

twice per day, which will prevent them drinking too much cold water at one time.

Export cattle would be much the better of a little exercise, say for a few minutes every second day. The advantages are: Keeping the legs and digestive organs in good shape, enabling them to stand the journey by rail and water much better, without the large loss by shrinkage which so many stall-fed animals loose.

Beef animals thoroughly enjoy a good currying and brushing, and it is an advantage, as it keeps the skin clean, and the animals are more content; they should have it at least two or three times per week. Beef cattle require plenty of light and good ventilation in the buildings. The temperature is better about 5 degrees cooler than for dairy cows, or about 45 degrees.

Cattle fed regularly at the same hour, by the same man, will easily let him know when feeding time arrives, and he could set his watch by their actions and not be many minutes astray.

R. R. ELLIOTT, Herdsman.

Central Experimental Farm.

Points by an Expert on Finishing Export Cattle.

To the Editor FARMER'S ADVOCATE:

SIR,—I have already given you my general methods of cattle feeding, and I have made no very great changes. In the first place, I would urge every feeder to buy or raise good fleshy, well-bred cattle, for without *breeding* you cannot get proper results in feeding. Breeding and feeding should go together, because either is of very little use alone; all stock should be fed regularly. I feed at 6 o'clock, 11:30 and 5 o'clock. As to finishing cattle for export, animals weighing under 1,200 should have 2½ gallons meal per day; over 1,200 they can easily take 3 gallons per day of oats, peas and barley, two parts of oats, one peas and one barley. The last month I take a little less barley and add some corn, and all the good hay they will eat up clean, and about half bushel of roots when clover hay is fed, but when timothy is used I feed a few more. The chop is mixed with wheat chaff or cut feed. I do not think very much of oat chaff alone for cattle that get a full ration of strong meal, as it has a tendency to scour them. I don't think it is profitable to cut all the hay; cattle will do better by getting some long hay—it fills them up nice and round. I also think cattle should have a little exercise every day. I have not got the water in the cups in front of the cattle, and have not fully made up my mind whether I will or not. I have a trough in the yard under the shed in a good sheltered place, and as cattle need exercise it may not be so much profit as we sometimes imagine. ISRAEL GROFF, Wellington Co., Ont.

Fattening Cattle Without Roots or Ensilage.

Mr. John P. Beattie's stables in Dorchester each season contain a good bunch of steers, finished for export about June. The present lot were purchased. They are fed tied with chains in double stalls, and are let out once a day for exercise and water pumped from a well in a sheltered location near the stable. To destroy vermin the most thoroughly effective application tried is a mixture of machine oil and coal oil (one third of the latter), rubbed on with a brush. These cattle are being fattened without the use either of roots or ensilage. With the last feed of meal each evening is given a tablespoonful of a mixture one-third sulphur and two-thirds Epsom salts. This has been done for some three weeks past with apparently very satisfactory results, so far as the thrift and condition of the steers are concerned. Up to this time the chop fed has been a mixture of oats and barley, the former predominating, the two being grown together. They have been given four feeds of two quarts each per day, beginning with a feed of straw thing in the morning, followed by a feed of bedding. Between 10 and 11 o'clock the cattle are out for water and the stable cleaned. On coming in they get the second grain feed, followed by hay. In the afternoon they again receive grain and straw, and in the evening the fourth feed of grain, followed by hay. From now on the meal feed will consist of the oats and barley mixture, with American corn added, ground in about equal quantities, and the feeds increased to three quarts each four times per day or more if they will take it to advantage. At this writing the bunch were doing exceedingly well.

Feeding Calves of Beef Breeds.—A Successful Feeder's Methods.

In regard to feeding and management of calves the first six or seven months, intended for a beef animal: If the calf is from a fleshy cow and not a very heavy milker—that is, if she won't give any more milk than will raise the calf well—I would let the calf suck the cow three times a day for four weeks, then twice a day. By that time it will start to eat a few pulped turnips with a little ground oat and pea chop mixed with the turnips. Just commence with a handful and keep increasing it every day as the calf will eat it up clean. If it does not eat it up clean, take it out and give it to the hogs, or something that will eat it, and give it a little fresh and a little clover hay in the same manner. I prefer letting the calf run loose in a box stall behind the cows, the larger the better, only don't have too many together if the pen is small, and they will go

ahead till they are seven months old, and then you can be weaned and with plenty of food and exercise they will grow right along.

On the other hand, if you have a cow that will give eighteen or twenty quarts a day, I would say milk her and feed the calf on skimmed milk. As soon as the calf is dropped, take it away from the cow and don't let her see it, if possible, and give it a good hand rubbing with straw till it is dry. Then milk the cow and give the calf three or four quarts of the milk daily in three feeds, and keep increasing it a little as the calf grows, till it will take six quarts. Feed it three times a day. When it is six days old start and feed it a little skimmed milk, say a quart, mixed with the whole milk, and keep increasing it till you get it to all skimmed milk, but be sure and always make the skimmed milk lukewarm by putting it on the stove a few minutes, and then there is no danger of chilling the calf and having it going around with its back humped up, and the first thing you know the calf is sick. A little care at this age of the calf will increase its value a great deal for beefing purposes. In regard to feeding the calf prepared food or cooked flax-seed meal, etc., I think it is useless; that is, if your cows are properly fed with clover hay, a little meal of some kind, and what straw they will eat, and a sufficient quantity of turnips to keep their bowels in good condition, and I will guarantee the calf will do all right. Feed it some pulped turnips mixed with a little meal and clover hay—the same I advised feeding the calf that sucked the cow, and when it is seven months old it will be a little thinner than the one that sucked the cow, but when it is thirty months old you won't be able to tell which one sucked the cow or fed on skimmed milk, providing they are all bred the same. JAMES LEASK, Ontario Co., Ont.

Raising Calves for Beef.

Regarding feeding calves intended for Canadian beefs: Of course the first requisite is to have the proper type of a calf. Having that, we would advise feeding whole milk until they are a month old, making a gradual change from the whole by adding a little skim milk at first, and while increasing the amount of skim, decrease the amount of whole milk until they are on a full diet of skim milk. We generally add a little oil meal or flax seed, increasing the quantity as the calf grows older. It is better to steep the flax seed in warm water for several hours to make a jelly. By having it warm (not boiling) it will heat up the milk for the calf. Always, from the very first, have a little fine hay (perhaps Alsike hay is the best) and a few whole oats in their feed box. As the calf grows we generally give oat and barley meal, mixed with bran, and a few roots pulped, as much as they will eat up clean. We prefer having calves in box stalls about 8x10 ft.—this will accommodate two calves. Have a manger or feed box high enough from the ground so they can't fall into it, and a hay rack in the corner. Give them lots of light; if possible, let the sun shine in on them part of the day. Keep them clean and dry. Disinfect the stalls occasionally, and allow them a free use of the brush and comb. If diarrhoea should occur at any time, we use the following mixture: Laudanum, ginger, peppermint, camphor, capsicum, rhubarb, in equal parts. Dose half a teaspoonful every two hours. ROBERT SHAW, Brant Co., Ont.

Feeding a Calf for Beef Purposes.

In the first place take good care of the cow while carrying it and when it comes. If we are going to feed it from a pail we do not allow the cow to lick it, but take it to a warm, well-bedded box stall, and rub it off, and leave it for three or four hours to get hungry. Then take some milk from the cow, but do not milk her out thoroughly for forty-eight hours at least after calving. This is a great safeguard against garget; give it about two quarts at first, and increase gradually as the calf requires it; feed three times a day first week, but be very careful not to overfeed, as scours when once started are very hard to stop sometimes. When two weeks old add a little warm skim milk, and increase it so that at four weeks old they are taking skim milk entirely; to the skim milk add a little meal, corn meal, middlings, grd. oil cake, in proportion 4, 4, 2 in the order named. It is not good to mix coarse meal like oat chop in milk; put a tablespoonful or two in at first, and increase as the calf seems to relish it. When about three weeks old put some oat chop in a manger where they can get it; very little at first, and as it licks it up clean keep increasing; also let them have access to salt; also fine, well-saved clover hay and pulped roots. Do not leave it to get stale before them, but keep the manger clean and put in fresh feed. There is nothing that helps them to eat better than learning them to leave a clean plate. Be careful to feed regularly both as regards time and quantity. Continue along these lines, changing the food at times to increase the appetite, and in summer when flies are bad let them have a moderately dark, well-ventilated place to stay in through the day, and a good pasture to feed in at night. When they are weaned from milk in the fall, a run on rape for a month or two puts their stomachs in a fine shape to take hold of the coarser fodder in winter quarters. Calves fed in this way will generally grow well and have a good amount of flesh, which should be always kept on and increased until they are finished. A great deal depends on the attendant—if he likes the calf and the work. JAMES BOWMAN, Wellington Co., Ont.

Scottish Methods in Calf Rearing.

"Many substitutes have been successfully used for the butter-fat abstracted by the separator. Mr. Gilbert Murray, Elvaston Castle Estates Office, recommends the following: To two parts of oatmeal add one part of wheaten meal, one of ground peas, and one-fourth linseed. The mixture should be steamed and mixed with the milk. As soon as the calf begins to eat he prefers a mixture of wheaten meal and ground linseed, with a small quantity of bran or nice, sweet hay chaff.

"A plan successfully followed by a Forfarshire farmer is to provide a substitute for the abstracted butter-fat in the form of a mixture of ground linseed meal, oatmeal, and locust bean meal, in equal proportions, the total allowance per head per day being one pound, say, when the calf is three weeks old. The mixture is either boiled or scalded with boiling water until it assumes the consistency of thick gruel, being then mixed with the separated milk. As the calves gradually get older they get a steadily increasing allowance of linseed cake.

"Sir Robert Jardine, Bart., of Castlemilk, made extensive experiments two years ago, under which he reared calves successfully with separated milk, using as a supplement with one set of calves cod-liver oil, and with another set Bibby's cream equivalent (an artificial calf meal), with the addition at the outset of one-half pound of best linseed cake. At the start, when the calves were two or three weeks old, the one set got one gallon separated milk and two ounces cod-liver oil, and the other set one-half pound cream equivalent. A month thereafter an additional half-gallon of milk was given, and the food was increased to one and one-half pounds daily, all getting one pound linseed cake daily. This diet was continued until they were four months old, and then they were all turned out into a forage field, where they were allowed one gallon separated milk, with one and one-half pounds of linseed cake daily. This system was tried against rearing on whole milk alone. Those on the last-mentioned natural diet cost £3 0s. 8d. per head, those on cod-liver oil cost £1 13s. 10d., and those on the cream equivalent £1 9s. 9d. The entire lot were kept and fed in the same way until they were disposed of in the fat market. The whole-milk lot (numbering, like the others, four) weighed 35 cwt. and realized £55; the cod-liver-oil lot weighed 36 cwt. and were sold for £57 10s.; and the artificial-food lot scaled 34½ cwt. and sold for £55 19s. This experiment demonstrates the successful substitution of other substances for the butter-fat abstracted. It will be seen that the rearing of the calves on whole milk alone was more expensive than the other methods, by £1 6s. 10d. as compared with cod-liver oil, and £1 10s. 10d. in comparison with the cream equivalent. When the cost of rearing in each set is deducted from the price realized in the fat market for the finished cattle, it is seen that the balance was only £51 19s. 4d. for the whole-milk lot, as compared with £55 16s. 2d. for the cod-liver-oil lot and £54 8s. 2d. with the cream-equivalent-food lot. Speaking generally, between economy of rearing and better results at the conclusion, the balance in favor of the lots fed on butter-fat substitutes amounts to about two guineas per head—a sum not to be despised.

"On 13th August last we gave an account of the successful rearing on an upland farm, by a well-known gentleman in the West of Scotland, of eleven calves from Irish Shorthorn cows on the milk of two cows, one of which had been calved for some time. Separated milk was used from the time the calves were eight days old, and the substitutes used were equal parts of linseed, oatmeal, and Indian meal, steamed together in a galvanized pail placed in a sort of double-jacket steamer, supplied by Ludlow Brothers, Birmingham. It was heated by an oil stove, the entire apparatus costing a trifle over two guineas. After being weaned they got fairly good keep, suitable for growing store cattle, and were sold in an auction mart at twenty-one months old for from ten guineas to £12 each. They had been kept in a steadily progressive state on an upland farm, without being forced or pampered to any extent. Here was £11 5s. each realized, on an average, for eleven cattle reared on two cows and kept afterwards on plain diet, almost all of which was raised on the farm.

"Where a cream separator is not available and the cream is skimmed off the milk in the usual way, such supplemental food as we have specified can be added to the skimmed milk with excellent results as regards both the healthy rearing of the calves and the outlay at which this is done. Many farmers might adopt some such methods as we have sketched, and nowhere could this be done with more satisfactory results than where there are members of the farmer's family willing and capable of doing such work."—The Scottish Farmer.

Will Benefit Canada in Britain.

T. D. McCALLUM, Manager Isleigh Grange Farm, Danville, P. Q., says:—"I am very much pleased with your Xmas number of the ADVOCATE. I think that the issue of such a number will do a great deal of good to this Canada of ours. It will let the people on the other side of the Atlantic see the progress which we are making in farming in all its branches, and I think will be the means of bringing out a lot of the better class of farmers to locate in Canada. I met a great many breeders in England, Scotland and Guernsey while I was there, and would like to send them a copy of the Xmas number of the ADVOCATE. Could you send me fifty copies that I could distribute?"