Ecology.—(*a*) Field Trials: A comprehensive series of strain trials has been arranged for the purpose of species, strains, and seed-mixture trials on various soil types and conditions. Thirty-two trials have been made up during the year, and these have been laid down by the Fields Division, and regular reports have been received. There is now a total of ninety-one trials in progress.

(*b*) Pasture Analyses: The pasture analytical work has increased greatly during the year, and further technique work has been carried out with the following methods: (1) Eye-determination; (2) point analysis; (3) dissection analysis of cut or plucked herbage.

The greater amount of this work has been in connection with the pasture trials at Marton, the feed-flavour investigation at the Dairy Research Institute, Palmerston North, and in conjunction with seed-mixture trials.

Much more of this exact work should be done in conjunction with plot and field trials.

(*c*) Pasture Survey Work: This has for its objective the mapping of pasture types in such a way as to indicate the following three phases of pasture progress: (1) The vegetation that each soil and climatic type will support in its natural or unimproved condition; (2) the modifications that have taken place to date in general; and (3) the potential possible sward that such soils or climatic type will support when fully improved. The pasture survey commenced in the Hawke's Bay County in January of the year under review, and up to the 31st March approximately 150 square miles had been mapped. This later will be correlated up with farm-management and soil type, which surveys are proceeding hand-in-hand with the pasture survey.

Feed-flavour in Cream Investigation.—This has been continued in the Waikato and further extended at Palmerston North in close collaboration with the Dairy Research Institute and the Fields Division of the Department of Agriculture. An extensive programme of work was undertaken, and the work in the Waikato enlarged to include work at Frankton and Te Awamutu as well as at Morrinsville. Forty farms at each centre were botanically surveyed, and the cream-supply from these farms was subject to critical grading on the 0 to 10 basis for feed-flavour intensity. The major points determined in the previous year's work were confirmed. These may be again summarized as follows:—

(1) Grass-dominant farms yield a cream low in feed-flavour intensity.
(2) Clover-dominant farms yield a cream high in feed-flavour intensity.
(3) The lower per-acre producing pasture types, consisting mainly of suckling clover, subterranean clover, and sweet vernal, produce the highest feed-flavour intensity, but the high feed-flavour intensity period is of comparatively short duration.
(4) Dominant white-clover farms, with some rye-grass subdominant, are high in feed flavour, and these extended well through the season.
(5) Dominant rye-grass farms, with white clover subdominant, produced the best-quality creams, these possessing a relatively low feed-flavour intensity throughout the season.
(6) The evening cream gave a consistently higher feed flavour than the morning cream, and this is evidently associated with the time prior to milking that the feed is consumed.

Control of feed flavour would appear to lie along the lines of pasture improvement, and some experimental work was initiated to see how best pasture could be translated from clover-dominant to grass-dominant. Some 200 acres on ten farms were experimentally treated with nitrogenous manures, and paddocks so treated were compared with other paddocks on the farm. Owing, however, to the lateness of the spring and the consequent general feed-shortage, little could be done to ration the herd on these nitrogen-treated fields because they were constantly in use by the herd.

It is contemplated to continue the investigation, and, in addition, to compare heavy phosphated fields with fields treated with nitrogenous fertilizers.

At Palmerston North the work involved the preparation, sowing down, and fencing of special pure and mixed pastures for field grazing, and the provision of pure feeds that were cut and fed indoors to stall-fed cows.

In both trials the herbage consumed was botanically analysed and dry-matter determinations made by the Station Chemist. The general results of these trials went to confirm the field trials in the Waikato in so far as they went to prove—

(1) That pure grass diets yielded a cream almost entirely free of feed flavours:
(2) All clovers fed produced feed flavour in the cream, and the indications were that suckling clover and subterranean clover were more potent in this respect than white clover or red clover.

Further pure sowings covering six acres of ground have been made, and the work involved in maintaining these crops in a pure condition is considerable, all clovers being sown in drill rows and intertilled to control volunteer species and weeds.

Green-keeping Research.—This work has progressed well during the year. The New Zealand Golf Council has appointed a field advisory officer and permanent labour to the research area in order that this work may be more efficiently carried on and that the results may be extended to actual field practice. The actual control of the research area is now vested in the advisory officer, and this has released my assistant for ecological pasture work in the field.

Publications.—The following articles have appeared during the year:—

"Garden Lawns and Playing Greens," by E. A. Madden: *Journal of Agriculture* for June.
Third Annual Report, Greenkeeping Research. Papers were contributed by the following officers to the New Zealand Grassland Association Conference: L. Corkill, S. H. Saxby, L. W. Gorman, E. A. Madden, and E. Bruce Levy.

Demonstrations, Lectures, and Conferences.—The number of farmers and overseas visitors to the research area has increased during the year, and this alone involves a good deal of time of the Station's staff. Such visits, however, are encouraged, and are most convincing as to the value of the work being done.