

COW/CALF MANAGEMENT**Pregnancy Diagnosis for the Beef Herd**

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With fall approaching and the breeding season coming to an end, it is time to make critical management decisions with regards to culling cows, and planning for winter. Because of the climate in the northern part of the United States it becomes an economic liability to feed cattle through the winter that are not productive. Generally, approximately 55 to 70 % of the input costs associated with a beef cattle operation are nutrition related – primarily stored feed. To ensure that producers do not feed cattle that are not productive, culling nonpregnant cows is essential. This way the cows are removed from the herd prior to winter. However, in most reports and in discussions with producers many cattlemen fail to have a pregnancy diagnosis performed after the breeding season.

The National Animal Health Monitoring System (NAHMS) indicates that less than 20 % of producers use a form of pregnancy diagnosis. These numbers are surprisingly poor considering the opportunity cost of diagnosing nonpregnant cows. Generally the average overall pregnancy rates after a breeding season of 60 to 120 days tends to be about 88 to 94 %. Greater pregnancy rates than this can be achieved occasionally, yet poorer pregnancy rates are more frequent. Considering the annual feed costs associated with maintaining a female through the five to eight month winter feeding period are usually greater than \$175. Therefore, for every nonpregnant cow removed from the

herd prior to winter could result in significant savings.

Pregnancy diagnosis can be simply performed at the time that cattle work their cattle during the fall vaccination schedule or even at the time of weaning. There are two practical methods that can be utilized for pregnancy diagnosis in beef herds: 1) rectal palpation; or 2) transrectal ultrasonography. Rectal palpation is an accurate form of pregnancy diagnosis that can be performed after day 35 of pregnancy. Most veterinarians are proficient at pregnancy diagnosis in the form of rectal palpation and it is a simple procedure that requires little time in the cattle handling facility. However, rectal palpation does not provide any information about the viability of the embryo/fetus. Therefore, some animals with a nonviable embryo or fetus or in the process of degenerating might be diagnosed as pregnant.

Transrectal ultrasonography can be used to detect early pregnancy, as early as 25 days of gestation for heifers and 28 days of gestation for cows, with a high degree of accuracy. For a skilled technician the procedure is as fast as rectal palpation and may provide additional information in terms of embryo/fetus viability, incidence of twins, and potentially the sex of the fetus. The various merits of the two forms of pregnancy diagnosis can be discussed with your veterinarian. Both forms of diagnosis are reliable and relatively in expensive

considering the potential information received from the procedure.

Prior to the development of ultrasound for pregnancy diagnosis in cattle, technicians were unable to accurately determine the viability or number of embryos or fetuses. Because the heartbeat of a fetus can be detected at approximately 22 days of age, we can accurately assess whether or not the pregnancy is viable. Producers should also be aware that in some cases embryos tend to die between the time of pregnancy diagnosis and calving, that are not the result of the actual pregnancy diagnosis procedure. For example, we have seen about a 4.2 % incidence of embryonic loss in beef heifers initially ultrasounded at day 30 of gestation and subsequently palpated rectally at between day 60 and 90 after insemination. In beef cows embryonic loss has ranged from 3 to 8% from 30 to 75 days of gestation, whereas in dairy cattle, pregnancy loss from 28 to 56 days after artificial insemination was 13.5 %. Therefore, ultrasonography provides a tool to accurately differentiate between the failure of a female to conceive or the incidence of embryonic mortality because a heartbeat is detectable at 22 days of gestation.

Ultrasound also gives producers an opportunity to diagnose the sex of the fetus, which can occur between day 55 and 80 of gestation. Many cattle operations are developing strategies to use fetal sexing as either a marketing or purchasing tool. At approximately day 50 of gestation, male and female fetuses can be differentiated by the relative location of the genital tubercle and development of the genital swellings into the scrotum in male fetuses. We determined the sex of 112 fetuses in Angus heifers with 98.2 % accuracy. In beef cattle operations, fetal sexing remains limited to purebred operations especially in conjunction with an

embryo transfer program. Determination of sex especially after the successful transfer of embryos to recipients allows marketing of male and female embryos before the pregnancy is carried to term. This strategy can be used effectively in dairy operations trying to produce bull calves of a particular mating for sale to bull studs. From a commercial cattle operation standpoint, heifer development operations are utilizing fetal sexing as a marketing tool to provide potential buyers with females that are pregnant with fetuses of a specific sex. As more technicians become proficient at fetal sexing, commercial operations will utilize this technology to enhance the marketability and efficiency of their cattle operations.

The full advantages of pregnancy diagnosis may not have been addressed, but producers should consider that understanding the pregnancy status of cattle in the herd may allow producers to make critical management and economic decisions several months prior to calving, which allows them to proactively make marketing decisions based on pregnancy status.