



AGRI-FACTS

Practical Information for Alberta's Agriculture Industry

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Lead Poisoning In Cattle

Lead is the most common cause of cattle poisoning in Alberta. Hundreds of animals in the province die each year or perform poorly after accidentally ingesting lead. Gradual poisoning may also occur in areas with heavy industrial pollution.

Lead poisoning can affect any cattle operation. Lead was likely responsible for the death of thousands of cattle and illness among tens of thousands of cattle over the past 20 years.

Some trends have emerged from the incidents of lead poisoning in Alberta. Poisonings usually involve animals from well-managed farms and ranches. Sometimes only one calf is affected. At other times more than 20 cows have been lost in a single poisoning incident.

Why lead affects cattle

Even a small amount of lead can kill cattle. Cattle will readily drink crankcase oil, lick grease from machinery and chew on lead plumbing and batteries. The lead in these materials settles in the stomachs of cattle, where stomach acids gradually change the lead into poisonous salts. Lead causes anemia when it combines with red blood cells and bone marrow. It damages the small blood vessels, causing bleeding, and deprives the nerves, the brain and other organs of oxygen. Lead severely damages the kidney and liver. It also causes sterility, fetal death and abortion.

Lead poisoning is most common among calves because they are curious feeders, and both milk and milk substitutes increase the amount of lead absorbed by calves. Sucking animals can also receive lead in their milk.

The sources of lead

More than 85 per cent of lead poisoning incidents among cattle in Alberta result from accidental consumption of discarded materials from farm vehicles or machinery. Used crankcase oil, discarded batteries, grease (which contains up to 50 per cent lead), leaded gasoline and used engine oil filters are the most dangerous materials. Drinking water that is contaminated from lead pipes or soldered tanks can be a cause of poisoning, particularly in areas where the water is soft.

Junk piles in pastures are another common source of poisonous materials. Other sources include some crop sprays, putty, lead-based paints and painted surfaces, roofing materials, plumbing supplies, asphalt, lead shot, linoleum and oil field wastes. Boiled linseed oil, which contains lead, may poison livestock when it is used as a laxative.

Lead poisoning can affect any cattle operation

How lead poisoning occurs

Lead poisoning occurs when the diet, housing or environment of cattle is changed. Poisonings are most common in the spring when animals are turned out to pasture, or in the fall when they are returned to the yard or held in the yard before shipping. These outbreaks happen because of cattle eating discarded materials that have accumulated in yards, barns or pastures since the areas were last occupied.

In one typical case, cattle were poisoned after they were placed on a pasture that contained several old cars and two drums of used crankcase oil. In another case, 30 adult beef cattle died when a discarded tractor battery, left in a field,

was accidentally chopped into corn silage. There are many reports of cattle that were poisoned after eating soil on which used motor oil had been spilled. Calves are susceptible to poisoning if they are crowded or kept in confined housing because of the abnormal feeding behaviours that they may develop.

How much loss to expect

Cattle that eat lead will likely die. A single battery left in a field can poison 10 to 20 calves. All animals with access to a source of lead are at risk. When one or two animals in a herd die or show signs of poisoning, other animals in the herd may also be suffering from lead poisoning. These animals may appear healthy, but be growing poorly as a result of subclinical lead poisoning.

Recognizing lead poisoning

Although clinical signs of poisoning normally precede death, most animals are simply found down or dead on the pasture. Clinical signs range from the subtle to the dramatic and take from two days to three weeks to develop. The first sign is often depression, loss of appetite or occasionally diarrhea. Cattle may grind their teeth, bob their head, or twitch their eyes or ears. Some animals may circle, press their head or body against objects, or become uncoordinated and stagger. Muscle tremors, excitement, mania, blindness or convulsions may also be seen.

Death usually results from respiratory failure during a convulsion, or is associated with misadventure such as drowning in a pond. After the onset of signs, cattle with acute poisoning usually die within 12 to 24 hours. In less acute cases, cattle may survive as long as four or five days.

If lead poisoning is suspected, have a veterinarian examine the affected animals to confirm the diagnosis. Abnormal nervous signs, a suspected source of lead and elevated lead levels in the blood all help with the diagnosis of lead poisoning in live animals.

In postmortem examinations, oil or lead particles may be found in the digestive tract. Non-specific changes in the tissues may be seen, such as pale muscles and hemorrhage in various organs.

It is often difficult to distinguish lead poisoning from other diseases that affect the nervous system of cattle. A correct diagnosis is extremely important for identifying the problem and preventing a recurrence of the disease.

Treatment of lead poisoning

Treatment for acute lead poisoning is seldom effective. The disease has usually progressed too far to be treated once clinical signs are seen. Treatment only stops or lessens the clinical signs of lead poisoning and must be begun early if an animal is to be saved. Treatment is complicated, costly and requires several days of therapy; therefore, it is usually reserved for valuable animals or for animals suspected of being poisoned but not showing signs of lead poisoning.

Preventing lead poisoning

Lead poisoning of cattle can be avoided if a farmer practises good waste management on the farm. Prevention is easier, cheaper and more effective than treatment by a veterinarian. The following practices greatly reduce the risk of lead poisoning.

- Do not leave petroleum products lying around or stored in open containers. Place used motor oil in sealed containers.
- Keep trash out of pastures and other sites that are used by animals. Fence dump sites and bury trash. A single dump site is safer than several sites. Clean up existing dumps.
- Dispose of used batteries without spilling their contents. Do not leave batteries in barns, pastures or the farmyard.
- Use lead-free paint on barns, fences or other structures in areas accessible to livestock. Keep paint cans closed, and do not discard them in areas used by livestock.
- Do not park farm machinery in the barn or near areas used by livestock. Service farm machinery in areas that are completely separate from animals.
- Avoid holding animals in a yard. No matter how clean the yard is, it may be difficult to eliminate all toxic substances or to ensure that others take the same precautions.
- Inspect all areas carefully before introducing animals to them. Most poisonings occur following a change of location.
- Be knowledgeable about lead poisoning and informed about the hazard it presents to livestock. Discuss waste management practices with neighbors and other producers to develop a community awareness of the hazards to cattle from lead.

For more information

Contact your veterinarian for additional information.

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