ON THE LAND

MARKET REPORTS.

At Burnside last week there was a moderate yarding of fat cattle, numbering 183 head, of medium quality. The sale opened firm at values on a par with late rates, and closed with prices from 10s to 20s per head in advance of the previous week's. Prime bullocks realised from £18 to £21 12s 6d, medium £14 10s to £17, light and unfinished sorts from £9 upwards. Prime heifers realised from £13 to £14 10s, medium £10 to £12, light and aged from £7 10s upwards. Fat Sheep.—The yarding numbered 1997. Although a number of prime sheep were forward, the bulk of the yarding was of uniform quality. The demand at the opening of the sale was slack, but values improved as the sale advanced, and closed with prices from 1s to 1s 6d per head dearer than on the previous week. Prime heavy-weight wethers realised from 24s to 30s 9d, medium 18s 6d to 23s, light and unfinished sorts from 15s upwards. Extra prime heavy-weight ewes realised up to 25s 3d, prime 20s to 23s, medium 15s to 18s 9d, light and aged from 12s 6d upwards. Pigs.—A small yarding. All kinds suitable for killing realised enhanced prices. The demand was keen, and a larger number could easily have been disposed of. Best baconers realised from 8½d to 9d per lb, and best porkers up to 9d per lb.

At the Addington market last week, which is now known as the "National Market," there was an outstanding entry of special show beef and mutton from South Otago, North Otago, and Canterbury, and several lines from the North Island. The number of exceptionally prime steers exceeded that of previous years. The top beef price for show stock was £70, others selling at £63, £55, £50, £45; and another record was established in fat sheep, four pure-bred two-tooth Suffolk wethers making £16 each. Other show wethers sold at £6, £4 11s, £4 1s, and hoggets 9s 1d to 10s 8d. Excluding show sheep the mutton yarding was particularly large, comprising about 15,000 head. Beef was forward in average numbers. Fat Sheep.—A record yarding and an easing in prices. Prime wethers 19s to 31s, medium 16s to 18s 9d, inferior 14s to 15s 9d, prime ewes 17s to 22s, medium 14s to 16s 9d, inferior 11s to 13s 6d, hoggets 11s to 18s 6d. Fat Cattle.—Prices advanced about 30s on the previous market. Extra prime bullocks up to £26, prime £15 to £19 10s, medium £11 to £14 10s, light and inferior £7 to £10 10s, extra prime heifers up to £18 10s, prime £10 to £12, medium £7 10s to £9 10s, light and inferior £6 10s to £7 5s, prime cows £10 to £14 10s, ordinary £5 15s to £9 15s. Vealers.—A sharp rise. Runners up to £6 10s, good vealers £5 to £5 10s, medium vealers £3 to £4, small vealers £1 to £2 2s 6d. Fat Pigs.—An irregular sale, but special choppers went to £16, choppers £3 10s to £16, extra heavy baconers £7, heavy £5 15s to £6 10s; light £4 15s to £5 10s (average price per lb 8½d); heavy porkers £4 to £4 10s, light £3 5s to £3 15s (average price per lb 10½d).

THE THEORY AND PRACTICE OF MANURING.

While most farmers of the present day realise that those plant foods in which the soil is deficient are phosphates, potash, and nitrogen, it is by no means an easy matter to ascertain the extent to which these ingredients are absent. Some farmers have an idea that soil may be quite easily analysed, and this reminds me (writer in the British *Agricultural Gazette*) of a farmer who brought a sample of soil to the county analyst on his way to market in the morning, and said he would call for the analysis in the evening. As a matter of fact, there is no more intricate and exacting work than that of analysing a sample of soil.

Simple experiments often prove of considerably more value to the farmer than soil analyses, and by simple experiments I mean the application of such manures as sulphate of ammonia, basic slag, superphosphate, or any other manure to a few rows of swedes or mangels, or two separate areas of corn, for the purpose of comparing the results or yields with such portions of the land that have not been treated.

Further than this, those who have been farming the same land for a number of years often know much better how to treat it as regards manuring than anyone else, including the agricultural chemist. Other conditions are necessary, apart from manures, such, for example, as a continuous supply of water to the roots, together with thorough aeration of the soil. These and many other factors are dependent upon climate, drainage, depth of soil, and other conditions.

A soil analysis can determine fairly accurately the amount of phosphate, potash, and nitrogen present in the soil, but even where external factors, such as climate, depth of soil, aeration, etc., do not enter into the calculation, there is frequently little or no action between these means and the soil's fertility or its manurial requirements.

The majority of soils contain considerably more plant food of all kinds than any single crop can possibly remove from it in the course of a season's growth. The great bulk of the plant food is, however, unavailable, either for the time being insoluble or out of reach of the plant roots, or it may be present in combination with other ingredients, and is gradually set free or rendered available, the rate varying considerably in keeping with the character of the soil and the amount of moisture and air circulating through it.

Plants can only make use of free or soluble food, and thus it is possible for one soil containing quite small amounts of available or soluble food to produce better crops than those which contain large quantities of food which is not yet available.

The ridging up of soil in order that it may become thoroughly aerated does much towards breaking down and liberating plant food, as, for example, in the severance of a suitable seed bed in the spring after the soil has been weathered, or the good effects which follow summer or autumn fallowing. Good cultivation, draining, and liming may often partly take the place of manuring in a soil which contains large stores of locked-up food.

Potash may be liberated from clay soils by the judicious application of lime, while an expensive plant food like nitrogen can often be supplied by growing suitable leguminous crops in the rotation or as catch crops.

SOIL PHYSICS.

What amounts to a new science, whose object is to increase the fertility of British acres, is being undertaken at Rothamsted, near Harpenden, the oldest and most scientific agricultural establishment in the world (says the *Farmers' Union Advocate*).

The new branch of science is a department of "Soil Physics." It has already been discovered by workers at Rothamsted and elsewhere that those beneficent bacteria which make soil fertile are much more numerous and active in the autumn. This fact, it is held, is directly concerned with the substitution of the tractor for the horse-drawn plough. The earlier and quicker land is ploughed the greater its fertility.

A demonstration with an English-made tractor was given before a number of farmers, to illustrate the necessity of tractors if more is to be produced per acre. The tractor works three or four times as quickly as the horse, and can take rapid advantage of suitable weather. On the Rothamsted farm all the ploughing was done before Christmas, and the time thus left for extra spring cultivation—previously altogether omitted—immensely improves the crops.

For example, the particular 10-acre field being reploughed by the tractor and a three-furrowed plough at the demonstration could be completely finished off in two days, and only one man be employed. The experience there is that even at present wages an acre can be more cheaply ploughed with the help of the tractor than at pre-war wages with horses.