

# Cattle Producer's Handbook

Animal Health Section

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## Evaluating Dead Cattle: A Necropsy Guide for the Cow-Calf Operation

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Necropsy is an invaluable tool for identifying disease and management problems but is often used hesitantly—perhaps not until after several animals have died. Necropsies tend to be used only when a problem is “out of the ordinary!” The thinking might be that you expect one or two to die once in a while. When the fourth one “bites the dust” you begin to kick yourself for not checking the others.

Cattle producers and veterinarians, working together using necropsy “carcass data,” can better monitor the dynamic processes of the health maintenance programs of the production unit to maximize the cost: benefits of all inputs. One way or another you need to know why each and every animal died—be it hit by a car, bullet, or disease. Necropsy often yields more information than just the cause of death (e.g., body condition can be an indicator of the general management program).

Cow-calf operators often find themselves at a disadvantage in that their animals are in “distant pastures” and necropsies of dead animals on a cow-calf unit are more likely to be conducted sporadically or some time after death. Veterinarians realize the value of necropsy “carcass data” obtained **at the time of death** although they may be unable to respond to the immediate needs of each client. A rancher can be of assistance to the veterinarian by being able to conduct a necropsy; therefore, many veterinarians train their clients to perform a basic necropsy as part of the overall management program. [Note: Delays in conducting a necropsy decreases the diagnostic value of the procedure!]

The objective of the necropsy is to determine the presence of abnormalities that may identify the cause of the death. A routine method of examining and evaluating the animal's carcass is helpful to you and your veterinarian in monitoring and refining production programs. A standard approach to selecting specimens also is helpful to your veterinarian to maximize a diagnostic laboratory service. Consult with your veterinarian for proper preparation and submission of specimens. Many diagnostic laboratories will accept specimens only through a veterinarian.

### Materials Required

The materials used to conduct a field necropsy are few, simple, and can be carried in a “saddle bag” (Fig. 1).



Fig. 1. Necropsy equipment.



- A hunting knife<sup>a</sup>
- A stone or sharpening tool<sup>b</sup>
- A meat saw.<sup>c</sup> This tool can be used for cutting ribs, skull, or other bone.
- A sharp hatchet (for removing ribs); 24-inch pruning shears are excellent for cutting ribs but difficult to pack.
- Rubber gloves (OB sleeves)
- Specimen bags (OB sleeves)
- Ice chest to keep specimens cool

## The Necropsy Procedure

The basic procedure is similar to slaughtering or field dressing wild game!

1. Examine the carcass for general condition and evidence of trauma/injury. Note the position of the animal and evaluate the environment (water sources, weeds, trash, etc.) where the animal was found.
2. Place animal on its left side.
3. Open and “skin” the upside of the animal from the point of the lower jaw to the anus.
4. Evaluate muscle color and the color and consistency of subcutaneous tissues. Muscles should be red but not bloody. Fat tissues should be whitish to pale yellow.
5. Gas-filled rumen may be deflated with puncture.
6. Cut through the hip and shoulder joints and lay the front and rear legs back.
7. Open abdomen and chest (cut the ribs at both ends close to their attachments to expose thoracic organs) and lay the abdominal muscles and chest wall back.
8. Evaluate position and condition (and color) of lungs, heart, intestines, liver, etc., and presence, amount, and color of fluids free in the abdomen and chest (Fig. 2).
9. Examine heart, lungs, liver, and kidneys—cut organs in several places to examine for abscesses. In young animals note the amount of fat on the heart. Open the trachea and examine for ulcers or hemorrhage.
10. If an abnormality is seen, collect tissue specimens from the abnormal organ. Place individual specimens into individual plastic bags and keep cool until you are able to contact your veterinarian.

<sup>a</sup>Cutco Co., Vector Marketing, 1116 State St., POB 1228, Olean, NY 14760-6228.

<sup>b</sup>Smith’s Knife Sharpener, 1700 Sleepy Valley Rd., Hot Springs, AK 71901.

<sup>c</sup>Meat saw plans: (1) Use 3/8-inch steel rod, (2) bend (with heat) into a wide “U” measuring 6x14x6 inches, (3) saw a 1/2-inch deep notch in each end of the “U”, (4) drill and rivet a meat saw blade into the notches, and (5) a “theme book” spine cover is an ideal guard for the saw blade.

**Note:** It is now possible to have “immediate” evaluation of the necropsy findings. Take high quality digitized photographs and email them to your veterinarian.

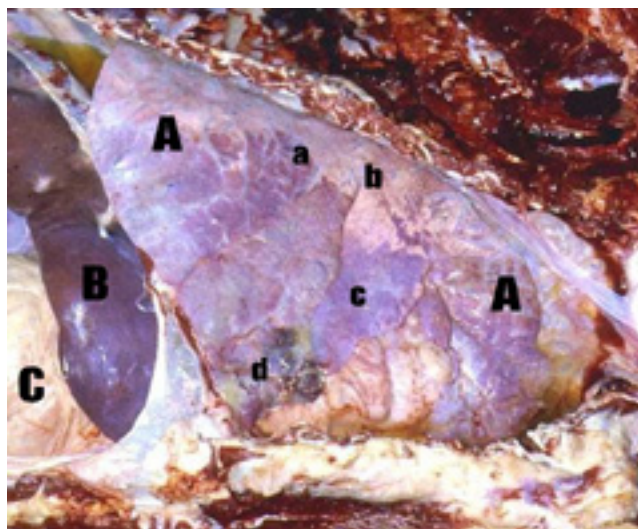
11. Open rumen and examine quality, makeup, and odor of contents. Collect a rumen contents sample if a toxicity problem is suspected and freeze “immediately.”

Basic abnormalities to observe:

1. Bloat is difficult to diagnose at necropsy but a “bloat line” may be observed in the esophagus of an animal immediately after death.
2. Respiratory illness is a common cause of death in calves/cows. Check lungs for abscesses, feel for a meaty texture—normal lung tissue should float in water and have a spongy consistency. In long standing pneumonia, the lungs may be firmly attached to the diaphragm or ribs (Fig. 2).
3. GI problems also are common causes of death. You may see a hemorrhage, evidence of diarrhea, twisted intestine, or a ruptured bowel. Check if twine or hairballs are in the rumen.
4. Peritonitis (hardware disease or navel ill) may show liver/heart involvement with fluid or organs “stuck” to the abdominal wall—especially up front and down low—and in the chest.
5. Liver flukes may be present in the liver of animals living in “wet lands” (Figs. 3 and 4).

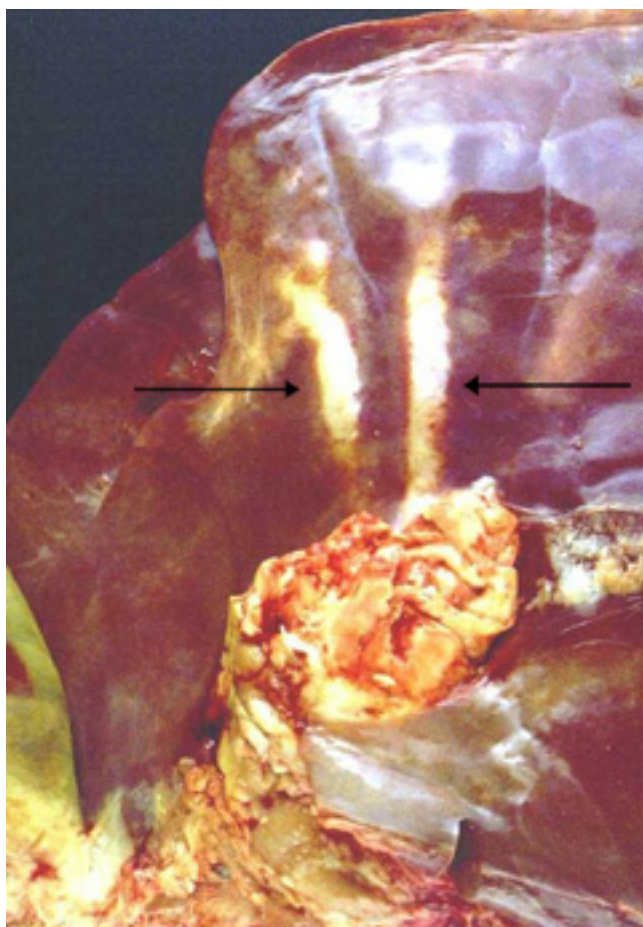
**Note:** Save liver samples from all dead animals for trace mineral analysis.

6. The amount of fat observed on the heart is directly related to the nutritional status of the animal—especially in baby calves.



**Fig. 2.** Open thorax and anterior abdomen. A = Lung; a = Line separating normal (b) from abnormal (c) lung tissue, d = abscesses in ventral lung field, e = fluid (normal color and amount). B = liver; C = reticulum.





**Fig. 3. Liver showing pipestem bile ducts (arrows) due to liver flukes.**

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**Recommendation:** Assist your veterinarian when conducting necropsies. Feel the normal lungs for that soft sponginess. Look at the color, size, and position of all organs.

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**Fig. 4. Opened pipestem bile ducts showing liver flukes (arrows).**

#### References

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This movie clip, “On Ranch Necropsy” (2 minutes, 56 seconds), was prepared by Dr. Jim England, Director, University of Idaho Caine Veterinary and Teaching Center, Caldwell, Idaho. Since the movie requires a lot of memory, in order to avoid problems, you are advised to quit all programs except for Acrobat Reader.

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