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## Achieving Reproductive Efficiency

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Achieving Reproductive Efficiency

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What is reproductive efficiency in terms of the beef cow? By traditional definition, it would be one calf per cow each 12 months. However, there is more to it than just a "calf". We want a heavy weaning calf and would like to do it on the least amount of feed possible to accomplish the task. The number of calves produced per female in the breeding herd is no doubt the single most important factor influencing the income of the cow-calf operation. Increasing the calf crop by 10% is equal to approximately a 50 lb. increase in the average weaning weight of the calf crop. Reproduction in terms of the time the calf is born in relation to the calving season has a direct effect on the weaning weight of the calf. The older the calf at weaning the more it should weigh.

If we are going to talk about reproduction, we should define how we are going to measure it. I like to measure reproductive efficiency in terms of the pounds of calf produced per cow exposed in a specified 40- to 60-day breeding season.

Now let's look at how some of these factors affect the returns from the cow-calf operation. As mentioned earlier, the age of the calf has a direct effect on returns. If we assume a 2 pound per day gain on our calves and a selling price of \$0.40 per pound, every day later that cow is calving costs us an additional \$0.80. This doesn't consider the potential loss in subsequent years, which we will look at later. Multiply that figure by one-half the length of your calving season times the number of cows in your herd and you can see the approximate loss from this source alone. For example,  $\$0.80 \times 1/2$  (90-day calving season)  $\times 100$  cows = \$3,600 potential loss or \$36 per cow. Of course, this is using the average of the calving interval while in reality a higher percent of the calves should be dropped in the first half of the calving season than in the last half.

The cost per pound of calf produced increases rapidly as the percentage calf crop decreases. If we assume an annual cow cost of \$100 and an average weaning weight of 400 pounds, the break-even cost with a 100% calf crop weaned is \$25 cwt. and for a 70% calf crop weaned it is \$35.71 cwt. That doesn't leave much for profit if we are in the 70% calf crop weaned category.

What are some of the reasons for a less than optimum percent calf crop? Some inherent reasons are cows are naturally (1) single ovulators, (2) late reaching puberty (12-15 months), (3) have a long gestation interval, and (4) a long post-partum interval. What do these factors mean? At maximum we can expect a 100% calf crop and a heifer must be near 24 months old before she will calve the first time. If you subtract the length of gestation, 283 days, and the average length of the post-partum involution, 60 days, from 365 days, you find that you have only 22 days on the average in which to get the cow bred back if she is going to stay on schedule. If you slip one cycle, 21 days, each year, this factor alone will cause a cow to be dry one out of every four years with a 90-day breeding season. You might say these factors are the inherited timetable that is preset for the beef cow. Since there is little we can do to change these factors, we must operate at maximum efficiency within the limitations of this timetable.

The number of females in heat at the start of the breeding season is an important factor affecting the efficiency of reproduction. Obviously, cows that do not exhibit heat will not be bred. Cows bred at the first estrus after calving have a lower conception rate than those bred at the second and third estrus. A cow that cycles early in the breeding season has a chance to re-cycle should she not settle to the first service. Length of the calving season, length of the interval from calving to first heat, level of nutrition and age of sexual maturity in heifers all have a very real effect on the percentage of cows that cycle early. The shorter the calving season the higher the probability of that cow cycling early in the subsequent breeding season. In practice, when using 90 days or longer for the breeding season, some cows may not have calved at the start of the subsequent breeding season. Consequently, they will not have the opportunity to be cycling when the bulls are turned out. For best conception results a cow should not be bred for approximately 60 days following calving although she may cycle. This leaves her with little chance of becoming pregnant during the normal breeding season. This points out the importance of culling late calvers. It is extremely difficult to get a late calving cow moved up to be an early calver without skipping a calf. The age heifers reach sexual maturity has a direct effect on whether they will cycle early in the breeding season. Basically, the time at which a heifer first calves in relation to the desired calving season will set her calving schedule for subsequent years.

The level of nutrition plays a very important role in determining the percentage of cows that cycle early. I am not going to attempt to cover the nutritional aspects in this paper other than to say that "adequate nutrition" is a must. For best breeding results, cows should be gaining in weight at breeding time.

Cow conception, no doubt, should be termed the number one area of importance in management since it sets the stage for the total cow-calf operation. The following procedures will aid in achieving reproductive efficiency:

- (1) Select for reproductive efficiency
- (2) Shorten the breeding season
- (3) Breed heifers 20 to 30 days earlier than the cow herd
- (4) Breed heifers for 40 days and cull open heifers
- (5) Have cows gaining in weight at breeding time
- (6) Cull late calvers