

# Reducing Losses Due to Tall Larkspur Poisoning



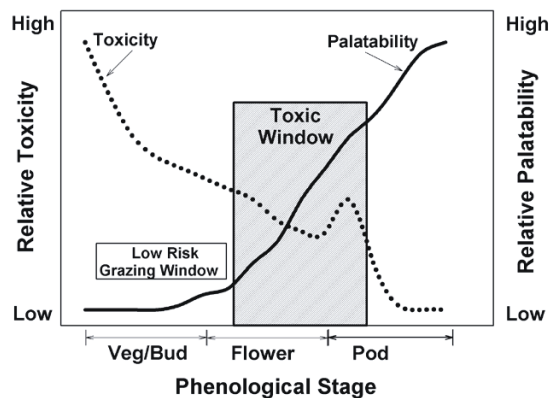
**T**all larkspur reduces pasture use and can cause death in cattle. In the West, over-ingestion of tall larkspur causes average death losses of 4-5%, but can exceed 15% on some ranches. In addition, the presence of tall larkspur in some pastures may force ranchers to avoid those pastures during peak forage growth in late spring and early summer. Several management strategies can be used to reduce poisoning and increase use of rangelands where tall larkspur grows.

**Identification.** Tall larkspur generally grows 36 to 72 in. tall and has a characteristic spur that may be nearly 1/2 in. long on the (usually) blue flower. Tall larkspur has many hollow stems, with wide-bladed leaves growing from slender leaf stalks.

**Signs of Poisoning.** Cattle eat tall larkspur because it is nutritious, but it also contains several alkaloids, two of which are very toxic. Toxic alkaloids affect cattle by inhibiting nerve impulses at the junction of the nerves and muscles causing muscle paralysis. Symptoms of larkspur poisoning include muscle weakness, staggering gait, inability to stand, bloat, respiratory failure and death. Affected animals should not be moved because stress will hasten their death and should be treated by a veterinarian.

**Understanding Risk.** By estimating the toxicity and palatability of tall larkspur, producers can estimate the potential poisoning

risk to cattle. Alkaloid concentrations in larkspur vary throughout the growing season. The risk of poisoning depends on how much larkspur is eaten and the concentration of toxic alkaloids (Figure 1) as well as the variation among individuals to tolerate the toxin. When alkaloid concentrations are low (i.e., less than 3 mg/g), cattle can safely eat large amounts of larkspur; conversely when concentrations are relatively high (i.e., greater than 6 mg/g), eating small amounts of larkspur can be fatal.



**FIGURE 1.** Relative relationship between tall larkspur toxicity and palatability. Tall larkspur toxicity declines as plants mature, however, palatability to cattle usually increases after tall larkspur flowers. Thus, cattle deaths are most likely to occur from the flower to early pod stages when consumption usually increases and plant toxicity is still relatively high.

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Palatability and toxicity of tall larkspur increases through the summer, peaking when larkspur pods are abundant. Cattle generally eat little or no larkspur before it flowers. Consumption begins when the flowers are partially or fully open and increases as larkspur moves into pod stage (Figure 1). Leaf toxicity typically decreases with maturity, but pods, which are highly preferred by cattle, contain high concentration of alkaloids. Producers who observe cattle eating flowers during the early or full flower stages should be aware that this could mean high consumption later in the summer when larkspur pods are abundant.

**Reducing Losses.** Various management strategies may reduce cattle losses to tall larkspur but may require more intensive management for most livestock producers. They include:

*Early and Late season grazing:* Since cattle generally eat little tall larkspur before it flowers, producers may have 4-6 weeks of low-risk grazing early in the summer. During late summer and fall after seed pod shatter, toxicity decreases cattle can be moved to larkspur-dominated sites providing weeks of low-risk grazing while resting other areas of the range.

*Herbicidal control:* Pictoram at 2.2 lb/acre kills tall larkspur when applied in the vegetative, bud, and flower stages. Control with herbicides is most economical when larkspur grows in dense patches that can be effectively treated.

*Sheep grazing before cattle:* Larkspur is much less toxic to sheep than cattle. Sheep may be used to graze or trample dense patches of tall larkspur, thus reducing availability and/or palatability to cattle.

*Herding:* On ranges where larkspur grows in patches, herding cattle into areas with less larkspur may reduce losses. Herding can also move cattle to fresh feed and keep animals away from riparian areas.

**Training cattle to avoid larkspur:** Cattle can be trained to avoid tall larkspur but this may be cost prohibitive for most producers. For additional information see fact sheet # 2.1.1 "Training Animals to Avoid Foods".

**Sampling to Assess Risk.** Select an area or pasture where cattle deaths have occurred. Walk an imaginary line through a pasture, and depending on the density of the tall larkspur and the distance across the pasture, select the nearest larkspur plant every 10 or 20 paces. From each plant select a leaf or two, some flowers, and some pods. Sample a total of 20 to 30 plants. Place leaves, flowers and pods separately into 3 paper bags and label each bag. Leave the samples on your dashboard for a day to partially dry them. Do not microwave samples to dry. Mail samples to: Poisonous Plant Research Laboratory, 1150 E. 1400 N., Logan, UT 84341 for analysis. There is currently no cost for this service.

Ranchers should identify tall larkspur in their pastures, and pay strict attention to evidence of grazing larkspur. Further, ranchers should watch their cattle during active grazing to get an idea of how much larkspur cattle are eating. These observations, combined with larkspur samples sent to PPRL for toxicity testing, will provide valuable information to make decisions about grazing management. For more detailed information, visit the online handbook "Grazing tall larkspur ranges: A livestock producer's decision-making handbook" at [www.behave.net](http://www.behave.net).

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