



## Toxicology Update - Toxicoses of 2024

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In 2024, the veterinary toxicology laboratory diagnosed 76 poisonings. These cases occurred in livestock predominantly, however cases were also seen in companion animals and wildlife. In livestock, the most commonly diagnosed poisoning in cattle was acute lead toxicosis. The lab diagnosed 32 cases in total, corresponding to 20 herds affected. Most cases occurred in Saskatchewan (9 herds), followed by Alberta (7 herds), Manitoba (3 herds), and British Columbia (1 herd). Most cases were diagnosed postmortem using liver. Lead poisoning has been the most common poisoning in cattle for the past several decades. As such, any cattle herd with polioencephalomalacia (PEM) symptoms should be tested for lead. Additionally, in herds with lead-poisoned cattle, all members of the herd should be tested for lead exposure. Whole blood (i.e., a green top tube) is the sample of choice to check for lead exposure and poisoning in live animals.

Lead poisoning was also the most commonly diagnosed poisoning in wildlife in 2024. The wildlife species affected were Bald Eagles, Golden Eagles, and Trumpeter Swan. Wildlife, particularly carrion scavengers like eagles, become poisoned by consumption of lead fishing tackle (like sinkers, for example) and spent lead ammunition from scavenging carcasses.

The second most commonly diagnosed poisoning in livestock in 2024 was chronic copper toxicoses. This was diagnosed only in small ruminants. In one case that described classic lesions of chronic copper toxicoses had hepatic copper within the normal range. Fortunately, the veterinarian had also collected kidney, and the copper concentration in the kidney confirmed the suspected diagnosis. This highlights the importance of submitting both liver and kidney in cases where copper poisoning is suspected. Small ruminants, especially sheep, are more susceptible to chronic copper toxicosis due to enhanced uptake of copper into the liver and slower elimination of copper from the body. When chronic copper poisoning occurs in a flock, the source of copper needs to be identified to prevent further exposure. This poisoning tends to be a herd-level problem as the feed is the most common source of excess copper.

The third most frequent diagnosis in livestock was salt toxicosis, also known as sodium ion water deprivation poisoning. Salt poisoning is another differential diagnosis for PEM symptoms, in livestock, especially where there is a history of water deprivation. Salt poisoning was also diagnosed in wildlife as well, specifically ungulates. Water deprivation can include lack of water consumption due to poor palatability, competition for water amongst the herd, or inaccessible water (i.e., frozen watering bowls or electrified water). Brain is the sample of choice for diagnosis in decreased animals.

In terms of companion animals, the toxicology lab diagnosed five cases of poisoning in dogs. This included three cases of poisoning with the rodenticide strychnine (all of these dogs were from the same household), one case of acetylcholinesterase inhibitor insecticide poisoning (i.e., organophosphate or carbamate insecticides), and one case of salt poisoning. In exotic companion animal species, zinc poisoning was diagnosed in a parrot and hypervitaminosis A was diagnosed in a turtle.

If you have any questions regarding diagnostic testing for suspect poisonings or would like to consult on a case, please do not hesitate to reach out at [vanessa.cowan@usask.ca](mailto:vanessa.cowan@usask.ca).