



Vet Call

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Plants poisonous to livestock

Many producers suffer production and death loss each year due to their cattle's consumption of toxic plants. These losses can range from subtle production losses to abortion storms or rapid and widespread death loss. Because plants are immobile and relatively defenseless, many have developed chemical protection mechanisms. Many plants are poisonous to livestock during all phases of growth and under all circumstances, whereas others are toxic only under certain conditions. Plants that can be toxic to cattle are present in all parts of the United States. Your veterinarian, Extension resources and certain Web sites (see below) are all good sources of information about the plants in your geographic area that are potentially dangerous to cattle.

Toxic plants

Toxic plants cause problems only if cattle eat them. Many times, if forage is plentiful, toxic plants can be present in a pasture without cattle consuming them and without causing problems. However, during periods of drought or overgrazing, toxic plants may be the only green forage available, and cattle that would normally avoid the plants begin to consume them. In other situations, storms may blow down limbs from trees that have toxic leaves (cherry), bringing them into contact with cattle when they would normally be out of reach. A few toxic plants are relatively palatable to cattle, and others become more palatable if they are killed by frost or herbicides.

Trees or shrubs that can be toxic to cattle include oak, Japanese yew, buckeye and ponderosa pine, which causes abortion. Toxic weeds include pigweed, locoweed, water hemlock, poison hemlock, milkweed, larkspur and perilla mint. Fescue and ergot toxicosis are due to toxins found in fungi that can infect otherwise safe plants. And blue-green algae, which can be present on stagnant water in late summer, are highly toxic to cattle. Nitrates (in johnsongrass, Sudan-sorghum hybrids, kochia, millet, lamb's-quarter) and cyanide (in cherry, johnsongrass, Sudan-sorghum hybrids, milo, arrowgrass) are normally present components in some plants, but they can increase to dangerous levels during certain growing conditions. And some plants accumulate toxic levels of the mineral selenium (locoweed, goldenweed, ironweed, saltbrush).

Some toxic plants cause damage to the heart (milkweed, dogbane, larkspur). Others cause liver (blue-green algae, cocklebur, horsebrush, groundsel) or kidney (oak,

pigweed) damage. Some plants cause damage to the nervous system (blue-green algae, locoweed, hemlock, milkweed, nightshade, larkspur), respiratory tract (perilla mint, mustards, lush grass) or digestive tract (pokeweed, mustards, nightshade). And still others cause birth defects and abortion (locoweed, poison hemlock, ponderosa pine, lupines).

Diagnosing poisonings

In order to diagnose suspected plant poisonings, you should work with your veterinarian and a veterinary diagnostic laboratory. Your veterinarian can help you develop an accurate history and time line for the problem. To identify the cause of losses due to poisonous plants, the premises and feedstuffs should be inspected, both live and dead animals should be examined, and diagnostic samples of plants, blood and tissues should be properly collected and preserved in formalin, then evaluated by trained diagnostic laboratory personnel.

The presence alone of potentially toxic plants in pastures or hay is not sufficient for definitive diagnoses of plant intoxications. However, finding evidence of consumption of potentially toxic plants by animals, either by observing evidence of grazing of the suspected plants or by finding parts of these plants in the digestive tract of a deceased animal, is highly suggestive of poisonings involving the consumed plants.

Animal behavior and signs of disease that are consistent with poisoning further support

the tentative diagnosis of intoxication by specific plants. In addition, tissue samples that have characteristic damage when viewed under a microscope may help point to poisoning by particular plants. Blood tests from sick animals may indicate the effects of plant toxins on the liver, kidneys, heart and muscle. For some plant intoxications, confirmatory analyses can be performed on frozen plant material and/or rumen contents (for nitrates and cyanide), chilled fluid from the eye (for nitrates), and occasionally (depending on the laboratory) samples of liver and kidney tissue.

Control methods

To control and prevent losses due to toxic plants, producers should be able to recognize the plants that are of concern in their area and to use good forage and grazing management, fencing, and herbicides to minimize the

contact between cattle and potentially dangerous plants. If it appears that a toxic plant problem is occurring, cattle should be removed immediately from the suspected pasture, and a veterinarian should be contacted.

Antidotes exist for only a few types of plant poisonings; therefore, the most common methods to reduce losses are to remove animals from areas containing toxic plants and to introduce safe feed in an attempt to dilute the offending portion of the diet.

Herbicides used to control poisonous weeds are generally safe when stored, handled and used in accordance with label directions. Most are low in toxicity, but a few are poisonous to humans and to animals. Herbicides should always be stored in closed, well-labeled containers in a location separate from feed and feed ingredients.

One frustration when dealing with toxic plants is that toxic agents or palatability of some plants is increased during the wilting stage of plant death, and spraying with herbicide causes an increase in toxicity. Therefore, one of the most obvious control measures, spraying toxic plants, may temporarily make the situation worse rather than better. Always consult with weed specialists to determine the best herbicide product and timing choices when attacking a poisonous weed problem.

Related Web links

<http://cal.nbc.upenn.edu/poison/>
www.library.uiuc.edu/vex/toxic/intro.htm
www.ansci.cornell.edu/plants/index.html
www.vth.colostate.edu/poisonous_plants/report/search.cfm

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