

A report has been made on Kerikeri citrus soils.

Quick methods of estimation of moisture in seeds, tobacco, and linen flax have been developed.

CAWTHRON INSTITUTE

Soil Survey.—Soil-survey work has again been curtailed owing to the absence of several members of the staff with the Armed Forces. Soil maps for the Moutere Valley have been completed, and special maps showing the classification of the soils for the culture of flue-cured tobacco have been prepared and copies made available to the tobacco companies and the Director of the Tobacco Research Station.

During the spring of 1943 a detailed soil survey of the alluvial soils of the Waimea Plains was commenced. The soil mapping on the Appleby-Brightwater section has been completed, and soil maps covering 7,710 acres will shortly be available. When assessed from the point of view of suitability for flue-cured tobacco, 2,096 acres come within the first three grades of tobacco soils.

The following table shows the acreages and grading of soils suitable for flue-cured tobacco in the districts which have so far been subject to detailed soil mapping:—

Locality.	Soil Group 1*.	Soil Group 2†.	Soil Group 3‡.	Total.
	Acre.	Acre.	Acre.	Acre.
Motueka—Riwaka—Sandy Bay	1,324	1,279	573	3,176
Moutere Valley—Jubilee Bridge to Holdaway's Road	..	156	..	156
Moutere Valley—Holdaway's Road to head of valley	..	658	340	998
Motueka River Valley	633	606	372	1,611
Orinoco—Ngatimoti	13	45	60	118
Waiwero	..	20	..	20
Dovedale—Thorpe	15	174	488	677
Waimea Plains—Appleby to Brightwater	35	840	1,225	2,100
	2,020	3,778	3,058	8,856
Acreage at present in tobacco, hops, and orchard	1,128	1,171	350	2,649

* Soil group 1 includes fine and medium sands and sandy loams of good depth and satisfactory drainage. † Soil group 2 includes gravelly sands, sandy loams, and silt loam on sand or gravel where depth is less satisfactory than group 1. ‡ Soil group 3 includes soils of satisfactory texture but of general shallow depth and likely to be adversely affected in dry seasons unless irrigation water is available.

Land Utilization.—A land-utilization map covering the Appleby-Brightwater section of the Waimea Plains has been prepared. Most of the land is devoted to arable farming, but considerable areas of canning peas, tomatoes, and a small area of tobacco are grown.

Owing to lack of staff it has not been possible to revise the tobacco maps for the Nelson District, but a study of the acreages supplied by the Tobacco Board shows that there has been an increase of 145 acres of tobacco over the 1942-43 season. The increase in acreage is mainly in the Motueka Valley, Dovedale and Thorpe districts, and Ngatimoti and Orinoco valleys.

Chemical Work.—The routine examination of soil samples collected during the soil surveys of the Moutere Valley and the Waimea Plains has proceeded steadily. Further work has been done on the effect of steam sterilization on the plant-food content of Nelson tomato soil. Samples of soil for ammonia and nitrate determinations were taken regularly from both unsterilized and sterilized plots in the Cawthron tomato-house. The results from the past season confirm those of the previous year in showing a very large increase of ammonia nitrogen on the steam-sterilized plot. In the steamed soil the ammonia figures slowly increased from 20 p.p.m. to 60 p.p.m. on the 20th September. In the unsterilized soil the ammonia nitrogen increased from 20 p.p.m. to 30 p.p.m. on the 17th August, but then fell to 25 p.p.m. on the 20th September.

TOBACCO RESEARCH

Advisory Committee.—Sir Theodore Rigg (Chairman), Messrs. F. R. Callaghan, L. J. Schmitt, W. D. Dallas, N. J. Adamson, H. L. Wise, C. C. Nash, E. M. Hunt, F. A. Hamilton, B. T. Rowling, J. F. Balck, R. Thomson, and B. Jenkins.

During the past year four meetings of the Tobacco Research Committee have been held to consider reports of officers connected with the tobacco research programme, and to advise on policy matters connected with the development of the Tobacco Research Station.

Notwithstanding the bad season, the yield of tobacco should approximate closely to that of last season, but the quality will probably be somewhat lower. The crop in the 1942-43 season was particularly good, amounting to 14,295 lb. from 14 acres. The quality was good, an average price of 2s. 4d. per pound being realized.

As in former years, the tobacco research work has been carried out jointly by the staff at the Research Station and by officers of the Cawthron Institute. Work at the Research Station has consisted of fertilizer studies involving both quantitative and qualitative estimations of fertilizer applications, seed-production trials, variety trials, and mosaic investigations. At the Cawthron Institute the work has included tobacco disease surveys, mosaic investigations, and chemical studies dealing with the intake of plant nutrients, the chemical composition of cured leaf, and nicotine extraction from waste tobacco leaf. In addition, good progress has been made with the soil survey of tobacco lands on the Waimea Plains.

FERTILIZER EXPERIMENTS

Fertilizer results from the 1942-43 season may be summarized as follows:—

Where the standard fertilizer was applied in varying quantities, 1,200 lb. per acre again appeared to be the optimum amount. Increasing the quantity of nitrogen in the fertilizer gave increased growth with somewhat delayed maturity. Extra potash resulted in smoother leaf. Tobacco after oats showed little difference from tobacco in continuous cropping. The