

comparable to any other breed in our experience. The native, or common cow of Ontario, not Canada properly, because Quebec in particular stands distinct in her class of dairy cows, takes a high place in value of annual produce for ordinary dairy purposes, and along with the Short-Horn grade, is peculiarly the dairy cow for the country.

Seven days' test of Jersey cow "Jolie," 5126,

Statement of account of milk, cream and butter given by the Jersey cow, "JOLIE," of St. L., 5126, A. J. C. C., owned by W. Reburn, St. Anne, Island of Montreal, beginning on the morning of the 2nd May, 1883, and ending on the evening of the 8th May, 1883.

Date of milking.	Weight of milk.		Weight of cream.		Amount of butter.		
	lbs.	oz.	lbs.	oz.	lbs.	oz.	
May 2nd, Morning.....	18	12	3	8½	Churned together 7th inst.	8	8½
" " Afternoon.....	16	0	3	5			
" " Night.....	8	0	1	12			
" 3rd, Morning.....	17	0	3	11½	Churned together 7th inst.	8	8½
" " Afternoon.....	18	0	3	2½			
" " Night.....	6	12	1	12½			
" 4th, Morning.....	17	13	3	4½	Churned together 11th inst.	7	5
" " Afternoon.....	18	4	3	6½			
" " Night.....	4	12	1	0			
" 5th, Morning.....	18	4	3	8	Churned together 11th inst.	7	5
" " Afternoon.....	18	4	3	4			
" " Night.....	6	4	1	6			
" 6th, Morning.....	18	4	3	4	Churned together 11th inst.	7	5
" " Afternoon.....	17	8	3	1½			
" " Night.....	8	12	1	8½			
" 7th, Morning.....	17	4	3	11½	Churned together 11th inst.	7	5
" " Afternoon.....	18	12	3	8½			
" " Night.....	1	8	0	7			
" 8th, Morning.....	20	4	4	0	Churned together 11th inst.	7	5
" " Afternoon.....	18	4	3	9½			
" " Night.....	9	8	1	13			
Totals in seven days.....	298	0	58	0½	Total	15	13½
	lbs.	oz.	lbs.	oz.	butter	lbs.	oz.

NOTE.—It will be seen by the last three days of test that "JOLIE" averaged 2 lbs. 7 oz. of Butter per day, equal to 17 lbs. 1 oz. in seven days.

Measurement taken of "JOLIE'S" udder seven hours after milking:

Breadth.....	13 1-2 inches.
Length.....	20 "
Circumference.....	54 "

Since I received the above, I hear that Mr Reburn has sold Jolie for \$1,500!!!
A. R. J. F.

LIME.

By SIR J. B. LAWES, BAR, LL. D., F. R. S.

[The following is taken from the columns of the North British Agriculturist].

THE report of the directors of the Scottish Chamber of Agriculture contains some very interesting tables respecting the exhaustion of lime

The directors have brought together in one page the opinions, and experience of the great body of the farmers of Scotland; and, according to the evidence thus supplied, the shortest period of time during which a full application of lime, is said to last, is seven years, while thirty years and over is stated to be the longest period.

When we consider that the influence of lime, upon a soil which is naturally deficient in this substance, is due to several distinct causes; and further, that the after treatment of the land which has received the lime differs much in different cases, we have no difficulty in understanding that there must

be considerable variations in the periods of time during which the beneficial effects of lime will be apparent.

Two of the crops which are grown at Rothamsted in our ordinary rotation—roots and clover—contain large quantities of lime in their ash, and when potash is not abundant in the soil they possess the property of utilising this lime in its place.

The ash of leguminous plants growing in an ordinary pasture which had been well supplied with potash, contained 32 per cent, of potash and 22 per cent, of lime; but on pasture where potash was not supplied, the ash contained 32 per cent. of lime and 14 per cent. of potash. Lime, therefore, economises the use of potash.

The first application of lime to moor land, or to pastures which are deficient in lime, is often followed by a growth of white clover so abundant as to have led some to the conclusion that the plant was spontaneously generated in the soil! It may be observed, however, that it is only plants with creeping roots which can so rapidly cover the ground; a similar instance in the case of arable land may frequently be observed in the equally rapid covering of the soil by couch grass; this being a graminaceous plant can find in all soils an abundant supply of its own proper food—silica; but lime in many soils is by no means abundant, and, if the supply is insufficient, a liberal dressing is essential, not merely for the purpose of furnishing the lime which the plant takes up, but also to enable the roots to be in constant contact with that substance.

I may observe that although the amount of lime dissolved, and removed in drainage waters, is considerable, still, the necessity of repeating the application after a few years appears to be rather due to a descent of the lime to a lower level in the soil, where it is less accessible to the roots of the plants.

Lime also acts as the medium by which nitrification takes place; and the almost entire absence of nitrates in the water passing through the peat soils in Scotland—which abound in nitrogen—must be mainly due to the absence of lime.

A reference to the returns in the table shows that the effect of lime is most durable upon pastures that are grazed! that its effects are very good upon virgin soil; that it lasts longer upon good, than upon bad land, and upon clays and heavy loams, than upon light land.

The amount of soil nitrogen which is nitrified each year must depend somewhat upon the amount that the soil contains; but where each application of lime is attended with less benefit than the preceding one, we may feel tolerably sure that the resources of the soil have been too largely drawn upon, and that the export of fertility has been too great.

Lime therefore acts in a double capacity; it furnishes an important ingredient in the food of roots and leguminous plants; and in addition, it furnishes the key by which the stores of organic nitrogen in the soil are unlocked, and rendered available as the food of plants. It is in this latter capacity that its functions are more liable to be abused.

As lime does not furnish any of the more costly ingredients which plants require to form their structure and seed, it is quite evident that these must be derived from the soil: this being the case, if the views of those who hold that agriculture should be carried on without any reduction of the fertility of the soil are correct, it is evident that an application of lime should be accompanied by an application of all those ingredients which are carried away in the crops, or by feeding with stock.

My own opinion is that soils are generally competent to yield a certain portion of their fertility without injury, and that practical experience of the particular district will be the best guide for deciding the amount of fertility that may be thus removed.