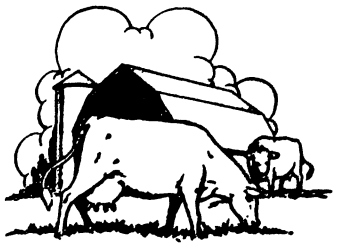


# MINNESOTA farm business NOTES

NO. 380 ST. PAUL CAMPUS, UNIVERSITY OF MINNESOTA FEBRUARY 25, 1957


# Are Beef Breeding Herds Profitable?


E. Hartmans and H. Routhe


The number of beef cows in the central Corn Belt states has increased sharply over the last decade. Beef cows in Minnesota increased from 160,000 in 1949 to 315,000 in 1955. Other Corn Belt states showed increases of from 70 to 100 percent during the same period. Preliminary 1956 data for the Central States Region indicate a further increase of 5 percent over 1955 beef cow numbers.

The purpose of this article is to determine the general profit position of beef breeding herds in Minnesota and their competitive position with the alternative enterprise of feeder cattle. Available data on the relative returns from beef breeding herds do not seem to justify the above increase.

## Procedure

An analysis was made of beef breeding herds in the Minnesota SE and SW Farm Management Service. Out of a total membership of about 350 farmers, 52 farms had beef breeding herds in 1955. Not all these herds could be used in this analysis.

In order to get a true picture of the profit position of the beef herd, cows and their calves have to be handled separately from the feeder operation. Calves can only be credited as a product of the cow as long as the calf is depending on the cow for feed—which means up to weaning time.

**Table 1. Amount and Cost of Feed per Beef Cow**

| Type of feed | Amount | Cost per unit in dollars* | Total cost in dollars |
|---|---|---|---|
| Pasture | 1.9 acre | 5 | 9.50 |
| Corn silage | 1.3 ton | 9 | 11.70 |
| Grass silage | 0.4 ton | 6 | 2.40 |
| Legume hay | 1.5 ton | 18 | 27.00 |
| Mixed hay | 0.4 ton | 12 | 4.80 |
| Corn | 7 bu. | 1.25 | 8.75 |
| Supplement | 2¼ lbs. | 5 | 0.11 |
| All feed | | | $64.26 |

* These prices are not the same as those used in the 1955 Annual Reports of the SE and SW Farm Management Associations. Prices are adjusted for normal trends.

Only 15 farmers had kept records in which the cow operation was handled separately from the feeder operation. Calves were transfered out of the beef breeding herd at an average weight of 423 pounds. The following analysis can be made of normal cost and returns from the data of these 15 herds.

Table 1 shows the average amount of feed used per cow in 1955. These feed requirements are in line with the normal requirements for a beef breeding herd.

Total feed cost amounted to $64.26 per cow. Other costs, which include interest on capital, depreciation on buildings and equipment, veterinary cost, and miscellaneous items, are estimated at $15 per cow. Thus the total cost per cow is $79.26.

As already mentioned, these herds produced a 423-pound calf. However, it is estimated that the calf crop amounted to 88.5 percent so that every cow produced actually only a calf of 374.4 pounds. Assuming an average price of 18 cents for both steers and heifers, the total value produced would be $67.38. Hence the return to labor is —$11.57 per cow. Since the cow plus calf would require about 38 hours of labor, **every hour spent on the beef cow herd under these conditions and prices shows a loss of 30 cents.**

## Other Considerations

1. **Permanent pasture.** It is a general belief that a rather large acreage of permanent pasture can be used only by beef cows and as such justifies a beef breeding herd. In the above analysis, pasture was charged at $5 per acre.

However, assuming no charge for the pasture at all, the analysis would still show a loss of $2.07 per head.

2. **Changing price.** In the analysis, an average price of 18 cents was taken for the calves. If the calves sold at an average price of 25 cents, which for instance was the case a few years ago, the gross return per cow would be $93.60 instead of $67.38. The labor return then would be $14.34 per cow or 38 cents per hour of labor.

If, in addition, only a charge of $1.50 was made for the pasture, the return would increase to $20.84 per head or 55 cents per hour. This indicates that even under very favorable price relationships the returns in this enterprise in Minnesota are low.

3. **Alternative use of feed.** The feed used by the beef herd could have been used by other livestock, such as feeder cattle. The forage need of one beef cow will feed approximately two pasture fed calves, which are bought at 400 pounds and sold at 950 pounds. Over and above the 7 bushels of corn fed to the beef cow, an additional 73 bushels of corn and 300 pounds of supplement would be necessary to finish out these two cattle. If we assume a purchase price of 18 cents and a sales price of 20 cents per pound, see the comparison that can be made (table 2).

Using the feed through feeder cattle will return $1.20 per hour. In addition, only 22 hours is required for feeder

**Table 2. Comparison of Normal Cost and Returns of Beef Cow and Pasture Fed Calves as Based on the Same Forage Supply**

| Cost item | Beef cow | Two pasture fed calves (ave. gain 550 pounds) |
|---|---|---|
| Forage cost | 55.40 | 55.40 |
| Corn (or equivalent) | 8.75 | 100.00 (80 bu.) |
| Supplement | .11 | 12.00 (300 lbs.) |
| Other cost | 15.00 | 42.00 |
| Total cost | $79.26 | $209.40 |
| Value produced | 67.38 | 236.00* |
| Labor return | —11.88 | 26.40 |
| Hours of labor | 38 | 22 |
| Return per hour | —31¢ | $1.20 |

* 2×550×20¢ plus 2×400×(20—18)¢=$236.


(Continued on page 3)

# Adjustments in Dairying—Past and Future

H. J. Aune and L. M. Day

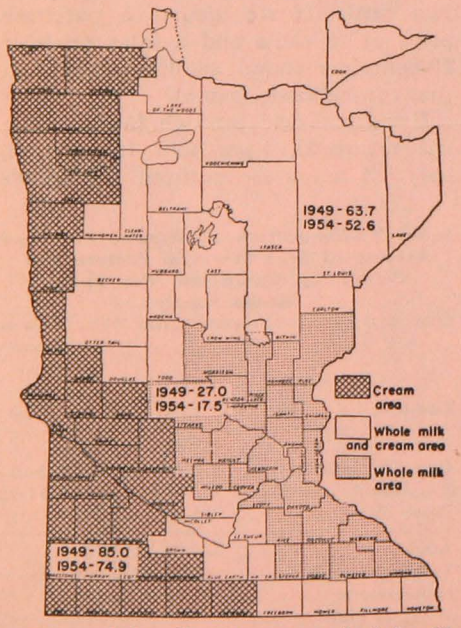
There has been a considerable amount of discussion recently about the "dairy problem." This dairy problem has two major phases. One phase is the decline in the prices received for dairy products. This is related largely to the loss of part of the butter market. The other phase is the increase in costs, particularly in labor.

In the past much of the emphasis has been placed on off-farm adjustments, particularly in market development and agricultural policy.

This article will discuss the nature of the adjustments that dairy farmers have made and are likely to make on their own farms. Information of past changes or adjustments are available from the U. S. Census of Agriculture.

Because the decline in butter prices contributed to the dairy problem, the state was divided into three areas in which the butter market differs in importance. This classification was based on the number of farms that sell cream expressed as a proportion of the total number of farms that sell either milk or cream.

For example, in the shaded area along the western part of the state there were 35,332 farms that sold either milk or cream in 1954. Of these farms, 74.9 percent sold cream. While the classifications are representative of the type of dairying followed in these areas of the state, certain counties within each area may differ from the classifications given. These areas are designated in the figure.




Cream, whole milk and cream, and whole milk areas in Minnesota, 1949 and 1954. State: 1949-58.3 and 1954-46.3.

Source: 1954 Census of Agriculture.

**Table 1. Changes in Dairying in Minnesota, 1950 and 1954***

| | State | Areas | | |
|---|---|---|---|---|
| | | Cream | Whole milk and cream | Whole milk |
| Total number of farms | — 7.7 | — 4.4 | —10.6 | — 8.1 |
| Farms reporting cows | —15.3 | —18.3 | —15.3 | —11.1 |
| Number of cows reported | 0 | — 6.7 | + 0.4 | + 3.8 |
| Size of herd | +18.0 | +15.1 | +18.1 | +18.9 |

* Source: 1954 Census of Agriculture.

One type of adjustment taking place in each area is the shift from selling cream to selling whole milk. This was a natural adjustment to the decline in the price of butter.

Other types of adjustment have also occurred. One of these was to shift out of dairying entirely. Thus, the number of farms reporting cows in 1954 was 15 percent below 1950 (see table 1). However, it will be noted that the greatest decrease took place in the cream area, where farmers have a wider choice of profitable alternatives to dairying.

In spite of the many shifts from dairying, the number of dairy cows in Minnesota did not decline. The decrease in the cream area was offset by the increase in the number of cows in the whole milk area. Herd size increased in all areas.

It is evident from these data that many farmers still consider dairying to be their most favorable alternative and their best adjustment to the "dairy problem" is expanding their dairy enterprise. On many Minnesota farms, the dairy enterprise is being expanded not only by enlarging the herd but also by more production per cow. The latter may be achieved in the short run by better feeding, care, and management and over the long run by better breeding and selection.

Table 1 shows that many farmers also increased their herd size as another way of expanding the dairy enterprise.

One of the advantages of increasing the herd size is that it offers an opportunity to spread the fixed costs of technological advances (such as the bulk tank and more strict sanitary regulations) over a larger volume.

Other advantages of increasing the herd size are: 1. It is possible to spread the fixed labor costs over a larger number of cows, and 2. Larger herds make the purchase of labor saving equipment possible.

The purpose of a study currently being conducted by the Department of Agricultural Economics and the U. S. Department of Agriculture is to investigate these economies gained from increasing herd size and changing equipment setup. Work in this study is being conducted in cooperation with the members of the Southeastern and Southwestern Minnesota Farm Management Associations. Preliminary results indicate that even without changing the dairy equipment, some labor can be saved by increasing herd size.

For example, the average time spent per month during the summer months in the total milking operation (including assembling milkers, actual milking, and washing utensils) using two single units was 5.03 hours per cow per month with a 10-cow herd. With a 20-cow herd, the average time was 4.30 hours per cow per month. For 30-cow herds and 40-cow herds the average time spent per month was 4.09 hours and 3.96 hours, respectively.

It should be noted that the savings in labor per cow by increasing the herd size are limited, especially when the existing herd is relatively large.

In many cases even these economies in labor are not possible. If the farmer is able to increase the number of cows within the limits of the dairy housing on the farm, he may soon be faced with a shortage of labor to take care of the additional cows. One solution, assuming that his existing work schedules are efficient, is to consider what changes in dairy equipment might save labor for him. Savings in labor that are possible when equipment setups are changed can be illustrated from the preliminary results of the dairy labor study mentioned.

Information was obtained on the time spent each week on manure handling. The time reported was the time spent in removing the manure from the gutter

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Prepared by the Department of Agricultural Economics and Agricultural Extension Service.

Published by the University of Minnesota Agricultural Extension Service, Institute of Agriculture, St. Paul 1, Minnesota.

**Table 2. Percentage of Dairy Farms with Specified Kinds of Equipment by Herd Size, Southeastern and Southwestern Minnesota Farm Management Associations, 1956**

| | Herd size | | | |
|---|---|---|---|---|
| | 5.0-14.9 | 15.0-24.9 | 25.0-34.9 | 35.0 and over |
| Number of cases | 18 | 85 | 31 | 13 |
| Average herd size | 12.2 | 20.4 | 28.4 | 39.8 |
| Percentage of all farms with the following | | percent | | |
| Barn arrangement | | | | |
| Rows lengthwise | 66.9 | 71.8 | 74.2 | 61.5 |
| Rows across | 33.3 | 22.3 | 19.4 | 23.1 |
| Loose housing | ..... | 5.9 | 6.4 | 15.4 |
| Silage removal (upright silo only) | | | | |
| Hand | 92.3 | 92.4 | 91.7 | 90.0 |
| Mechanical silo unloader | 7.7 | 7.6 | 8.3 | 10.0 |
| Milking machine | | | | |
| Two single units | 100.0 | 78.8 | 48.4 | 15.4 |
| Three single units | ..... | 12.9 | 35.5 | 46.1 |
| Four single units | ..... | ..... | 6.5 | 30.8 |
| Percentage of conventional barns only | | | | |
| Drinking cups | 66.6 | 92.5 | 100.0 | 100.0 |
| Silage cart | 20.0 | 38.7 | 75.9 | 72.7 |
| Feed cart | 11.1 | 36.3 | 55.2 | 63.6 |
| Manure removal | | | | |
| Litter carrier | 72.2 | 40.0 | 31.0 | 18.2 |
| Mechanical gutter cleaner | ..... | 21.3 | 48.3 | 63.6 |
| Driveway through barn | 5.6 | 25.0 | 13.8 | 18.2 |
| Hand methods | 22.2 | 13.8 | 6.9 | ..... |

to the spreader and then spreading the manure on the fields.

It was found that when a litter carrier was used, 6.62 hours per week was spent for a herd of 30 cows in stanchions. When a gutter cleaner was used, 3.97 hours per week was spent for a herd of the same size. This represents a saving of 2.65 hours per week for a 30-cow herd.

In changing an equipment setup, one must consider the alternative value of the labor saved as well as the value placed on the drudgery which is eliminated. These suggestions for saving labor may be small but are, nevertheless, extremely valuable.

On each farm there are certain seasons with peak labor requirements. These may be during planting and harvesting time. The labor available during these seasons limits the size of the farm business. Any possible savings in labor during these seasons might result in great increases in earnings because of the greater volume of business possible. When selecting which type of labor saving equipment to install, consider the influence of this equipment on the total as well as the seasonal labor requirements.

These only illustrate the types of adjustments farmers may make. A farmer considering increasing the size of his herd may find it useful to know what kinds of equipment some larger herds have. Information on dairy equipment from the dairy farmers in the Southeastern and Southwestern Minnesota Farm Management Services will give some indication of the types of equipment associated with different herd sizes. These farms may be somewhat larger in size and represent a higher level of management than other farms in the state.

Of the 147 questionnaires returned, 138 were from farms with conventional barns and 9 were from farms with loose housing barns. These questionnaires were grouped by the average number of milk cows in the herd in 1955 to determine which types of equipment were associated with the different herd sizes. The summary of these questionnaires is given in table 2.

As farmers increase their herd size, they turn to more and more labor saving devices. Some of these are relatively inexpensive and others represent a large investment. With a larger herd, it is possible to spread the cost of installation over a larger number of cows.

Any recommendation to increase size of herd has implications beyond the change in labor requirement. In many cases the additional facilities required for Grade A milk production cannot be justified on small herds. Consequently, one would expect that as herds increase in size the proportion of Grade A producers may increase. This was true among the farmers contacted by mail questionnaire.

On farms with herds from 15.0 to 24.9 cows, 34.1 percent of the farmers sold Grade A milk. This was increased to 54.8 percent on the farms with herds from 25.0 to 34.9 cows and 69.2 percent on the farms with 35.0 or more milk cows.

As herd size increased on these farms, there was also an increase in the number having milk houses and improved cooling equipment, such as a mechanical cooler or a bulk tank.

### Summary

In the development of an adjustment plan for a dairy farm, the reorganization of the labor and equipment program is an important part of the plan for that farm. This not only influences the possible size of the dairy enterprise but the total volume of business for the farm as well.

For the proposed reorganization of the labor and equipment program to be more reliable, the labor data should be available by equipment setup and by herd size. The current lack of this type of information makes it difficult for each farmer to evaluate properly the alternatives available to him.

In view of the shift toward Grade A milk production, the shift toward larger herd sizes, and the increase in the costs of hired labor, even if available, it seems clear that farmers will need to give considerable attention to the mechanization of the farm chores.

## Beef Breeding Herds—

(Continued from page 1)

cattle as compared to 38 hours for beef cows to use the same amount of feed. Higher prices usually affect returns of beef breeding herds and feeder cattle in a similar way. When beef cows are profitable, feeder cattle operations are more profitable.

4. **Registered herds.** This analysis only pertains to a person raising his own cattle for feeding purposes. Registered herds might be in a slightly different position.

Limited data available, at least, should also raise a question about the profit position of these registered herds. Especially, if an alternative use of the feed, labor, and capital is considered.

### Conclusions

1. The profit position of the beef breeding herd under Minnesota conditions is relatively unfavorable.

2. A large amount of untillable pasture is not in itself ample justification for a beef herd.

3. If the beef herd is profitable, the alternative enterprise of feeding cattle is likely to be more profitable.

4. Beef cows require more labor than feeder cattle operations based on the same feed supplies. However, beef breeding cows may not always consume the same pattern of feeds as feeder cattle.

# Minnesota Farm Prices, Dec. and Jan., 1956-57

Prepared by R. A. Andrews

**Average Farm Prices for Minnesota, December 1956, January 1956, 1955, 1954***

| | Dec. 1956 | Jan. 1957 | Jan. 1956 | Jan. 1955 |
|---|---|---|---|---|
| Wheat | $ 2.09 | $ 2.09 | $ 2.12 | $ 2.25 |
| Corn | 1.10 | 1.09 | 1.12 | 1.24 |
| Oats | .67 | .68 | .55 | .68 |
| Barley | .94 | .94 | .88 | 1.07 |
| Rye | 1.14 | 1.20 | .92 | 1.16 |
| Flax | 3.12 | 3.11 | 3.02 | 3.05 |
| Potatoes | .60 | .57 | .95 | .80 |
| Hay | 17.20 | 16.90 | 14.80 | 17.00 |
| Soybeans† | 2.21 | 2.23 | 2.13 | 2.47 |
| Hogs | 16.10 | 17.40 | 10.70 | 16.50 |
| Cattle | 13.00 | 13.90 | 12.90 | 15.80 |
| Calves | 17.20 | 18.10 | 17.50 | 17.30 |
| Sheep-lambs | 16.66 | 17.23 | 16.02 | 17.72 |
| Chickens | .111 | .107 | .178 | .147 |
| Eggs | .270 | .240 | .370 | .230 |
| Butterfat | .640 | .640 | .620 | .62 |
| Milk | 3.30 | 3.25 | 3.10 | 3.10 |
| Wool† | .48 | .48 | .36 | .48 |

* Average prices as reported by the USDA.

† Not included in Minnesota farm price indexes.

Livestock prices increased 7 percent from December to January. Hog prices reached the highest level since November, 1954, and the hog-corn ratio was the most favorable since May of 1954.

Crop prices in January averaged about the same as in December, while livestock product prices decreased 2 percent. Egg prices reached the lowest level since January 1955.

**Comparison of December and January Prices**

| Commodity class | Average January prices as a percentage of average December prices |
|---|---|
| Crops | 100 |
| Livestock | 107 |
| Livestock products | 98 |
| All commodities | 103 |

**Indexes for Minnesota Agriculture***

| | Average Jan. 1935-39 | Jan. 1957 | Jan. 1956 | Jan. 1955 |
|---|---|---|---|---|
| U. S. farm price index | 100 | 219.2 | 208.1 | 224.7 |
| Minnesota farm price index | 100 | 198.4 | 173.9 | 201.3 |
| Minnesota crop price index | 100 | 172.3 | 173.6 | 190.7 |
| Minnesota livestock price index | 100 | 221.2 | 167.9 | 224.1 |
| Minnesota livestock product price index | 100 | 176.2 | 182.8 | 172.9 |
| Purchasing power of farm products | | | | |
| United States | 100 | 93.9 | 92.7 | 99.4 |
| Minnesota | 100 | 85.1 | 77.5 | 88.2 |
| U. S. hog-corn ratio | 12.7 | 14.1 | 9.4 | 12.1 |
| Minnesota hog-corn ratio | 12.7 | 15.9 | 9.6 | 13.3 |
| Minnesota beef-corn ratio | 11.7 | 12.8 | 11.5 | 12.7 |
| Minnesota egg-grain ratio | 15.0 | 9.2 | 14.4 | 8.2 |
| Minnesota butterfat-farm-grain ratio | 33.9 | 31.4 | 34.1 | 28.5 |

* Minnesota index weights are the average of sales of the five corresponding months of 1935-39. U. S. index weights are the average sales for 60 months of 1935-39.

# *The Outlook Corner*—Cattle on Farms

**Table 1. Cattle and Calves on Farms, United States, January 1**

| | 1949 | 1956 | 1957 |
|---|---|---|---|
| | millions | | |
| All cattle and calves | 77.9 | 96.8 | 95.2 |
| Milk cows | 23.8 | 23.2 | 23.0 |
| Young milk stock | 11.6 | 11.5 | 11.4 |
| Beef cows | 16.7 | 25.5 | 24.9 |
| Heifers and bulls | 6.4 | 8.0 | 7.8 |
| Calves | 12.5 | 18.9 | 18.7 |
| Steers | 6.8 | 9.5 | 9.2 |

After a seven-year expansion in numbers, the cattle cycle is turning downward. On January 1, 1957, all cattle and calves on farms totaled 95.2 million head. This is 1.3 million less than the all-time high of a year ago.

Beef and milk cow numbers, heifer replacements, calves, and steers show moderate declines.

A major factor has been the high slaughter rate of all classes of cattle in 1956. Cow slaughter, lagged till October, increased sharply and exceeded levels of a year ago. Half million fewer heifers on hand a year ago for replacement and the high calf and heifer slaughter during the year means that cow herds were being culled closely.

Steer slaughter increased by more than a million head. More grass steers and heifers went directly to slaughter this fall instead of being carried as a stocker and replacement cattle.

Marketings of fed cattle were high. Cattle put on feed were marketed early and at lighter weights compared to a year ago.

The drouth in the southwest has been a factor also. July-November slaughter in drouth areas of the south central region were up 20 percent and the Mountain States up 14 percent in 1956.

This high slaughter rate of all classes of cattle is typical of the peak phase of the cycle in cattle numbers.

The big question is, "How long can the reduction phase of the cattle cycle continue?" The number of cattle during the peak years and length of the cattle cycle are in table 2.

**Table 2.**

| | Cattle and calves | Years in cycle |
|---|---|---|
| | million head | peak to peak |
| 1890 | 60.0 | ..... |
| 1905 | 66.1 | 15 |
| 1918 | 73.0 | 13 |
| 1934 | 74.4 | 16 |
| 1945 | 85.6 | 11 |
| 1956 | 96.8 | 11 |

Upward trend in population, incomes, and consumer preference for beef will encourage expansion of beef production. Present per capita consumption of beef is 83 pounds. Estimates indicate that to maintain a per capita consumption of 74-76 pounds per person would require 96-100 million head of cattle to produce the 38-39 million head needed for slaughter during the period 1959-62.

This would indicate that a downtrend in cattle numbers would be short-lived, perhaps less than the 4-6 years in previous cycles. This would be especially true if drouth conditions should improve to the extent that ranchers would cull less closely, hold back heifers, and expand herd size.

Thus cattle numbers seem likely to be on a new uptrend by 1960-62.

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Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Service and United States Department of Agriculture Cooperating, Skuli Rutford, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

UNIVERSITY OF MINNESOTA
Institute of Agriculture
Agricultural Extension
St. Paul 1, Minn.

SKULI RUTFORD, Director

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