

During the past year greater stock numbers have been carried as a result of a liberal top-dressing, a narrow cattle-sheep ratio, rotational grazing, cultivation for supplementary feed crops and later sowing to high-grade pastures, spaced tree-planting, gully control work, stock ponds, planting for stability and shelter, and revegetation of slip and flow areas, and the prospects are promising on this unstable country.

Nevertheless, information is acquired very often the hard and expensive way; failure in some gully control structures before they were well established has resulted in useful experience being gained very early in the programme of gully control.

Data on grazing management, history, behaviour of structures, run-off and soil loss, effect of trees on stabilizing slopes, and costs is being collected.

(d) *Tara Hills, North Otago*.—This single-unit sheep-run of 8,000 acres on typically eroded high country was acquired in 1947 to work out in practice a recuperation programme and its cost under the local conditions.

Besides the fire and rabbit control programme undertaken, regeneration of the critically important "winter country"—the lower sunny depleted and eroded slopes—has been commenced, both by fencing to control stocking of this land and by irrigation of flat areas to relieve the grazing burden on this essential country during the recuperative treatment (at least).

Data is being collected on the influence of management on the regeneration of native grasses and of burning, rabbits, sheep, and cattle on erosion, while new strains of native and exotic grasses, trees, and shrubs are used for trial purposes.

(e) *Adair, South Canterbury*.—On this 80-acre typical downlands property, portion of one of the first settlements in the South Island, acquired because of its derelict and eroded condition, good progress has been made in the erection of contour banks and broad-base terraces. On this farm the objective is to measure differences in terms of crop yields between contour-conservation cultivation practices and normal cultivation practices demonstrated side by side in adjacent fields.

Whether or not soil and water saving conservation practices successfully used overseas are satisfactory and what modifications are needed for our conditions will be determined as information is built up under continuous, precise conditions of observation and measurement.

Last season normal crop rotations and management were used, but fallowing for weed-eradication was necessary during the dry summer months.

(f) *Tangoio*.—On this 450-acre block adjoining unstable land acquired for highway-protection purposes, a recuperative treatment programme is under action. The danthonia-dominant pastures on the rolling to steep slip-eroded land have been spelled, top-dressed, oversown with subterranean clover, and prudently cattle-grazed, and are showing evidence of improvement.

In addition, slip-colonization trials and the effect of space planting of trees is being undertaken.

(g) *Mid Dome, Southland*.—Owing to the difficulty of providing a residence for the overseer, little has been achieved on this sheet and gully eroded mountain-side in the tussock high country of Southland. As soon as rabbits are brought under control much revegetation trial work will be undertaken to protect and stabilize slopes that now shed run-off and rubble to the actively aggrading streams that are choking the Oreti River.

(h) *Ihungia, East Coast, Poverty Bay*.—The space planting and gully-control work and the exclusion of cattle and sheep from this 192-acre block of very unstable country is having a beneficial effect in stabilizing the soil and reducing erosion, which threatens the highway above.