Herd Health Check

Veterinarian addresses emerging disease concerns that affect reproductive efficiency.

by **TROY SMITH,** *field editor*

For conscientious cow-calf producers, an important part of any herd health program is managing risk associated with reproductive diseases — those that threaten establishment and maintenance of pregnancy and may hinder fertility. In a presentation delivered last fall at the Applied Reproductive Strategies in Beef Cattle (ARSBC) symposium in Manhattan, Kan., Kansas State University veterinarian Gregg Hanzlicek discussed some of the more prominent diseases responsible for abortion and low fertility.

Hanzlicek said many producers are familiar with campylobacter (vibriosis) and leptospirosis, which are contagious bacterial diseases commonly known to be responsible for abortions in cattle. While they may be aware of anaplasmosis, producers may not know that this bacterial infection can affect reproduction.

"Anaplasma infection typically is not a fertility issue," said Hanzlicek, allowing that it is possible, however, for the infection to result in late-term abortions or stillborn calves.

Minimize three main types of stress

The definition of stress is the sum of reactions that influence an animal's homeostasis, explained Reinaldo Cooke, former associate professor at Oregon State University. Cooke detailed the implications stress may have on female reproductive systems at the 2017 Applied Reproductive Strategies in Beef Cattle (ARSBC) symposium in Manhattan, Kan.

Cooke began by defining homeostasis as being within your comfort zone. Anything that takes you away from a comfort zone is a type of stressor. He described three main types of stress.

- Physiologic stress is when an animal gets sick or catches a disease.
- Physical stress is applied if an animal receives an injury.
- Psychological stress happens when an animal senses fear.

When the body encounters stress, two systems are engaged, he said. The sympathetic nervous system and hypothalamic-pituitary-adrenal (HPA) response are engaged to bring the body back into homeostasis.

As soon as an animal is faced with stress, the body begins to produce cortisol at a higher rate than it produces epinephrine.

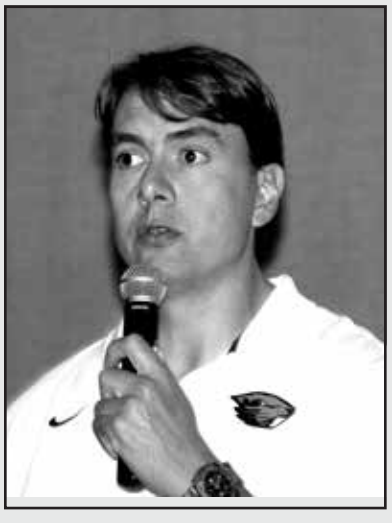
"Cortisol goes up and stays up much longer than levels of epinephrine," said Cooke. "It is the main link between stress and productivity in livestock."

While the body is producing high levels of cortisol during stress, it is also releasing key elements like creatine and sugars, which can be detrimental to the animal's productivity, specifically the reproductive system's productivity. With increased levels of cortisol, there is decreased follicle growth and estrogen levels, which can lead to a change in ovulation success, he said.

"There is a direct connection between cortisol levels and pregnancy conception rates," said Cooke. "We must understand and recognize the three stressors and find an alternative to alleviate the stressors."

Cooke said that nutrition could be considered a physiological stressor. If heifers are born on pasture and are moved to drylot systems after weaning, they experience a stressful change of environment. The pasture was considered their comfort zone, and they left homeostasis when they were moved to a crowded drylot pen.

"You must give their bodies a chance to adapt to the changes before breeding," said Cooke.



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Pregnancy rates fell after the heifers were bred in a drylot facility and turned out to pasture two weeks later.

"The animals didn't know how to graze, and their average daily gain dropped significantly," said Cooke.

Relocating cattle between Day 7 and Day 21 can be detrimental to their pregnancy, he continued. Producers should consider avoiding major changes in diet and environment directly after breeding.

Cooke suggested utilizing trace minerals, sugars, amino acids and progesterone to alleviate nutritional stressors. Aim to keep body conditions healthy, not overly conditioned or too thin to avoid unnecessary stressors.

Temperament can be another factor in determining successful reproductive systems, he continued.

"Cows act excited or aggressive around humans because they're not comfortable around us," Cooke said. "They are trying to run away or run over us as a fight or flight response. Fear is a psychological stress."

By studying and classifying females by temperament, Cooke's research found that stressed or nervous cows weaned lighter calves. Weaning lighter calves led to a $52 decrease per cow, he said.

"Stress has direct implications on reproduction success," Cooke said.

To listen to Cooke's presentation and for additional coverage of ARSBC 2017, visit the Newsroom at *www.appliedreprostrategies.com,* which includes PowerPoint, proceedings and audio of presentations. Compiled by Angus Media, the site is made possible through sponsorship by the Beef Reproduction Task Force. The 2018 ARSBC Symposium will be Aug. 29-30 in Ruidoso, N.M. Information will soon be added to the website.

— *by* **KATY HOLDENER,** *American Angus Association*

Diseases to discuss with your veterinarian:

- anaplasmosis
- bovine luekosis virus
- infectious bovine rhinotracheitis
- Johne's disease
- leptospirosis
- neosporosis
- vibriosis

"Cows can become so anemic that not enough oxygen reaches the fetus, which dies," Hanzlicek explained. "Or, the organism may be transmitted to the fetus, which typically results in abortion."

Referring to the recent availability of what he called "an experimental vaccine," Hanzlicek said reports suggest the product helps reduce the clinical signs of anaplasmosis, but it is not effective as a preventative to infection.

"Guys that use it like it," stated Hanzlicek.

Kansas State University Diagnostic Laboratory data show a steady increase, since 2014, in abortion cases associated with infectious bovine rhinotracheitis (IBR). Many fetuses submitted to the laboratory contained an IBR strain identical to that in modified-live virus (MLV) vaccine.

"I'm not saying 'Don't use MLV vaccine,' " but make sure you follow label directions and your veterinarian's advice," recommended Hanzlicek.

Like IBR, bovine viral diarrhea (BVD) is a viral disease that can impact reproduction. It's not just a feedlot disease as many people once believed. Hanzlicek said exposure of bred females to animals persistently infected (PI) or transiently infected (TI) with BVD can lead to early embryonic death, abortion and subsequently reduced fertility.

Hanzlicek also discussed neosporosis, the causative agent of which is a protozoan parasite carried by canines. Dogs, coyotes or wolves become infected by eating neospora-contaminated bovine muscle, placenta or aborted fetus tissues and spread it through the environment via their feces. Pregnant cows or heifers that become infected may suffer early embryonic death or abortion, or they may deliver a live "dummy" calf that appears normal but is a carrier of neospora organisms.

Kansas State University veterinarian Gregg Hanzlicek discussed some of the more prominent diseases responsible for abortion and low fertility in beef cattle.

Hanzlicek said other "emerging" diseases with implications for reproduction include bovine leukosis virus (BLV) and Johne's disease. He said some evidence suggests zoonotic potential for both, meaning some researchers think each disease may be transmissible to other species, including humans.

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