

and production. The survey of the Waipa County conducted upon very detailed lines will provide information applicable to much of the Waikato and King Country districts. That of the Ashburton and Levels Counties will be a valuable guide to irrigation practices on the Canterbury Plains. Realizing that there is necessity for taking a long and sound view for the development of our lands, it has been decided to extend the area under survey, so that this year it is hoped to complete the Hawke's Bay and North Auckland Districts. At the same time comprehensive agricultural farm-management and other relative surveys will be carried out in these districts, with a view to understanding the land-utilization problems of these areas.

In a national stock-taking of a country predominantly agricultural, it is fundamentally important to apply scientific attention to our soil resources so that these resources may be fully husbanded, and so that information may be available regarding all possible extensions of their use. In looking to the future development of New Zealand and the question of our soils maintaining an ever-increasing population, investigations of soil potentialities should provide useful guidance. In Great Britain, as in many other countries, increased attention is being given to soil science and soil-survey, and our workers in New Zealand have received much help and inspiration from the work at Rothamsted, and the Macauley Institute for soil science at Aberdeen, while extensive use is made of the Imperial Bureaux of Soils centred at Rothamsted.

PLANT RESEARCH.

The close attention which has been devoted to pasture problems during the year by the Plant Research Station continues to prove of advantage to the farming industry, which, utilizing better strains of grasses and clovers, is now able to secure better carrying-capacity, better results from top-dressing, and a more even supply of feed throughout the year. At Jeallotts Hill and the Plant Breeding Station at Aberystwyth in England I was very impressed by the attention which was being devoted to pasture-management and grass-utilization. The various effects of stocking pastures at different seasons with different classes of animals showed some striking results, the underlying principles being of direct application in New Zealand, where pasture-maintenance constitutes one of the farmer's main problems. The progress of knowledge in regard to grass conservation by artificial drying and the preservation of high feeding value associated with this treatment, indicate that these developments have much economic significance in such an excellent grass-producing country as is New Zealand.

The work of the Plant Research Station at Palmerston North has, during the year included work dealing with the relation of pasture-growth to feed taints. This investigation has been carried out in collaboration with the Dairy Research Institute, and concerns a problem of considerable moment in regard to ensuring the absence of undesirable flavours from butter and cheese. The outcome of this investigation is likely to result in distinct economic changes in farm-management practice in some dairying districts. The work at the Station has been characterized during the year by distinct progress in all of its activities. An introductory book on the "Botanical and Economic Characteristics of the Grasses of New Zealand" has been completed, and is now in the course of publication. A close watch is being constantly maintained on all new species of plants, especially weeds, which are reported from year to year as established in New Zealand.

Analyses have been made of the herbage samples produced from the Marton mowing trials from month to month, so that a full knowledge of the nutritive characteristics of pastures at all stages of growth during the year is being acquired.

In view of the importance of top-dressing with superphosphate and carbonate of lime, researches on the reactions of these materials in the soil have given definite information of the rate of percolation and the speed at which the reversion of superphosphate takes place in the presence of lime, and in this instance it has been interesting to find that limestone from the Waikari and Cheviot districts has proved