

you buy. This, in your case, is "peddler's greed," and only fools, and men bigoted in the ways of their ancestors, deride it.

With the bull, you must exercise the same care before purchasing. He must be thoroughbred of his kind, never on any account bred from your own cross-bred male animals, until at least four generations of heifers have been topped by pure bred bulls, less, however, in the case of Dutch-cows than where beef is the object.

We are curious to see how long it will take, on the ranches of our Western prairies, to bring up the produce of the Montana and Texas cows to the stature and form of the shorthorn, polled-Angus, and Hereford sires employed there. You see, the importance of these pure bred males lies in their power of transmitting the qualities of their ancestors to their descendants, vulgarly called pre-potency. For our part, we will back the shorthorns to exercise the most influence of the three. The Herefords have been carelessly bred until lately, and the polled-Angus, too, was not much looked after until Mr. McComb's time. Yes, it is probable these half-bred shorthorns will show their descent most.

But to return to our subject, what sized cattle should we keep? Most people would tell you that the question is a simple one, that the quality of your land must be your guide. We differ entirely from this response, and we will tell you why: the quality of your land is just what you please to make it. If you have a farm of poor soil and choose to keep it so, you must be satisfied with cattle of an inferior sort, little mis-uses, such as we saw not many miles from Montreal a few days ago, weighing about four hundred pounds apiece. No doubt, the owner of these rats was wise in his generation: he was very poor, and farming, on shares, poor, sandy soil, a most pitiable man, to our mind, though he appeared happy enough. We know, without seeing, what the state of these animals must be from the first of July till the stubbles are ready. Nothing but a few dried up grass-roots to be torn up for food, when once the little flush of grass is over, except a few potato-peelings, and the dish-water of the house (ugh!) when they come home at night to be milked. Decent sized cattle would of course perish from starvation on such keep.

You, if you mean to farm in this fashion, must be contented with the same sort of stock; but we hope better things of you. Common sense will tell you that it is better to employ what means you have in cultivating a moderate number of acres well, than double the quantity badly; and in this country, where food is relatively cheap and dairy produce relatively dear, the best and cheapest way of raising the quality of your land is by feeding your stock as it ought to be fed.

And no great outlay will be necessary for this. Fifty cents-worth a week, per head, during three months, will make your poor pasture equal to very much dearer land, the yield of milk will be enormously greater, and the soil of the whole farm will, in a very few years, be improved to double its original value.

Your cows will of course run the pastures from the usual time of grass, say, the 25th May to July 1st. About the latter date, the grass will, in most years be pretty nearly gone, and on the soil we are speaking of, it hardly ever does much good afterwards; the cows fall away in their milk as well as in their flesh, and become utterly unprofitable. Nothing is so expensive as bringing

back condition when it has once been lost, except bringing back a flow of milk when it has once begun to decrease. Before it comes to this you will do well to try the following mixture.

One bushel of linseed  
Two do corn  
Two do pease

These are to be all ground up together, made into a thick mash with boiling water, and four pounds to be given to each cow at night when she comes home to be milked. The cost is about seven cents a head.

One bushel of linseed..... 90  
Two do corn..... 1.00  
Two do pease.... 1.20

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\$3.10

The five bushels of mixed grain will weight about three hundred and two pounds, which will make it cost as nearly as possible, a cent a pound, a trifle must be allowed for milk's toll. The linseed is high in price, but very cheap in reality. Never saddle away money in cake when you can get the seed. In spite of all that the pseudo-scientists used to say, oil does make fat, and therefore, butter. Try this mixture for one month, and we do not think you will ever leave it off.

Again, though on account of the uncertainty of our seasons we do not think it would answer to depend entirely on what is commonly called "soiling" for our cattle during the entire summer, still, there should be at all times, after the beginning of July, one or more green-crops ready for the scythe. A piece of vetches, some oats and peas, or "gabourage" as our French-Canadian friends call this mixture, but sown much thicker than in their practice—two bushels of pease and two of oats to the acre are not too many—above all, in the light soil we are speaking of, an acre or two of lucerne near the stables, these, with a piece of clover left after haytime, and a trifle of Hungarian grass, to come in towards the middle of October, will send your cows into winter-quarters in good condition, never troubling themselves, or you either, whether their normal weight be six hundred pounds or one thousand two hundred pounds.

You can't do all this at once; but the sooner you begin to attempt to provide additional food for your cow-stock, the sooner they will begin to pay. For the first few years, the pasture on this light soil will, after June, be nothing more than a promenade for your cattle, but the improvement will soon show itself, and you will find that extra condition of the land will not only produce much more grass, but it will enable, in some mysterious way, that grass to withstand the scorching rays of a Canadian sun.

We shall probably be regarded as a visionary by many who read this article; but if they had seen, as we have seen, the Saturday trains on the Eastern Counties' Railway, in England, bringing up their thousands of big, ripe-bullocks from the sandy soils of Norfolk, Suffolk, Cambridgeshire, and Essex, which, fifty or sixty years ago, produced nothing but rye and long-legged, black-faced, heath-sheep, they would perhaps, think us a prophet rather than a dreamer of dreams. We have persuaded more than one Montreal milk-man to try the mixture of linseed, corn, and pease, and they speak highly of its effects, as indeed, if fairly tried, everybody must, as it is in accordance with practice as well as with theory.

Whatever produce, beef or skin, wool or mutton, milk or suet, you expect to draw from your flocks and herds, you

must first give to them in the shape of food.

Does your cow toss her horns as she leaves the stable? In doing so she expends a certain amount of energy, and that means a certain amount of food; no movement is made without expenditure of food. We must beg you to impress this very firmly on your minds, for if you can ever convince yourself of the truth of the proposition, you won't send your cows a couple of miles to pasture, neither will you let them be driven fast by dogs or boys. Heat, again, you know, is produced by food. If a cow drinks water at 35° F., that water has to be warmed up in the animal's interior until it reaches 90° F., and this warming up is an expenditure of heat, i. e. food. The best temperature for cattle is 60° F., and if the water troughs are kept full, their drink will always be comforting and pleasant to them, their rest will follow immediately after food, and there will be no staring coats on them.

As to feeding in general, the first thing to be observed is that a certain quantity of food is necessary to keep a cow, or any other beast, in a certain state of condition a state in which the animal neither improves nor falls back is stationary, in fact. From the amount of food equal to keeping a cow in this condition you must not expect any milk. Judging from what we see, the idea, here, is, that cows can be kept poor all the winter and give the same amount of milk in spring as if they had been well fed! According to many trust worthy experiments, it requires two thirds of a full ration to keep a cow in fair condition what is commonly termed "food of support" before any milk is yielded; that is to say, two-thirds of the food are expended in keeping the cow alive. Up to that point, all is expenditure, there is no return. What is a cow? As regards dairy-work, a cow is simply a machine for producing milk, just as a steam engine is a machine for producing power and motion if the boiler is supplied with just enough fuel to keep the water at 212° F., no power is gained, as you very well know; the boiler must receive extra fuel to produce extra heat before any work can be done.

Would you keep a boiler going which required 25 p. c., more fuel to get up steam than other boilers? By no means—you would soon make a change. And so with cows. If a cow gives only one thousand two hundred quarts of milk a year, she is not paying you may be sure. A good cow, well fed, should give three thousand quarts a year, that is, she should average ten quarts a day, for 310 days, and the cost of this great yield will be only a trifle more than the cost of the bad cow's yield. You see, now, why we insist so much upon the food "beyond the food of support."

You will observe that we have great confidence in pease, as a food for milch-cows as well as for young animals—in fact for every creature on the farm young or old, fat or lean—in England we used beans, or lentils, according to market price, but the principle involved is the same in all—nitrogen! Pease contain of albuminoids (compounds containing nitrogen) about 24 p. c., oats only 12½ p. c. Our favourite linseed, so scornfully treated by the pseudo-scientist, contains only 20½ p. c., of albuminoids, but 35 p. c., "of digestible fat." (Corn we have very little practical experience of: we prefer buying it to growing it; its chief use in the mixture is to supply the digestible carbohydrates, of which it contains 60 p. c. Now, without bothering you about nutritive

ratios or any deep calculations, we must ask you to believe that from practical experiments carried on by yourself on the one side, and by the Webbs and Jonases (1) on the other, the most prejudiced of men confessed that seven pounds of our mixture (two of linseed to five of pease) with one bushel of turnips, was fully equal in effect to twelve pounds of linseed cake and two bushels of turnips. We here substitute corn for half the pease, but, only as a concession; for in our own practice, we should still use all pease for fattening animals.

Stops will tend to produce milk, but unless dry food is given in abundance with them, the health of the cow will suffer. Brewers' grains is a famous milk food.

Two to three pecks a day is enough for a cow. Malt-dust, or cumulus, the roots trodden off the malt after drying, makes good milk and healthy cows: compare its digestible nutrients with those of bran—20,483; malt dust, 20,439. It contains double the albuminoids, almost as much carbohydrates, and only falls short in fat; and yet people used willingly to pay \$20 a ton for bran, and could hardly be got to draw away the malt-dust for nothing. If you try malt-dust, pour "Lolling" water over it, with a dash of salt in it. Look after the digestion of your cows, if you don't use linseed, that is, for, with it, healthiness will be the rule in your herd.

You need not fear shortening the life and usefulness of your cows by high feeding, if you balance their rations judiciously; but keep their bowels always loose by too much linseed, or always constipated by too many pease, and you will soon find out that, as with human beings, a proper diet is the main source of health.

Ventilation we need no trouble you much with. It would be an insult to suspect any one, now-a-days, of neglecting this matter. One thing we must remind you of: ventilation must not be carried out at the expense of warmth.

We are troubled in our mind about exercise for cow-stock! When the cattle are all in loose-boxes there need be no anxiety on this head, moving about in freedom in the eight feet or so square allotted to each beast is exercise enough. But we can't afford the space yet in our stables for this most desirable plan. Cows must for a long time be tied up by the head from the middle of November to April—four months and a half of strict confinement, poor things—and yet, we cannot bear the idea of turning them out of the stables into the open air, when the temperature is at or below zero of Fahrenheit. Shall we compromise for half an hour out of doors when the sun is shining or the weather pretty mild? The young stock there can be no doubt about plenty of exercise in the open air, and perfect freedom, must be the rule for them.

### FEEDING MILCH COWS.

Variety—Pasture—Winter-food—Regularity.

I believe the true way to feed milch cows for profit, and profit is what we are all after, is to feed the proper food for the production of milk, to the full extent of the animals power to digest,

(1) The two leading families of farmers on the borders of Cambridgeshire and Essex, in England.—Ed.