

## **MSU Extension Publication Archive**

Archive copy of publication, do not use for current recommendations. Up-to-date information about many topics can be obtained from your local Extension office.

Economic Considerations for Small Herds of Beef Cows

Michigan Beef Production

Michigan State University Extension Service

Harlan Ritchie, Michigan State University and Virgil Crowley, Pennsylvania State University

Issued April 1986

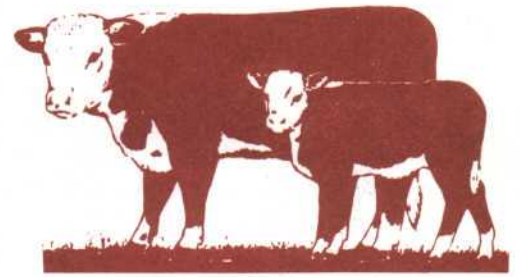
4 pages

The PDF file was provided courtesy of the Michigan State University Library

**Scroll down to view the publication.**



# MICHIGAN BEEF PRODUCTION



COOPERATIVE EXTENSION SERVICE • MICHIGAN STATE UNIVERSITY

## Economic Considerations for Small Herds of Beef Cows

*By Harlan Ritchie, Michigan State University and  
Virgil Crowley, Pennsylvania State University*

The average size of beef cow herds in the United States is about 50 cows and in the Northeast sector of the United States the average beef cow herd has less than 30 cows. Thus the small beef cow herd is an important source of both feeder and slaughter animals.

### POTENTIAL FOR THE SMALL BEEF HERD

The beef cow enterprise has an appeal for many people including both full-time and part-time farmers. The appeal largely stems from the following factors which generally are considered advantages of the enterprise:

- relatively low labor requirements.
- the enterprise does not require intense management, except during calving season.
- specialized buildings and equipment are not required.
- the beef cow can utilize roughage that otherwise might go unused.
- the enterprise adapts readily to a variety of farm situations.
- the enterprise provides personal gratification.

While the preceding factors tend to lead to increases in the beef cow enterprise there are also factors which tend to restrict increases. These could be considered disadvantages of the enterprise, and they are:

- net returns per unit tend to be low.

- income from the enterprise is usually received only once a year in one lump sum.
- the units are small.
- high land prices tend to limit opportunities for expansion.
- the enterprise requires regular year-round attention.

While the advantages appear to be greater than the disadvantages the low net returns per unit and the difficulties of expanding the enterprise often discourage those with beef cow herds and act as deterrents to those considering starting a beef cow herd. While economic returns are often not the prime consideration of individuals starting a beef cow herd, over the long run they tend to be the determining factor affecting the increase or decrease of beef cow numbers.

### ECONOMIC RETURNS FROM THE BEEF COW HERD

The economic returns from this enterprise are a function of the costs associated with the enterprise and the income which the enterprise generates. There are different measures of economic return: (1) returns minus total costs; (2) returns minus variable costs; (3) returns minus cash costs; and perhaps others.

**Costs** — The costs of the beef-cow herd can be divided into two categories—(1) fixed or overhead and (2) variable or production.

**Fixed Costs** — These are costs the operator has even when there is no production. Some of the fixed costs are cash costs and others are non-cash costs. Fixed costs which are cash costs include insurance on buildings, and equipment plus taxes on the buildings used in the enterprise. Non-cash fixed costs include depreciation of

buildings and equipment and interest on the investment. If the capital invested in the enterprise is borrowed then the interest becomes a variable cash cost. Also there are situations in which cash rent and wages for an employee are cash fixed costs.

**Variable Costs** — These are the costs associated with the production process and in a beef-cow enterprise would include feed, breeding costs, repair and maintenance of buildings and equipment, insurance, machine expenses, interest on any borrowed capital, trucking, fence maintenance and minerals and salt. These expense items are directly associated with production and if the beef-cow herd were sold these costs would cease. Most of the variable costs are cash costs, or what are often called "out-of-pocket costs." A producer trying to improve income by reducing costs can often make substantial changes in the area of variable costs, but only limited, if any, changes in fixed costs.

To effect changes in any of the costs one must know what those costs are and what they have been in past years. Records provide a history of the past performance of all farm enterprises and are a must for the farmer who wants to exert any control over costs.

**Returns** — Income from a beef cow herd comes from the sale of calves, breeding stock and cull animals. There are many variations in the way the enterprise is operated; however the majority of calves from beef cow herds are marketed as feeder calves. These calves are sold at weights which mostly range from 300 to 600 pounds

Other beef cow herd operations include one in which the calves are creep fed, put on full feed at weaning, and sold as slaughter cattle at a relatively young age (12-15 mos.). Another type of operation is one in which the calves are weaned, kept on the farm, wintered and sold as yearling feeder cattle the following year. This provides a method of increasing the pounds of beef sold with only limited additional labor or capital being required. An operation in which the calves are raised, weaned, wintered and then put in the feedlot and finished at 15-24 mos. is another type of beef cow enterprise. Also there is the beef cow operation which involves the production of breeding stock. This is usually a purebred herd where the cattle are registered in their breed associations and the top calves are retained for breeding stock to be used for replacements and sale to other operators with beef herds.

Table 1. An Annual Beef Cow & Calf Budget — Calf Sold as Feeder  
90% Calf Crop — Avg. Calf Wt. 487 lb. — Avg. Cow Wt. 1,000 lb. — Culling Rate 16%

Item	Quantity	Rate	\$ Value	Your Farm
<b>RETURNS</b>				
Sale of calf	487 x .9 x .84	70.00/cwt	257.72	_____
Sale of cull cow	1,000 x .16	40.00/cwt	64.00	_____
<b>TOTAL RETURNS</b>			321.72	_____
<b>COSTS</b>				
<i>Variable Expenses</i>				
Veterinary & drugs			7.00	_____
Breeding charge			11.00	_____
Machinery & fuel costs			15.00	_____
Utilities			3.00	_____
Supplies			4.00	_____
Repairs & maintenance			15.00	_____
Marketing & transportation			6.00	_____
Hired labor			6.00	_____
Hay	2.5 T.	\$45/T.	112.50	_____
Pasture	2.25 T.H.E.*	\$20/T.H.E.*	45.00	_____
Salt & mineral	40 lb.	12¢/lb	4.80	_____
Grain	180 lb.	5¢/lb	9.00	_____
Supplement	50 lb.	13¢/lb	6.50	_____
Interest on ½ variable costs	\$122.40	15%	18.36	_____
<b>TOTAL VARIABLE COSTS</b>			263.16	_____
<i>Fixed Costs</i>				
Interest on investment in cows		\$500 x 15%	75.00	_____
Depreciation, interest & taxes on bldg. & equip.			22.00	_____
Insurance			3.00	_____
<b>TOTAL FIXED COSTS</b>			100.00	_____
<b>TOTAL COSTS</b>			363.16	_____
Returns minus variable costs			58.56	_____
Returns minus total costs			(41.44)	_____

\*T.H.E. = tons hay equivalent

## ESTIMATING COSTS AND RETURNS

The costs and returns from a beef cow enterprise can be shown on a per cow basis with an enterprise budget. The figures in Table 1 represent averages, and are not for an individual operation. The prices shown are not necessarily those being paid currently.

The returns shown are subject to change with a change in any of the components of the budget; however, two areas where changes can bring significant shifts in income are the selling weight of the calf and the percentage of calf crop the operator gets from the cow herd.

As was pointed out, it is highly unlikely that the budget shown will duplicate any individual farm operations; however, a farmer with a beef cow and calf operation can use the budget as a guide and substitute his figures for those in the budget and determine the return per cow for his beef cow enterprise.

The returns figures shown in the enterprise budget should emphasize to each operator how essential and how important records are. The budget shown

represents at least average management so the operator whose management is below this level would probably experience lower returns. In this particular budget, returns minus variable costs are positive, but returns minus total costs are negative.

The only way to determine how your operation stacks up is by keeping records. Remember that your costs may be more or less than those shown and you may sell your product for more or less. Work out your own enterprise budget based on *your* costs and *your* returns.

## Calculating Investment and Income For the Beef Cow Enterprise

A major item affecting fixed costs on present commercial beef cow and calf operations is the capital invested. Capital requirements are relatively large for an adequately sized operation. The total capital requirements for a cow and calf enterprise can be determined as shown in Table 2.

Table 2. Determining Total Capital Requirements of the Beef Cow and Calf Enterprise

Requirements	YOUR FARM	Investment
<i>Land Value</i> (acres used by the cow herd)		
Cropland _____ acres x _____ value per acre		\$ _____
Permanent pasture _____ acres x _____ value per acre		\$ _____
Rotation pasture _____ acres x _____ value per acre		\$ _____
Woodland pasture _____ acres x _____ value per acre		\$ _____
<b>Total Value of Land</b>		\$ _____
<i>Buildings and Equipment</i> (used by the cow herd)		
Value of barns		\$ _____
Value of silos		\$ _____
Value of equipment		\$ _____
Value of scales, lots, feed bunks		\$ _____
<b>Total Value of Buildings and Equipment</b>		\$ _____
<i>Livestock</i>		
Value of beef cows (No. _____ x _____ value)		\$ _____
Value of replacement heifers 0-12 mo. (No. _____ x _____ average value)		\$ _____
Value of replacement heifers 12-24 mo. (No. _____ x _____ average value)		\$ _____
Value of bulls (No. _____ x _____ value)		\$ _____
<b>Total Value of Beef Herd</b>		\$ _____
<b>Total investment in land, bldg. &amp; equipment &amp; cattle</b>		\$ _____
<b>Average Investment per Cow</b> $\left( \frac{\text{Total investment}}{\text{No. of cows}} \right)$		\$ _____

The operator has limited control over the fixed costs, and the only opportunity he has to change them is in the planning stage before capital is committed to a building, equipment and machinery. Fixed cost per unit of production can sometimes be reduced by using facilities more intensively.

The operator can exert some control over the variable costs through the exercise of cost accounting and attention to detail. For example, feed is one of the major items of variable costs in livestock production

and the beef cow and calf can easily be overfed if proper attention is not given to the kind and amount of feed used. Veterinary and drug costs can often be reduced simply through proper feeding and sanitation measures. Repair bills on buildings and equipment can be reduced through good maintenance programs.

The impact of costs on returns can be easily illustrated by estimating the returns to the beef cow enterprise as shown in Table 3.

**Table 3. ESTIMATING RETURNS — — YOUR FARM**

**RETURNS TO THE ENTERPRISE**

*Sale of Feeder Calves*

No. of calves sold \_\_\_ x market wt. per hd. = \_\_\_ lbs.

Lbs. of calves sold \_\_\_ x market price per cwt. = \$ \_\_\_\_\_

*Sale of cull cows*

No. of cows sold \_\_\_ x market wt. per head = \_\_\_ lbs. x \_\_\_ market price per cwt. = \$ \_\_\_\_\_

**COSTS**

*Feed*

\_\_\_ cwt. salt & minerals x \_\_\_ price per cwt. = \$ \_\_\_\_\_

\_\_\_ cwt. grain x \_\_\_ price per cwt. = \$ \_\_\_\_\_

\_\_\_ tons hay x \_\_\_ price per ton = \$ \_\_\_\_\_

tons of H.E. in pasture x \_\_\_ price per ton = \$ \_\_\_\_\_

tons of silage x \_\_\_ price per ton = \$ \_\_\_\_\_

**Total Feed Costs** \$ \_\_\_\_\_

*Other Variable Costs*

Breeding (bull upkeep or AI) \$ \_\_\_\_\_

Veterinary and drugs \$ \_\_\_\_\_

Repairs and maintenance \$ \_\_\_\_\_

Supplies \$ \_\_\_\_\_

Utilities (heat, lights, etc., used for beef cows) \$ \_\_\_\_\_

Machinery and fuel costs \$ \_\_\_\_\_

Hired labor \$ \_\_\_\_\_

Miscellaneous \$ \_\_\_\_\_

Marketing and transportation \$ \_\_\_\_\_

Interest \$ \_\_\_\_\_

**Total Variable Costs (feed and other)** \$ \_\_\_\_\_

*Fixed Costs*

Depreciation on buildings equipment & livestock \$ \_\_\_\_\_

Interest on average investment \$ \_\_\_ x interest rate = \$ \_\_\_\_\_

Insurance \$ \_\_\_\_\_

Taxes \$ \_\_\_\_\_

**Total Fixed Costs** \$ \_\_\_\_\_

**TOTAL COSTS** \$ \_\_\_\_\_

Returns minus variable costs \$ \_\_\_\_\_

Returns minus total costs \$ \_\_\_\_\_



MSU is an Affirmative Action/Equal Opportunity Institution. Cooperative Extension Service programs are open to all without regard to race, color, national origin, sex, or handicap.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. W.J. Moline, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension Service or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.