

not necessary to repeat them here. Since last report a further 20 acres has been stumped, part of which is in root crops, and these latter promise to be the best grown on the farm. The policy of developing the farm as fast as income will permit has been continued.

Waimate West Demonstration Area : This area was taken over on 1st April, 1919, and a start made to get improvements effected. Owing to the scarcity of labour, the railway traffic cut, &c., this was a very difficult proposition. However, the farm was divided into ten paddocks, a house, cowshed, and outbuildings erected, a herd of forty-eight grade Jersey cows and heifers procured, and milking started in August. The experiments have consisted in the top-dressing of 36 acres with different mixtures, and the growing of 8 acres of various root and fodder crops. These crops have been universally good, but have entailed a lot of work in the way of weeding, the land being full of fumitory, wild turnip, and *Poa pratensis*. This 8 acres is intended for lucerne, and it is necessary to give it special attention.

Marton Experimental Area : The season was very unfavourable for spring-sown crops, the land being cold and slow to warm up. There are also parts badly in need of drainage, and this will have to be attended to before the results from portion of the area will be satisfactory. Then, in the autumn, owing to the continued wet weather, great difficulty was experienced in sowing crops. The crops grown this year consist of 9 acres of Algerian oats, 1½ acres Ruakura oats, 9 acres wheat (six varieties), 8½ acres barley (two varieties), 11 acres peas (five varieties), 1½ acres millets (eight varieties), 1 acre potatoes (three varieties), 8 acres roots, kales, and rape (several varieties of each), 5 acres of rye and clover cut for hay, and 2 acres of lucerne. The crops, with the exception of the oats which were in a cropped-out paddock, have done well. The wheats ran from 29 to 56 bushels per acre, and averaged 40 bushels per acre for the 9 acres. In the lucerne area an acre of the Grimm variety has been established. Portions of this Marton area are very badly infested with weeds, particularly spurrey, red-shank, and *Agrostis stolonifera*.

Rawhiti Area (Hawke's Bay) : The work on this area has consisted in sowing down 8 acres in a special grass mixture, half in the spring and half in the autumn, 6 acres in soft turnips (four varieties), and 8 acres in swedes (four varieties). It is proposed to sow the latter 14 acres in different permanent grass mixtures next season. The season in Hawke's Bay has been very unfavourable for root crops, and it was very hard to get them started, consequently the crop is patchy, but has made fair growth since the New Year. The lucerne plot of 4 acres sown last year still shows plenty of plants, but has made little or no growth.

Waipukurau top-dressing experiment : As the owner of this land wished to plough up the untreated area, the experiment was discontinued as from the 1st January last. During the two and a half years the experiment has been going it has demonstrated the advantages of top-dressing, but it is a pity it could not have been continued on more definite lines and with different mixtures. This is another example of the undesirability of carrying out experiments on land over which the Department has not complete control.

Lectures and Correspondence.—During the year I have given addresses at different centres on the following subjects : Lucerne-growing, root and fodder crops, laying down and care of pastures, lime and manures, and ensilage-making, and the requests in this direction are on the increase. Letters asking for advice are also on the increase, and take up a lot of time.

Wellington (except north-western districts), Marlborough, and Nelson : F. E. Ward, Instructor in Agriculture, Wellington.

Since my appointment in January, 1920, inquiries on agricultural matters addressed to the Department's head office have been attended to by me, and where necessary farms visited and advice given.

During the months of February and March a number of branches of the New Zealand Farmers' Union in the Wairarapa and Manawatu districts were addressed on agricultural subjects. The Masterton Agricultural and Pastoral Association has set up a special committee to confer with the district Instructor as to how the Department can further assist the farming community, and useful work will doubtless develop in this direction.

Weekly lectures on such subjects as soils, manures, crop-growing, and pastures have been given to the returned soldiers receiving training at the Central Development Farm, Weraroa, the Wairarapa Training-farm, Masterton, and the Training-farm, Tauherinikau.

Canterbury and North Otago : A. Macpherson, Fields Instructor, Christchurch.

Weather.—The year has been remarkable for its abnormal weather conditions—its very cold spring and the frequent snowstorms, especially on the inland plains, which have characterized every month from April up to December inclusive, the last fall occurring on 8th December, when up to 3 in. were recorded on the western portion of the plain. In the middle of January snow covered South Canterbury, but the fall was slight in North Canterbury. At this time the harvesting prospects were very doubtful, and the position might have become acute but for the beautiful spell of weather that ruled almost continuously from the middle of December to the middle of March last. As it turned out, the harvest was somewhat delayed, especially in South Canterbury and Otago, but to no serious extent. Frosts have been frequent and at times severe. It was remarkable that the severest frosty spells occurred at the end of May and the beginning of September, not during June, July, or August, as would be expected in a normal season. The extent of damage done by frost proved to be slight compared with estimates of farmers, but the April and May frosts damaged undug potatoes. An unusual feature of the autumn and winter of 1919 was the somewhat marked prevalence of high north-west winds, a wind which is normally associated with spring and summer in this province. As a consequence the winter was an alternation of unseasonably mild weather and more seasonable cold spells, when southerly changes occurred. Only slight damage, however, appears to have been done through the premature budding of plants. Moderately heavy snowfalls occurred on 22nd June, and from 1st to 4th July inclusive, but were soon dissipated by succeeding heavy north-west winds and rain following, so could not be considered serious in their effects. The heaviest falls occurred in the spring months, especially during September and November, and occasioned serious losses to sheep-owners. The year ended with a rainfall which approximated, over most parts of the Canterbury