

The experts call reproductive performance the most economically important trait of beef cattle — at least four times more important than any production trait. A good many producers get it. Taking the message to heart, their management includes efforts to enhance fertility.

The other side of the coin — infertility — receives less attention. According to veterinarian Lee Jones, associate professor at the University of Georgia College of Veterinary Medicine, infertility can be manifested as:

- ▶ a cow failing to become pregnant;
- ▶ a cow getting pregnant but failing to deliver a live calf; or
- ▶ a cow getting bred late.

Any of those outcomes is costly. In fact, Jones says infertility is six times more costly than calf respiratory disease.

But aren't promoting fertility and preventing infertility the same thing?

In many respects they are. However, discussions about improving fertility of a breeding herd typically emphasize things like ensuring cattle are suited to the production

environment, maintaining sound management of both nutrition and health, and genetic selection. Discussion about guarding against infertility really should address biosecurity.

Good defenses

Biosecurity is just a fancy term for defending a herd's reproductive performance against disease threats. The most common way these diseases enter the herd is by purchasing breeding stock.

"Introducing new additions without any

Buying New Breeding Stock?

Better have a biosecurity plan.

by Troy Smith, field editor

biosecurity measures is a significant threat to herd health and fertility, especially bringing in adult cows or bulls," says Lee Jones. "Virgin heifers and bulls are the lowest risk. However, it is important to have a plan to receive any herd additions."

That warning is not meant to deter producers from outsourcing breeding stock, Jones says. The vast majority of cow-calf operations routinely buy bulls, and plenty of producers buy replacement females, either open or bred heifers and even mature cows.

Some producers never keep homegrown females, preferring to purchase all replacements. For some operations, outsourcing makes

sense economically and may be the best way to further specific breeding objectives.

There is some element of risk, though, and a biosecurity plan is a strategy for risk mitigation.

Develop a plan

To implement a comprehensive biosecurity plan, a producer must understand how infectious diseases spread. A good rule of thumb is that, in most circumstances, the organism responsible for a particular disease is transmitted through

the fluids of the organ system it affects.

For example, pneumonia and other diseases of the respiratory system typically spread through respiratory secretions. Gastrointestinal diseases are spread through feces, while reproductive diseases are often transmitted through breeding activity.

Some disease organisms are present in the blood and may be transmitted from animal to animal by vectors such as flies and ticks.

Newly acquired animals that harbor infectious disease could transmit pathogens through nose-to-nose contact with other animals by shedding organisms in the shared environment or through breeding activity. Commingling new animals with members of a resident herd also may expose the resident herd to vectors present on new arrivals.

"Call it quarantine or isolation, but new animals should be kept separate from a resident herd to reduce the risk of spreading disease," says Jones. "Keep them separated for 30 days. Allow new animals to acclimate, and monitor them. Watch for signs of disease."

Control traffic

Jones recommends producers exercise "traffic control" to avoid potential spread of pathogens by workers and equipment moving back and forth between the

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quarantine area and the resident herd. It's worth thinking about at all times.

Consider not only the routine coming and going of regular employees, but also of seasonal help and of service people, he says. Do you hire day workers who tow trailers with horses or take other equipment from place to place? What sanitation measures do you take for your equipment and premises?

During the quarantine period, newly acquired cattle can be vaccinated, dewormed and poured for lice, if not done previously, to get them on the same vaccination program as the resident herd.

Jones advises caution, however, when using modified-live virus (MLV) vaccines in pregnant females with unknown vaccination history. If not already tagged, new arrivals can be tagged with their new herd identification and new records generated to keep track of when they arrived and what treatments they received.

Silent invaders

Including a quarantine period is particularly important when buying open, mature cows or nonvirgin bulls, Jones says. Some of the infectious causes of abortion or infertility in cows could be present in cattle that appear clinically normal. Such diseases can include the following:

Leptospirosis: This bacterial disease can cause embryonic death, abortion, stillbirth and retained placenta, as well as the birth of weak calves. There are more than 400

subclassifications, or "serovars," of *Leptospira* bacteria. Depending on the serovar, leptospirosis can result in infertility due to persistent reproductive tract infection. *Leptospira* bacteria may be shed through various body fluids, and transmission may occur directly between animals or indirectly through the contaminated environment.

Campylobacteriosis: Sometimes called vibriosis, this bacterial disease is transmitted venereally and may cause embryonic death, irregular estrous cycles and occasional abortion.

Bovine viral diarrhea (BVD): In addition to fever, severe diarrhea and susceptibility to other infections, BVD may cause early embryonic death and abortions. Infected nonpregnant females may experience infertility.

Infectious bovine rhinotracheitis (IBR): Commonly called "rednose," IBR is often considered a respiratory disease, but the virus can travel through the bloodstream to the placenta of a pregnant female and eventually to her fetus, resulting in abortion. IBR infection may cause embryonic death.

Trichomoniasis: A disease caused by a protozoan organism, "trich" is sexually transmitted. Bulls may become persistently infected but show no outward signs. Bull breeding behavior and semen quality are unaffected. However, infected pregnant females typically suffer early embryonic death and infertility.

Neosporosis: *Neospora* is another protozoan parasite for which dogs and coyotes are the definitive hosts. Infected canines shed the parasite in their feces, contaminating soil, water and cattle feed sources. Cattle become an intermediate host after ingesting *Neospora* oocytes. Infected pregnant cattle may abort or deliver

stillbirths. Dogs and coyotes may become infected with *Neospora* after scavenging aborted fetuses or placentas.

Anaplasmosis: Spread

through the bite of ticks and flies, or via blood-contaminated instruments, anaplasmosis may cause abortion along with severe anemia and high death loss. Severe outbreaks can occur when naïve cattle are moved to an endemic area or when carrier animals are added to a herd in a non-endemic area.

Test and know

Testing newly received cattle for specific diseases may be advisable in certain situations. Jones urges producers to consult their own herd veterinarian.

"Open cows should be tested prior to breeding or introducing to the cow herd. It's best to also keep these cattle away from the resident breeding herd until after they are confirmed pregnant," opines Jones, who also recommends testing for reproductive diseases be performed on all cows purchased for use as embryo transfer (ET) recipients.

"Nonvirgin bulls should have a breeding soundness exam (sometimes referred to as a BSE) and be tested for trichomoniasis prior to exposing to cows."

Producers may already have a vaccination program for protecting herd health and reproductive performance, but vaccination does not guarantee protection, Jones warns. When administered correctly, under appropriate conditions, vaccines stimulate an immune response to infections, but that response can be affected by many factors, such as animal age, nutritional status, health status, various stress factors and the level of exposure to infection.

Knowing the previous management and health history of animals prior to purchase would be ideal. But it's hard to know everything. Perhaps the prudent thing is to adopt procedures to guard against disease and subsequent infertility that could sneak into your herd with purchased breeding stock. Have a biosecurity plan, and follow the plan. **ABB**

Editor's note: Troy Smith is a freelance writer and cattleman from Sargent, Neb.

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Lee Jones