

Cocksfoot-seed Production.—Trials at Lincoln and at Eifelton have been continued and the results of the last three years are in course of compilation. Interest in the investigation lies in the need for the cocksfoot plant to conform to certain specific ecological conditions wrapped up largely in the matter of light intensity to the crown of the plant and in an adequate supply of nitrogen. The diminution of dead bottom by mechanical means, by a certain grazing intensity, by burning, or by special manurial or chemical applications to facilitate and hasten decomposition of the dead leafage, is a special feature of the investigation.

Herbage Dissection.—All pasture trials for production are on a dry-matter basis, and in the case of species trials within a mixture the basis is single species production also on a dry-matter basis. The work involved in making these analyses on a species basis is very great and the use to which this service is put is on the increase.

TURF-PRODUCTION

Aerodromes.—With the end of the war the attention to aerodromes will diminish. The work is becoming more and more of a routine nature, and the aerodrome field staffs are now becoming so apprised of the technique of aerodrome-turf maintenance that little more time need be given aerodromes from a research point of view. Several of the staff who were full time on aerodromes during the war are now returning to their former research work.

Greenkeeping Research.—The Division is regularly approached for advice on the establishment and maintenance of all manner of playing-greens, and more and more sports clubs look to this Division as an outcome of the results from the greens research work which has been conducted in collaboration with the New Zealand Golf Council and local Greens Research Committee.

SOIL CONSERVATION

Soil conservation must be regarded as a prerequisite to land use wherever farming over an extended period of time is being practised. The hill country in the North Island has now been felled upwards of sixty years and the log and stump phase will soon be a thing of the past. Forest trees originally prevented large-scale erosion. Their stumps served to anchor the surface soil after the forest had been cut and burnt. These stumps are now rotting and it is possible that the grass turf itself is not sufficient to prevent another cycle of accelerated erosion such as took place in the early sculpturing of the hills and valleys prior to the vegetative cover gaining the upper hand. Now that the vegetative cover is gone, a cycle of accelerated erosion could occur again with devastating effects not only to the hills, but also to the fertile plains that were built from soil and debris of some prior period of accelerated erosional activity.

The research task is seven-fold :—

- (1) To stop further downward scour in the valley bottoms.
- (2) To heal head erosion up the valley.
- (3) To align the stream down the middle line of the valley.
- (4) To safeguard the valley bottoms where erosion has not yet occurred.
- (5) To repopulate the hillsides with trees, spaced at varying densities per acre according to the degree of slope.
- (6) To study the relationship of spaced trees and the pasture sward.
- (7) To thicken up the grass sward by top-dressing, by oversowing seed of additional species and strains of these, and by regulated grazing management.

This Division, in collaboration with the Manawatu Catchment Board and the Poverty Bay Catchment Board, has already taken the initiative to implement the building of debris dams and the planting of gullies. Experimental sowings of grasses, clovers, and shrubs on eroding surfaces and on weak grassland turfs have been made on some 150 acres in the Poverty Bay area and 50 acres in the Manawatu district. A programme of hillside plantings with spaced trees has been initiated at Te Awa, where some 20 acres have been so planted. Arrangements are in hand to plant additional trees this coming winter and to top-dress most of the areas already surface sown with seed.

Preliminary botanical analyses of the present swards have been made from which later improvements may be gauged.