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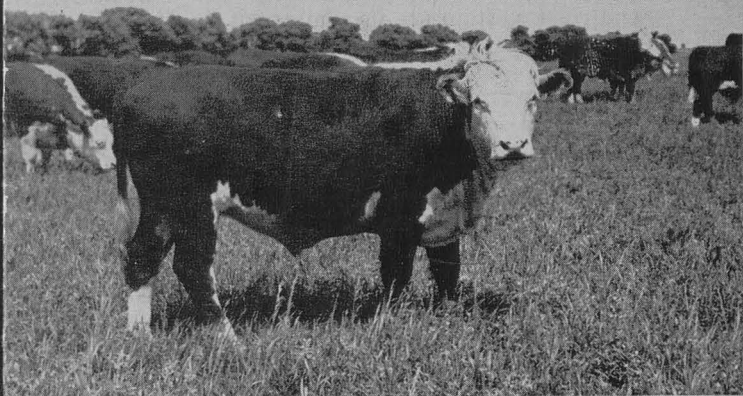
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PASTURE FEEDING

of Beef Cattle



S. B. CLELAND and W. E. MORRIS

UNIVERSITY OF MINNESOTA
Agricultural Extension Service
U. S. DEPARTMENT OF AGRICULTURE

Save Corn by Using Roughage

Risk of Bloat

There is always some danger from bloat when cattle are on pasture, but there are safety measures which help to reduce the risk. The first of these is to have a high percentage of brome in the pasture mixture if alfalfa-brome is to be pastured. By using southern bromes, such as Lincoln, Ach-enbach, or Fischer, which develop faster than the northern bromes, and by pasturing only the second year of the stand, a high proportion of brome can be maintained. A seed mixture of 6 pounds of alfalfa, 2 pounds of red clover, and 8 pounds of brome per acre will usually give a high proportion of legume in the first year's growth (used for hay) and a high proportion of brome the second year (used for pasture).

Never allow the cattle to go on pasture while hungry—that's another rule of experienced pasture feeders. Usually the cattle are kept on pasture all the time, with the grain and water supply convenient so they are encouraged to feed again before they get too hungry.

Keeping dry hay or even straw before the cattle at all times is another precaution. A stack bottom in the pasture is often sufficient. If there is no dry feed supply, mowing down a patch of the pasture once a week or so will often help. The cattle will pick this up as it lies. This dry feed provides an irritant in the digestive tract to induce belching and relieve the gas pressure.

The good feeder, in spite of all these precautions, usually has some plans in mind in case bloat does occur. He will know how to reach a veterinarian quickly and if necessary how to assist a bloated animal before help arrives.

Most farmers in corn-growing counties agree that the best use of corn land is to raise corn on it, up to its long-time production limit.

But hay and pasture must usually be grown to keep up long-time corn yields; pasture feeding is one way to turn that roughage into income.



A shed with an overhead track reduces labor of handling silage. Note feed wagon at end of track for convenience in feeding.

Lot Records

Many cooperators of the Farm Management Services keep lot records as part of their program of studying their cattle feeding operations. A lot record statement shows the number, weight, and price of cattle bought (with date of purchase and other information); the kinds and quantities of all feed fed to this lot, including dates on and off pasture; number, weight, and price of cattle sold out of this lot.

From this information a feeder can calculate not only how much money he made from one operation but also whether the methods he used with this lot were better or poorer than other methods. Lot records are valuable for comparing pasture feeding with other ways of fattening cattle. Lot records are simple enough for any feeder

Feed Lot Records of Mr. Jones, Averages of Farms Feeding on Pasture and Farms Feeding on Dry Lot*

	Mr. Jones†	Averages of farms feeding on pasture basis†	Averages of farms feeding on dry lot basis†
Number of lots	3	44	46
Feed per 100 pounds gain:			
Corn, pounds	459	611	718
Small grain, pounds..	0	22	29
Protein concentrates, pounds	8	40	57
Hay, pounds	304	256	283
Silage, pounds	874	481	405
Cost of feed per 100 pounds gain	\$16.20	\$20.08	\$21.95
Return over feed costs, per 100 pounds gain..	\$17.37	\$19.92	\$13.13
Number of days on farm	325	278	211
Number of days on pasture	115	79	0
Total gain per head, pounds	469	445	363
Daily gain per head, pounds	1.4	1.7	1.8

* Unpublished data, Division of Agricultural Economics, University of Minnesota.

† Same three-year period.

to use, if he follows reasonable care in keeping the records.

Lot records kept by Mr. Jones give him information which he uses to test the advantages of his method. Lot records are especially useful when they can be compared with standards like those shown in the table.

As indicated in the table, Mr. Jones used less corn to produce a hundred pounds of gain than did the average dry-lot feeder. He used practically no protein concentrate. He used more hay and silage. Cost of feed per hundred pounds of gain was less, and—what is especially important—return over feed, his best measure of financial success, was better.

Again, when the 44 lots that were fed on pasture were all averaged in together and compared with the 46 dry-fed lots, the advantage was with the pasture feeding. Less corn was used and a higher return over feed cost was obtained when the cattle were fed on pasture.

Save Corn by Using Roughage

"I want a crop rotation," said Mr. Jones, a southern Minnesota farmer, to his county agent in the spring of 1947. "I've got to have a better cropping program of some kind. Even on level land there is too much soil movement when it rains. Can you help me plan a cropping system that will slow up that soil loss?"

The county agent knew the farm, knew it had good land—rich and productive. He also knew that Mr. Jones was a keen observer and a good operator.

"Any special points that we should watch for in this rotation?" he asked.

"Only this," replied Mr. Jones, "I want all the corn I can raise—half the land in corn if we can do it—and still control erosion."

That was the assignment. With help from specialists at University Farm, Mr. Jones and his county agent laid out and started a rotation. As much land was put in corn as seemed safe—three fields out of seven.

Mr. Jones' rotation is a seven-field one—corn, corn, grain, corn, grain, hay, pasture. There are 164 acres in these seven fields, a little over 23 acres to a field. Each year this gives him 70 acres of corn, 47 acres of small grains, 47 acres of hay and pasture. A hog-pasture rotation and a woods and creek pasture use up the rest of the 252-acre farm.

This rotation makes the large corn acreage possible. Note that each field is seeded down to alfalfa-brome for two of the seven years. During this two-year period, the alfalfa gathers from the air a rich store of nitrogen for coming crops to use. Both of these hay crops, but especially the brome, fill the soil with an abundance of root growth. As this dense root supply rots, it supplies the humus for good soil structure. This liberal root content also gives the soil a spongelike character that helps it to resist erosion and hold water.

Roughage Must Be Used

Planning a rotation is not enough. From his soil-improving rotation, Mr. Jones found he had hay and pasture to use. That's where his pasture feeding of steers comes in.

It is interesting to note that Mr. Jones is not raising hay and pasture because he wants to feed steers. Actually, he is a hog man. If he could plan a cropping system that would do it, he would prefer to raise just corn and hogs. But since he needed to raise alfalfa-brome for soil improvement, he had to have roughage-consuming livestock. He did not want sheep or a beef breeding herd. So again he went to his county agent to get his suggestions.

"What kind of steer-feeding plan can we work out to use this roughage and make a profit?"

That's how he got into the pasture-feeding business. And now that he's in it, he likes it.

How Mr. Jones Feeds Cattle

Here's how his feeding operations work. Each fall, Mr. Jones buys about 50 head of feeders and runs them in the cornstalks and on his alfalfa-brome pasture until cold weather.

He winters them on alfalfa-brome silage from the first crop and dry hay from the second crop. They get a little corn during the winter, but no protein supplement since alfalfa-brome silage and hay are both rich in protein.

In the spring they are turned on pasture, and while on pasture are given a full feed of ground ear corn. Again, no protein supplement is fed as the pasture supplies all the protein needed.

Along about August or September the cattle are sold directly from pasture. Some feeders would give such cattle a dry-lot finish, but Mr. Jones is satisfied with his method of selling. He thinks he makes about as much as though he held them longer. He doesn't have two lots of cattle on hand at the same time, and he can use the money from the sale of the heavy cattle to buy next year's feeders.

Yearling steers in stalk field. These cattle, purchased in August, made good gains on pasture and stalk fields. They had no other feed during the fall.

Making good use of alfalfa-brome silage. The 50 steers in this lot were wintered on the hay from 23 acres of alfalfa-brome, plus about 350 bushels of corn, 7 bushels per steer. First crop of hay went into the silo, second crop was baled.

Cattle were put on full feed of ground ear corn when they went on pasture in May. This field, in hay the previous year, was rich in brome during its pasture year. All three pictures are the same lot of cattle at different stages. They are from the farm described above.



Plan Your Pasture Feeding Program

Beef cattle raisers use a roughage and pasture feeding program to get low cost gains rather than high finish. A program of this kind usually includes these three practices:

1. **Purchase of cattle early** enough in the fall to get some gains on fall pasture or stalk fields.
2. **Heavy feeding of roughage** during the winter.
3. **Good use of pasture** during the spring and summer.

The ways cattle are fed and managed vary but the main goal is to get a big part of the gain in weight from low-cost roughage.

Good and Choice steer calves may be bought early enough to get in a month or so of good fall pasture. If they are bought later, they may go directly to a winter roughage program. If corn silage is available, with alfalfa hay, no additional corn is needed. With no corn silage, but with good legume roughage, 3 to 5 pounds of ground ear corn per head per day is needed.

In the spring they may go on pasture without grain for awhile. Or, they may be put on a full grain feed while on pasture, depending on the amount of pasture to be used and the marketing date. Some feeders like to sell in August or September directly off pasture; such cattle will be full fed all the while they are on pasture.

If the feeder has considerable pasture to use or if he plans to give these cattle a dry-lot finish, he may follow a more limited feed on pasture. Some feeders feed no grain at all during the first part of the pasture season, then get them onto full feed by midsummer. A common practice, with Good to Choice cattle, is to take them off pasture in late summer or fall for a 60- to 90-day dry-lot finish.

Handle Heifers Differently

Heifer calves of Good to Choice Grades are usually started out the same as steers, but because heifers mature earlier, they are pushed for an earlier sale date. Some feeders do not use a heavy roughage program with heifers, preferring to feed them in dry lot throughout. Others carry them through the winter on roughage, but with some-

what more corn than for steers. Then they give them a full feed of corn while on pasture. If the heifers are to be given a dry-lot finish, they should be taken off pasture by August 1.

Light yearling steers (around 600 pounds) of Good to Choice quality may be handled much the same as calves except that often the steers will make better use of stalk fields and other rough pastures than will calves. Heavier cattle (about 750 pounds) are frequently roughed through the winter mainly on roughage, pastured until mid-summer with no grain, then given a 60-day dry-lot finish.

Plain cattle are favored by many feeders because of the possibility of up-grading such cattle by feeding. Yearling cattle of this type can be roughed through the fall on pasture or corn stalks, then wintered on hay and silage and given a 60- to 90-day dry-lot feed for sale in April or May. These spring months are the best time of year for marketing such cattle.

Heavy cattle are not usually given much roughage, either pasture or hay. Most operators want to get heavy cattle onto full feed under dry-lot conditions as quickly as possible. Occasionally, pasture is used at the start, but heavy cattle are

not a normal outlet for heavy roughage feeding.

A beef cow herd, on the other hand, must have large amounts of pasture and winter roughage. The cows subsist almost entirely on roughage and pasture and the growing young stock use large amounts.

Calves born in the spring run with their mothers, and feed and labor costs are low. The calves may be fattened on dry lot the first winter and sold in the spring or summer. Or, they may be carried throughout the winter and handled like purchased calves. A cow herd and feeder cattle need separate pastures.

Watch the Financing

If the feeding program is stretched out as in some of these methods, the financial problem should be considered. It may be necessary to buy the second lot of feeders before those on feed are ready to be sold.

If financing can be arranged and if plans for pastures, feed lots, and shelter do not conflict, such overlapping may be profitable. But the operator should be sure of his financing or he might have to sell cattle before they are ready in order to take on the next lot.

Dry chopped hay being fed in the yard. A labor-saving method of winter roughage feeding.



Other Rotations

There are other good rotations besides the one used by Mr. Jones. Before any rotation is adopted, however, it should be thoroughly studied, first in connection with the soil types, contour of land, and other land characteristics, and also in relation to the use of roughage, availability of labor, and other factors. Just because it is a rotation does not mean it is the best cropping system for your farm.

Five-field rotation—Corn, corn, grain, hay, pasture. This puts 40 per cent of the land in corn, 20 per cent in grain, 40 per cent in hay and pasture.

A new field of alfalfa-brome is seeded each year, and the old one is plowed up. This is a popular corn belt cropping system that fits well on farms that are fairly level.

Six-field rotation—Corn, grain, corn, grain, hay, pasture. Each year one field of grain is seeded to alfalfa-brome, and the other grain field is seeded to a green manure crop, such as sweet clover. One-third is in corn, one-third in grain, one-third in hay and pasture.

Five-field rotation—Corn, grain, corn, grain, hay. A legume-grass mixture is seeded every other year and left in for two years. On alternate years, a green manure crop is seeded with the grain. This puts 40 per cent in corn, 40 per cent in grain, 20 per cent in hay. Suitable only for level land.

Four-field rotation—Corn, corn, grain, hay. Hay is seeded every other year as in the rotation above. This puts half the land in corn, one-fourth each in grain and hay. This calls for a very level farm where soil erosion is not a problem and with soil that will stand the severe cropping indicated here.

If pasture feeding is to be followed with the third and fourth rotations, cattle will have to be pastured on a first-year stand of alfalfa-brome every other year. Some farmers feel that this increases the risk from bloat because of the larger proportion of alfalfa in the mixture during the first year.

With Pasture Feeding . . .

- You use less corn.
- You use hay and pasture.
- You enrich your soil.



You should have a field water supply unless all fields to be pastured are close to the buildings. Cattle should not have to go far to reach the feed bunks and water supply, especially when they are carrying considerable flesh.

Why Not Raise More Hay and Keep More Cattle?

If pasture feeding is so good, why don't Mr. Jones and other farmers raise more hay and pasture and feed more cattle? We asked Mr. Jones that question and here is his answer:

"I raise alfalfa-brome so I can raise the maximum quantity of corn, acres and yield both being considered. My land is corn land and I want all the corn I can get. I don't mean acres only. I'm after the largest number of bushels of good corn that I can depend on year after year.

"To get that production, I have to have some hay and pasture, and I need the manure that the cattle supply. If I could leave out the alfalfa-brome and leave out the cattle, and still get that high corn production, I would do it. But I don't think I can leave them out.

"As for more acres of hay and pasture, and therefore fewer acres of corn, I don't think it would pay. My objective is maximum corn production. Since I must raise alfalfa-brome, I like my plan of pasture feeding steers as a logical method of cashing in on the roughage I raise."

UNIVERSITY FARM, ST. PAUL 1, MINNESOTA

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