

PRODUCTION OF "BABY BEEF".

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OUTLINE.

The Heavy Steer of Years Ago.

Why He Smothered.

Change of Environment.

Realization of Breeder and Feeder.

Early Maturing Animals.

Quick Returns.

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Different Feeds Compared.

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General Direction.

Character of Stock and Method of Feeding.

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Difficulties and Success.

Years ago, it was the common purpose of the breeder and feeder to produce cattle of great weight and size, and as a rule the steer was not considered fit for market until at least four or five years old. It was then thought that the animal which at five years, laid on the greatest amount of flesh had best paid the owner; while quality was of lesser importance. Slow-maturing, ponderous, and necessarily large, weighing from fifteen to twenty-five hundred pounds was then the finished steer and distinct traces of him remained until only a few years ago. Occasionally one comes across one of these monstrous beeves, but, how the mighty have fallen. More often he is met in the dime museum, where among other antiquity he serves to attract the attention of the visiting curiosity seekers. To-day the big steer is an out cast and not often, do we meet with him even in the great yards of Kansas City or Chicago. And yet he represents what was the ideal of both the breeder and feeder years ago.

We wonder why the big steer was smothered? The environment has changed. In those days, the pastures were free for all; but since the country has become more thickly settled these large prairies were fenced. Then the animal was turned loose on the fenceless hills during the whole grass season and during the remainder of the year the wheat fields often furnished much feed. Thus the expense of keeping the steer until four or five years old was almost nothing when compared with what is to-day when pastures and wheat fields are scarce, and for every bit of feed that the animal consumes the owner must pay.

Again it is an established fact that food is required to sus-

tain the life of an animal, consequently the longer an animal lives before putting it on the market, the greater the amount of feed thus used. In beef production, it is always customary to count the feed that an animal consumes while making no progress in weight, as lost, or wasted, because no profit is realized from it. Thus we see the young animal has an advantage over the older one when profit is considered, and while there is much pleasure in feeding cattle yet the gain should not be overlooked.

Most progressive feeders began to realize this fact and turned their attention to the production of (mature) animals at three years old as the objective point. The governing law was a triune - the cattle must possess hardiness of constitution, feeding quality, and early maturing ability. In this law lay the profits of the business and to this end breeders strove hard. Later pony beef, animals of about two years old, became most popular and in fact there seemed danger of its production being overdone. But as yet the sentiment has not carried the breeders beyond the danger point. On the contrary the perfect steer is yet unborn, or at least unproduced. As yet he is too heavy, and we may say it is hardly likely the advocates of the early maturity will demand the production of perfectly finished beef at less than two years for some time or at least until conditions change materially. Yet with the breeders skillful aid and through cautiousness of the feeder, an animal at one year old may be put on the market and bring the top price. This has been done and leading stockmen are confident that such animals bring in the most profit. The reversion of weight and age has been general in all beef breeds. The aim has been to produce at thirty to thirty-six months steers that combined the largest percentage of meat to live weight the highest percentage

of quality, while early maturity has been carrying on its work and complete change of sentiment among breeders and butchers have been changing their minds and the mode of procedure as well, until to-day the feeling against heavy beeves is stronger than ever before.

Within the carcass, the butcher wants not so much weight as so much meat. The heavy steer produces too much fat and the proportion of waste is large. There is a demand for the cattle weighing from 1000 pounds to 1200 pounds if they are well finished. The supply has never yet, of this class of stuff been equal to the demand and consequently good prices are paid for it. The butcher wants the flesh evenly distributed, and the steer he purchases alive to be of that low blocky type, short, sturdy legs, well covered plates, a full twist, ribs well sprung, and is critical as regards the appearance of the animal.

Is "baby beef", that is beef from cattle twelve to twenty months old if well fattened, esteemed as highly as that from animals six to eighteen months older? If not, what are the reasons therefor, and what would be the difference in price on foot?

What the Packers say. - - Armour - - "Baby beef" has been very popular. On account of age, the quality is not quite so good as that of older stock. The consensus of opinion among retailers is that it can be cut to a better advantage and there is less waste. It has probably not been in supply equal to the demand and this has affected its price. Range men (in the past few years) have been putting a great many thorough-bred Hereford and Short-horn bulls in their herds, making it possible to produce good "baby beef" in short time, and the demand for it is growing continually."

Swift. - - We would hardly call cattle twelve to twenty-four

months strictly "baby beef"; would consider "baby beef" to be that from animals ten to eighteen months old. We think that in a good many cases meat would bring as much as beef from animals six to eighteen months older".

Schwarzschild. - - "Beef from well fattened cattle, twelve to twenty-four months is as highly esteemed as that from cattle six to eighteen months older, for some markets only."

Cudahy. - - "Beef from cattle twelve to twenty-four months old, if well fattened, is in great demand and more highly esteemed than that from animals six to eighteen months older. One reason is that there is not a great deal of it in the market, whereas there are numerous butchers doing a small business who do not want to handle heavy carcasses, especially during the hot weather, but who at the same time have a trade that demands good beef. It is very seldom that the market is overstocked with good fat yearling steers or heifers, yet through a very large portion of the year, the command as high a price as the 1200 to 1300 steers of similar quality."

Roy Overly, head buyer for Armour, says "there is a great demand for beef from well finished yearlings weighing from 700 to 1000 pounds, and that the supply is not equal to the demand. Through this class of beef is used chiefly in the local market and very little of it is shipped east. It is more desirable in summer than heavier animals because small cuts are wanted. The best market is probably during the months of April, May and June, while demand is just as great in late summer and fall, yet too much Texas stuff is taken right from off grass, shipped in and consequently it is not so well appreciated as in spring and early summer." As to quality of meat, he says, that some seem to flavor beef from older animals but as a rule there

is very little difference in quality.

Commission men claim they have very little trouble in disposing of yearling steers or heifers if they are well fattened and always secure a good price for them.

Why not push the calf from the beginning and when a year old, put him on the market with a weight of 800 to 1000 pounds and realize top prices. This class of stuff is in great demand and will continue so until the supply is equal to the demand, and packers tell us that this is very improbable. In this way the heifers are sold at the same price as steers, and the gains are made more cheaply on young animals than on older ones, and if these young heifers are spared, they will make just as good a gain as steers.

If any business is to be successful, it must realize quick returns, that is, turning over, or selling with at least some profit in the least possible time. When investing in the horse business, it is almost impossible to make quick sales. If the money invested is doubled once in eight years, it is about as well as can be expected. Thus we can easily see that a large capital is necessary. The most successful grocery-men aim to turn over their entire stock once in every thirty days. In the ordinary way of steer feeding, the profits are realized only once in three to four years, while in "baby beef" production at least once a year. It matter not what a man takes up as a rule the quicker the returns, the more likely he will be to succeed. The farm is not robbed of its plant food as when field crops are marketed directly because the manure again returned to the land will increase its fertility and keeps the farm up to its full producing capacity. The expense of keeping the steer until three or four years old, is considerable, when pasture and feeds are figured at

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actual value, and the chance of loss by accident or disease is also greater, when keeping the animal until four years old than if disposed of when a year old. Besides animals that are just roughed through the winter are usually fed in such a way that in the spring they weigh considerable less than they did the fall before thus this feed consumed during the winter was wasted.

EIGHTY HEIFER CALVES IN THE FIELD LOT.

In spite of the growing popularity of putting fattened animals from one to two years old on the market for beef, there have as yet been few if any tests made to determine the relative cost of gains as compared with older animals, or as to the ration best adapted for the purpose. In view of these facts, the Kansas State Agricultural College, set about an investigation of the matter. The results of which are as follows. On account of having done the feeding during this experiment, I will write entirely from my own point of view.

Eight heifer calves were purchased in October 1900 at 4.25 per hundred thus making the average price \$18.25 each. Sixty of these were range cattle, twenty-four grade Short horns, sixteen grade Angus and twenty Herefords were bought of farmers near Manhattan. The average weight of the eight head was 410 pounds each.

These eighty head were divided into four lots, four Angus, six Short horns, five Herefords from Kansas City and five Herefords from McDonnold were put in a lot thus making twenty in each lot. They were selected with a view, to secure, as far as possible, uniformity in age, weight, and individual qualities. The difference in weight in the two extreme lots being only 15 pounds or $3/4$ of a pound per animal

These four lots were fed as follows :-

- Lot 1. Alfalfa hay and corn.
- Lot 2. Alfalfa hay and Kafir corn.
- Lot 3. Prairie hay and $2/3$ corn, $1/3$ soybeans.
- Lot 4. Prairie hay and $2/3$ Kafir corn, $1/3$ soybeans.

The calves used in this experiment were in good flesh and just weaned. As those bought at Kansas City were mostly range stuff and not much accustomed to being handled, they seemed somewhat confined in the feed lot and did not take to the feed readily, and most of them were quite wild. The average weight per head of the Angus at the beginning was 317.5 pounds, of the Short horns 430.4 pounds, and Herefords 404.4 pounds while the average of the whole eighty head was 410.8 pounds.

The yards were equal in size each provided with a shed open to the south, and water was regulated with a float-valve and kept full all the time. During the cold season, each tank was provided with a tank-heater which would prevent ice from forming in the tank and keep the water at a palatable temperature. This heater is similar to a deep kettle (having openings at the top, for admission of fuel, controlling draft, and exit for the smoke), and sets right in the water. Whether in beef production or milk production it is always essential to have palatable water within easy reach of the animals. Salt was kept in a box under the shed where the calves could get it at will.

The Salt consumed was as follows:-

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| Lot 1. 74.5 pounds. | Lot 3. 97 pounds. |
| Lot 2. 84 pounds. | Lot 4. 123 pounds. |

In comparing these figures, we notice that in each case where Kafir corn was substituted for corn, more salt was eaten, and again where prairie hay was used in the ration, more salt was eaten. This is probably due to the fact that Kafir corn and prairie hay are quite constipating and more salt was craved by the appetites of the calves to counter-balance this effect. The calves in all lots were fed just alike; started at ten pounds each and two pounds of grain. The hay was given in quantity all they would clean up from the beginning to the close of the experiment. About the eighth to the sixteenth week, they ate the most, averaging twelve pounds daily during this period of eight weeks. From this on as the grain ration was gradually increased, they cared less for hay and at the close of the experiment those fed alfalfa were eating on an average 9-1/2 pounds daily while those fed prairie hay were eating only 5.5 pounds daily.

They were put on grain very gradually; starting on two pounds daily, and no increase was made until the fourth week when an increase of .2 of a pound daily (to each animal) was made until the tenth week, then the increase was cut down to .1 of a pound daily. This was kept up until the twenty-fourth week when they were eating on an average of 13 pounds daily, which was about all the grain they would eat. From this on, they were fed all they would clean up well and at the close of the experiment, they were getting on an average of 14-1/2 pounds daily.

The feeding was done twice daily, at seven o'clock in the morning and half past four in the afternoon. Regularity in feeding is very important, therefore they were always fed at a set time. The hay was put in the boxes first and the grain scattered out over it. In this way the calves will eat the hay and the grain together, and

the grain will be better masticated. Besides if hay and grain are fed in separate boxes some of the calves will go to the manger and eat hay, while the rest will eat up all the grain and in this way calves in the same lot some are under-fed while others are over-fed.

The most satisfactory box used, is twenty-two inches high, fourteen or sixteen feet long, and five feet broad. The bottom is nailed on two by six, three feet apart, and these set right on the ground edgewise of course. Along the middle of this floor is a triangular comb one foot high and two feet right down the center of the trough, so the feed can be easily reached by the calves. The sides are nailed to the two by six pieces which slant towards the top and are nailed to the two by six pieces which are underneath the box.

These calves were fed a period of 217 days. The grain was fed whole for the first 106 days after which it was ground alike for all lots making a period of 111 days during which it was ground. The results are as follows:-

LOT AND FEED.	WEIGHTS AND GAINS.			Feed		Daily	
	Weight of lot at Beginn- ing.	Aver- age gain per animal	Gain per day per head	100# Gain.		Feed per Head.	Average
				Grain.	Hay.	Grain.	Hay.
20 head in each lot.							
1. Alfalfa hay and corn.	8225	407	1.9	470	544	8.8	10.2
2. Alfalfa hay and Kafir corn.	8210	379	1.8	524	627	9.1	10.9
3. Prairie hay, $\frac{2}{3}$ corn, $\frac{1}{3}$ soy beans.	8215	378	1.8	520	486	9.0	8.5
4. Prairie hay, $\frac{2}{3}$ Kafir corn, $\frac{1}{3}$ soy beans.	8215	342	1.6	594	539	9.4	8.5

When comparing corn with Kafir corn, we notice that in each case more grain was eaten where Kafir corn was fed and a less gain made. In the first two lots .7 of a pound of hay was eaten daily more than where corn was fed, while the average gain per animal was 28 pounds less where Kafir corn was used in the ration. It required 524 pounds of Kafir corn plus 627 pounds of hay to make 100 pounds of gain, while 470 pounds of corn plus 544 pounds of hay was required to make the same gain, or a saving of 54 pounds of grain and 83 pounds of alfalfa hay on each 100 pounds of gain put on where corn was in the ration.

In Lots 3 and 4 , the soy beans were put in to supply the protein to balance up the ration with the prairie hay, corn and Kafir corn. While the gains were not as good as with alfalfa yet it shows that good gains can be made with prairie hay and corn if soy beans are used to balance up the ration. It was noticed that the lots fed Kafir corn were more greedy after their feed, but did not make as good an appearance in the lots as did those that were fed corn.

Thus we conclude that Kafir corn is not equal to corn as a beef producer while the animals eat more yet they make a smaller gain. It is interesting to notice while alfalfa is the universal roughage for beef production yet when prairie hay and soy beans are substituted for it, cheaper gains are made, although not so good an average gain.

Kansas City and McDonnold Calves Compared in the table as follows:-

No. Of Lot.	Av. Gain of McD's Calves	Av. Gain of K. C. Calves
	5 In Number.	15 In Number.
1.	440	396
2.	382	379
3.	409	368
4.	368	333

From these figures we can easily see the advantage of home raised stuff over range cattle. In each lot the calves purchased at Manhattan made a better average gain than the range calves. Thus to have the best results, the farmer should raise on his own farm the stock for the feed lot, and the tamer he has his cattle the more satisfactory will be his feeding results.

Comparing the Three Beef Breeds.

In making a comparison of the three beef breeds, we find that the Angus made a daily average gain of only 1.58#, while the Short-horns and Herefords made a daily average of 1.74 each. Thus we see that there is .16 daily average gain that both the Short-horns and Herefords made over the Angus. The different breeds were treated exactly the same, Fed the same lots, given the grain and had all the advantages. During the feeding, it was noticed that the Angus were more wild and uneasy than the other two breeds.

Experiment 2.

In the next three lots were put 10 grade Herefords, 8 steers and 2 heifers in each lot with an average weight of 433# each and fed as follows:-

Lot 5. Alfalfa hay and corn.

Lot 6. Alfalfa hay, corn and 2 oz. of salt on feed.

Lot 7. Alfalfa hay, corn, Acme first one hundred days and
Globe Stock Food the last 115 days.

They were fed in this way for the first one hundred days after which time the Acme was dropped and Globe Stock Food was fed for the remaining 115 days. The results are as follows:-

No. of Lot and Feed.	Grain per 100# Gain.	Hay per 100# Gain.	Average gain per animal.
5. Alfalfa Hay and Corn.	474.77	471.87	435.11
6. Alfalfa Hay, Corn and Salt.	491.64	479.29	417.50
7. Alfalfa Hay, Corn, and Acme 100 days. Globe Stock Food 115 days.	468.29	475.52	429.00

In comparing these figures we notice that Lot 6, where salt was given on the feed, more grain and also more hay was required to produce 100# gain and the average gain per animal is considerably less. Again the calves receiving condimental feed did not make so good an average gain as did those where corn and alfalfa were fed alone, yet ate more hay but less corn. In conclusion then, alfalfa hay and corn alone are more profitable than when either salt or condimental feeds are added.

In Lot 8, were the skimmilk calves, ten in number and averaging 345# each, and the whole milk calves fed from the pail, in Lot 9, ten in number, averaging 389#. Both these lots had been used during the summer and fall in an experiment to test the value of skimmilk as compared with whole milk, then immediately put in the feed lots to make a further test to see whether or not the whole milk calves would make a sufficiently cheap gain so as to make an increased profit over the skimmilkers to cancel the extra expense of the whole milk.

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Lot and Feed. 10 in each lot.	Hay per 100# gain.	Grain per 100# gain.	Av. Gain per animal.
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8. Skimmilk Calves. Alfalfa Hay and Corn. 436	439	440
9. Whole milk calves. Alfalfa Hay and Corn. 420	470	405

The chief interest of this little experiment is to see if the whole milk calves would make a sufficiently cheap gain so as to cancel the greater expense of the whole milk that they consumed over that of the skimmilk consumed by the other lot.

We notice the skimmilk calves consumed less grain per 100# gain and a trifle more hay than did the whole milk calves.

To secure best results, a breed of the best type should be selected, and the main object in breeding should be to obtain a blocky and thrifty calf. This calf must be pushed from the start. Whether fed from the pail or allowed to run with the mother, it should have good pasture and grain will do it good as soon as it will eat, because most of the beef cows gave scarcely enough milk to supply the calf with nourishment. If the pasture becomes short during the dry weather, feed alfalfa hay to both the cow and calf, and keep water and salt within easy reach.

Low feed boxes will necessarily be required because they cannot reach well to the ordinary box. The most satisfactory box used is 14 feet long, 5 feet broad and 22 inches high. The sides slant inward 7 inches at the bottom making the floor only about 4-1/2 feet across. In the middle is a ridge 1 foot high and sloping toward the sides. Thus keeping the feed near the sides so the calves can reach it.

The hay is put in first and then the grain put on the hay.

In this way the animals will take hay and grain together, and consequently the grain is mixed with the hay and better masticated.

End view of skeleton of Feed Box.

It is essential to feed at least twice a day; morning and evening. Regularity in feeding is of importance. Since an animal learns to know when feeding time comes and then everything is ready for action. The digestive fluids flow more readily and the stomach does its work better. Quietness and gentleness when feeding are the requisites to success. An animal should never be abused. If they sometimes stand in the way, it is best not to make a noise but walk quietly around. If the animals are wild, tame them because it will increase the profit. Anything that annoys or disturbs the animals has no business about the feed lot and always interferes with the gain. Armour, the great cattle feeder, never allows visitors within the yards because it stirs up the cattle.

When first starting on feed, it is well to give all the hay they will eat. If feeding alfalfa, a little prairie hay mixed in, is often very beneficial, because it counterbalances the loosening effect of the alfalfa hay. Only about 2# pounds of grain are sufficient for starting unless they have been fed grain through the summer; then more may be given. The hay will have a tendency to extend the stomach so it will be better adapted to take on larger quantities of food later on. Small quantities of grain are required because the young stomach of the calf is not accustomed to digest-

ing feed of this nature. After about three weeks the grain ration may be gradually increased so it will reach about 14# at the 20th. week. This amount is about all an animal of this age will clean up well; but sometimes they will eat more and it is well to give all they will take without getting "off feed". It is wiser to feed a little less, than they would eat, than to over feed. When a lot has been over feed it takes just about one week or more to get them back into good shape and it always means a loss to the owner.

In this as in any other business there are some difficulties to contend with. Sudden changes of the weather always interfere with the gain. Consequently good shelter is not only humane but also profitable. Mud is very undesirable in the lots, because it keeps the animals on their feet when they ought to be lying down resting. A good dry lot means profit in the feeder's pocket. Many stockmen make the sad mistake of putting their yards in a very low place so as to avert the cold winds, and after only a few good rains, the mud is knee deep and cattle can make no satisfactory gains when such conditions exist. A few dollars will put up a good shed to check the wind then why not put the yards on a side hill where there is good drainage. In feeding heifers, care should be taken as to not allow them to become pregnant before putting in the yards because they may have to be taken from the lots or sold as springers on the market. Young cattle are not more troubled with looseness than are three or four year olds; but when they are cut down, the amount of feed and if no quick result, give some prairie hay and then get them back to full feed very gradually.

Young animals always make a cheaper gain than older ones. In our experiment, one hundred pounds gain was made all the way from

\$3.24 to \$5.77. Old feeders claim that under the ordinary way of feeding, it always requires at least from \$8 to \$10., when corn is at 40 cents a bushel. These young animals, if quite fat, bring good prices, and are in demand.