

SOIL CONSERVATION AND RIVERS CONTROL

Considerable time has been devoted to the classification of hill land and to the establishment of a tentative boundary between land suitable for agriculture and that required for reafforestation. This work has now been completed for the Waimea County. A study of the proposed boundary shows that, in addition to the 340,000 acres now included in State forests and reserves, a further 184,000 acres of poor hill land must be retired from agriculture and included in the afforestation category.

At the request of the Nelson Catchment Board, observations on the value of subterranean clover and green-manure crops have been continued with a view to the prevention of soil erosion and the conservation of soil fertility. Assistance has been given to the Department of Agriculture in the layout of field experiments, and estimations of soil nitrogen have been made on lupin and subterranean-clover plots.

CHEMICAL WORK

The mechanical and chemical analyses of soil samples in the Wai-iti and Tapawera surveys have been continued. The soils of the Wai-iti Subdivision have been completed, and good progress has been made with those from the Tapawera locality. At Tapawera, sands, sandy loams, and silt loams predominate, suggesting that a considerable acreage will be suitable for tobacco culture.

Other work is reported under appropriate headings in this report.

GENERAL

At the request of the State Advances and other Government Departments, visits have been paid to several properties required for soldier settlement. Many requests from Nelson farmers relating to the use of lime and fertilizers have been received and the necessary assistance has been given.

TOMATO INVESTIGATIONS

(a) *Use of Steam, Formalin, and Chloropicrin.*—In view of the good results obtained in the previous season with chloropicrin on outside tomato soils, this chemical was included in the tests for the treatment of glasshouse soil.

The results showed the great value of both steam and chloropicrin in improving the growth and yield of tomatoes on an old tomato soil. The result from chloropicrin was not significantly different from that obtained with steam treatment. In both cases the yield of tomatoes was improved by at least 3 lb. per plant.

(b) *Tests on New Tomato Glasshouse Soil.*—The erection of a new glasshouse on an area of outside tomato soil enabled tests of steam and soil disinfectants to be enlarged over the previous year.

Yields from the new glasshouse were considerably higher than those from the old glasshouse, but the percentage increases in yield obtained from the use of steam, formalin, or chloropicrin were very similar to those obtained in the old glasshouse.

EFFECT OF COCOA-BEAN HUSKS, COMPOST, ETC., ON TOMATO YIELD

Tests of the value of different materials for improving the textural and plant-food status of Nelson tomato soil, which in the case of the Institute glasshouses contains a high percentage of clay and silt, have been continued.

Steamed compost which in the 1945–46 season gave an increase of 1.25 lb. per plant over the corresponding control showed only a small and non-significant increase of 0.2 lb. per plant in the second season.

The use of sawdust was associated with a marked decrease in yield which, however, was not so great as in the 1945–46 season.