

# FARMING IN NEW ZEALAND



## Soil Management

**T**HE Dominion's methods of soil management—in drainage and irrigation, in tillage methods and implements, in crop rotations and the use of lime, fertilisers, and animal manures—whilst having much in common with the practices in other temperate zones, have certain distinctive features which are worthy of description.

**A**RABLE mixed farming developed around the four- and six-horse teams, both units being so efficient in tillage work and economy of labour that they withstood tractor competition until quite recently, when the advent of the modern farm tractor and tractor tillage equipment gave mechanical power units a decided advantage over horses. The rapid rise of the tractor in recent years is illustrated in table XXVII:

**TABLE XXVII—AGRICULTURAL TRACTORS.**

Season.	Area under annual crops and pastures cut for seed, hay and silage. (acres)	No. of Agricultural Tractors.
1933-34	2,064,037	4,972
1934-35	1,981,804	5,062
1935-36	2,090,745	5,340
1936-37	1,918,855	5,710
1937-38	1,785,329	6,585
1938-39	1,807,445	8,031
1939-40	1,956,096	9,639
1940-41	2,048,198	11,278
1941-42	2,010,560	12,516
1942-43	1,911,833	13,967

The four-horse team (2-furrow plough) is capable of cropping 75 to 100 acres of heavy land or 100 to 150 acres of medium to light land in a year, whilst the six-horse team (3-furrow plough) can crop 150 acres of heavy land or 150 to 200 acres of medium land with the usual crop rotations of cereals and fodder crops, which allow fairly even distribution of team work throughout the year.

The common food for working horses is oaten chaff, and this is supplemented with whole or crushed oats, pasture, and pasture hay. The usual allowance is 5 tons of oaten chaff per horse per annum, but this quantity varies with the methods of feeding, supplements used, and amount

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of work performed. The usual ration for a working horse is 35lb. to 40lb. of oaten chaff per day, with a half or a third of this ration on idle days when the horses are out on pasture. The grain ration of a heavy working horse should be from 16lb. to 18lb. per day, and sufficient coarse fodder must be mixed with the grain to give bulk to the ration to aid digestion. The oaten chaff used for horse-feeding admirably serves the purpose. Oaten chaff from a 40 bushel crop of oats will consist of about 40 per cent. oats and 60 per cent. chaff; hence in feeding 40lb. chaff the horse receives 16lb. oats and 24lb. straw. The daily ration of oaten chaff is divided into five feeds; two are given in the morning, one at midday, and two at night. The horses are brought in from pasture for grooming and feeding at 5.30 a.m. to 6 a.m., worked a full 8 hours in the field, and turned out from the stable to pasture again at 8 p.m. to 8.30 p.m.

So long as the farm tractor was equipped only to pull implements designed for horses, the horse teams held their own at tillage work: they were equally efficient at heavy work, and their horse power being divisible they were more economical for light work such as horse-hoeing, mowing, reaping, etc. But with the advent of im-

plements designed especially for tractor work, which enabled tractors to do all the work horses can do and do it more quickly and efficiently, the tractor is replacing the horse. The direct attachment of implements to tractors, the power take-off facilities, the elimination of the early and late attention to grooming and feeding horses are making the tractor the common power unit on mixed farms. At present the tractor has not entirely replaced the horse, but indications are that it will soon do so.

## Crop Rotation

Arable mixed farming crop rotations, although somewhat elastic, are designed to fulfil certain very definite purposes, e.g., to maintain soil fertility, to provide the necessary root and green fodder crops for sheep feeding, to allow of the production of suitable cash crops, and to distribute team or tractor work as evenly as possible throughout the year.

In arable districts short and long rotation pastures form the basis of the farm economy. The pastures consist chiefly of perennial ryegrass and red and white clover, and provide pasturage for the ewe flock maintained for the production of fat lambs. During the period under grass (3 to 5 years) soil fertility is built up, and this build-up depends on the vigour of the clovers in the sward. In the lower-rainfall districts pasture production in the late summer, early autumn, and winter is insufficient for the requirements of the sheep, and supplementary feed of green fodder and roots has to be provided. Rape is used for the summer fattening of lambs, green cereals, kale, and chou moellier and soft turnips for autumn and early winter, and swedes and soft turnips for winter feeding. Cereals and pulse crops, potatoes and linen flax are grown in rotation with these rotation pastures and fodder crops,