

LAND-UTILIZATION.

To a considerable extent the work of the year in respect to land-utilization has consisted of a continuation of the work in progress at the end of the previous year.

Land-utilization Survey in Hawke's Bay.—In Hawke's Bay the land-utilization survey has been marked by substantial progress. A report on the Heretaunga Plains section was completed and has been published, while the preparation of the report on the Mid Hawke's Bay section of the work is well advanced. The amount of field-work remaining to be done in other parts of the Province is small, and so the completion of the whole Hawke's Bay land-utilization survey is in sight. During the year top-dressing trials were laid down on the main soil types in the province to ascertain the response obtained from the use of phosphates, potash, and lime respectively, and already, although the trials are as yet too new to provide conclusive evidence, they have yielded instructive indications of top-dressing responses: benefit from phosphates is very general, while visible benefit from lime and potash has been restricted to only a few soil types.

In several sets of circumstances under which field experience with subterranean clover is lacking and in which success with it would be specially valuable in Hawke's Bay farming, trials involving the surface-sowing of subterranean clover have been initiated, and some of these already provide promise of success with subterranean clover as a pioneer factor in improvement of pastures of low productivity.

The land-utilization survey has shown conclusively that under the current relationship between farming costs and farming returns there is considerable scope for profitable expansion of farm-production in Hawke's Bay.

In general, some of the major means to such expansion are—

- (1) The improvement of pastures by ploughing up inferior ones and resowing with the best available commercial lines of seed of pasture species.
- (2) The extension of top-dressing with phosphates as a general measure, and on specific soils the greater use of lime. The potash position has not yet been clarified enough to allow any safe conclusions about the economic worth of potash to be reached.
- (3) The better utilization, as distinct from the increased production, of stock feed: the main measures conducive to such better utilization are the greater provision of seasonal reserves of feed and better grazing-management.
- (4) The lessening of the ravages of some of the stock disorders which are among the more serious in Hawke's Bay and which have been correlated closely with the feeding-management of the stock.

Milk-production Investigations.—During the year two special investigations in regard to the production of liquid milk in the Wellington-Palmerston North district and the Christchurch district were carried out. The investigation covering the latter district was made at the request of the Internal Marketing Department, and the two projects entailed visiting numerous dairy-farms in the districts mentioned in order to secure the required information. Many interesting features evolved from the investigations in question, and these have been the subject of special reports to the Government.

Investigation of Canterbury Foothill Farming.—For a considerable period the economic status of the farming of parts of the Canterbury foothill belt has been unsatisfactory. The crux of the position is the type of pasture dominance which is most economic. The main possibilities are—(1) being satisfied with brown-top dominance, in which case a ready and fairly substantial source of revenue becomes brown-top-seed production. This is a primitive type of husbandry, an outstanding weakness of which is the limitations and uncertainties of the market for brown-top seed. (2) Having as an objective the establishment of long-term, high-class pastures in which rye-grass, cocksfoot, and clovers are prominent. Means to such pastures may be (a) the sowing of high-grade strains of pasture species, (b) liming, (c) top-dressing with artificial fertilizers, (d) mole or other drainage.

An investigation of the position has been initiated, the aim of the preliminary work being to study all available experience, and particularly the experience of those whose results have been characterized by more than the usual amount of success.

Land-utilization Potentialities of the Flax (Phormium) Areas of the Moutoa District.—The Department of Agriculture co-operated with the Public Works Department and the Department of Scientific and Industrial Research in presenting a report to the Flax Plan Rehabilitation Committee on the land-utilization potentialities of 4,621 acres in the Moutoa district, with special reference to the use of this area for the production of flax (phormium) to supply the woolpack-factory at Foxton.

Land-deterioration.—During the year considerable attention has been given to major phases of the deterioration of farm land. The deterioration calling for consideration is mainly that of land devoted to sheep-farming. Because, during the last decade or so, sheep-farming has been marked by expansion in production, it seems well to point out that such expansion is due to improvements in parts of our sheep-farming land, while unfortunately, deterioration is rife in other parts of our sheep-farming country throughout both the North Island and the South Island. It is clear that the land-deterioration position calls for a comprehensive investigation, basic features of which should be—

- (1) A survey of the present farming, with particular attention to its economics and to the operations of those farmers who are getting results better than the average.
- (2) The establishment of selected trial areas on which to investigate the economics of practices which are considered promising but which have not been carried out widely enough to give an indication of their economic worth.

Land-erosion.—An interdepartmental Committee on which the Department of Agriculture was represented surveyed the position in the Dominion in respect to land-erosion, which is a special phase of land-deterioration. The report of this Committee has been completed. The main feature of the report is that it stresses the problems that face us, the urgent need of tackling these problems, and the important extensive role that modifications in farm-management must have in reducing the grave national wastage due to soil erosion.