

Knowing Matters

Necropsy can identify the cause of cattle mortality and how to prevent future deaths.

by Heather Smith Thomas

It often pays to have your veterinarian perform a necropsy if an animal dies and the cause of death is unknown — especially if a management change could prevent further deaths. A postmortem exam might determine whether the animal died from hardware disease, pneumonia, liver flukes, poisoning or some other preventable problem.

In some situations, you might take photos or collect a few samples to send to your vet to try to determine what happened. In other instances, the cause of death may be readily evident — such as a broken neck from a fall,

Eugene Janzen, DVM, University of Calgary, says there may be nothing you can do to prevent the same problem in the future if it turns out to be an odd situation not likely to be repeated.

“Postmortem exams can help us know these things. When dealing with calf scours, respiratory disease or something contagious, you need to know quickly — to try to prevent spread or manage the problem in the rest of the herd,” he says. “There may be another level of concern if it’s a pathogen that might be spread to humans. A typical situation is bringing home a calf from somewhere else, to put

with a compromised immune system. Proper diagnosis in this situation would be important for human health.

The veterinarian and you

David Steffen, DVM, of the University of Nebraska-Lincoln Veterinary Diagnostic Center, is a firm believer in the value of accurately recording mortality.

“For large operations, it makes sense to have the veterinarian teach the basics of postmortem examination to the herdsman, so deaths can be classified as respiratory, enteric, nutrition or something else —

producers when mortalities reach a level requiring intervention. The veterinarian may need to help with adjusting treatment and management protocols.

“If animals are dying, the producer needs to keep records and know how many have died. There’s a certain threshold for different production phases and anticipated death loss,” Steffen says.

No matter how well you manage cattle in a cow-calf operation, for instance, a certain number of calves will succumb to scours or other illnesses. If the number of calves lost begins to exceed the average, it’s time to take a closer look.

“Your veterinarian or an animal scientist can tell you what benchmarks should be for your production operation and situation. If you have records, you can look at the losses in previous years and set a goal for improvement — or if it’s a low level, try to maintain that low level,” Steffen says. “When things begin to go awry, and death losses are above normal, the next step is to categorize them as to body systems involved, whether it’s skeletal, respiratory or enteric. Most people can determine whether it involves the respiratory system or is an enteric disease.”

Preventing future losses

Producers need to know the cause of death to know if it can be prevented in the future.

“In baby calves, if you have death losses from enteric diseases, there’s probably a certain level you deal with every spring, but if all of a sudden you lose a couple of calves with neurologic signs you might have your veterinarian check them because you don’t expect it in this age group. It might be lead poisoning or rabies, or something else you need to know about,” Steffen says.

Likewise, suppose death loss in baby calves, due to scours, is higher than normal. He explains identifying the pathogens involved can help determine more effective treatment and prevention strategies.

“An experienced producer usually has a fairly good idea, due to symptoms, and knows what category to put the death loss into, but it’s still helpful to have a veterinarian open up the calf to

Table 1: Death Loss Cause by Cattle Age

Cause of death	Less than 3 weeks old	3 weeks and older	Beef breeding cattle	Any
Digestive problems (bloat, scours, parasites, enterotoxemia, acidosis, etc.)	14.4%	9.6%	13.0%	16.3%
Respiratory problems (pneumonia, shipping fever, etc.)	12.0%	29.2%	3.0%	17.6%
Metabolic problems (milk fever, grass tetany, etc.)	0.0%	0.0%	0.5%	0.3%
Mastitis (cows only)	–	–	0.1%	0.1%
Lameness or injury	5.4%	5.0%	20.8%	18.3%
Calving-related/birth-related problems	34.9%	0.2%	26.1%	27.6%
Other known diseases	0.3%	10.0%	7.0%	9.7%
Weather-related causes (lightning, drowning, chilling, etc.)	19.1%	8.3%	7.9%	16.9%
Poisoning (nitrates, noxious feeds, noxious weeds, etc.)	0.0%	3.0%	1.6%	2.4%
Predators (known or unknown)	23.9%	7.0%	0.4%	13.2%
Theft (stolen)	0.0%	1.1%	0.6%	0.9%
Other known causes (old age, etc.)	11.6%	4.9%	29.1%	25.0%
Unknown causes	39.7%	35.7%	27.3%	42.8%

Adapted from: Beef 2017 — Beef Cow-Health and Management Practices in the United States-2017, USDA National Animal Health Monitoring System (May 2021)

electrocution from a lightning strike, strangulation of a calf that got its head caught in a loop of wire or bloat from overeating in a lush alfalfa field. But sometimes the death is so puzzling that you need to call the veterinarian with questions or arrange for necropsy, which is also referred to as a postmortem examination.

If there’s a disease in the herd, a parasite problem or a nutritional deficiency the producer is not aware of a necropsy can be a useful tool to help improve herd health management.

on a cow that lost hers, possibly bringing a new pathogen.”

One of the risks is zoonotic diseases, which can also infect humans, such as cryptosporidiosis or salmonellosis.

“If you are treating a sick calf, this could pose a risk to your family — especially if you have young children and leave your dirty coveralls in the mudroom, or a small child comes to greet you as you come in the door,” Janzen says.

Salmonella and cryptosporidium can both infect humans, especially children, elderly people or anyone

depending on the production stage or age of the animal involved. Many feedlots already do this. An accurate accounting of mortalities can flag problems and signal a need for review of health programs. The necropsy serves as quality control for clinical assessments and treatment protocols,” Steffen says.

Besides training producers to perform a basic necropsy, Steffen explains the veterinarian’s role is to provide quality assurance for tracking mortalities. The veterinarian also consults with

make sure you have the proper diagnosis, because some calves with enteric disease can show neurologic signs if electrolyte imbalances are severe or they become septic and get meningitis,” Steffen explains. “It’s important to know what you’re dealing with.”

He shares other examples of easily mistaken death loss causes. For instance, increased respiratory rate in a feedlot animal, due to acidosis, might mistakenly be attributed to respiratory disease. The gut blockage in the bloated calf could stem from a hairball, eating dirt, an accidental torsion or enteric disease.

So, a necropsy — finding the actual cause of death — can help producers know if it’s a rare, unpreventable event or a contagious disease, which might be prevented in the future.

Steffen adds there is always a sense of regret when a producer consults him after losing the fifth cow in a short time but failed to examine the first four deaths. By waiting, they lost the opportunity to discover whether the other deaths could have been prevented.

Establish benchmarks

“It’s good to sit down with your local veterinarian who knows your operation and

establish thresholds for when you need to step in and take action. Abortions are a good example,” Janzen says. “You expect a certain number of animals in late gestation to slip their calves for whatever reason, but at some point you should become concerned — if the number increases above average incidence.”

If you have 250 cows, the first abortion you see is nothing to be concerned about because it’s normal to have 1% or 2% of pregnant cows abort, due to a variety of causes. If you suddenly have five abortions, though, collecting tissues and photos to send to a pathologist can yield a highly accurate diagnosis.

Janzen points out many producers have smartphones and already use them as cameras.

“Some ranchers already use these in keeping records,” Janzen explains. “They take a picture of the cow and a picture of her calf with their identifiers

and send that to their home computer — as a way to keep track of which calf belongs to which cow.”

In the case of an abortion storm, Janzen says your options

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— Eugene Janzen, DVM,
University of Calgary

might be limited in the current calving season. Even if an infectious cause is identified, for example, there’s no practical way to tell which other cows could benefit from immediate vaccination. However, there may be something you can do to prevent the problem for the next calving season.

Feedlots perform necropsies more routinely than cow-calf producers, but there are times cow-calf producers could benefit from knowing an animal’s cause of death.

“Some of the big feedlots have mortality events every day, and it pays to develop this skill, to at least open up the animal and feel the lungs to see whether it’s pneumonia and look inside the rumen to see if there’s inflammation inside and overload,” Steffen says.

If mortality is rare in your operation, it might make more sense to utilize outside expertise to conduct necropsies, rather than develop the skill yourself. Some producers are reluctant to call their veterinarian for this purpose, but it often pays to do so. **HW**

Editor’s Note: Heather Smith Thomas and her husband, Lynn, have ranched near Salmon, Idaho, for more than four decades. She also writes cattle articles that appear in numerous U.S. and Canadian cattle publications, including *Hereford World*. She is the author of numerous books, including “The Cattle Health Handbook.”