While the majority of research activities are still being carried out under the farmers' co-operative experimental scheme, a large and increasing volume of work is being conducted at research areas and demonstration farms. In many cases the work at such areas has been designed to give specific detailed information about certain problems, whereas the field trials conducted in all parts of the Dominion under the co-operative scheme give less specific but more extensive information about the same problems covering all variations of soil and climate.

In such a manner both the specific information and the general application of such information to all farming conditions are secured with the minimum of delay. Types of trial which would interfere unduly with normal farming operations are restricted to experimental and demonstration farms.

The necessity for an accurate but practical and reasonably rapid method of determining the proportions of species in a complex sward has long been recognized and a statistical examination of methods now in use to determine their reliability has recently been started. This work is expected to be of interest to all field research workers.

Description and Progress of Field Experiments

(1) *Pasture Trials*

(*a*) *Mowing Trials.*—Fifteen of these trials are now in progress at the Marton Experimental Area. Seven trials are essentially technique investigations of various types and study such factors as the differences in responses to fertilizers that are shown by the different elements of the sward (in particular, the grasses as compared with the clovers), the effect on the sward of various mowing and grazing techniques, statistical studies of the variability of swards, the relation of pasture-production figures to stock-production data, and comparative studies of different mowing techniques.

Four trials compare various fertilizers. Of these, trial I examines the residual effect of various forms of phosphates and lime, and it is expected that the summary of sixteen years of pasture-production figures from this trial will be published during the coming year. Another fertilizer trial (trial S) will be closed this autumn, production data for the past eight years having demonstrated that serpentine-superphosphate is a more efficient fertilizer per unit of phosphoric acid at Marton than is superphosphate; it is hoped to publish the results from this trial within the next few months, together with other field research data on serpentine-superphosphate. Trial E compares many types of phosphatic fertilizers, and trial A the effect of fertilizer placement on pasture-production.

Three mowing trials (V, C, and H) compare species and strains of pasture plants, and trial D examines methods of preparing land for sowing to grass in terms of the pasture-production from the swards established.

At the Dargaville Demonstration Farm 3 mowing trials are in progress, 2 being fertilizer trials and 1 investigating possible "minor" element deficiencies on one of the leached soil types present on the farm. Three other mowing trials in North Auckland are located on the ironstone soil, a "problem" soil at present mainly not used for farming, but covering extensive areas of country of easy topography. These trials also examine possible "minor" element deficiencies in this soil.

At the Waimate West Demonstration Farm a mowing trial is examining the changes in seasonal grass-production during the year. It is hoped shortly to carry out this fundamental study in many districts throughout New Zealand.

At the Winton Experimental Farm, Southland, a detailed comparison is in progress of reverted superphosphate and serpentine-superphosphate in their effect on pasture-production, stock-carrying capacity, and stock-production. Final figures will not be available from this experiment for some years.