

ample provision of specially grown crops was universally held in New Zealand, and yet growing up within the country itself, particularly in the districts of better rainfall, there gradually became established the idea that manipulation of both grass and stock could be so directed as to, in many cases, avoid any extensive growing of special crops.

Probably the most important direction taken in grassland-management, to minimize the weakness of grassland so far as seasonal production is concerned, was the trend to make ever-increasing use of female animals, in the shape of the dairy cow with a definitely dry period during winter and the breeding-ewe with a definitely high feed-requirement in the spring and summer. During recent years the proportion of dairy cows to total cattle wintered and of breeding-ewes to total sheep wintered has steadily increased, and can be viewed as the definite trend of development. From this, two outstanding theories in regard to grassland-management were evolved. Firstly, that the feed requirement of the grassland farmer should be at its lowest point in the winter, and, secondly, that summer-grass production should be converted into milk—in the case of the dairy-farmer represented by butterfat sold as such, and in the case of the sheep-farmer by the fat lamb.

This second theory—that as large a proportion as possible of the summer growth of grass should be converted into milk—made it essential that such herbage should be of a milk-producing type. In other words, that it must be young, vigorous-growing, highly mineralized, and high in available protein. In this connection it is interesting to note that high-class grass in New Zealand may contain up to and over 30 per cent. of protein, making it remarkably suitable for milk-production.

At the present time New Zealand grassland-farming practices are largely centred on the development of the three following phases:—

- (1) The production of better conditions for pasture growth.
- (2) The provision for better management and better facilities for better utilization.
- (3) The provision of stock better suited to influence directly the economic efficiency of better conditions and better utilization.

All these three phases of grassland-management are being developed, intensified, and standardized—in certain instances with a rapidity that savours of the magical, but in others quite slowly, indicating clearly the complexity of the whole general problem and that of the “unknown” emerging with every forward step taken. The main features that rapidly pass through one's mind in considering these three phases of grassland-farming practice are clear enough, even though the list be long. They comprise drainage, fertilizing, liming, surface cultivation, hay and ensilage making, mowing of surplus growth, smaller paddock subdivision, more adequate watering, shelter, disease-control, and breeding under tested control.

The greatest single factor at the present time that is commencing to greatly stimulate production from grassland is top-dressing. The area top-dressed is being increased at the rate of many hundreds of thousands of acres annually, and well over 300,000 tons of fertilizers, almost all of a phosphatic nature, are being used on grassland in lengthening both the growth-period and increasing the actual pro-