

# Be Prepared for Anaphylaxis

Having epinephrine on hand and knowing how to use it can save a life.

by **Troy Smith**

**A** good many cattle producers may never see a critter succumb to anaphylaxis. Others may see it several times during their careers as animal handlers. Evidence suggests anaphylaxis occurs in less than one per 10,000 head. It's a rare event, but kind of scary when it does happen. It can be deadly, unless

producers are prepared and act quickly.

According to veterinarian Jeff Ondrak, of the University of Nebraska Great Plains Veterinary Educational Center, anaphylaxis is a severe allergic reaction to any foreign substance (antigen) encountered by an animal, but the reaction most typically occurs in response to an injectable animal health product.

"Anaphylaxis is a response to any foreign substance, so anything we put into an animal is a potential trigger. However, certain groups of products are more likely to lead to a reaction than others, and these include killed vaccines, bacterins and antibiotics," Ondrak explains.

Because it is a rare event, most producers are more likely to witness anaphylaxis in individual animals. However, based on Ondrak's experience and reports of other veterinarians, it's possible for groups of animals to exhibit anaphylactic reactions to injections. This might occur among calves that were raised together and exposed to the same environmental sensitizing antigens, such as bacteria, viruses, fungi, antibiotics or substances present in feed. If they are exposed again to an antigen to which all were sensitized, through vaccination, all animals in the group could exhibit allergic responses.

There are indications that certain genetic lines or breeds of cattle may experience higher incidences of anaphylaxis. Some evidence also suggests reactions may be more likely to occur during hot weather.

According to Ondrak, symptoms of anaphylaxis generally appear within 10-20 minutes of exposure to the antigen. The earliest signs typically include difficulty breathing and muscle tremors. The affected animal may also become restless and excitable. It may exhibit swelling about the face, excessive salivation and tearing of the eyes. Signs of colic (abdominal pain) may also develop. If treatment is not initiated promptly, the affected animal is likely to become unable to stand, convulse and die.

## The antidote

"The primary treatment for anaphylaxis is epinephrine," Ondrak explains. "It should be given immediately and may need to be repeated, depending on the patient's response. Intravenous (IV) administration of epinephrine is the preferred route. However, intramuscular (IM) or subcutaneous (sub-Q) injections are better than no treatment. The

goal should be to get epinephrine into the animal as soon as possible."

Producers should consult their local veterinarian regarding dosage for epinephrine. After treatment, an affected animal should be monitored to watch for a relapse, then treated accordingly. Following timely treatment, most responsive animals will return to normal in 12-24 hours.

Ondrak also recommends following a veterinarian's advice regarding additional supportive therapy. Corticosteroids, such as dexamethasone, and nonsteroidal anti-inflammatory drugs, such as flunixin meglumine, have also been used as treatment. Ondrak warns, however, that these drugs are not substitutes for epinephrine. Antihistamines are of little value for treating anaphylaxis, he adds.

"When processing cattle, it's always a good idea to have epinephrine on hand, and be prepared to use it. This means understanding the dose and route of administration so there is no hesitation if the need to use it arises," Ondrak states.

A potential source of antigen that could trigger anaphylaxis is the presence of foreign material in injectable products. Such material is easily introduced by a dirty needle. Ondrak warns against inserting a used needle into a multi-use vial of vaccine, antibiotic or other injectable product. Producers should also make certain the rubber stopper on top of the vial is kept free of contamination.

Ondrak says animals undergoing excessive stress may be subject to a heightened risk of anaphylactic reaction. Maintaining animals at proper levels of nutrition and practicing low-stress handling methods can help minimize the risk. It's still better to have epinephrine on hand, and not need it, than to need it and not have it available.

"Producers should report incidents of anaphylaxis to their veterinarian and enlist assistance in dealing with the reaction, as well as reporting the event to proper entities," Ondrak advises. "A report should be made to the manufacturer of a product suspected of causing the reaction and to the appropriate government agency. To report vaccine reactions, contact the USDA Center for Veterinary Biologicals. To report reactions to drugs, such as antibiotics, contact the Food and Drug Administration (FDA). Both agencies have online reporting."

