

CONSUMPTION OF FOREIGN MATERIALS AND TOXINS

Key Recommendations for Beef Cattle Producers

Bovine Traumatic Reticuloperitonitis (Hardware Disease). When cattle accidentally consume foreign material, such as sharp pieces of metal like nails or wire, they settle into the reticulum of the animal leading to hardware disease. Pieces of metal irritate the lining of this stomach chamber, and in some cases can jab or puncture the reticulum, causing damage to the lining of the heart and ultimately causing pericarditis or inflammation of the sac surrounding the heart. Hardware disease can be painful to the animal, can inhibit performance and poses a food safety concern as it may lead to infection and abscesses in surrounding tissue. Severe cases of hardware disease may cause death. Signs of hardware disease include:

- ! Depressed state
- ! General signs of discomfort (teeth grinding, grunting)
- ! Arched back
- ! Going off feed
- ! Brisket swelling
- ! Loss of body condition

Common Sources of Foreign Materials



**Metal cables
on fences or
feed bunk**



**Fragments from feed
processing equipment
deposited in feed**



**Scrap
material left
on the ground**

Preventative Measures

Producers can help minimize the risk of hardware disease by implementing preventive measures. Ideally, practices will target prevention of foreign materials becoming accessible for consumption.

- ✓ Use magnets or scalpers (size selection) to remove possible debris from feed
- ✓ Cover metal cables with plastic sleeves
- ✓ Avoid the use of materials that could deteriorate and become a risk for consumption

- ✓ Regular equipment and facility maintenance
- ✓ Regular inspection of feeding areas



Regularly inspect cattle and facilities to monitor risks and potential consumption of foreign materials.



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Consumption of Twine or Net Wrap

Consumed twine and net wrap accumulate in the rumen, which can lead to negative health and production outcomes. **Removing these materials before feeding is the most effective way to avoid potential health issues.** Signs of twine or net wrap consumption include:

- (!) Weight loss
- (!) Abdominal pain
- (!) Poor coat condition
- (!) Lethargy
- (!) Diarrhea
- (!) Bloating
- (!) Straining to defecate

Impacts of Twine or Net Wrap Consumption

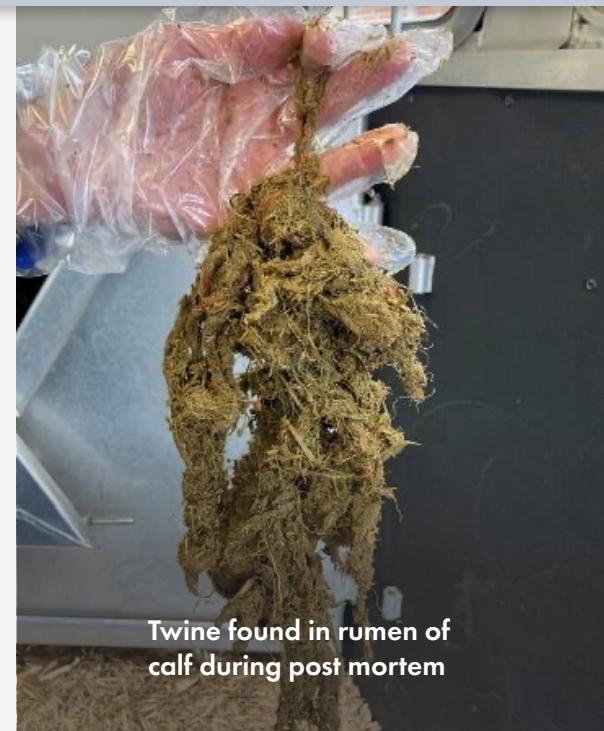


Digestive Blockage and Injury to the Digestive Tract:

Digestive Tract: Twine and net wrap are indigestible and can block the intestines, causing severe health problems. Pieces of twine and net wrap can also irritate the digestive lining, leading to internal bleeding or infection.



Bloating and Discomfort: These materials can cause pain, bloating and death from suffocation in severe cases.



Twine found in rumen of calf during post mortem

Preventive Measures

- ✓ Remove twine or net wrap before feeding.
- ✓ Regularly inspect feeding areas for foreign material.
- ✓ Regular equipment and facility maintenance.
- ✓ Consult a veterinarian if consumption of net wrap or twine is suspected.

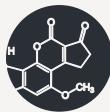


There is no treatment available for the buildup of net wrap or twine in the rumen.

Prevention is key to avoiding any health issues.

Consumption of Toxins

Consumption of toxins in feed or on pasture can have negative health outcomes for cattle, leading to poor productivity or even death. Common toxins that beef cattle may consume include:



Mycotoxins: Contaminated or mouldy grains, silage, hay, forages and by-product feeds (e.g., distillers' grains, screenings).

BeefResearch.ca/mycotoxins



Nitrates: Weather stressed (heat, drought, hail or frost) or excess nitrogen fertilization of plants including kochia, canola and annual crops (e.g., corn, barley, millet). BeefResearch.ca/nitrates



Prussic acid (cyanide): Certain plants like sorghum, Sudan grass, Johnsongrass, chokecherry and treated canola seed. Heightened risk in drought or frost stressed plants.



Botulism (*Clostridium Botulinum*): Decaying carcasses, spoiled silage or poorly preserved hay.



Lead: Improperly disposed batteries from farm equipment, contaminated waters, lead pipes or lead based paints.

BeefResearch.ca/lead



Toxic plants: Such as water hemlock, poison hemlock, death camas, lupine, red maple, oak, locoweed, monkshood, tansy ragwort, common tansy, henbane, stinkweed and tall larkspur.

BeefResearch.ca/toxic-plants

Preventive Measures



Testing: Test all feed and water sources suspected of being contaminated, or if they are at high risk of contamination with toxins.



Monitoring: Monitor weather conditions during growth and harvest, as moisture levels during these periods impact the risk of mycotoxins in forages. Cool, moist conditions during flowering favour ergot growth, while warm, moist conditions favour Fusarium development.



Proper feed storage: Keep feed dry and stored in well-ventilated areas to prevent mould growth and spoilage.



Timely vaccination: For certain toxins, such as botulism or clostridial diseases, vaccination programs can provide protection.



Expert guidance: If toxin exposure is suspected, work with your nutritionist and veterinarian to design a balanced diet and monitor toxin exposure regularly. Confirmed toxin exposure and recommended meat withdrawal instructions should be included in the health records of impacted animal(s).



Management practices: Rotate pastures and avoid overgrazing to minimize the risk of exposure to toxic plants and mouldy feed. Ensure proper pasture management, particularly after frost or drought. Regularly inspect pastures for any possible sources of lead.



Education and awareness: Stay informed about common toxins in your area by participating in local agricultural extension programs, industry groups and consultations with your agronomist and other farm advisors. Consider implementing a preventive control plan to identify hazards and limit risks associated with common toxins.