

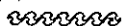
# On the Land

## MARKET REPORTS.

**Fat Cattle.**—There was a medium yarding of fat cattle at Burnside last week, 245 being penned. The quality generally was better than for some weeks past, prime ox beef being more in evidence and not so many old cows being forward. The sale opened very strongly with ox beef on a par with the previous week's advanced values, but often the first race prices receded considerably, and values dropped 20s to 30s per head. At the concluding stages of the market the casing in values was even more and passings were frequent. Values were:—Extra prime bullocks to £19 12s 6d, prime £11 15s to £14, medium £8 to £11, extra prime heifers to £13 5s, prime £7 to £9 10s, medium cows £4 10s to £6 10s. **Fat Sheep.**—There was a small yarding, 1654 being penned. The bulk consisted chiefly of medium quality ewes, the supply of prime wether mutton being short. From the outset there was a keen sale, prime wethers hardening in values from 2s to 3s per head, while ewes sold firmly at the preceding week's rates. Values were:—Extra prime wethers to 58s 6d, prime 43s 6d to 50s, medium 36s to 42s, light and unfinished 32s to 35s, extra prime ewes to 50s, prime 35s to 42s, medium 30s to 34s, light 21s to 28s. **Fat Lambs.**—The entry was a mixed one of 559 head. There were several consignments of well-grown and well-finished lambs, but others lacked quality. Exporters operated fairly freely, and values were on a par with the previous week. Values were:—Extra heavy lambs up to 55s, prime lambs 42s to 44s, medium 37s to 41s, lighter 30s to 36s. **Pigs.**—There were 137 fats and 53 slips. Not many baconers were forward. Early in the sale a rise of fully 4s or 5s was noticeable, though it was doubtful if these prices would be maintained to the end. The quality was good.

On account of the Easter attractions the entries were smaller last week in all classes of stock at Addington. Store sheep and fat lambs sold at about the previous week's rates. Fat sheep were better, and fat cattle practically up to former rates. **Fat Lambs.**—The penning was under 1000. There was a slightly better sale for heavy lambs, with lighter sorts at late rates. Average values were from 11½d to 12½d per lb. **Fat Sheep.**—There was slightly less than a normal yarding, with an improved sale by 1s to 2s per head. Heavy wethers were in brisk demand. Extra prime wethers 47s 4d, prime 41s to 44s, medium 37s to 40s, light 33s to 36s 6d, extra prime ewes 40s 4d, prime 33s 6d to 37s 6d, medium 30s to 33s, light 26s to 29s 6d, aged 20s to 25s 6d. **Fat Cattle.**—An entry of 391 head. The sale was irregular, but on the average was practically up to that of the preceding week. Primes: ox in a few cases made to 37s per 100lb, prime 24s to 36s, secondary 31s to 33s 6d, good cow beef 31s to 34s, light and unfinished 25s to 28s 6d, though prices in some instances were down to 18s. Extra prime steers £18 10s, prime £14 to £16, medium £11 10s to £13 10s, light £8 15s to £11 5s, rough £5 5s to £8, extra prime heifers £13 12s 6d, prime £8 5s

to £10 5s, ordinary £4 10s to £8, extra prime cows £13 7s 6d, prime £7 15s to £9 15s, medium £5 5s to £7 10s, light £3 15s to £5, aged £2 10s to £3 10s. Vealers and store and dairy cattle were forward in too few numbers to give an idea of values. **Fat Pigs.**—Both porkers and baconers were easier. Choppers £3 10s to £7 10s, light porkers 52s to 60s, heavy 68s to 70s. The price per lb averaged from 7½d to 8d. Light baconers £3 15s to £4 5s, heavy £4 10s to 5s, extra heavy up to £5 10s (average price per lb 6½d to 7½d).



## SOIL BACTERIA: IMPORTANCE IN FARMING.

Every farmer recognises the necessity for the cultivation of soil, and it is also known that good cultivation pays. But there are few who attempt to go below the surface and discover exactly why it is that soil reduced to a good tilth produces most abundantly. It is a matter that is assuredly worth closer investigation. The successful farmer is invariably the intelligent one, and no appreciable progress can be made unless the reasons for each separate work are thoroughly understood. But even now new points of view are constantly advanced as the result of closer scientific study. Thus, while it is generally understood that by rotation of crops a farmer can keep his soil in better tilth, the reason is not always grasped. It is generally understood that a rotation system keeps up yields better than single cropping, through the fact that different kinds of plants remove plant food elements from the soils in different proportions, and that by changing from one crop to another the soil supply of plant food is kept more evenly balanced. But rotation goes further. It feeds soil bacteria.

How many farmers appreciate the fact that the soil teems with life, and if it were not for soil bacteria tilth would be useless and plant life impossible. "These nidget chemists of the land, the bacteria," a contributor to the *Country Gentleman* says, "play the major role in promoting tilth. In teeming hordes they are present. They often number more than three billion to the ounce of soil, and under many conditions algae, moulds, and protozoa are equally abundant. The total microscopic life in an acre of land has been calculated as weighing from 500 to 700 pounds, or approximately the equivalent weight of live stock that a good pasture acre will carry. And while the role that this soil life plays is so complex that it will probably take more generations of close study before the full activities going on under the surface of the land are clearly understood, a few broadly fundamental facts have already been brought to light."

Soil bacteria for the most part subsist on organic matter or vegetable matter in the land. Not only does the teeming life break down added vegetable matter, setting free mineral salts on which crops directly feed, but one large group of soil bacteria functions in the nitrogen-gathering role probably with as great benefit to soil fertility and tilth, as the better known nitrogen-fixing germs

which grow on the roots of the legume are inoculated. One crop will contain from 100 to 200 pounds of nitrogen. Probably half this comes from nitrogen compounds already in the land, and the remainder is gathered in from the air by the aid of nitrogen-fixing germs with which the roots of the legume are inoculated. We hear much of the importance of having a legume crop in the rotation. We hear, however, but little of the other and greater source of nitrogen supply in our soils. This other great source is through the action of bacteria feeding on the dead vegetable matter.

When soil bacteria in the main feed on vegetable matter, and the only way to keep the soil in good tilth and a high state of fermentation is to supply this favorite bacterial food, mineral fertilisers enter into the problem in a more or less important degree. In this respect reference to the remarks of the writer mentioned above is again resorted to: "The nitrifying group of germs of the so-called azotobacter group is considered now to be the real backbone of our farming. But for these micro-organisms working night and day, our nitrogen balance would be struck so far in the wrong direction that farming would be a more or less hopeless task. This group of bacteria shows a strong liking for phosphatic fertilisers, growing and multiplying at a rapidly increased rate when this element is fully supplied. Possibly this fact explains fully as much as does the direct plant food theory, good returns from far and wide through using phosphatic fertilisers. The bacterial reaction of potash is noticeable, but not so striking. Mineral nitrogen fertilisers show a pronounced effect in this wise: Applications of nitrate of soda tend to make the soil reaction alkaline, while the action of ammonium sulphate is to make the soil acid. Bacteria thrive best, in an alkaline soil. Alkalinity, however, can be carried too far, causing too great activity of bacteria, too rapid breaking down of the soil vegetable matter and a waste of plant food, as well as destruction of bacterial food, and a consequent period of famine, unless heroic measures are taken to keep up the vegetable matter supply.

"There is something in the old saying about lime enriching the father but impoverishing the son. Farmers who use lime liberally should make equally liberal provisions for keeping the soil provided with vegetable matter. Excess lime builds up terrific bacterial appetite, which makes sometimes for a wasteful burning out of vegetable matter that must be replaced or else soil tilth will suffer."

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