—Thesis—

Steer Feeding For Small Farmers

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The beef industry is one of vast importance to the Kansas farmer, and especially to the small farmers. Kansas has peculiar advantages for beef production. Her wide, grassy plains furnish enormous quantities of feed during six months of the year, and the cultivated fields and tame grass meadows furnish feed for the remainder of the year. At the present time, there seems to be no other occupation that will give better results for the amount of labor than that of beef producing. The climate of Kansas is just cold enough to cause cattle to feed well in the winter time, and we are within easy reach of good markets for our fattened cattle.

Most of the land owners of this section of the country have their surplus capital invested in cattle, and depend on them for their livlihood; and the only question with these farmers is, how they are to produce a greater quantity or a better quality of beef with an increase of labor and feed. Here is one of the most important things relating to the industry. A man in

this business has a great work before him. There is a vast field for improvement. It is an occupation that requires a great deal of skill, and it cannot be brought to perfection without deep study and close observation on the part of the manager.

We need not be afraid of taking up this line of work because it is an old one. There is more room for improvement in beef production than in any other industry in existence. It is true that much progress has already been made, but this occupation has not kept pace with other things around it. We must make a study of animals, so that whenever we look at one we can tell whether it will be profitable to feed it or not. We must also study the breeding of animals, so that when we find out what kind of an animal is a profitable feeder, we can breed up our herd and thus obtain the desired animal.

In speaking of cattle, we regard them as belonging to either the dairy or the beef type. Each of these types are divided into breeds, and each breed has its own supporters and admirers. In this discourse, we will not

enter into the merits of the individual breeds, but will take a broader view and try to show the importance of having a special breed for your own special purpose. Whether that shall be dairy or beef producing type must be determined by each person for himself.

A beef animal is one kept for the express purpose of converting food materials into the most desirable kind of beef. In order to do this to the best advantage, the animal must have plenty of room for food and a strong constitution. The head should be broad and taper to the muzzle, the nostrils large; the eyes large and prominent; the neck fairly clean, but should show no depression where it joins the shoulders; the shoulders should be round on top, and of a fair width; crops should be well filled to give lung capacity; ribs well sprung; space between last rib and the hip bone should be short; square behind; twist well let down; back straight and broad; flanks low; the line of the belly should be parallel with that on the back; wide between the front legs; the brisket should be large, but

should not project much below the lower line of the body; the skin should have a mellow feel and should be loose on the body; the hair should have a healthy look. Avoid an animal that is tucked in behind the shoulders or in the flanks, as it has not a robust constitution. Above all things we must get a good eater, because the amount of gain depends largely upon the amount of feed the animal eats. The object in selecting a good beef steer is to get an animal with a closed organism, i.e. an animal that has all parts closely connected.

The dairy type is almost the opposite of the beef type. They have an open organism, and in general they are put up in the shape of a wedge, their bones are prominent and they should not fatten, no matter how much feed they consume, their work is that of changeing food material into milk instead of laying it up in the shape of fat. The dairy animal needs just as strong a constitution and feeding qualities as the beef animal.

Some people are of the opinion that they

can combine these two types and get an animal that will give milk and make beef at the same time; but instead of making the supposed combination of qualities, they get an animal that is good for neither beef nor milk.

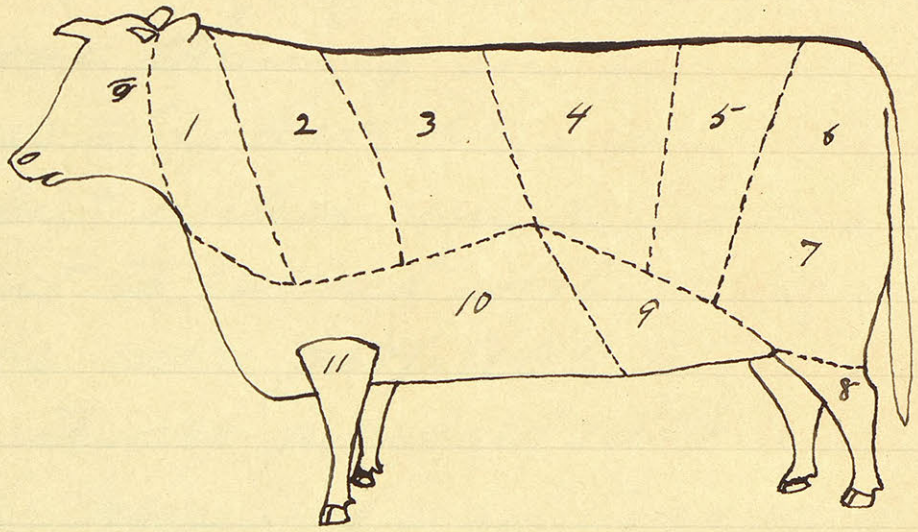
To show the difference in producing beef with a special beef animal and a dairy animal, we will take two steers that were fed at the Dowd Experiment station, one a Jersey, the other a Hereford. During the feeding, both steers made very good gains, the Jersey made a gain of two pounds a day for a period of nine months and the Hereford gained 2.03 pounds per day for a period of fourteen months. The cost per pound of gain was practically the same for each animal, but the difference in the two is shown in the marketing. The Jersey sold for $2.12½ per hundred below the top of the market and the Hereford sold for ten cents per hundred above the top of the market. The carcass of the Jersey was 32.1 percent tallow and only dressed 57.5 percent of the live weight, the Hereford dressed 67.5 percent of its live weight,

and had only 15 percent of tallow on the carcass. The Jersey put on pounds just as cheap and fast as the Hereford, but the Jersey's gain was a four-cent product, and the Hereford's gain was a nineteen-cent product. This is sufficient evidence to settle the question as to whether we will use a special beef producing animal or a combination beef and dairy animal.

Now since we have plainly seen that we should use a beef type, the next question is, whether we should use a native, a high grade, or a pure bred beef animal? The natives have somewhat the same difficulty as the dairy animal; they may eat just as much and gain as many pounds as the high grade or purebred animal but they do not put the gain where it brings the most money or shapes the steer in as finished a condition as the high grade or pure bred does.

The following figure taken from the Report of the Kansas State Board of Agriculture for the last quarter of 1897 shows a well fattened high grade steer weighing 1200 pounds live weight and making 708 pounds of market-

-able meat; it shows the butcher's cuts and the price and the weight of each; it shows that 346 pounds of the meat brings $44.55 and the remaining 362 pounds brings $16.48, in other words less than half the weight of the carcass brings nearly three times as much as the other part.



1. Neck, 24 pounds at 3 cents per pound.
2. Chuck, 130 pounds at 6 cents per pound.
3. Prime of Ribs, 68 pounds at 14 cents per pound.
4. Porterhouse, 92 pounds at 20 cents per pound.
5. Sirloin, 34 pounds at 12½ cents per pound.
6. Rump, 28 pounds at 7 cents per pound.
7. Rounds, 124 pounds at 8 cents per pound.
8. Shank, 24 pounds at 2½ cents per pound.
9. Flank, 22 pounds at 4 cents per pound.
10. Rib Plate, 112 pounds at 4 cents per pound.
11. Shin, 50 pounds at 4 cents per pound.

This shows wherein a native steer weighing just as much might fall far behind in the production of choice parts.

In regard to purebred beef cattle, there is considerable doubt in my mind as to whether or not the small farmer can profitably handle them. There is no doubt but what you can get better returns from them if you give them the conditions they have been accustomed to having, but unless you do this, you can not expect to succeed with them and whether it will be more profitable to the small farmer to use purebred cattle and give them the required conditions or to use high grades and give them less favorable conditions is a question he will have to settle for himself. At the present time, a man could not afford to let purebred cattle go to the block, for he can get three or four times their value if he sells them for breeders. This of course is due mainly to the scarcity and the growing demand for better cattle, and here we must again be guided by the demand for the different kinds of cattle at the different times.

At the present and at all times it will pay the farmer to use a pure bred bull, for the sire represents half of his herd, and a small improvement on each calf will make up for the extra price of a good pure bred bull and what is left will be a clear gain.

As to whether you should buy or raise the steers you feed, I think it is desirable for the small farmer who feeds one or two carloads to raise his own steers. Then he can, if he is a skillful breeder, come nearer having just the kind of steers he wants, and they will be gentle and accustomed to the place and the methods of handling, and when he gets ready to fatten them he has them on hand and does not have to hunt them up and get them tamed before he can start to feed them, another objection to buying your steers is that unless you get them all from the same place they will not be used to each other and will fight for some time, another important objection is that you are apt to get some diseased animals.

The time to begin feeding beef animals is as soon as they will eat. An animal for beef should not be allowed to loose a pound from the time of birth until it is marketed. The young steer should have plenty of feed rich in protein to keep it growing and in a thrifty condition. It has been found by experiment that as the age of an animal increases, the cost of putting on a pound of gain also increases. The gain made by a steer is practically uniform up to the age of two years, but the gain for the second year costs double that of the first year and after two years old it costs very much more per pound of gain. This fact is well shown by the following table of results from our stations and fat-stock shows. The table shows that over three times the cost of putting on a pound of gain at the age of from one to twelve month is required to put on the same amount at the age of from twenty-four to thirty-six months. From this we see that the suitable age to have cattle ready for the market is about two years.

	One to twelve months old.		12 to 24 months old.		24 to 36 months old.	
	Number of Animals	Cost of feed for 100 pounds of gain.	Number of Animals	Cost of feed for 100 pounds of gain.	Number of Animals	Cost of feed for 100 pounds of gain.
Fat-Stock show '82.	9	$4.03	5	$7.98	2	$12.54
Fat-Stock show '83.	6	$3.70	4	$8.12		
Michigan Station.	10	$1.85	10	$7.37	10	$9.57
Wisconsin Station.	16	$4.20	11	$6.13		
Massechucets Station.			2	$7.49	2	$12.38

Having selected the steers the next thing is the feeding of them. The time to begin full feeding depends a great deal upon the season and the pastures in which the cattle are. They should be started on feed before they begin to lose flesh in the fall. This will generally be about the latter part of August or the first part of September.

Getting your steers properly on full feed is no small task, it requires a great deal of care and judgement. At the beginning, it is well to give them small feeds of corn and fodder in the pasture, so they will not have to change at once from grass to dry feed. Give enough to make them about eight pounds of corn per day and plenty of roughage of a good quality, the grain should be gradually increased, and

in about ten days they should be taken from the pasture and put in a comparatively small, lot with good water running thru it, keep increasing your grain and roughage until you get it to where they will just eat it up clean. After you get them to this point, which will take about thirty days, you should vary their feed and methods of feeding as little as you can as long as they are doing satisfactorily.

The kind of feed to use is to be determined largely by the local conditions regarding, but if we are to put fat on steers, we must give them the kind of food required for this purpose. Indian corn and Kaffir corn are about equal in fattening qualities, and whether you will feed Kaffir corn or Indian corn will depend upon which one you can raise the cheaper. Good gains have been made by feeding the balanced ration i.e. a mixture of corn meal, wheat bran and linseed meal and roughage. The price of different feed stuffs will have to determine whether you use the balanced ration or not. Under some conditions you would profit by the use of it, and under other conditions you would lose

by it; so we have to be governed by the circumstances by which we are surrounded at the time of the feeding.

In regard to roughage, there are a great many kinds that might be used; but it seems to me that Alfalfa hay properly put up and judiciously fed is the best and cheapest roughage for fattening steers. The Alfalfa should be cut when it is just coming into blossom, and then stacked before the leaves get dry enough to crumble off.

A good daily ration for a steer of the age selected, under the small farm conditions would be Alfalfa hay 18 pounds and Indian corn 12 pounds. This makes practically a balanced ration for a steer according to Wolff's feeding Standard. This ration gives 28.18 pounds of dry matter, 2.85 pounds of digestible protein, 14.72 pounds of digestible carbohydrates, .787 pounds of digestible fat, and a nutritive ratio of 1 : 5.8. The Alfalfa and corn can be varied a little from time to time so as to keep the steers satisfied and making a good steady gain.

The small farmer can raise his alfalfa for two dollars a ton and his corn for about ten cents per bushel. At this rate, the corn per head for one day will cost 2.14 cents and the alfalfa 1.8 cents per day, The total ration costs practically four cents a day for each steer. For a period of four months, the feed will cost $4.80 per head. If you start these cattle on full feed when they are about eighteen months old and weighing 1000 pounds, (which is not very heavy cattle for this age) with the above ration and proper care they will put on, for a period of four months about two and a half pounds a day making them weigh at the end of the period something like thirteen hundred pounds. This is just what the market demands and there is no reason why a person with a load or two of such steers should not get the top of the market. If they sell for $4.50 per hundred pounds he will have left, after paying freight, yardage and commission about $8.55 per head, allowing 30 dollars per head for all expenses of raising

and getting them fattened and marketed, he will have cleared $25 per head in the two years.

The methods of feeding for a small farmer to follow, it seems to me, would be to feed in open troughs and have a separate rack made to feed the roughage in. If you have hogs to follow the steers it will not pay you to grind the corn, but if it is so you can not have hogs (in case of danger from disease) then it will pay to grind the corn; for it has been found that considerable more is digested than when fed whole. In case of grinding, it is best not to shell the corn, but to grind cob and all.

The steers should be fed grain in the morning and again in the evening, and have good fresh roughage by them constantly. They should have about one and a half ounces of salt per head each day, and good water running thru the lot.

When you get your steers on full feed, then the quicker you can get them finished ready for the market the more profit you will get out of them. The

following table shows the pounds of grain required for one hundred pounds gain during different length periods at the Kansas Station.

Length of period.	Grain per hundred pounds of gain.	percent of increase of grain.
Up to 56 days.	730 pounds.	
Up to 84 days.	807 pounds.	10% increase.
Up to 112 days.	840 pounds.	15% increase.
Up to 140 days.	901 pounds.	23% increase.
Up to 168 days.	927 pounds.	27% increase.
Up to 182 days	1000 pounds.	37% increase.

This table shows that when we feed for a period of 182 days the gain takes 37% more grain than the same amount of gain made in a period of 56 days feeding. The only way we can get around this long period of feeding is to have steers that will mature earlier; for it will not pay to put an animal on the market that is not finished up well. By using good young animals we can shorten the feeding period considerably and yet have a finished steer. The time required to fatten these young cattle

would range from three to four months.

By using the corn and alfalfa ration, I think there would need to be no change in the feed except just enough variation in the amounts to keep the steers from getting tired of it.

The day before shipping, you should give but very little if any grain or water, but give all the roughage they will eat. The object is to fill them up with dry feed to prevent them from scouring and shrinking while they are being shipped. They should be put into a well bedded car and not crowded but should be put in close enough so they will not attempt to lay down in the car. When they reach the market place, they will take a good large drink and a feed of hay and a little grain and will be in fine condition to bring the highest price of the day.