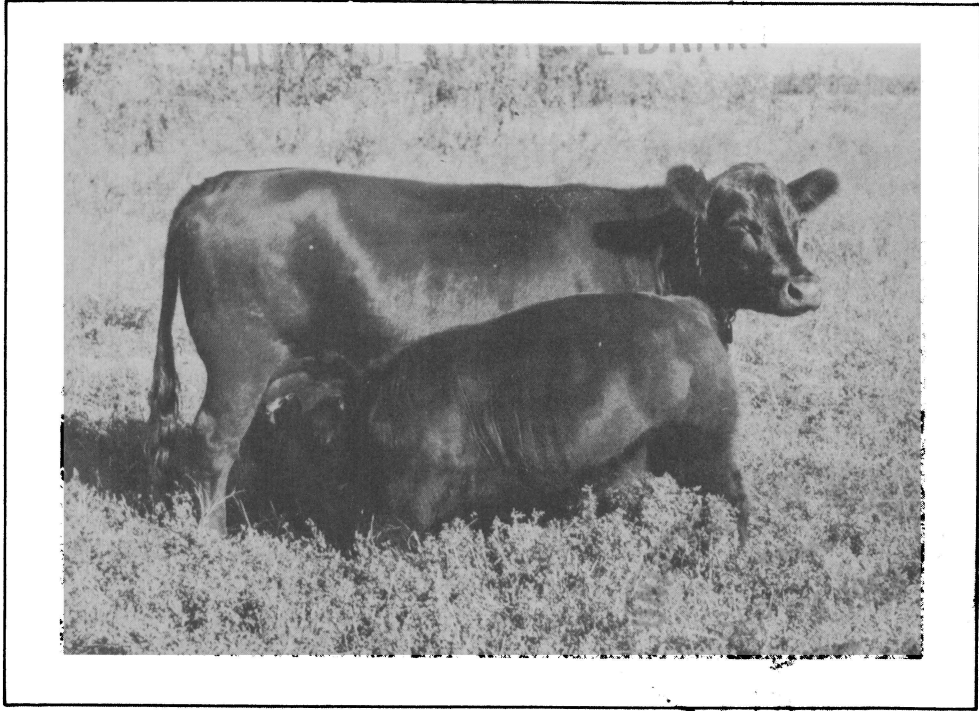


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The **COW** *and* **CALF**

(A 4-H Beef Production Project)



University of Missouri
4-H Club Cir. 116

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The Cow and Calf

(A 4-H Beef Production Project)

The beef project, whether it be breeding heifer, cow and calf, or beef herd management is popular with Missouri 4-H boys and girls. Here are some reasons why this is true.

Beef production projects fit in with operations on the average farm. Neither special equipment nor special feeds are needed. Plenty of good hay and pasture and a small amount of grain are the feeds needed in this project. Most Missouri farms can furnish the pasture and hay and the small amount of grain needed.

From a money standpoint, these projects offer the chance of a good return on your investment. By good project management many a 4-H'er has saved funds for use in his education.

Also, beef production projects give the 4-H member an excellent opportunity to learn practical management—experience useful in later years on almost any Missouri farm.

These projects are continuous ones, for the member has his project animals on hand at the beginning of each club year. And building up a herd with which to start farming on his own makes the project attractive to farm boys or girls.

SELECTING BREEDING STOCK

You may use either registered or grade animals. Registered animals should be good individuals of a popular breed from a family of good producing cattle. In selecting animals, remember the heifer or cow chosen will in most cases be the foundation animal for your beef cow herd. For this reason, much time and thought should be given to selecting foundation animals. Ask the advice of your club leader, county agent, and successful beef cattlemen when choosing your project animals.

Foundation heifers or cows should be deep-bodied, thick, smooth and well-balanced, with good heads. Cows and heifers should carry plenty of size for age. Avoid the big, rough, ox-like cow and the very small cow.

When buying registered animals, avoid buying off-marked females.

Prepared by William E. Pugh, extension specialist in animal husbandry, in collaboration with Robert S. Clough, state club agent.

Try to buy cows with known production records. If a cow has been a poor producer, chances are that she will do no better for you. Try to see her calves from previous years then you will be better able to judge her production ability. When purchasing heifers, buy one from a good-producing cow for the chances are good that the heifer will be a good producer since she comes from a good-producing line.

When buying cows or heifers, try to buy a bred cow, or cow with a calf at foot — in other words, the 3-in-1 combination. If the services of a good bull are available on your own farm, you might consider buying an open heifer. Generally speaking, it is better to buy a bred heifer that is carrying the service of a good bull. When you buy bred heifers or cows with calf at foot, you are more certain to buy animals that are breeders

Buy cows or heifers that test clean for brucellosis and tuberculosis. Often, what seems a good investment turns out to be a poor one because disease makes it necessary to dispose of the animals. Avoid buying mature cows that are reacting to brucellosis vaccination. You cannot be sure whether they are reacting from natural infection or from the vaccination. When you buy any animal vaccinated against brucellosis, insist on one that was "calfhood vaccinated" — that is, vaccinated when 6 to 8 months old. Be sure to ask for a vaccination certificate signed by a veterinarian.

WINTERING THE BEEF COW

To make your beef cow project profitable, keep the cow in good condition during the winter. This can be done with pasture, some legume hay, silage, straw, corn fodder, and mineral. There is no need to feed grain to a mature beef cow if she has pasture, hay, and other roughage.

If you have some good bluegrass, tall fescue, or fall-seeded small grain such as rye, barley or wheat, other feed will not be needed except when the pastures are covered with snow or ice. With good grazing, it is much cheaper to pasture-feed your cow as long as you can in fall and winter than to start feeding hay as soon as the first frost hits.

Mineral Mixture — Keep before your livestock at all times a mixture of 200 lbs. steamed bonemeal and 100 lbs. of salt.

Bonemeal furnishes the phosphorus and carries enough calcium to make strong bones and to keep vital processes of the body functioning. Salt furnishes sodium and chlorine which help maintain osmotic pressure in cells. Blood is much richer in sodium and chlorine than in other minerals. Mineral also helps in the digestion of rough feed.

SUGGESTED WINTER RATIONS

	RATION 1	RATION 2	RATION 3	RATION 4
Legume Hay Red Clover, Alfalfa	6-10 lb. per head daily	None	6-10 lb. per head daily	None
Cottonseed Meal <i>or</i> Soybean Meal <i>or</i> Linseed Meal	None	1-2 lb. per head daily		1-2 lb. *
Non-Legume Hay Fodder and/or Straw	All they will eat	All they will eat	All they will eat	All they will eat
Corn Silage <i>or</i> Sorgo Silage <i>or</i> Grass Silage			20 lb. 30-40 lb. 40-50 lb.	20 lb. 30-40 lb. 40-50 lb.

*If silage is made from mixtures containing a high percentage of early-cut legumes such as alfalfa, ladino or red clover, then soybean, cottonseed or linseed meal will not be necessary.

Green leafy hay and green silage carry enough vitamin A to supply the needs of beef cattle. When these feeds are not available, vitamin A supplements must be fed.

PASTURE

A beef cow is a "machine" to turn grass into milk and beef. Therefore, you will need to furnish plenty of pasture of the right kind at the right time so your cow can produce a larger calf. Beef cattle can be produced almost exclusively on pasture and good roughage.

Suggested Pasture System

EARLY SPRING AND EARLY SUMMER	SUMMER	FALL AND WINTER
Tall Fescue and Ladino	Lespedeza	Tall Fescue
Orchard Grass and Ladino	or	Bluegrass
Alfalfa and Brome	Legume Pasture	Timothy
Bluegrass		
Timothy		

Changing your cows from one pasture to another every 3 to 4 weeks will keep them on fresh-growing pasture.

Good pasture is high in protein, minerals, and vitamins — all necessary to keep cattle thrifty and doing well. Plenty of good pasture saves labor. For you do not need to haul feed to cattle on good pasture, nor will you need to put up as much feed for winter use.

There are times during the year when certain grasses or legumes produce better than others. For instance, bluegrass, fescue, orchard grass, timothy, and red top produce well in the spring and early summer. However, during the hot dry months — July, August, and September—these grasses become dormant and do not produce maximum gains. Lespedeza, unlike the grasses named above, gets off to a late spring start, but grows and makes good pasture during the hot, sometimes dry, summer months. Lespedeza is killed by the first heavy frost. Often,

grasses dormant during the summer months grow again with cooler weather and fall rains and are available after frost kills the lespedeza. For these reasons a pasture system that furnishes the right grasses at the right time will produce the most gains on your cow and calf and make your heifer grow into a well-developed cow.

Legumes such as ladino clover tend to produce bloat in cattle. However, if legumes are mixed with plenty of grass, there is less danger of bloat. If your pasture has a high percentage of ladino, it is much safer to let the cows also run in another pasture of straight grass such as bluegrass, timothy, fescue, or orchard grass.

If your cattle bloat, drenching them with 2 ounces of turpentine in one pint of milk sometimes helps until you can obtain the services of a veterinarian.

TIME OF CALVING

Experience of farmers who handle cows and calves shows that early calves, those dropped between January 1 and March 1, are the most profitable. Early calves, if sired by a good bull and on good pasture, will weigh 500 lbs. or more in the fall when weaned. When you turn your cow out to pasture in the spring, she will give a big flow of milk. If the calf is an early one, it can take the milk and you will not need to get the cow up for milking. When lespedeza pasture comes on in the summer, the calf will be big enough to eat lots of it and will put on weight. A heavy calf will mean more income from your cow. The only additional expense might be a little extra hay for the cow and the small amount of pasture the calf will eat.

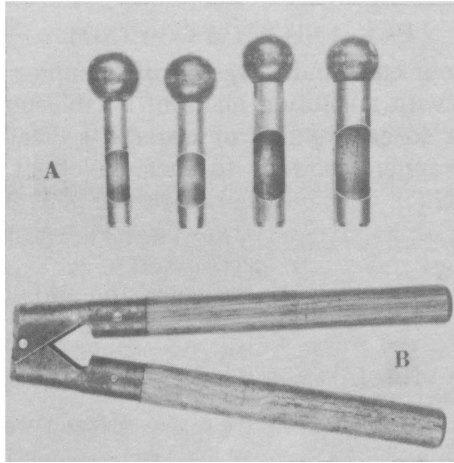
USE A GOOD BULL

Breed your cow to the best bull available either on your own farm or in the community. The use of the best bull you can find will help you produce better calves that will bring higher prices either when sold as feeder calves or as registered animals. In most cases it is preferable to breed your cow or heifer to a bull of the same breed. A good calf sired by a good bull will bring \$3 to \$8 per cwt. more than a calf from the same cow sired by a common bull.

DEHORNING AND CASTRATING

All horned cattle, except purebreds, should be dehorned when the calf is one to three weeks old. A dehorning tube or one of the commercial dehorning preparations may be used satisfactorily at this time.

Castrate bull calves, except those purebreds to be sold or kept for breeding purposes, when three days to three weeks old. If done at this time, it is easier on the calf and the job is less difficult than if you wait until the calf is older.

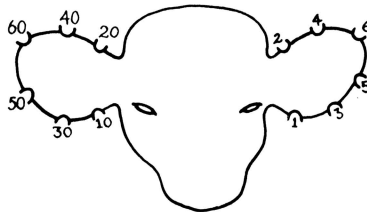


Dehorning tools. (A) The four sizes of dehorning tubes. (B) Barnes type calf dehorner.

IDENTIFICATION

All major beef breed associations require that all registered beef cattle be tattooed for identification purposes. The best time to do this is when the animal is small and can be handled easily. Contact the breed association of your particular breed for instructions and the system to follow.

Also, identification of grade animals is desirable. One good system used by many cattlemen is that of ear notching. This job is done easily and animals with notched ears can be identified even in the pasture without getting them into a chute. In this plan, notches in the ear represent certain numbers as shown in the illustration.



Ear notching system for identifying calves.

Almost any combination of numbers can be worked out with this system. For example, to identify up to 6 calves you would need only one notch. For more than 6, you would need more than one notch to be determined by the combination of two or more numbers.

FLY AND LICE CONTROL

Keep flies off your cows and calves during summer months by spraying every 21 days with a solution made of 3 tablespoons of 50% wettable DDT powder to each gallon of water. Or, use 3 tablespoons of 40% wettable Toxaphene powder to each gallon of water. Or, 50% wettable methoxychlor may be used at the rate of 3 tablespoons per gallon of water. For good results, be sure to wet the cow and calf thoroughly with any of the mixtures named above.

To control lice, spray the animal thoroughly with one of the following mixtures:

A spray made of $\frac{1}{3}$ tablespoon 25% wettable Lindane per gallon of water; or $\frac{1}{4}$ lb. to 25 gallons of water

A spray made of 3 tablespoons 40% wettable Toxaphene per gallon of water; or 2½ lbs. to 25 gallons of water.

A spray made of 3 tablespoons 50% wettable DDT per gallon of water; or 2 lb. to 25 gallons of water.

Start treatment for lice about November 1, and repeat in 15 days.

MARKETING

If you are handling registered animals, bull calves should be fed after weaning in the fall and sold the following spring when 14 to 16 months old.

Only those calves that show prospects of making deep, thick, short-legged, good-headed bulls should be sold for breeding purposes. All other bull calves should be castrated and sold as feeder steers or fed out on the farm.

It will pay to have bulls in good condition when you offer them for sale because a young bull to do well as a breeder must be in good condition when turned out with a herd. If you sell a registered bull, you will have to guarantee him to be a breeder and to perform satisfactorily. You will have fewer complaints if you sell your bull in good condition at 14 to 16 months old.

Start the bull eating at weaning time from a mixture consisting of 60 lbs. corn, 30 lbs. oats, and 10 lbs. linseed, cottonseed, or soybean oil meal. Gradually shift him to one of the rations given on page 9.

Keep a mineral mixture of 200 lbs. bonemeal and 100 lbs. salt before the bull at all times.

Steer calves weighing 500 to 600 lbs. at weaning time can be full fed for 90 to 120 days and should produce a market animal weighing 700 to 800 lbs. Feed in the same manner as suggested above, but omit the oats as soon as the calf is eating well. Finish on a ration of 10 parts corn and one part protein supplement.

At weaning time, you may choose to sell as feeders steer calves, and heifer calves not suitable for breeding. If a feeder calf sale is held



A cow and calf beef project is popular with Missouri 4-H club girls and boys.

in your county or in an adjoining county, consign your calf to the sale where it will sell on its merits.

SUGGESTED RATIONS FOR BULL CALVES

	RATION 1	RATION 2	RATION 3	RATION 4
Roughage Red Clover Early-cut Lespedeza Clover & Grass Corn Silage	4-5 lb.	4-5 lb.	4-5 lb.	16 lb.
Grain Corn Oats	7 lb. 5 lb.	7 lb. 5 lb.	7 lb. 5 lb.	6 lb. 4 lb.
Protein Supplement Soybean or Cotton- seed or Linseed Meal	1-1¼ lb.	1-1¼ lb.	¼ — 1.5 lb.	1.5 — 2 lb.

CARE OF HEIFER CALVES

Heifer calves to be retained in your herd should be vaccinated against brucellosis when 6 to 8 months of age. Just prior to the time of vaccination a blood sample should be taken to determine if the heifer is already reacting from natural infection. If the reaction is positive, the animal should be sold. At breeding time another test should be made.

Heifer calves to be retained in your herd should be developed into good useful cows. This may be done with mostly good legume hay and pasture and a minimum amount of grain. Remember, the heifer is growing and should be fed a ration that contains sufficient protein. Rations as shown below will give gains of 1 to 1½ lbs. per day, which is satisfactory for most farm conditions.

SUGGESTED RATIONS FOR HEIFER CALVES

	RATION 1	RATION 2	RATION 3	RATION 4
Corn Silage	15-20 lb.	18-20 lb.		
Lespedeza Hay	4-5 lb.			15 lb.
Soybean, Cottonseed or Linseed Meal*	1 lb.			½ lb.
Legume Hay (Alfalfa or Red Clover)		5-6 lb.	15 lb.	
Corn			2-3 lb.	2-3 lb.

*3 to 4 lbs. oats may be substituted for the soybeans, cottonseed, or linseed meal in the rations listed above.

The heifer must be wintered well and then go out on good pasture to develop well before breeding. Breed the heifer to calve at 24 to 26 months of age.

The bred heifer should gain 1½ lbs. per day during the winter before she calves. Rations that will ordinarily produce this much gain are shown below. Feed one of the following rations:

SUGGESTED RATIONS FOR BRED HEIFERS

	RATION 1	RATION 2	RATION 3	RATION 4
Corn Silage	25-35 lb.			
Legume Hay	6 lb.	5 lb.		25 lb.
Non Legume Hay		20 lb.	25 lb.	
Corn & Oats (Equal Parts)		3-5 lb.	3-5 lb.	3-5 lb.
Soybean, Cottonseed or Linseed Meal			1½ lb.	

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DEPARTMENT OF AGRICULTURE COOPERATING

J. W. BURCH, Director, Agricultural Extension Service
Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914

4 - H RECORD



BEEF PRODUCTION

Name _____ Age _____

Address _____ County _____

Name of 4-H Club _____ Name of Club Leader _____

Project Leader _____ Junior Project Chairman _____

Club meetings attended during year _____ Project meetings held _____

Number attended _____ Number of units in complete project _____

Number of demonstrations given at:

Club meetings _____, Project meetings _____, County meetings _____

District meeting _____, State meeting _____.

Number of times participated in Judging work in:

Project meetings _____, Co. _____, Dist. _____, State _____, Interstate _____.

Number of exhibits made in:

Community _____, Co. _____, Dist. _____, State _____, Interstate _____.

Participated in:

County Achievement _____, District Round-up _____, State Contest Program _____,

National Contests _____, County Fair or Show _____, District Fair _____, State

Fair _____, Interstate Show _____, Marketing Days _____, County Camp _____,

District Camp _____, State Camp _____, National Camp _____, National Club

Congress _____, News stories published _____, Radio programs participated in _____.

Served on _____ Standing Committee.

4-H Activity selected by club for this year _____

Brief of club achievements in club activity, health and recreation _____

_____ Year _____

PROJECT RECORD

BABY BEEF PROJECT

Date record started _____

Number of beeves fed..... _____

Breed of calves fed _____

Weights of animals at start of the project _____

Grains fed _____

Kinds of supplement fed _____

Kinds of roughage fed _____

Kinds of mineral fed _____

Financial Summary *

Original cost of calves..... _____

Bushels of corn fed _____ Value..... _____

Bushels of other grain fed _____ Value..... _____

Pounds of supplement fed _____ Value..... _____

Pounds of roughage consumed _____ Value..... _____

Other cash expense _____

Total..... _____

Total receipts less market expense..... _____

Profit..... _____

Number of days on feed..... _____

Average daily gain _____

Final weight..... _____

Cost of producing 100 pounds gain..... _____

*Transfer feed totals from Feed Record Sheet #445 provided to all club members in livestock projects.

STEER FEEDING PROJECT

Number of steers fed.....
Breed and quality of steers fed _____
Average weight of steers at start.....
Grain ration fed during first winter _____
Roughage fed during first winter _____
Kinds of pasture used during spring and summer _____
Date steers were started on full grain feed _____
Number of days of grain feeding
Bushels of corn consumed per steer.....
Pounds of concentrate consumed per steer

Financial Summary*

Cost of steers
Cost of grain.....
Cost of concentrate
Value of pasture consumed
Other cash expense

Total Cost.....

Final weight average _____ Total.....
Cents per pound received
Total sales
Average daily gain
Cost of 100 pounds gain.....

BREEDING HEIFER

Date record started _____
Breed of heifer _____
Registry number, if registered.....
Age of heifer at start of project.....
Weight of heifer at start of project.....
Cost of heifer.....
Kind of pasture used _____
Kind of roughage fed _____
Date project closed _____
Weight of heifer at close of project.....
Value of heifer at close of project.....
Date heifer was bred _____

*Transfer feed totals from Feed Record Sheet #445.

COW AND CALF PROJECT

Date project started _____

Number and value of cows at start of project _____

Number and value of young stock, if any, at start of project _____

Number and cost of animals purchased during year _____

Breed _____ Registered or grade _____

*Total value of grain and concentrate consumed by cows during year _____

Total value of grain and concentrate consumed by calves up to time of close of project record _____

Number of days, if any, cows received concentrate feed _____

Kind and amount (in acres) of pasture used _____

Kind and amount of roughage fed _____

*Transfer feed totals from Feed Record Sheet #445.

Weight Table

Date of calves dropped in year 19__	Date of final weight	Final Weight	Total gain allowing 80 lbs. for weight at birth
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____

Total Gain _____

Average daily gain of all calves..... _____

Received from sale of calves _____

Received from sale of original stock _____

Value of breeding herd at close of project _____

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