

## University of Missouri Extension

G2006, Reviewed October 1993

# Increase Your Calf Crop by Good Management, Pregnancy Testing and Breeding Soundness Examination of Bulls

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Manage the cow herd for a 95 percent calf crop.

In herds with a 450-pound weaning weight and 95 percent calf crop, you have 428 pounds of calf per cow in the herd to sell. In contrast, an 85 percent calf crop yields only 383 pounds of calf per cow — or 45 pounds less per cow (Table 1).

**Table 1**

Percentage calf crop and average weaning weight determine pounds of calf weaned per cow<sup>1</sup>

Percent calf crop	Weaning weights			
	500	450	400	350
	<b>Pounds of calf weaned per cow in herd</b>			
95	475	428	380	333
90	450	405	360	315
85	425	383	340	298
80	400	360	320	280
75	375	338	300	263
70	350	315	280	245

<sup>1</sup>The percent calf crop weaned equals number of calves weaned divided by number of cows in breeding herd. The pounds of calf weaned per cow equals

### **average weaning weight of calves times percent calf crop.**

A beef cow's critical need for good nutrition for reproduction is 60 days before and 90 days after calving. When you feed cows for maximum reproduction efficiency, their nutritional needs for production will be adequate.

The cow's priorities for nutrition are: maintenance, lactation, growth (in young cows) and reproduction. This means reproduction is the first to go and the last to return in cases of inadequate nutrition.

The thin, underfed cow reduces returns from two calf crops. First, she reduces the weaning weight of the calf she is presently nursing. Secondly, she doesn't become pregnant as quickly, which affects the following calf crop. Underfed cows may not conceive at all during the breeding season following calving.

If the herd is to maintain a 12-month calving interval, with an average 283-day gestation period, there are only 82 days to conceive again after calving.

## **Pregnancy check cows**

Open cows in most herds account for about two-thirds of reduced calf crop percentages, or about 20 percent of lost calf crop in Missouri, where the average percentage calf crop weaned is 70 percent.

In addition, a commercial cattleman can seldom afford to winter a beef cow that is not carrying a calf. The best way to avoid this is by having a competent veterinarian pregnancy-check all cows that should be pregnant in late summer or fall at weaning time.

Research shows that pregnancy examination to detect open cows and replace them with heifers increases the herd pregnancy rate by 13 percent.

The per-head cost is small, depending on (a) size of the herd, (b) facilities for handling, and (c) length of time spent in connection with other veterinary services. The cost saved by not wintering one open cow will usually pay for pregnancy-checking 25 cows.

The main equipment needed is a head gate or squeeze chute. Veterinarians often supply the latter.

Even with pregnancy examinations, you may not get a 100 percent calf crop from cows diagnosed pregnant because disease, environmental stress and stillbirths cause losses.

## **Evaluate bull's breeding efficiency**

Another common cause of lost breeding time is an infertile bull. Often, the producer doesn't discover the infertility for one or more months. Cattle producers in Missouri lose thousands of dollars each year in this way.

A competent veterinarian can examine the bull for breeding soundness and often identify defects that would decrease a calf crop. A physical examination and an evaluation of the semen should be included.

Research shows that an average of 15 percent of bulls are potentially unsatisfactory breeders because of physical defects or poor semen quality, or both. Conception rates from unsatisfactory breeders range from zero to a low percentage. Under a controlled breeding season of 60 days, a reduced conception rate is highly magnified.

### **The electro-ejaculator**

The electro-ejaculator is a practical field tool that allows for fast and relatively easy collection of bull semen. It has the advantage over the artificial vagina of not requiring a trained bull and the quality of the semen greatly exceeds that obtained from rectal massage.

Microscopic examination of the semen at the collection site evaluates motility, concentration and percent abnormality of spermatozoa. While these measures do not always ensure that the bull is a regular breeder, they will determine if his semen is below satisfactory standards.

### **Untruths about electro-ejaculation**

Some people say electro-ejaculation injures the bull, produces abnormal semen and makes the bull reluctant to breed naturally. But no evidence to support these claims was found in ejaculation of more than 10,000 bulls at the Schools of Veterinary Medicine at Colorado State University and the University of Missouri.

There is a certain amount of risk of injury any time a large animal is restrained in a chute. Any natural weakness, such as scrotal hernia, would increase this risk, but these defects would present risk of injury during natural service, too.

### **Physical examination of the bull**

Collection and analysis of semen is an important part of a breeding soundness examination, but it is only a part of the evaluation of a bull's ability to breed. A physical examination must be included. If the bull is crippled, blind, or suffers from other defects, you cannot expect a high conception rate.

Examination of the testicle is important. There is a direct relationship between testicle size and sperm production. The circumference of the testicle should be measured in centimeters. Pay particular attention to the consistency of the testicle along with the preputial sheath and penis. In this way you can identify adhesions, injuries and abnormal growths that would prevent natural service. When found early, some of these conditions can be corrected.

A rectal examination of the internal reproductive organs should also be part of the physical. No breeding soundness examination is complete without it.

### **Advantages of bull evaluation**

It may prevent the total or partial loss of a calf crop. A week seldom passes without one to three clients appearing at the MU Veterinary Clinic with bulls of subnormal fertility. The herd history varies from low conception rate to none at all. In most cases, an examination of the bull would have warned of breeding trouble. The breeding efficiency of a herd can be improved. Routine examination of the bull for breeding soundness may reveal

a bull that is only partially fertile or completely sterile — though he was fertile during the previous season.

## Causes of a reduced calf crop

- Nutritional deficiencies, such as:
  - Inadequate or low-quality forage to meet energy or protein requirements
  - Vitamin A or phosphorus deficiencies.
- Condition of cow before and after calving.
- Use of too high a bull-to-cow ratio, particularly with young bulls.
- Use of subfertile bulls (a subfertile bull causes conception but at a reduced rate).
- Disease in the herd, such as brucellosis, leptospirosis and venereal diseases.
- Heifers with abnormal or structural defects (average 10 percent of all heifers).
- Age, weight and breed effects on pregnancy rate of heifers to calve at two years of age.

## Ways to increase the calf crop

- Use a well planned feeding and pasture program that prevents cattle from being thin for a long time, and supply minerals and vitamins.
- Condition the cow herd for breeding by supplying adequate energy, protein, phosphorus, and vitamin A.
- Obtain and prepare the bull for breeding at least 60 days before breeding season; condition him before breeding. Young, growing bulls may need 8 to 12 pounds of grain daily for high conception rates during the first half of the breeding season.
- Be sure the bull is fertile. Before the breeding season, have the herd sire or sires examined for breeding soundness. Also, a definite 60- to 90-day breeding season will help you identify less fertile breeders and allow you to match the cow herd's nutrition cycle to your forage cycle.
- Supply enough bulls for the cow herd and mating system. While individual bulls have a wide range of ability to settle cows, the following number of pasture-bred cows per bull is average:
  - Yearling bull  
10 to 20 cows pasture-bred
  - Two-year-old bull  
25 to 30 cows pasture-bred
  - Mature bull  
30 to 40 cows pasture-bredHand-mating will increase these numbers. Multi-sire herds reduce number of cows pasture-bred per sire by 15 to 30 percent.
- Pregnancy check all females in the breeding herd. **If you use a single calving season**, pregnancy-check heifers 45 to 60 days after the bull is removed. Cull open heifers and dry cows and pregnancy-check cows with live calves at weaning. Sell all females that are not pregnant.
- Start breeding heifers 30 days before the cow herd and stop 30 days before the end of breeding season.
- Establish a definite breeding season.
- Use a regular blood testing, vaccination, and sanitation program to detect and prevent diseases.

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## Related MU Extension publications

- G2036, Culling the Commercial Cow Herd: BIF Fact Sheet  
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2036>
- G2038, Modern Commercial Beef Sire Selection: BIF Fact Sheet  
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2038>
- G2040, Crossbreeding Systems for Small Herds of Beef Cattle  
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2040>
- G2041, Management Considerations in Beef Heifer Development  
<http://extension.missouri.edu/publications/DisplayPub.aspx?P=G2041>
- G2058, Vitamins for Beef Cattle  
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■ Issued in furtherance of the Cooperative Extension Work Acts of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. Director, Cooperative Extension, University of Missouri, Columbia, MO 65211  
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