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*Experiments in Cattle Feeding.*

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## CATTLE FEEDING.

BY H. T. FRENCH.

The subject of stall feeding cattle is quite a new one in the live stock industry of this state, and especially in the Willamette valley. Where so little corn is grown, and where such luxuriant pastures prevailed as did at one time exist in this valley, and are found even now in favored locations, it is not strange that little attention was given to this matter. But the conditions have changed in the past few years. Grain no longer pays a large profit when sold in the measure, and the natural pastures are less productive than they once were. Low prices for beef cattle, and little discrimination on the part of the buyer between good and poor beef, have had a marked influence in keeping people from stall feeding cattle. Another very fertile cause is found in the vast ranges of public domain which supported stock in large numbers at little expense. These almost limitless public pastures do not now exist hence there will be a growing demand for a more intensive system of feeding stock. May it not be safely predicted that cattle are entering upon an era of greater demand and consequently better prices? Every thing seems to point in this direction.

It was with a view of throwing some light upon the subject of cattle feeding that the following experiments were undertaken. The results are not wholly satisfactory, yet they will suggest some valuable points perhaps, and serve as a guide to future work along this line.

The objects of the experiment were: first, to test the value of grain and coarse products which can be grown upon the farms of a large portion of Oregon; second, to show if possible that it

is not profitable to sell animals only partially prepared for the market, and at a time when the market is over run with stock from the range.

It has been our observation during the past six years that cattle are very low in the fall and early winter, consequently this is not the time to sell, if we can keep the animals two or three months longer and not lose money by the operation.

With these two objects in view six grade Polled Angus cattle were purchased, five steers and a spayed heifer. Four of the steers were used in the experimental feeding here recorded.

The cattle were very wild when purchased, and it required a month or six weeks to get them accustomed to their surroundings. They were put with the herd the first of October, and driven to the barn every night for a month before any attempt was made to place them in stalls. No grain was fed during this time. November first the animals were secured by a chain tie about the neck. This is called the German tie. The chain is secured by a rod which passes through a ring at the end of the chain, and is bolted to the side of the stall. By this means the animal is securely tied and yet has more freedom than the stanchion gives.

The animals were kept here for a few days, and water and food carried to them three times a day. They were then released during the day and again tied at night. This was continued until the feeding experiments began December 6th, when the animals were kept up all the time and only led out to be weighed every two weeks.

The feed was weighed out to them three times daily and water was given to them in the stall.

I have written this in detail to show how much care must be taken if the animals are induced to take on flesh rapidly. The first, last and all the time object, must be to make the animals contented and quiet. Before a month had past nearly every animal would eat from the hand of the one who fed them.

Would it not have been better to have given the cattle more exercise? This question is often asked, and we will say that there is more danger of such cattle taking too much exercise, if given an opportunity, than there is of not getting enough. If properly fed and watered there is no injury from keeping them

in close quarters. The animals were about two years and nine months old when the feeding began.

In the case of the first two, Tommy and Tobe, the feeding began Dec. 6th. These two were fed chopped wheat for a grain ration, and clover hay and corn silage for coarse feed. The grain was divided into three feeds, and fed with clover hay in the morning, with silage at noon and, with clover hay at evening. The grain was mixed with the coarse feed. Much stress was placed upon feeding the animals regularly. The benefits of this are well understood and need no further discussion.

The first two steers, Tommy and Tobe, were fed chopped wheat alone, except during the last two weeks they were given a little oil meal. On the whole, I do not think that chopped wheat is as good a ration as a mixture of wheat, oats, and bran.

The second two steers were fed a mixture of equal parts by weight, of these grains, and the results are a little more satisfactory. The animals appeared to relish their feed better. It is quite as important to know what is *not* a profitable grain ration, as to know the best, hence the results of feeding wheat alone are not without some value.

The feeding of the second two steers was not begun until a month later than the first two, owing to the fact that they were not fully reconciled to their quarters. The coarse feed consisted of clover hay, cut with a feed cutter, corn silage and vetch hay. The vetch hay was fed only to Silas one of the steers in lot 2. This was substituted in the place of the clover, for the purpose of comparing the two substances for feeding purposes. The vetch hay was made from the winter variety cut during July, and carefully cured the same as clover hay. This part of the experiment will be interesting to many who are now experimenting in raising this plant. Our experiments do not prove it to be superior to clover; but it is eaten very readily and gives satisfactory results. It is certainly worthy of a place among the hay crops for Western Oregon. The corn silage was a very good sample, made from yellow dent corn just past the roasting stage. The corn was grown on summer fallow. It was stored in the silo the first of October.

This method has an important bearing upon the feeding of



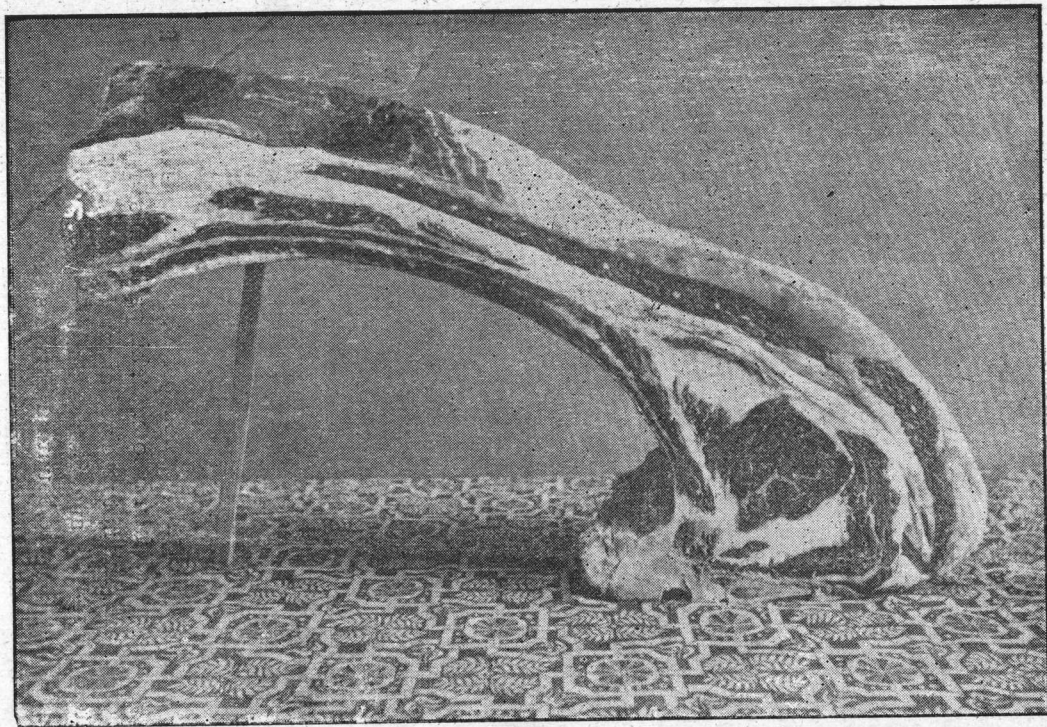
stock. If the summer fallows of Oregon could be made to produce a crop, and thereby pay for the cultivation which they ought to receive, it would be a very economical method of producing food for stock. Not only is it better for the half starved cattle, but it will assist in increasing the production of grain as well. The constant cultivation which the corn needs, together with the shading of the ground, has a very beneficial effect upon the fertility of the soil.

#### RESULTS.

By consulting the table in the summary it will be seen that the steers, Tommy and Tobe, ate  $2308\frac{1}{2}$  pounds of chopped wheat which at \$13.00 per ton amounts to \$15.00. They also consumed 1737 pounds of hay valued at \$5.00 per ton or \$4.34; corn silage, 4076 lbs. at \$1.50 per ton, cost of raising and placing in the silo or \$3.00; 100 pounds of roots at 25 cents per cwt.; and 19 pounds of oil meal at  $1\frac{1}{4}$  cents per pound. This makes the total cost of feed from December 6th to March 28th, \$22.83. Total gain, live weight, during this time was 435 pounds or an average cost per pound of gain of 5.25 cents. This at first thought would preclude any chance for profit, but there is another side to the question. The steers cost \$30.00 or  $1\frac{3}{4}$  cents per pound. If we charge the steers up with first cost \$30.00, plus \$22.83 for feed, we have \$52.83. The steers were sold to a local butcher for  $2\frac{3}{4}$  cents per pound live weight, or \$58.57. This leaves a net profit of \$5.74, not counting the labor which is fully balanced by the value of the manure. The matter of keeping the fertilizing material upon the farm is a very important consideration. In feeding animals very little of the fertilizing elements are lost from the farm; for only a small amount is required in the production of the animal product.

If there is realized enough to pay for the food consumed, the manure will balance the labor account, and leave the farm more productive than before. This problem of furnishing farm-yard manure has not received as much attention throughout our state, as it should, and in fact, must receive, before the farms will again bring the bountiful harvests they once yielded.

There is another consideration which is an important one, and that is, the stock raiser sells his stock in the fall at a sacrifice, because the food supply on his farm will not warrant stall feeding. The price of beef has been so low, there has not been



munch inducement, but beef will invariably sell for  $1\frac{1}{2}$  to 2 cents per pound more in the spring than in the fall, hence, if the animals will pay for their feed, which they will, with beef at  $3\frac{1}{2}$  cents per pound, counting the profits which arise from the increased price per pound for the original weight of the cattle.

In the experiments with the steers fed on the mixture of grain the results are a little more favorable. These steers were fed on equal parts by weight of chopped wheat, oats and bran. Vetch hay was fed from January 3d. to February 14th to Silas and clover was fed the remainder of the period, and the vetch was fed to Beecher in place of the clover hay. Corn silage was fed to both the whole time. Other conditions were the same as in the first two animals. Silas consumed 1158 lbs. of grain, worth \$5.57; 710 lbs. of hay, worth \$1.77; 1596 lbs. of corn silage, worth \$1.12, and  $9\frac{1}{2}$  lbs. of oil meal worth 12 cents. Total cost of food \$8.58.

Gain in live weight, 180 lbs. at  $2\frac{3}{4}$  cents, \$4.95. Add to this the increased value of the original weight one cent per pound, or \$9.65 gives \$14.60. Subtract the value of food consumed leaves \$6.02 profit over cost price and expense. Average gain per day was 2.22 lbs.

Beecher consumed  $888\frac{1}{2}$  lbs. of grain costing \$5.17, 480 lbs. hay, worth \$1.20, 1886 lbs. silage worth \$1.41, and oil meal 12 cents. Total cost of food \$6.90.

Gain in live weight 195 lbs. at  $2\frac{3}{4}$  cents per pound \$5.36 add the increased value of the original weight at one cent per pound \$9.40 gives \$14.76. Subtract the value of food consumed leaves \$7.86 net profit. Gain per day 2.40 lbs.

There was no perceptible difference in the results between feeding the vetch and clover, except in the fact that the second steer Beecher did not relish the vetch as well as Silas.

The animals were sold to a local butcher who weighed the carcasses carefully, showing a dressed weight of 59 per cent. While this is not high it speaks well for the breed and shows that the animals were fairly well matured.

The beef was nicely marbled and of excellent color.



## CONCLUSIONS.

1. While the results are not wholly satisfactory, they will assist in determining the line of future work.
2. The gains per day will compare favorably with those made by feeding corn meal.
3. That animals can be well matured at three years of age by feeding such grains as wheat, oats, and bran.
4. That it is not economy to sell steers in the fall at a reduced price, even at the present low price for stall fed beef.
5. With a reasonable price for stall fed beef, the results indicate that there may be as good returns realized here as in localities where corn is used as a principle grain food.

It is the intention of the Agricultural department to continue these experiments, believing that the matter of stall feeding is a very important one, both in its relations to the dairy, and in the production of beef.

The cut of beef shown on page 82, is one taken from a Polled Angus heifer sold off the farm at three years of age, and whose gross weight was 1637 pounds.

Mr. C. D. Thompson, farm foreman, had charge of the feeding.

## SUMMARY.

|                         | Tommy.<br>lbs.     | Tobe.<br>lbs.      | Silas.<br>lbs.  | Beecher.<br>lbs.  |
|-------------------------|--------------------|--------------------|-----------------|-------------------|
| Weight December 6.....  | 840                | 855                | 965             | 940               |
| "    March 28.....      | 1070               | 1060               | 1145            | 1135              |
| Total gain.....         | 230                | 205                | 180             | 195               |
| Total grain.....        | 1150 $\frac{1}{4}$ | 1158 $\frac{1}{4}$ | 959             | 888 $\frac{1}{2}$ |
| Total hay.....          | 855 $\frac{1}{2}$  | 881 $\frac{3}{4}$  | 710             | 480               |
| Silage.....             | 2036               | 2040               | 1596            | 1886              |
| Roots.....              |                    | 100                |                 |                   |
| Oil meal.....           | 9 $\frac{1}{2}$    | 9 $\frac{1}{2}$    | 9 $\frac{1}{2}$ | 9 $\frac{1}{2}$   |
| Average daily gain..... | 2.11               | 1.88               | 2.22            | 2.40              |
| Grain per pound of gain | 5.00               | 5.64               | 5.33            | 4.56              |