Poisonous Plants: Locoweeds

Lynn F. James

The locoweeds, certain species of the genera *Astragalus* and *Oxytropis*, are one of the most destructive groups of plants poisonous to livestock.

There are over 300 species of *Astragalus* in North America. The taxonomy of this group of plants is difficult and often requires the help of a trained taxonomist for positive identification. For many years the genera *Oxytropis* was included with *Astragalus*. Many feel that the basis for the separation of the *Oxytropis* from the *Astragalus* was inadequate. Due to this close taxonomic relationship and because of the similarity in the toxic effects of these two genera on livestock, we shall consider them together.

Description

Astragalus species may be annual or perennial, stemmed or stemless herbs which display a diversity of growth, stature, and general appearance. The leaves are alternate and pinnately compound. The flowers are leguminous. The fruit is a legume pod of various sizes, shapes and surfaces that contains one to many kidney shaped seeds. One of the remarkable features of *Astragalus* is that all species differ from one another in the form or structure of the fruit. The seeds of some desert *Astragalus* may retain their viability for up to 40 years or longer.

Oxytropis may be distinguished from *Astragalus* by the keel (lower most petal) of the *Oxytropis* which is prolonged into a long distinct point. The keel petal on *Astragalus* is blunt.

Toxic Principle

Not all species of *Astragalus* and *Oxytropis* are toxic. Those that are can be divided into three general groups as follows: (1) about 21 species of *Astragalus* have the ability to accumulate selenium at levels that render them toxic, (2) the nitro-containing *Astragalus* that have as their toxic constituent the β-D-glycoside of 3 nitro-1-propanol or 3 nitro-1-propionic acid (these plants produce chronic or acute intoxication depending upon the rate at which they are consumed), and (3) locoweeds have been shown to contain an indolizidine alkaloid called swainsonine which is now thought to be the toxin in this group of *Astragalus*.

Toxicity

The name loco is derived from the Spanish word for crazy and is used to describe the particular intoxication and the group of plants causing the condition. Many use the term *loco*, incorrectly, to describe all *Astragalus* species

The following is a partial list of the locoweeds: *A. lentiginosus, A. mollissimus, A. wootonii, A. pubentissimus, O. sericea,* and *O. lambertii.* The locoweeds cause numerous problems in livestock, including neurologic effects, reproductive alterations, emaciation, and habituation. Neurological problems are reflected by signs of poisoning which include depression, slow irregular gait, rough hair coat, dull appearing eyes, muscular incoordination, and excitement when stressed. The reproductive consequences include abortions, birth defects, birth of small offspring, and alterations in spermatogenesis and oogenesis.

The locoweed, Astragalus lentiginosus.

If animals graze locoweed for a considerable time, they become emaciated and may become recumbent and die. Recovery depends on the extent of intoxication. Animals that have become poisoned may continue to show signs of poisoning when placed under stress. Such animals may recover to the extent they can reproduce but horses that are used for riding or draft purposes become useless and should be disposed of.

Once animals have started to graze locoweed they seem to search for it and at times graze it at the exclusion of other and oft times more desirable forage.

The locoweeds are toxic during all stages of growth and after they become dry. Livestock must graze the locoweeds over an extended period of time before intoxication occurs. The time is closely related to the rate at which they graze the plants. Usually by the time intoxication is obvious, damage has been done to the animal.

The locoweed, Oxytropis sericea.

Conditions of Poisoning

The desert species of the locoweeds usually germinate and grow during warm moist conditions of late summer and fall. The plant often remains green during the late fall and winter. When the locoweed is green and other forage is dormant and dry, locoweed increases in palatability and animals may start grazing it. They may also start grazing locoweed during periods of drought when little other forage is available, especially if the locoweed is green. However, livestock have become intoxicated on dry plant material. Livestock may start grazing locoweeds for no apparant reason. The locoweeds are not considered to be especially palatable.

Prevention

Maintaining ranges in a good condition with a variety of desirable forage species is the first step in preventing locoweed poisoning. Livestock should be prevented from starting to graze the locoweed plant. This may involve supplemental feeding programs, or development of locoweed free pastures. If livestock start grazing locoweed, they should be moved from the areas infested with the plants; only the offending anmals may need to be moved.

The locoweed *Oxytropis sericea* has been successfully controlled in some areas by spraying it with 2 lb of the low volatile ester of 2,4-D.

Selected Reading

James, L.F., W.J. Hartley, and K.R. Van Kampen. Syndromes of Locoweed Poisoning. Amer. Jour. Vet. Med. 178:146-150. 1981.

A New Year • New Programs • New Challenges • New Opportunities

During the Gulfport meeting we presented a composite of ideas from members and the staff to the Board of Directors. The following are some of the ideas we present for your review and support.

Remember that your committee, the staff, and the Board can develop programs and present ideas and approaches to help increase membership.

Membership is and always will be a Section responsibility. Only with your cooperation, hardwork, and dedication can we increase membership. Only with membership growth can we increase the awareness of the importance of the proper use of the range resource.

The following are some of the programs we hope to pursue in the 1984 membership year.

1. We plan to bill all members on September for the upcoming year. Another billing will be sent out in December. Reminders will be mailed on January 20 and March 20.

2. The staff has completed a list of all dropped members for 1980, 1981, 1982. These people will also receive the billings mentioned in item 1. (Might be surprised by how many rejoin who are already acquainted with SRM.

3. The staff, committee, and Section officers will work together to compile listings of all people from USFS, SCS, Extension, BLM, BIA, state fish and game, and others who have interests in range. We hope to work hard to see that all these people are contacted about SRM and the benefits of membership.

4. We plan to establish an Industry Sustaining Membership Category and have this in place for 1985. Will probably work on some people for 1984.

5. We plan to establish recognition plaques to recognize different groups for increases in membership. We will recognize the first, second, and third place winners in each of these categories.

A. The Section with the greatest percentage of increase membership.

B. We will recognize the top three members who have recruited the greatest number of memberships other than student memberships.

C. We will recognize the top 3 student or youth organizations with the greatest percentage increase in membership.

Guidelines for the awards will be sent to the Sections and published in the next *Rangelands.*

6. The Denver Staff is reinstating the program of yearly stickers for your membership certificates. Stickers for the years 1980, 1981, 1982, and 1983 are also available upon request to the Membership department. The 1984 sticker will be enclosed with 1984 Dues Notice.

7. We strongly suggest that membership information be displayed at all SRM Functions and that strong efforts be put forward to solicit new members at these functions.

8. We would appeal to all members to consider life membership in SRM—a real savings to the member and also a financial boost for your Society.

9. We encourage presenting membership information and reminders in all Section newsletters.

You have all heard that if each of us were to solicit a new member we could double our members. In 1983 we stayed even. We dropped 20% in old members and solicited 20% new members. Sadly this is the story for the last several years.

This year let's work to keep all of our present members and work for a 25% increase in new members. By working together we can do this. It takes the coordinated effort of the society, the BOD, the staff, your membership committee and the Section membership committees and each and every one of us to get this important job done.

Let's make 1984 the year SRM membership has a marked and lasting increase.

Your Membership Committee
-Art Armbrust, Chairman,