

# Plan Around Poisonous Plants

**O**n Western rangelands, more than 20 species of plants have been found to cause locoweed poisoning in livestock. Most are colorful *Astragalus* and *Oxytropis* species that add beauty to the landscape. But these pretty blooms cost the livestock industry millions of dollars each year in reduced weight gains and even deaths among cattle, horses and sheep. Abortions and infertility are also common among livestock grazing locoweed ranges.

Even after cattle are taken off the range, the effects of locoweed poisoning follow them to the feedlot. Research studies have shown that stocker cattle lose weight while grazing locoweed and do not gain again for several weeks after they stop eating the poisonous plant. Research has shown that at the feedlot, steers that have ingested locoweed have weakened immune systems, were slower to start gaining weight and finished approximately 66 pounds (lb.) lighter than healthy steers from the same lot — thus increasing the time and expense of finishing to the desired market condition.

Despite its toxicity, livestock often find locoweed palatable, especially in early spring and late fall. Locoweeds are cool-season species that are the first plants to start growing in the spring. (For a list of plant names see sidebar “Common names,” page 151.)

Livestock generally prefer the green-growing locoweeds to forage that is dormant. By summer, when green grass is

## The risk of locoweed poisoning to livestock can be lessened through range management.

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plentiful, research has shown that cattle and sheep typically stop grazing locoweed. However, researchers have found that when summer precipitation is abundant, locoweed leaves remain succulent, and livestock may continue to graze it.

### Grazing strategies

Fortunately, wise grazing strategies can help producers minimize the threat of

locoweed poisoning to their livestock. Researchers at the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) Poisonous Plant Laboratory in Logan, Utah, have been dedicated to this effort for many years. Range Scientist Michael Ralphs offers a review of their locoweed research and management recommendations:

**(1) Restrict access.** The most effective management strategy to minimize locoweed poisoning is to deny livestock access to locoweed during critical periods when it is more palatable than associated forage. This typically means that cattle should be kept off locoweed-infested areas in the spring (late March to early June) when locoweed is green and growing, and warm-season grasses remain dormant, Ralphs says.

A practical grazing plan would be to remove livestock from locoweed rangelands during the spring, and then return them to locoweed-infested pastures in summer when warm season grasses are abundant, he suggests.

Most locoweed species are endemic and grow only in certain habitats or on specific soils. Therefore, if multiple pastures are not available, fences could be constructed around these areas to keep livestock out and provide seasonal control of grazing, as well.

### (2) Consider herbicide controls.

Reserving locoweed-free pastures or

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## Confronting myths about locoweed

- Many minerals and feed additives have been investigated to prevent poisoning, but none has been found to be effective or to discourage cattle from grazing locoweed, according to Michael Ralphs, with the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) Poisonous Plant Laboratory in Logan, Utah.
- Growth implants did not influence locoweed consumption or poisoning.
- Vitamin E and selenium injections have also been tested to hasten recovery from locoweed poisoning, but such treatments have not been successful.
- Poisonous-plant literature is filled with statements that native

livestock are less likely to be poisoned than new, inexperienced livestock. But locoweed poisoning does not follow this general trend. In fact, cattle that are familiar with locoweed will likely graze it first.

- Cattle on a higher plane of nutrition, such as alfalfa hay or winter wheat, have also been studied to determine if they may be more inclined to graze locoweed in the spring. However, these practices did not increase locoweed consumption.
- In a recent grazing study comparing breeds, Brangus steers consumed more locoweed than Hereford and Charolais steers. The gregarious nature of Brangus cattle may have facilitated the social acceptance of locoweed among the steers.

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controlling existing locoweed populations with herbicides can provide “safe” pastures for critical periods. Locoweed-free areas can be created by strategic herbicide use.

However, natural population cycles should be considered to determine the practicality of spraying large areas and the potential lifetime of control.

“With the abundant seed bank in the soil, locoweeds are sure to germinate and reestablish when environmental conditions are favorable,” Ralphs says.

### (3) Sort out animals that graze locoweed.

Animals that start eating locoweed may influence others to start, Ralphs cautions. Therefore, it’s important to watch animals closely and to remove those that begin eating locoweed. This can prevent further intoxication to those animals and prevent them from influencing others to start grazing locoweed.



► Overstocking pastures can force cattle to begin grazing locoweed when they run short of desirable forage.

**(4) Don’t overstock locoweed-infested areas.** Grazing pressure can also force cattle to begin grazing locoweed when they run short of desirable forage.

“Producers should not overstock locoweed-infested ranges, but rather should ensure adequate forage is always available,” Ralphs says.

Improper use of some grazing systems can also cause livestock to graze locoweed. Rest-rotation grazing systems are designed to force livestock to uniformly graze all forage in a pasture. However, this caused cattle and horses to start grazing spotted

locoweed in western Utah, Ralphs reports.

In another study, changing to a three-herd, four-pasture deferred rotation grazing system stopped locoweed poisoning by reducing the grazing pressure and allowing the cattle to select alternative forages in

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## Locoweed and larkspur

Chances are you’ve heard of both locoweed and larkspur poisoning livestock, but there’s a world of difference between the two plants and the type of poisoning, says Michael Ralphs with the U.S. Department of Agriculture (USDA) Agricultural Research Service (ARS) Poisonous Plant Laboratory in Logan, Utah.

Larkspur poisoning is generally a high-mountain problem, according to Ralphs. Tall larkspur grows at 8,000 feet (ft.) and above. “The poisoning is very rapid and will leave animals dead within a few hours of eating larkspur,” Ralphs says. Plains larkspur, found primarily in Wyoming, can cause the same effect.


“Locoweed causes more of a wasting-type poisoning that affects an animal for several months,” Ralphs says. The greatest economic losses from locoweed poisoning are due to reproductive failure and weight loss due to starvation.

preference to white locoweed. The heavy grazing pressure associated with short-duration grazing systems may also induce poisoning problems.

**(5) Train animals to avoid locoweed.**

Conditioned food aversion is another effective practice and may be economical where losses are large and persistent, Ralphs says. This management tool entails training animals to avoid grazing locoweed. In the conditioning protocol, animals are brought into a pen and fed freshly picked locoweed.

Lithium chloride (an emetic that causes gastrointestinal distress) is then administered by a stomach tube. The animals associate the induced illness with the taste of the plant and subsequently avoid eating it.

Naive animals that are unfamiliar with the target plant form strong and lasting (more than three years) aversions following a single dose. However, averted animals must be kept separate from non-averted animals on locoweed areas to prevent social facilitation from extinguishing the aversions. 

**Common names of locoweed species**

Rattleweed • Horse loco  
Two-grooved milkvetch • Drummond milkvetch  
Red stem peavine • Ground cover milkvetch  
Spotted locoweed • Great rushy milkvetch  
Missouri milkvetch • Woolly loco  
Beaked milkvetch • Diablo loco • Pursh loco  
Brine milkvetch • Ashen milkvetch  
Thurber milkvetch • Garbancillo • Red loco  
Yellow loco • Lambert locoweed  
White locoweed