



Development of a North Canterbury Downslands Farm

THE present need for maximum primary production demands the full development of New Zealand's agricultural resources, including the once fertile downslands of Canterbury. The application of proved farming methods to these soils can and has resulted in a substantial increase in their productivity. Because of the farming practices adopted in the past parts of the downslands and foothills of Canterbury became problem areas, but during recent years a number of farmers have by the adoption of different practices created good mixed farming units and shown that the area has a considerable productive potential. In this article R. A. Milne, Instructor in Agriculture, Department of Agriculture, Rangiora, describes the methods adopted by one farmer on the North Canterbury downslands to restore this type of country, and shows that these areas can be readily developed to the stage where they are once again making a major contribution to New Zealand's primary production.

THERE are in North Canterbury considerable areas of downslands in the Ashley and Kowai Counties on the outer fringe of the foothills between the Ashley and Waipara Rivers. The downslands have been subdivided and settled since the early days of the Canterbury Province and have been used mainly for mixed farming with the emphasis on the growing of cereals. The consequence of the continued heavy cropping of these soils has been a steadily declining fertility with a resultant lowering of yields.

Without the use of lime and phosphate and the better strains of pasture species now available, pastures were difficult to establish and maintain and quickly reverted to browntop and in some instances gorse. The carrying capacity of these pastures was low, and sheep came to be regarded as of secondary importance to cropping. Since the depression of the 1930s, however, there has been a decline in

the area in crops, and greater interest is now being taken in grassland farming. As better pastures are established and the use of lime and phosphate becomes more widespread the crops formerly grown are being partly replaced by pasture seed production.

Climate

The downslands lie approximately within the 25in. to 35in. rainfall belt with the average annual precipitation increasing nearer the hills. The rainfall is spread fairly evenly throughout the year, although considerable variation in distribution occurs. As with the rest of Canterbury prolonged droughts are experienced occasionally, although the effects are less severe on the clay downslands soils than on the light shingle soils of the plains.

Soils

The soils of this area are mostly silt loams derived from greywacke

loess. There are two main soil types; the Ashley silt loam on the higher downs and the Mairaki silt loam on the lower undulating downs. A typical profile of the Ashley silt loam is 9in. of dark grey silt loam over 5in. of pale yellow silt loam over 12in. of pale yellow mottled clay loam. The Mairaki silt loam is 10in. of dark grey silt loam over 6in. of light grey mottled silt loam on 10in. of pale olive-grey loam. The Mairaki soil has impeded drainage and is difficult to drain.

The structure of these silt loam soils is poor and they are low in organic matter, with the result that cultivation is difficult. They are not easily worked down to a seed-bed, particularly when they have been over-cropped.

Downslands Development

Many farms within this area which once could scarcely pay their way are now being developed into highly productive units. The key to success in developing run-out downslands farms is the establishment of high-producing pastures. With good pastures stock-carrying capacity is high and fertility is quickly restored to a level which will support depletive cereal cropping.

In most instances a rotation which includes both supplementary crops such as rape and turnips and a limited

HEADING PHOTOGRAPH: A general view of the farm showing the nature of the downslands.