Steps to Prevent Plant Poisoning

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Every year, poisonous plants cause death, temporary and chronic pain and illness, abortions, decreased productivity, and birth defects involving hundreds of thousands of grazing and browsing livestock. The annual economic loss amounts to hundreds of millions of dollars. Although less is known about llama and alpaca susceptibility to plant toxins than other livestock, there are documented cases of poisoning of llamas by at least Oleander; Mountain, Black or Sierra laurel (Leucothoe davisiae); Rhododendron; Water hemlock (*Cicuta* spp.); Ponderosa, Western or Yellow pine (*Pinus ponderosa*); Yew (*Taxus* spp.) and Death camas (*Zigadenus* spp.). Camels reportedly have been poisoned by African plant species identical or related to western U.S. plants: Thornapple (*Datura stramonium*), Milk or Pencil bush (*Euphorbia tirucalli*), Lantana, Castorbean or Castor-oil plant (*Ricinus communis*) and Sorghum.* Time will tell more about how lamas react to other plants that have harmed horses, sheep, cattle, goats or pigs, but using caution in allowing them access is the best policy in the meantime.

For complicated reasons of plant and animal evolution, well-nourished herbivores will generally avoid eating most toxic plants. The toxins in some plants make them unpalatable to animals–they either smell or taste bad. Animals learn from other animals, particularly their mothers, to avoid some of the other poisonous plants. Still other poisonous plants produce a disagreeable physiological sensation soon enough after ingestion that animals learn not to eat them at all or they stop before consuming toxic quantities. But these mechanisms of safe eating are not foolproof. As noted, above, poisoning does occur and when it does, it can be devastating to both animal and owner.

There are a variety of reasons why livestock eat poisonous plants. There are some to which livestock have been found to be attracted. Some unpalatable plants appear to lose their disagreeable odors or tastes when dried (as in hay); a significant cause of poisonings is consumption of toxic plant parts mixed in hay, silage, grain, or processed feed. Some typically safe plants become toxic when fertilized or treated with certain herbicides. They may simultaneously become more palatable. Weather stresses and other natural conditions may convert the non-toxic to toxic. Probably most importantly, if put into a situation where only poisonous plants are available or where they make up a large percentage of available forage, animals will eat them.

Whether or not animals will be sickened by ingesting particular toxic plants is also a complex matter. Not all species of livestock are equally affected by or susceptible to various plant toxins. For example, it is thought at this time that only equines contract “chewing disease,” a devastating illness involving irreversible brain damage caused by consumption of toxic amounts of *Centaurea solstitialis* or *Centaurea repens* (commonly known as Yellow starthistle and Russian knapweed, respectively). I personally choose to err on the side of caution and avoid feeding hay to our llamas that contains this plant. The relative health of the individual animal (or, if a ruminant, of the microflora in its rumen) can figure into how well it can handle some toxic substances in the plants it consumes. The digestive systems of some animal species can adapt to be able to detoxify higher levels of toxins with exposure. A substantial quantity of some plants must be ingested to trigger illness or death. A couple of leaves of other plants can kill.

Despite all of these variables (and more), experts agree that plant poisoning can be minimized. The best means is a combination of effective use of good information about toxic plants and the provision of adequate amounts of safe alternative food. In the unhappy event that poisoning occurs, being informed may facilitate effective response.

Here are some suggestions that may help owners of livestock of all types protect their animals from poisoning:

- Pasture management is critical. Learn about plants in pastures and the animals that will graze there. Seek help from Extension agents and others, if necessary. Some options:
    - Eliminate or fence securely around toxic plants, especially if animals may find them palatable or if they are highly toxic or abundant. NOTE: If you grub out highly poisonous plants such as the various Water hemlock species (*Cicuta* spp.), take appropriate precautions to protect yourself and others, especially children.
    - If animals will have access to less palatable toxic plants, ensure that they always have adequate safe forage available. Check plant levels and types periodically. Do not overgraze.
    - Watch carefully in early spring or late fall when toxic plants may be more prevalent than others.
    - Know which plants are drought resistant. They may be the only food available under some circumstances.
    - Watch out for toxic plants that are evergreen from fall to spring.
    - Ensure that animals have adequate water, as well as salt and mineral supplementation, if needed.
    - Avoid giving access to plants during their toxic season(s).
    - Check on your pastured animals regularly and know the signs of poisoning to allow prompt action in case poisoning occurs.
    - Be careful with herbicides (including those that may be applied by others, e.g., local government entities). Learn about their direct effect on animals, whether animals may be attracted by application of the product and, if palatability is likely to increase, know about the inherent toxicity of those plants.

- Be prepared to identify and respond appropriately to toxic plants when animals will be taken into unfamiliar areas. New poisonous plants may be eaten simply because the animal has no experience with them.

- Avoid driving animals through areas with high concentrations of toxic plants, particularly if they are hungry.

- When tying, picketing, or staking animals, identify, and avoid areas where they are likely to consume toxic plants. If at all possible, find a place that is grassy, rather than leafy. Most, although not all, wild grasses are safe forage. [Be able to identify and avoid *Triglochin maritima* (known in most areas as Seaside arrowgrass) and *Zigadenus* spp. (commonly known as Death camases, but there are several other common names).]

- Do not assume that others know about poisonous plants. Feeding animals “treats” seems to be an almost irresistible urge of humans. Educate both adults and children who may come in contact with animals so that they know not to feed them leaves, fruits, etc. (*This exercise will also alert children to the whole issue of poisonous plants. Many plants are at least as dangerous for children to eat as livestock*.) Consider providing visitors with “official treats” that animals like and can safely eat.

- If animals are rented or lent to others, orient the temporary caretakers to toxic plants along with other instructions on care and handling. Provide plant identification resources to be taken along with the animals.

- When selling animals, ensure that buyers are aware of toxic plants. Consider providing pertinent materials to the new owners.

- Do not feed yard or garden vegetation (clippings or trimmings) to livestock.

- Try to arrange to walk uncut hay fields before buying and check hay when feeding. Buy grain and processed feeds from reputable sources.

- Consider removing toxic trees and shrubs in corrals, pastures, and yard that could be accessible to livestock. Of course, the urgency of this measure depends on the toxicity of the plants.

- Anticipate accidental circumstances such as leaves blown by wind or the fact that animals sometimes get out.

- The safest course during Christmas and other holidays is to avoid feeding trees or other greenery to livestock. Although *Pinus ponderosa* (Ponderosa pine, among other common names) is the most commonly referenced harmful member of the *Pinus* genus, other species and other conifers also may be toxic, especially if consumed in large quantities over a short period. Many common types of holiday decorative greenery can be deadly.

- Check branches and tree limbs brought down in pastures by storms to ensure that they are not from toxic trees.

- Plant poisoning is generally a complex medical situation and will probably require a veterinarian’s evaluation and care. The following may be helpful for livestock owners to keep in mind:

    - Establish a connection with a veterinarian before an emergency arises. Locate a practitioner familiar with your species of animal(s) and involve him or her in routine care.

    - Ask for information about any plants in the area that may already have caused problems. If other animals have been poisoned by local plants, there is a good chance that local veterinarians at least will be aware of that. They also may have some good advice to give you about prevention or response or both.
    - If you will be taking animals into a situation where veterinarian assistance will be difficult to obtain, ask your veterinarian to discuss some prudent actions to take in the event of poisoning. Always notify a veterinarian when plant poisoning is suspected. Be prepared to provide him or her with as much information as possible about the situation.
    - Discuss appropriate supportive/symptomatic care you may be able to provide to sick animals and be prepared to provide it until assistance arrives.
    - Try to identify any suspect plants.
    - Get a sample.
    - Inspect the area where the animal was grazing. Try to determine the amount and duration of consumption.
    - Observe and make careful note of any physiological or behavioral signs the affected animal may exhibit.

- Keep an open mind and investigate other possible toxic agents to which a sickened animal may have been exposed, as well as the possibility that another type of illness may be involved.

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*Murray E. Fowler, "Plant Poisoning in Camelids" in *Poisonous Plants - Proceedings of the Third International Symposium*, Ames: Iowa State University Press, 1992, pp. 335-39.

Shirley Weathers, co-owner of Walsh & Weathers Research and Policy Studies and *Rosebud Llamas Utah, excerpted this article from her book,* Field Guide to Plants Poisonous to Livestock–Western U.S. *The book is designed to help livestock owners recognize over 100 toxic plants (many of which are also found nationwide) and provide adequate basic knowledge to consider effective animal or pasture management responses when those plants are present. Possible physiological and behavioral signs of poisoning are also provided, as well as types of care or treatment that may be helpful. The field guide is $14.95, plus $3.00 shipping for one book and $1.00 for each additional book. Mail orders to Rosebud Press, P. O. Box 270090, Fruitland, UT, 84027-0090. For questions or comments, phone (435) 548-2630, FAX (435) 548-2438, or email walsh.weathers@gmail.com. Visit http://users.ubtanet.com/wrw/ to see sample plant entries from the book. Foreword by Peter R. Cheeke, Professor of Comparative Animal Nutrition and Toxicology, Oregon State University, Corvallis, OR. Peer reviewers include Dr. Murray E. Fowler, Department of Medicine and Epidemiology, University of California at Davis (retired) and Dr. Charlotte Means, National Animal Poison Control Center.*