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CATTLE FEEDING AN IMPORTANT
ENTERPRISE IN THE FARM BUSINESS

by

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SOME PRACTICES OF A SUCCESSFUL CATTLE FEEDER

The production of a crop or a class of livestock is known as a farm enterprise. Some farmers center their efforts on one or two enterprises but most of the farmers in the United States depend upon several for their yearly income. A well balanced farm business consists in so bringing together, in the right proportion, a number of enterprises adaptable in a locality, that the greatest efficiency of labor and greatest net profit will be obtained. What may be the most profitable combination of enterprises for one year



Fig. 1. A Modern Home on a Well Organized and Well Managed Livestock Farm

may not be the most profitable for another, owing to changing economic conditions and natural factors. It is highly advisable that a farmer make changes in his enterprises slowly and thoughtfully. Most successful farm businesses are built up through long years of experience. The organization of the farm centers around the major sources of income. This emphasizes the necessity of developing successful practices in the major enterprises.

Below are given some of the practices of a successful farmer in the southwestern part of Minnesota on a farm well equipped for beef production.

Land and Buildings

There are approximately 370 acres in this farm, of which 60 acres are good permanent pasture, a few acres are waste land, and the rest are in crops. Forty acres of wild hay land and 60 of corn land are rented from a neighbor. The farm is well equipped with buildings. The barn is large enough to shelter the work horses, and the cows during bad weather. It has a large hay loft and bins for grains. There are sheds in the feeding yards for the fattening cattle and hogs, and a double corn crib in one of the yards close to the bunks. A scale has been installed in the driveway of the corn crib, making it convenient to weigh the stock. Two silos furnish sufficient silage to carry the stock through the year. The poultry is housed in a well constructed building made from hollow tile and is away from the other buildings yet easily reached from the house. Other buildings are a granary with a machine shed attached, a double garage, and a modern dwelling. An electric light plant has been installed and electric lights are in all buildings.

Livestock

Twelve head of work horses are kept on this place the year round. These, with a tractor, supply the farm power. The tractor is used for plowing and other heavy work. From 30 to 35 purebred Hereford cows are kept which produce each year about a carload of calves. These are fed, and are marketed at about one year of age. A purebred Hereford bull heads the herd, and young bulls are occasionally sold for breeding purposes. Two or three grade cows are kept, principally to supply the family with milk for household use. The number of feeding cattle varies from 50 to 60 of the heavy type and from 30 to 40 of the light-weight type, consisting mostly of the calves raised. The number of cattle put on feed each year does not vary much, as Mr. Blank is of the opinion that if one is to be successful in this business he must feed on about the same scale every year providing he raises the feed. From 100 to 125 hogs are kept during the cattle feeding period but not all have the run of the cattle yards. Part of these hogs are raised and part purchased. While hogs are not so important on this farm as are cattle, they sometimes represent the difference between profit and loss in the cattle feeding operations. About two hundred chickens and fifty turkeys are on the place at inventory time. They are of good quality and are well cared for.

Machinery

The total investment in machinery on January 1, 1924, was \$2812, which included a \$540 tractor and a \$700 automobile. It has been the practice to shelter the machinery when not in use.

Labor Supply

The labor for the operation of this farm is furnished by the operator, two boys of school age, and hired labor to the extent of approximately \$500 annually. The boys are in school nine months of the year, and help little during the school year except at chores. Their help is available on the farm during the summer. The plan is to keep a hired man the year round. Wages in the vicinity were about fifty dollars per month in 1924.

Crops and Cropping Practices

Table 1. Crop Acres and Yield per Acre and Crop Yields for the County for 1923

Crop	Acres	Yield per acre	Yield per acre for county
Corn, bu.	47	50	40
Corn silage, tons	22	13	..
Oats, bu.	60	77	46
Winter wheat, bu.	11	33	10
Rye, bu.	30	20	16
Alfalfa, tons	15	2	1.1
Clover and timothy, tons	28	1	
Wild hay, tons	1	

It will be observed that yields were unusually high in 1923. This was partly due to a favorable crop year in this area, but largely to the good condition of the soil.

"The good condition of the ground is unquestionably due to the application of manure. If no livestock had been kept and no manure applied it is not likely that the crop yields would have been so much higher than the county average," says Mr. Blank.

In addition to the feed grown on the farm, Mr. Blank bought \$650 worth of feed, which consisted of oilmeal and corn. If the corn on the rented land had yielded 50 bushels per acre he would have raised all the feed except oilmeal necessary to carry out his feeding operations. It can be seen that it is possible to get a very satisfactory fattening ration by growing the feeds. With corn, silage, legume hay, bundle corn, and a little oilmeal, Mr. Blank was able to get an average daily gain per head of 1.8 pounds with 82 head of cattle for more than two hundred days.

It is the common practice to feed all crops except wheat, rye, and flax. Flax is not always in the crop combination, being used more as a filler for small patches of ground. Mr. Blank has found that a small acreage of cash crop fits well into his organization plan. There is nearly always a time during both the seeding and the harvesting season when labor is somewhat slack and can be utilized to very good advantage on a cash crop. A plan providing for a small acreage of cash crop offers an opportunity for choice of crops and provides a source of income at a time when there is not much coming in.

It is the aim to keep somewhere near half the crop land in corn and not to grow corn on the same ground two years in succession unless the ground is infested with foul weeds. By this method all the land gets a cultivated crop once in two years. In the spring it is harrowed and gone over with a cultivator digger (similar to a quack grass digger), harrowed again, and planted. The seed corn is selected at husking time unless there is an early frost, when the seed is gathered by the sack method. The variety of corn grown is Golden Jewell. The oats are always planted on corn ground. The stalks are never burned. The ground is double disked cornerwise, harrowed, and seeded.

Winter wheat is planted with a four-horse drill on the silage ground without any seedbed preparation. The corn stubble is left standing and has much to do with holding the snow on the ground. All threshing is done in the yards, and the straw is used for bedding and for the cattle to pick at. The straw stacks make a very desirable protection for the cattle in winter.

Mr. Blank has but fifteen acres of alfalfa, but believes it is a coming crop and is gradually increasing the acreage. The usual method of seeding alfalfa is to manure the ground in the winter, plow early in the spring, and disk as often as necessary to keep all weeds from getting started. About June 1 the alfalfa is sown with a light seeding of oats as a nurse crop. When the oats are about ripe both alfalfa and oats are cut and used as hay. This makes excellent hay. By fall the alfalfa is in good condition to go through the winter. Oats is used as a nurse crop because of its value as hay, and if seeded thinly it does not hinder the growth of the alfalfa.

Mr. Blank is a strong advocate of permanent pasture. There is nearly always some untillable land on every farm and by including a little adjoining land it is possible, with some care, to maintain a very high grade pasture. He prefers bluegrass to other permanent forages and in good years his pasture will carry one head per acre. It is seldom necessary to reseed his pasture.

From three to four hundred loads of manure are spread on the crop land yearly. Mr. Blank believes that this is the biggest single reason for his high yields. He believes manure makes the soil easier to work, lessens the tendency to bake, increase capillary action and moisture capacity, and causes the soil to warm up early in the spring.

Cattle Feeding Practices

For the last several years it has been Mr. Blank's custom to feed two types of cattle, heavy and light, because he has always had an abundance of roughage on hand which could economically be turned into cash by feeding to heavy cattle. They consume much larger quantities of roughage than smaller cattle and make fairly good gains. By having two types of cattle to market he is not likely to hit a poor market with both kinds in any one year. When one buys locally he usually has to buy all the farmer has to sell. By having two types it is possible to sort to advantage and make more uniform lots.

With the good foundation stock in his cows he has always been able to produce about a carload of baby beef each year. To these are added a few that are purchased locally or at South St. Paul. With the good pasture available it is possible to start these calves on dry feed in good condition the latter part of the year. The calves weigh about 900 pounds when sold.

The heavy cattle, with the exception of a few which are from his herd or bought locally, are purchased on the South St. Paul market, often through a commission man over the long distance telephone.

Commission firms tell us that uniformity in size and fleshing are two very important items in securing high prices for livestock. Mr. Blank recognizes this fact, and being a good judge of livestock is able to put on the market a fairly uniform lot of finished cattle. If there happens to be a poor feeder in the lot he is discovered early and disposed of.

It is the custom on this farm to purchase cattle and begin feeding in November and have them ready for market the following June or July.

For the twenty-year period, 1902-22, the price of feeder cattle on the Chicago market has been lowest in October, November, and December; and for fat cattle on the same market over the same period it has been highest from June to September. It can safely be assumed that other cattle markets in this country are similar to Chicago. By the practice followed on this farm in the purchase and sale of beef cattle it is possible to get the price advantage at both ends of the feeding operation.

Table 2. Weights, Costs, Gains, Selling Prices, and Profits for the Two Types of Cattle for the Winters of 1921-22 and 1922-23

Per head	Light cattle	Heavy cattle
	Lbs.	Lbs.
Initial weight	543	811
Gain in weight	332	355
Selling weight	875	1166
Days fed	184	181
Daily gain	1.80	1.96
Initial cost	\$26.78	\$37.67
Feed cost	33.22	38.41
Labor cost	1.36	1.19
Other costs	4.81	5.89
Selling price	82.31	98.77
Manure credit	2.88	4.59
Pork credit	5.31	12.11
Profit	24.83	32.31
Cost per cwt.	4.93	4.64
Feed cost per lb. gain	0.10	0.11
Net cost per lb. gain	0.09	0.08
Net cost per cwt. laid down at market	6.63	5.70
Necessary spread	1.70	1.06
Actual spread	4.35	3.83
Price charged per bu. corn fed	0.58	0.58
Price received per bu. corn fed	1.32	1.30
Price received per cwt.	9.38	8.47

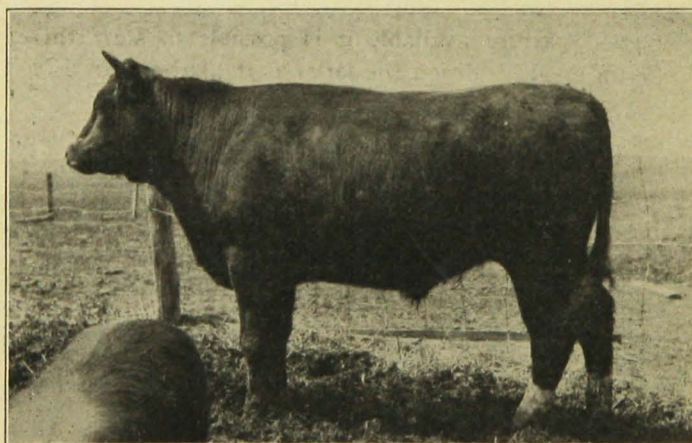


Fig. 2. This Yearling Steer Gained 3 Pounds Daily for 30 Days, in March, 1924

While this shows an unusually large profit per head, both cattle and hogs brought a good price in June, 1922. Cattle brought a good price in June, 1923, and hogs had fallen in price since 1922. On the other hand, corn was cheaper in 1922-23 than in the previous year. These factors combined with good feeding rations and regularity in feeding accounted for these returns.

The general practice of Mr. Blank in feeding light cattle is to start them on shelled corn and oats with tame hay. In a week or

two they are given silage and bundle corn in addition. These feeds are used throughout the rest of the period or until the supply of bundle corn is exhausted, when the corn-oats combination is increased. The cattle have access to hay at all times but they do not consume a very large amount, averaging only 5 or 6 pounds a day. Oilmeal is used near the end of the period to improve the finish on the cattle.

A little different practice is followed with the heavy cattle. They are started off on bundle corn, hay, and silage, with a little ear corn or a little barley. The cattle do not receive much oats but are rather the means for marketing large quantities of roughage. These feeds are used throughout the period, the amounts being increased as time goes on, but the feeds are seldom changed. Near the end of the period, oilmeal is fed to improve the finish as with the other type of cattle. Mr. Blank is of the opinion that a variety of feeds is a good thing if sudden changes are avoided.

Table 3. Average Feed and Labor Used per 100 Pounds of Gain for both Types of Cattle, Winters of 1921-22 and 1922-23

	Light cattle	Heavy cattle
Grain, lbs.	812	1058
Silage, lbs.	378	613
Other roughage, lbs.	214	472
Oilmeal, lbs.	13	9
Man labor, hrs.	2.39	1.54
Horse labor, hrs.	0.06	0.30

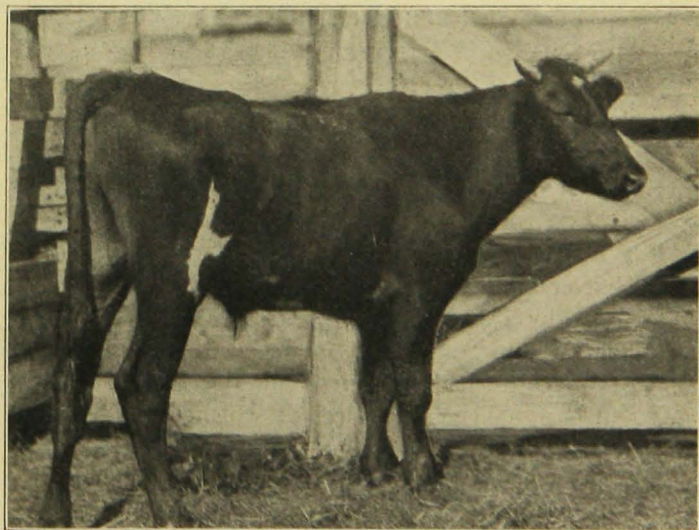


Fig. 3. A Poor Type of Feeder

There are always enough hogs following both types of cattle to a little more than clean up after them. This necessitates feeding them a little extra corn. This is done at the regular feeding time so they do not interfere with the cattle while eating.

Convenience of arrangement of the feeding equipment had much to do with cutting down the labor requirements. The silage was right at the feed troughs and the grain was carried only a short distance. Not much horse labor was used in producing 100 pounds of gain. Altho relatively unimportant and coming at a time when it is not in much demand and is therefore cheap, additional man labor is required when horses are used. The corn fed to cattle was charged at 58 cents per bushel. The light cattle returned for this corn \$1.32 per bushel, or a profit of 74 cents on each bushel fed. The heavy cattle returned a profit of 72 cents per bushel. For the young cattle the corn was mixed with an equal amount of oats while with the older cattle the corn was fed alone.

Relation to Farm Business

The effect of the cattle feeding enterprise on the income from the farm and the way it fits into the organization of the entire farm business is worthy of some consideration. Many farmers believe that cattle feeding adds nothing to the farm income. On the other hand it is quite commonly agreed that cattle serve as a means of marketing a large amount of roughage for which there is no cash market.

The best measure of the effect on the farm income is a comparison of the actual income from a farm on which cattle have been fed and sold with the income of the same farm had no cattle been fed and the feeds eaten by the cattle had been sold at market price. Cattle feeding may affect the cash expenses of a farm as well as the cash income. Both receipts and expenses are increased when cattle are fed and it is only by increasing the receipts more than the expenses that this enterprise may be carried on with profit. The effect this enterprise had on the cash income and outgo of Mr. Blank's farm business in 1923 can be illustrated by Table 3.

This statement shows that \$6531.44 more was received than would have been if no cattle had been fed and the feed which the cattle consumed had been sold at the prices at which they were charged to the cattle; also that the expenses were \$5147.04 more than they would have been had no cattle been fed, leaving a net balance in favor of cattle feeding of \$1384.40. This does not represent all the income from the farm for there were some returns from the poultry, cows, and hogs used in the house. Nothing has been allowed for house rent, which was furnished by the farm.

Table 3. Actual Income and Outgo and What They Would Have Been Had no Cattle Been Fed and the Feeds Sold at Prices at Which They Were Charged to the Cattle

	With cattle	Without cattle
Receipts:		
Horses	\$ 200.00	\$ 200.00
Cattle	9274.63
Hogs	1613.71	1341.17
Poultry	500.00	500.00
Crops	1321.70	4337.43
	<hr/>	<hr/>
	\$12910.04	\$6378.60
Expenses:		
Horses	19.20	19.20
Cattle	4083.99
Hogs	623.84	315.74
Additional feed	650.42
Labor	522.00	417.47
Crops	406.60	406.60
Unclassed	1583.17	1583.17
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	\$7889.22	\$2742.18
Excess of receipts over expenses	5020.82	3636.42

Crop Utilization Through Cattle Feeding

An average of 122,382 pounds of bundle corn was fed during the two winters of 1921-22 and 1922-23. Assuming that half the crop was stover, the cattle furnished a market for more than 30 tons of stover for which there was no cash market, and some hay which was not marketable. A considerable amount of unsalable feeds was fed to the production stock maintained, which is not included in the foregoing statements. The feeder cattle were turned into the cornstalk pasture for about a month immediately after the corn was husked. They were then put into the feed lot and the stock cattle had the run of the stalk pasture the rest of the winter.

Labor

Approximately 472 hours of man labor and 60½ hours of horse labor were marketed on this farm through the cattle feeding operation each winter at 20 and 10 cents per hour respectively. This item amounted to more than \$100. Without livestock this labor would have been idle.

Effect on Soil Fertility

The extent to which manure benefits crop production has always been a question. On the other hand there is no question that it has some influence. The best estimate would be more or less theoretical. If the value of manure is based on differences it makes in crop yields, its value will change every time there is a change in crop prices. Farmers in this locality estimate that manure has increased the yield of their crops, in from fifteen to twenty years, from 15 to 25 per cent.

Allowing \$1 a load for the manure hauled out and spread on the crop land, an average value of this item for the two winters would be \$331.35. This added to the increase directly from cattle feeding would increase the income of the farm due to this enterprise by \$1715.45.

This seems like an unusually large return from the beef cattle enterprise. However, this represents the returns from four carloads of cattle. The advantage, so far as the price of cattle was concerned, was very favorable in 1923. The actual spread in the price of these cattle was \$4.35 per hundred weight. Had the actual spread been but \$2.35 per hundred weight, which is more nearly normal, the increase from this enterprise would have been but \$854.39.



Fig. 4. This Type of Cattle When Well Handled Will Increase the Farm Income Besides Paying Market Price for Feed and Labor

WHAT IS AHEAD IN BEEF PRODUCTION

Profitable beef production apparently runs in periods of seven or eight years followed by a more or less unprofitable period of similar length. The indications are that we are just emerging from one of these unprofitable periods and if history is any criterion we should be in a period of profitable beef production until about 1932. Figure 5 shows the cyclical tendency of this enterprise since 1876.

While the number of cattle on farms in the United States has been increasing, the increase has not kept pace with that of population. At no time since 1910 has the number of cattle per person been as high as the 1909-13 average. Naturally this has had a tendency to increase the price per head. There has been a decrease in the consumption of beef and a slight increase in consumption of veal per

person during this period. When the laboring man is working he eats meat and when wages are high he buys the higher priced cuts. When the industries are operating at their full capacity and the wage scale is high, the price of meat is higher than in times of less industrial activity.

Table 4. Number, Price, and Per Capita Consumption of Cattle

Year	No. of cattle on farms in U.S.* (000)	No. per 1000 of population	Price per head	Per capita consumption	
				Beef lbs.	Veal lbs.
1907	51,566	590	\$17.10	79.7	7.1
1908	50,073	563	16.89	72.4	6.8
1909	49,379	545	17.49	76.2	7.5
1910	41,178	446	19.07	71.8	7.4
1911	39,679	424	20.54	73.9	7.0
1912	37,260	392	21.20	67.5	7.0
1913	36,030	374	26.36	60.8	5.0
1914	35,855	367	31.13	58.9	4.4
1915	37,067	374	33.38	55.7	4.3
1916	39,812	396	33.53	58.1	5.3
1917	41,689	410	35.88	62.0	6.5
1918	44,112	428	40.88	64.8	7.6
1919	45,085	432	44.22	57.3	8.2
1920	43,398	420	43.21	61.7	8.9
1921	41,993	393	31.36	57.7	8.3
1922	41,977	383	23.79	61.4	7.3
1923	42,803	381	25.57	62.5	7.9

* Milk cows not included.

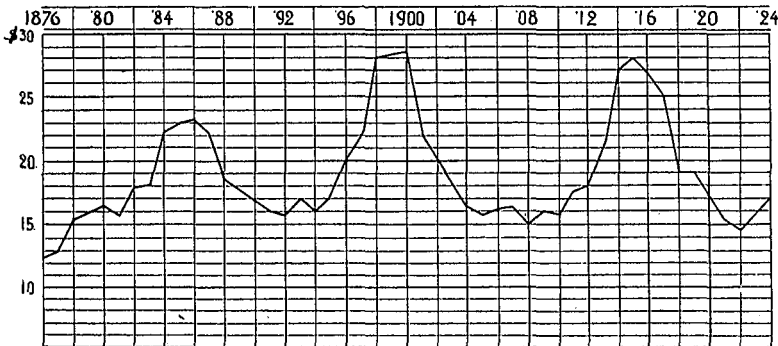


Fig. 5. Cycle of Beef Cattle Prices, 1876-1924

Cattle Prices

High cattle prices tend to increase receipts at cattle markets until finally the demand has been supplied and the price begins to go down. At such times many cattle men make a mistake. They fear the market will fall still lower and rush off all the stock they have that is at all salable. This puts more cattle on an already depressed market and lowers the price still more. Very often the most successful cattle

feeder does just contrary to the average man. Instead of selling all his heifers when the price starts downward, he begins to extend his cattle enterprises by producing calves so that when the market is ready for more beef, as would be indicated by a rise in price, he will be in position to take advantage of the demand. In the meantime his cattle will have been the means of marketing some rough products for which there was no cash market. The feeder following this plan finishes some cattle every year, with a loss in some years and a gain in others, but over a period of years his gains will more than offset his losses.

The difference between the cost per hundred weight of a feeder and the selling price per hundred weight is called the margin. The margin in cattle feeding is very narrow and for this reason any slight change in price of beef may cause a loss or a gain on a pen of cattle.

It is difficult for a producer to see why a 1000-pound steer would sell today for \$80 and the same steer tomorrow might bring but \$75. No change of food value of any consequence in the steer would take place in several weeks, but there might be a very considerable change in price.

In most cases the feed cost per hundred weight of gain is more than the finished animal will sell for per hundred weight. Because of this it is difficult for some people to see how it is possible to make money feeding cattle. With usual market conditions the high cost of gains is offset by receiving a higher price for the finished animal than was paid for it as a feeder. An illustration will suffice. Suppose a steer weighing 800 pounds is purchased for 6 cents a pound. The steer is kept for a few months and sold for 8 cents per pound. But in order to bring 8 cents per pound he must be fat. Let us say that during the time he has been kept he gained 200 pounds at a cost of 12 cents per pound. It is evident that there will be a loss of 4 cents per pound for the gain put on the steer and there will be a gain of 2 cents per pound on the original weight of 800 pounds. The loss in the operation will be \$8 and the gain \$16, or a net profit of \$8.

The "necessary margin" is the difference between the initial cost and the price cattle must sell for in order to break even. In the above illustration this would be \$1.20 per hundred weight. It is greatly to the feeder's advantage to keep the necessary margin as low as possible but it is seldom possible for it to be zero. The item which determines the amount of necessary margin is cost per unit of gain. Cost of gain is regulated mostly by (1) price of feeds. Low price of feeds tending toward a low necessary margin. (2) Feeding practices. Good practices tend toward a large gain which results in a narrow necessary margin. (3) Quality of feeders. Feeders that put on a pound of gain with the least amount of feed require a narrower margin

than less efficient feeders. (4) Weight of cattle. Other things being the same, heavy young cattle will require a narrower margin, for they usually put on gains more efficiently than those poor in flesh or mature. (5) Summer feeding if pasture is available. Cheaper gains are made on summer pasture than on dry feed alone except when flies are bad and heat intense, hence a narrower margin is necessary. (6) Finish of cattle. A very high finish on cattle requires a wide margin, because the last pounds of gain are put on at a high cost. (7) The initial cost of the feeder. The higher the initial cost of the feeder, the narrower the margin required. In the illustration previously cited, if the initial cost of the feeder had been 7 cents instead of 6 cents per pound the necessary margin would have been but 20 cents per hundred weight, while if the initial cost had been 5 cents per pound the necessary margin would have been \$2.20 per hundred weight. This simply means that sometimes it is advisable to pay a little higher price and get a better quality of steer.

Price Changes

There are three kinds of price fluctuations. One is expressed as a trend and is a result of price changes over a considerable period; one is the daily fluctuation that results from variation of receipts on the market; and one the seasonal fluctuation in the market price of cattle. The seasonal price variation is best illustrated by a chart which shows the average price by months of finished cattle at Chicago from 1901-22. It can be seen from this chart that fat cattle are highest during June, July, August, and September and lowest during November, December, January, and February, the high and low months being September and February, respectively.

Of course cattle prices are not always as indicated by the chart, for the chart represents an average of twenty-one years and any one year would likely be different. If a feeder can go to a little more expense during the busy season of May and June in holding his cattle, he will on the average be repaid by a higher price. It is the general practice to put cattle on the market in the early months of the year in order to be ready for spring work, and this is the reason for the low price during this period.

The feeder who watches the short fluctuations has the problem of having his cattle ready for market when the market is highest. It seldom pays to hold cattle after they are once ready to market, so one may have to sell when his cattle are ready even tho the price is low. Again, when the price is high his cattle may not be ready to sell.

Most successful cattle men watch the long-time trend, selling light in periods of downward trend and heavy in periods of upward trend

of cattle prices. They also try to take advantage of the seasonal trends, buying their feeders and starting to feed when prices of cattle are low and trying to be ready for the higher market of finished cattle from six to eight months later. The average monthly prices of stocker and feeder cattle on the Chicago market from 1902 to 1922 were: January \$5.77; February \$5.96; March \$6.93; April \$6.36; May \$6.56; June \$6.17; July \$5.81; August \$5.87; September \$5.83; October \$5.72; November \$5.54; December \$5.48.

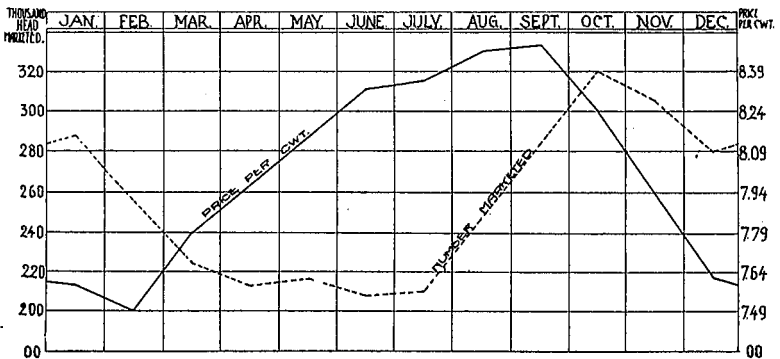


Fig. 6. Seasonal Prices of Beef Cattle on Chicago Market, 1901-22

Marketable beef is not produced over night. If all the farmers in areas adapted to beef production should suddenly turn their attention to raising beef cattle it would be three or four years before their efforts would have any appreciable effect on the market. Successful beef production calls for a well thought out plan of procedure and must be an integral part of the farm business.

This type of farming is not carried on without some risk. Any investment has a certain amount of risk connected with it. Variations in prices of anything closely related to an investment add to the risk of that investment. We may conclude then that the decrease in the price of a meat substitute would tend to lower the price of beef.

Slacking up of industrial activity would throw labor out of employment. Less meat would be bought and the price of it would fall. These are but a few of the many factors which might affect the beef industry. Other forms of farm production might be affected in a similar way. The chief thing to recognize in going into a form of production is that there are many things over which one has no control that may affect profits. If one likes this type of farming, is in a region adapted to beef production and has a farm suited to it, it is fairly safe for him to go ahead with it, beginning on a small scale and growing into the business as his success warrants.

BEEF CATTLE IN MINNESOTA

There are no reliable data previous to the 1920 census which give the number of cattle kept for beef production purposes. The greatest number of all cattle in Minnesota for any year was in 1920 when the census showed 3,021,469 head on our farms. Of this number 940,842 were classified as cattle kept mainly for beef production and the remaining 2,080,627 those kept mainly for dairy production. The total number of cattle in this state has decreased slightly since 1920 while the number of milk cows has continually increased. In view of this it is evident that the number of cattle kept for beef production in Minnesota has decreased since 1920.

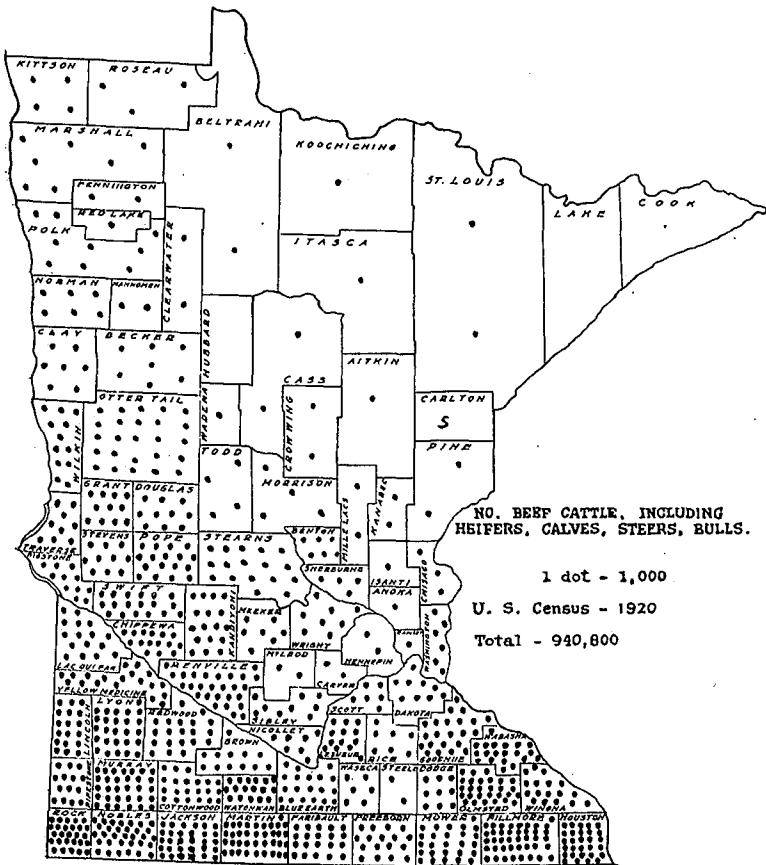


Fig. 7. Distribution of Beef Cattle in Minnesota, 1920 Federal Census

From the map it can be seen that beef cattle are most generally grown in the southeastern and southwestern sections of the state. In these sections corn constitutes from one third to two fifths of the

total crop acreage. It is a well recognized fact that where corn is grown in abundance the beef steer and the hog are found. It is somewhat problematical to what extent we may expect to find the fattening steer in regions of sparse corn production.

The census of 1920 shows that of the 940,842 beef cattle in Minnesota, 56,028 were purebred, distributed as follows: Shorthorn 32,419 (this figure includes the purebred Shorthorn cattle used for dairy purposes); Hereford 10,787; Angus 5,398; Red Polled 2,415; Galloway 175; all others 4,834. While there are no figures available it is the opinion of most authorities that there has been some decrease in the number of purebred beef cattle on Minnesota farms since 1920. This was due to many purebred cattle being sold for meat during the depression period. The proportion of purebred beef cattle to all beef cattle in the United States in 1920 was 3.02 per cent and in Minnesota 5.95 per cent, including all Shorthorns.

Two types of beef production can be carried out successfully in Minnesota. Many farms are especially well adapted to the fattening of feeder cattle. The area best suited to this form of production is located in the corn section of the state, altho it may be done with profit where corn substitutes are grown. It must necessarily be where corn or its substitutes do well and where they are cheap and will naturally be limited to farms of which a large part of the acreage is suited to crop production. To be successful in this type of beef production one must be a good judge of cattle, and know when to buy and when to sell. This necessitates a marketing knowledge of livestock which not all men possess. In addition one must be well informed on feeding principles and follow regular practices.

On relatively large farms which have considerable pasture land and which produce large quantities of roughage, it is possible to maintain a herd of cows from which calves can be produced to be either fed out as baby beef or sold as feeders. This necessitates maintaining the breeding herd at a minimum cost and at the same time producing a calf of good feeding and selling qualities. This type of production can be handled on farms fitted for it and operated by men especially adapted to the work.

A third type of production, that of raising breeding stock, can be carried on successfully under right conditions. The production of breeding stock is a highly specialized business and not every one is adapted to it. One must be a good judge of cattle, understand breeding principles, possess salesmanship ability, and be able to win the confidence of cattle raisers. For him who possesses the above qualifications and owns a farm adapted to this type of production, remunerative returns are possible.