On the Land

GENERAL.

It is an undisputed fact that the manure of sheep is much richer than that of other live stock with the exception of that of fowls.

It is not generally known, and the fact may be questioned by some practical men, but every test that has been made over extended periods has conclusively proved that the quality of the food does not materially affect the quality of the milk, but the quantity only.

Until recently, the national vegetable of Belgium, chicory or witloof, has been little known in Great Britain. Since the arrival of Belgian refugees, however, large supplies of chicory, grown by Belgian cultivators, have been reaching Covent Garden, and are being retailed in the principal stores and fruit shops. Belgium may thus be the means of bringing another very useful vegetable to our notice.

The soil of a farm is not simply an inert mass of material containing certain mineral substances which plants utilise. It is full of living organisms. Besides the numerous insects, worms, etc., it contains myriads of low organisms, not visible to the naked eye, but capable of examination by the aid of the microscope. They are known as bacteria or micro-organisms, and are so minute that a gram of soil may contain many thousands, increasing and propagating under favorable conditions with incredible rapidity.

At Addington last week there were again moderate yardings of stock, and the attendance was limited in consequence of rain. Fat cattle showed some improvement in price, and store sheep sold a little better, especially lambs. Fat lambs showed a further decline. Fat sheep were a little firmer. Fat Lambs.—Extra prime lambs, to 21s 6d; best lambs, 13s to 18s; others, 6s to 12s 6d. Fat Sheep.—Prime wethers, 17s 6d to 20s 6d; others, 12s to 17s; merino wethers, 17s 9d to 20s; prime ewes, 14s 6d to 19s 6d; medium, 10s to 14s; others, 6s 3d to 9s 6d. Fat Cattle. Extra steers, to £19 15s; ordinary steers, £7 10s to £11; extra heifers, £9 5s; ordinary heifers, £5 5s to £7 10s; extra cows, to £10; ordinary cows, £4 17s 6d to £7 10s (price of beef per 100lb, 26s to 40s). Pigs.—Choppers, 30s to 76s; extra heavy baconers, to 80s; heavy baconers, 57s 6d to 67s; light baconers, 47s to 55s (price per lb, 5½d); heavy porkers, 33s to 40s; light porkers, 28s to 32s (price per lb, 4½d to 5¾d). Stores: Best stores, 22s to 28s; smaller stores, 16s to 20s; weaners, 3s 6d to 5s.

At Burnside last week there were only medium yardings of all classes. Fat Cattle.—137 head yarded, most fair quality cattle. There was good competition, and prices advanced from 15s to 20s per head. Best bullocks, £14 to £15; extra, to £16 10s; medium to good, £10 to £12; best cows and heifers, £9 to £10; good, £7 10s to £8 10s; medium, £5 10s to £6 10s; aged and inferior, £4 to £5. Fat Sheep.—1700 penned, a large proportion being aged and inferior ewes, with a few pens of prime to good wethers. There was a strong demand for good sheep at an advance of 2s to 3s per head, but medium and inferior sorts were much about the same. Prime wethers sold at 24s to 26s; extra, up to 34s; good, 19s to 21s; medium, 17s to 18s; best ewes, 16s 6d to 18s; extra, to 27s; good, 12s 6d to 14s. Lambs.—Only 215 penned, which sold at slightly lower prices than previous week. Best lambs sold at 16s to 18s; extra, to 22s; medium to good, 13s to 15s; inferior, 9s to 10s 6d. The supply of fat pigs was about equal to the demand, and prices were on a par with those ruling lately.

MILK AND ITS CONSTITUENTS.

A series of very exhaustive tests has recently taken place in the laboratory of a well-known dairy company, having as object the determination of the composition of milk. Among other important points it was noted that the average result of some 20,000 tests made during one year placed the fat percentage of milk at 3.71 per cent., the lowest figures in this particular respect being observed in May and June, and the highest in the months of October and November (says *Farm, Field, and Fireside*).

The average difference between the fat content of morning and evening milk was 0.30 per cent., which was rather less than usual. In the month of April it was found that the proportion of morning's milks that tested 3 per cent. was 1.2 per cent.; in May it was 6.8 per cent.; and in June, 6.7 per cent.

The solids not fat were usually lower in July, August, and September. But climatic conditions must in this instance be invariably taken into consideration, for in the year of a prolonged drought, where there is a consequent shortage of succulent herbage, the deficiency in solids not fat is naturally greater than usual. The proportion of samples containing less than 8.5 per cent. of solids not fat were as follows:—In July, 7.9 per cent.; in August, 27 per cent.: and in September, 13.2 per cent. These figures give one some idea of how milk varies in composition at different times of the year.

The constituents of milk include milk globules (fat) and milk plasma (water, casein, albumen, milk sugar, and ash), and of these the albumen and casein are the proteid or nitrogenous bodies, which usually make up about four parts in 100. Usually there is about 4.5 per cent. of milk sugar, 0.7 per cent. of ash and mineral matter (potash, soda, lime, chlorine, etc.), and about 87 per cent. of water. The average percentage of fat has been noted in the former paragraph.

The colostrum, or the milk yielded by newly-calved cows, contains a much greater percentage of albumen than normal milk, usually about 10.5 per cent., while there are smaller proportions of fat, sugar, and ash. The fat itself is present in milk in the form of little round masses of milk globules, which make a true emulsion with a film of the liquid portion of the milk between the globules.

These different constituents of milk do not exist in the blood of the cow in the same way as they exist in the milk. As a matter of fact, the blood only carries to the udder the digested nutrients of the food, and the question which arises then is the use which the udder makes of these nutrient materials.

Before an animal becomes pregnant the milk glands of the udder are largely composed of tissues and a considerable amount of fat. There are also milk-secreting cells present in the udder, and these cells are surrounded by masses of fat and framework tissue, some of them afterwards undergoing a fatty degeneration and passing out in the first milk as colostrum.

There is practically no milk in the udder before the cow is milked. This has been proved when a dairy cow which was travelling in a train that met with an accident had to be slaughtered. On opening the udder very little, if any, traces of milk were found, although it was known that the animal was, in the ordinary course of events, just due to milk. This shows us that milk secretion is in no way a manufacturing process, but purely the result of nervous action, prompted by the artificial stimulation that is effected when a milkman handles the teats. It is in reality, of course, simply the maternal instinct that is awakened. Therefore, it follows that any disturbance in the nervous system of the cow hinders the normal production of milk in the udder at the time of milking.

There is something very peculiar in the secretion of milk by a dairy cow. It is claimed, for instance, that an animal may easily produce milk fat without a particle of fat in the food. There can be no question of any kind of filtration from the blood, for there is no milk sugar, butter fat, or casein in the cow's blood when it reaches the udder.

The material actually used in milk formation comes directly from the lymph fluid contained in little spaces surrounding the clusters of milk cells in the udder, and this lymph receives raw material, as it were, from the blood and simply passes it on to the milk-forming cells 'over the fence': or, in other words, on to the other side of the basement membrane of the udder. Waste products are also carried away from the udder or gland tissues, and finally returned to the blood stream for excretion.