

Controlling Embryonic Loss?

TERESA STECKLER



MT. VERNON, ILL.

It's the breeding season and time for the cows to earn their keep. Each day a cow is open, profitability decreases. In beef cattle, it is generally accepted that fertilization rates to a single service are between 90 and 100 percent, but the percent of cows pregnant 30 days late is much less, usually 70 percent or less.

So why are there fewer embryos at day 30? Embryonic loss has occurred. Embryonic losses are defined as those losses that occur from fertilization until day 42 of pregnancy, when differentiation and implantation has occurred. Losses after day 42 are generally referred to as fetal losses.

Unfortunately, there is not a magic pill that prevents embryonic loss. The establishment and maintenance of pregnancy is a highly complicated process involving the embryo, uterus and cow. No single factor can be manipulated and consistently improve embryonic survivability. However, by managing genetics, nutrition, parity, stress and animal health, the incidence of embryonic loss can be decreased considerably.

What factors cause embryonic/fetal losses? There are many possible causes, but probably one of the primary contributing factors to embryonic loss is nutrition. For now, we will focus on nutrition.

Good nutrition is vital for cattle to maintain pregnancy. It is essential for cows to be in adequate body condition in order to minimize embryonic loss. Cows will have less embryonic mortality if they are gaining condition, while those losing condition will tend to have higher embryonic loss.

Excess levels of dietary protein have been

shown to increase embryonic mortality in cows. Increased blood urea nitrogen and ammonia are the results of increased protein metabolism. Studies would suggest that the excess protein alters progesterone production and alters the uterine environment.

Plant toxins can also have a detrimental effect during pregnancy. Not only can plant toxins cause embryonic death, but they also cause abortions, skeletal abnormalities and retarded fetal growth. However, the toxicity of plants can vary greatly with the environment. It is important to recognize such plants in order to minimize the effect of plant toxins on the calf crop.

Some of the more common plant toxins are mycotoxins, endophyte-infected fescue and nitrates. Mycotoxins can occur in moldy feed and one mycotoxin, zearalenone, is suspected to cause abortions in cattle by decreasing progesterone concentrations. The ergot alkaloid, ergovaline, is the primary compound in endophyte-infected tall fescue. The ergovaline has been reported to delay onset of estrus and reduce embryonic survival by inhibiting progesterone synthesis sufficiently to affect pregnancy maintenance.

While nutrition can have a profound impact on embryo survival, it is important to remember that embryonic losses can be caused by multiple factors, including general maternal health. Vaccination programs can help improve general maternal health. It is well known that many diseases, such as BVD, coliform mastitis, trichomoniasis, neospora, vibrio and *Leptospira* hardjo, can cause early embryonic death. Although determining the cause of embryonic loss would be difficult, embryonic loss can be managed through proper nutrition and vaccination programs. Δ

Teresa L. Steckler is Extension Specialist, Animal Systems/Beef, with the University of Illinois at the Mt. Vernon Extension Center.



Link Directly To: **VERMEER**