 five curing experiments have been carried out using material from plants in the nutrient intake experiment. Except for the first picking of sand leaves, the successive harvests of leaves passing from bottom to top of the plant are represented. Data for changes in weight and moisture content of the leaves confirm the results of the previous season. Chemical data for these trials will be available later.

NICOTINE RECOVERY

A small-scale commercial plant has been erected and used to extract nicotine from waste tobacco. Over 90 per cent. of the nicotine present has been recovered. Some alteration of the plant is required, and when this has been done, continuous running will be undertaken to obtain more information concerning the cost of production of nicotine sulphate.

SOIL SURVEY OF TOBACCO LANDS

Soil maps for the Moutere Valley have been completed, and copies showing the classification of the soil for flue-cured tobacco have been prepared for the tobacco companies. A commencement has been made with a detailed soil survey of the Waimea Plains, and soil mapping has been completed for the Appleby-Brightwater section. Over 7,000 acres of alluvial land have been mapped in the Waimea survey, and 2,096 acres of land are texturally suited for flue-cured tobacco. A large proportion of this acreage, however, falls into a soil group, which requires particular seasonal conditions to give optimum yield of tobacco.

At the request of the Tobacco Research Committee, a report was prepared on the amount of land which was likely to be available in the Nelson District for the extension of the flue-cured-tobacco industry. Although the Wakefield-Belgrove district and the Motupiko-Tapawera districts will require to be mapped, it was estimated that the total acreage of land which was texturally suitable for flue-cured tobacco was 10,000 acres. After making allowance for individual preferences of farmers and the rotation of crops, it was considered that 5,000 acres per annum would be the probable limit of flue-cured tobacco in the Nelson District.

Owing to lack of staff, it has not been possible to revise the tobacco maps, but a study of the acreages kindly supplied by the Tobacco Board show the following changes:—

Locality.	1943 Acreages.	1944 Acreages.
Motueka-Riwaka (including Umukuri and Sandy Bay)	1,593½	1,615½
Motueka Valley	451	476
Dovetail and Thorpe	277½	286½
Ngatimoti and Orinoco	135½	157
Stanley Brook and Tapawera	217	241
Wai-iti and Waimea	186	224
Moutere Valley, including Mapua	100	105½
	2,960½	3,105½

WHEAT RESEARCH INSTITUTE

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In December, 1943, the Institute completed its third five-year term of service. All the interests who pay levies—wheatgrowers, millers, and bakers—as well as the grain-merchants, who collect the growers' levies, having signified their willingness to support the Institute for another five-year term, legislation was passed renewing the Act under which the Institute operates for another five years.

WHEATGROWING

The threshing returns for the 1943 harvest were analysed as usual. Cross 7 advanced further from 48.7 per cent. to 59.4 per cent. of the wheat area. Fife Tuscan, a new variety produced by the Institute, increased from 0.9 per cent. to 3.3 per cent. Tuscan decreased further from 33.5 per cent. to 23.9 per cent., Hunters from 7.0 per cent. to 4.8 per cent., and Dreadnought from 6.3 per cent. to 4.5 per cent. Tainui, a recent production of the Institute, is now the dominant variety in the Rangitikei and Manawatu districts. As in the two preceding years, it yielded substantially more—6 bushels per acre—than the previous standard variety, Jumbuck. Over the 4,000 acres of Tainui grown in that district in 1942-43, this has meant an increased production of 24,000 bushels, or an added value of some £8,000. Moreover, Tainui is suitable for "heading," now widespread in that area, whilst Jumbuck is not.

An experiment conducted to test the value for wheatgrowing of a new sowing device for sub-surface broadcasting gave inconclusive results and is to be repeated.