



Repro Tracks

► by **Cliff Lamb**, University of Florida

Cost of infertility

Beef producers need cows to become pregnant, deliver healthy calves and wean productive calves to make their operations economically viable. The failure of breeding females to become pregnant directly impacts the economic viability of every beef operation, yet few producers realize how infertility impacts their individual operations.

We have all noticed a significant increase in the value of our calves, replacement heifers, and cull cows and bulls. Recently, I was asked what the cost of infertility to an operation might be. It is not easy to determine this cost because each individual operation has different input costs and may market their cattle differently, but an educated guess may help producers understand the significance of a pregnant cow to their operations.

Fertility issues

How is a beef cattle producer most affected by infertility? Infertile beef cows and heifers can fall into three primary groups: 1) cows that fail to become pregnant during the breeding season (usually 60-120 days); 2) cows that become pregnant but fail to calve; and 3) cows that become pregnant late in the breeding season.

Infertility that leads to the failure of a cow or heifer to calve during the subsequent calving season results in the single largest economic loss to beef producers; this is because no economic return will be realized from those cows for at least one additional year (unless producers have multiple breeding seasons or a split breeding season). Cows that fail to become pregnant during the breeding season do not give producers an opportunity to market a calf, becoming an economic liability to beef production systems.

What contributes to infertility in a beef cattle operation? Beef females fail to become pregnant for numerous reasons, such as anestrus/prepuberty (cows and heifers that do not start their estrous cycles until after the start of the breeding season or even after completion of the breeding season), disease, or suboptimal management. In addition, cows may also become pregnant but fail to calve because they lose their pregnancy at some stage of gestation because of a disease or traumatic event. Either way, the economic impact of cows failing to calve is profound.

Approximately 34.5% of all U.S. beef

producers use pregnancy detection as a management method to determine if cows are pregnant and use the tool to make culling decisions. Pregnancy detection usually occurs about 30-90 days after the end of the breeding season. Pregnancy diagnosis affords producers an opportunity to cull cows that are not pregnant.

However, in an effort to maintain a steady population of brood cows, removing these cows from the herd may reduce a producer's flexibility to cull other cows that may fail to produce thrifty calves, or that should otherwise be culled for more legitimate production characteristics such as poor genetics, temperament, structural concerns and poor health.

For beef producers who fail to use pregnancy diagnosis in their operations, the first opportunity that

they have to determine which cows are not pregnant is after the subsequent calving season. At that point, producers may decide to either retain the cows that failed to calve, or cull those cows prior to the next breeding season. Either way, there is a significant cost to the producer for maintaining those cows for a full year without producing a calf. With no calf sale, costs of supplemented feed, pasture and other expenses directly decrease the lifetime profitability of open cows.

Often overlooked or neglected facets of infertility are the cows that become pregnant but fail to calve or calve later in the calving season. When cows are diagnosed as pregnant, but fail to calve or calve late in the calving season, they have a negative impact

on the return a producer may realize from the sale of calves. For instance, infertility during the early stages of the breeding season that resolves with time can manifest itself in the form of reduced calf weight. As an example, calves gain between 1.5 and 2 pounds (lb.) per day while suckling their dam.

A calf conceived on the first day of the calving season has the opportunity to gain 90-120 lb. more than a calf born 60 days into the breeding season. Reducing infertility will ensure that more females calve toward the beginning of the calving season and with greater chances of weaning heavier calves.

How can I calculate the cost of infertility in my operation?

Producers can calculate the impact of fertility on their own operations by simply calculating the revenue generated by exposed cows in the herd. Using recent cattle price data, the following example may demonstrate the cost of infertility on an average Angus operation.

Example: Calf price for 500-weight feeder calves is \$2.50 per lb.; percentage of pregnant cows is 90%; and weaning weights average 500 lb. Therefore, the following calculation may be used (assuming that there is little or no difference in the maintenance costs of a pregnant or nonpregnant cow):

- 1) Value of weaned calf per exposed cow if 100% of cows are pregnant = 500 lb. × 100% × \$2.50 per lb. = \$1,250 per cow
- 2) Value of weaned calf per exposed cow when 90% of cows are pregnant = 500 lb. × 90% × \$2.50 per lb. = \$1,125 per cow
- 3) Loss due to failure to become pregnant during the breeding season = \$1,250 – \$1,125 = \$125 per cow

Thus, this single example demonstrates that infertility costs this producer \$125 per exposed cow (or \$12.50 per exposed cow for every 1% decrease in pregnancy rate). In addition, there are additional costs associated with calf mortality after calving and late-calving cows that also decrease the overall revenue per exposed cow.

What are some of the management-related factors that a producer should consider concentrating on to reduce infertility? Obviously producers cannot

Pregnancy detection usually occurs about 30-90 days after the end of the breeding season.

CONTINUED ON PAGE 222

REPRO TRACKS

CONTINUED FROM PAGE 220

overcome all infertility, but understanding the costs associated with infertility may ensure that changes occur to enhance the factors responsible for improving fertility and reduce the negative influences on fertility.

Management related factors are:

- ▶ nutritional management to ensure that postpartum anestrus or prepuberty can be overcome;
- ▶ selection of fertile animals among breeds and within breeds;
- ▶ use of crossbreeding for hybrid vigor;

- ▶ selection and handling of animals in ways that reduce stress;
- ▶ use of reproductive-management tools such as estrus synchronization and artificial insemination to alter the calving distribution;
- ▶ following a stringent vaccination program to reduce the incidence of disease; and
- ▶ use of bulls that have passed a breeding soundness exam and are capable of breeding all of the cows in a pasture or herd.

Environmental factors are:

- ▶ heat stress that reduces conception and pregnancy rates;

- ▶ overly extensive beef operations that limit the implementation of sound management procedures; and
- ▶ excessive rain and mud that reduce fertility.



EMAIL: gclamb@ufl.edu

Editor's Note: *Cliff Lamb is a beef cattle specialist for the University of Florida and coordinator of the Florida Bull Test.*