

## **DPI Primefact**

### Lead affected cattle

September 2022, Primefact 413, Third edition Liz Bolin, Veterinary Policy and Projects Officer, Animal Biosecurity, Wollongbar

# If you suspect that your cattle may be affected by lead, phone a private veterinarian or a Local Land Services Veterinarian on 1300795299, or The Animal Biosecurity Emergency Hotline – 1800675888 – which is monitored 24 hours a day.

#### Background

- Lead is one of the more prominent agricultural contaminants, with serious risks to livestock and to human health.
- Poisoning by lead can cause serious stock losses and various sources of lead are present on most farms.
- Producers must be aware of the signs and impacts of lead exposure in cattle, as well as the methods to prevent it, and the steps that can be taken to identify affected animals so they cannot enter the food supply chain.

#### Lead Sources

- Old lead acid batteries are the most common cause of lead poisoning in livestock.
- Battery cases become brittle over time and are easily broken by inquisitive cattle. The lead and lead salts that they contain are easily accessed and readily licked or eaten.
- Other causes of lead poisoning include: licking and eating lead based paint from old paint tins, buildings or other painted materials; eating ashes left after burning old painted materials; eating linoleum; and drinking sump oil.
- Silage contaminated by lead shot, automotive grease and oil filters, caulking, putty, leadlight windows and lead flashings on buildings can also be a source of toxicity.
- Lead from collars used in pipeline joins (e.g. on large water pipe lines) can also pose a risk.

#### Other risk factors

• Cattle are at risk of lead poisoning because they are inquisitive and commonly 'taste test' new finds – including old batteries, flaking lead paint, sump oil, ashes and just about any other potential lead source they come across.

- Lead and other heavy materials tend to lodge in the reticulum (fore-stomach) of ruminant animals. This provides a reservoir from which lead can continue to be absorbed into their bodies.
- The risk of lead poisoning increases during drought with less pasture cover making it more likely that stock will find hazards such as old batteries.
- Hungry stock may develop a depraved appetite (pica), particularly if also suffering trace element or mineral deficiencies.
- Hungry stock are also more inclined to break into 'no-go' areas, such as around farm sheds or the farm rubbish tip where there is some residual feed, or stock may be held in house paddocks to make feeding easier.
- Stock kept on agisted or leased properties present another potential risk due to livestock owners being less familiar with possible sources of lead

#### Symptoms

- Often the first sign of lead poisoning is finding dead stock sometimes near a fence or some other obstacle.
- Where affected animals are observed they show signs of central nervous system damage.
- They generally cease grazing and appear very dull and unresponsive. They are often blind and may walk aimlessly, including into fences and other obstacles, before becoming comatose and dying.
- In some cases these symptoms are accompanied by muscle twitches that may be more obvious around the face, ears and eyelids but can involve any area of the body.
- Paralysis of the tongue, circling and 'star-gazing' are also reported in some cases.
- Livestock may become frenzied and dangerous after an initial period of depression.
- Immediate veterinary advice should be sought for any livestock showing nervous signs.

#### Diagnosis

- Diagnosis of lead poisoning is based on a history of access to lead and clinical signs.
- Post-mortem examination may reveal lead particles in the reticulum of affected ruminants.
- Lead poisoning can be confirmed by testing tissue samples (liver or kidney) taken at postmortem or by testing blood collected in EDTA from live animals.
- Animals that have had an abnormal lead intake may show elevated blood lead levels for some time before they slowly fall to near normal levels.
- Lead levels in the liver and kidney of survivors can remain elevated for extended periods.

#### Treatment

- The treatment of stock affected by lead poisoning is often unsuccessful.
- Animals in the early stages of poisoning are more likely to respond than those that are seriously affected.

- The outlook is poor for any animal that has ingested a large amount of lead from sources such as old batteries, lead paint or other forms of lead that are more readily absorbed from the gut.
- All treatments should be carried out in accordance with veterinary advice.

#### **Chemical residues**

- Under the NSW Biosecurity Act 2015 all members of the NSW community have a general duty to take reasonable steps to prevent lead affected food producing animals from entering the food chain.
- Animals that have been exposed to lead must be managed to ensure food safety and market access issues do not occur.
- Animal tissues containing elevated lead levels are not acceptable for human consumption.
- Stock exposed to abnormal lead intake must not be slaughtered for human consumption until their tissues meet the national food standards.
- Some exposed animals do not show any signs of poisoning but may have eaten enough lead to cause tissue residues for this reason slaughter restrictions may be initially applied to some or, all of the exposed animals.
- Blood tests can be used to identify affected animals.

#### Preventing problems

- Producers, especially those with LPA accreditation, should take care to undertake and document a property risk assessment.
- By completing a risk assessment, lead and other contaminants can be identified and a plan for preventing exposure to lead can be put in place.
- Prevent stock from finding old batteries, lead-based paint, sump oil and similar poisoning risks in the farm rubbish dump or around the machinery shed.
- Batteries powering electric fences and other farm equipment also need to be secured from stock.
- Where possible remove any old batteries from your property by taking them to an approved recycling facility making sure that any broken battery cases and spilled contents are also removed.
- If your stock graze land with an easement for waterpipe, electricity or gas, check with the relevant authority that there is not lead risk associated with an installation.
- Check for any hazards before putting stock onto new country or by 'scouting ahead' when droving stock.
- If a potential hazard cannot be removed eg: tip sites and old houses, make sure that the site is well fenced and managed to prevent stock access.



Figure 1 Discarded batteries are the major cause of lead toxicity in cattle.

#### Acknowledgements

The Biosecurity Policy – Chemically affected food-producing animals, animal food commodities and stock food, is a collaboration between the NSW Department of Primary Industries and the NSW Local Land Services.

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