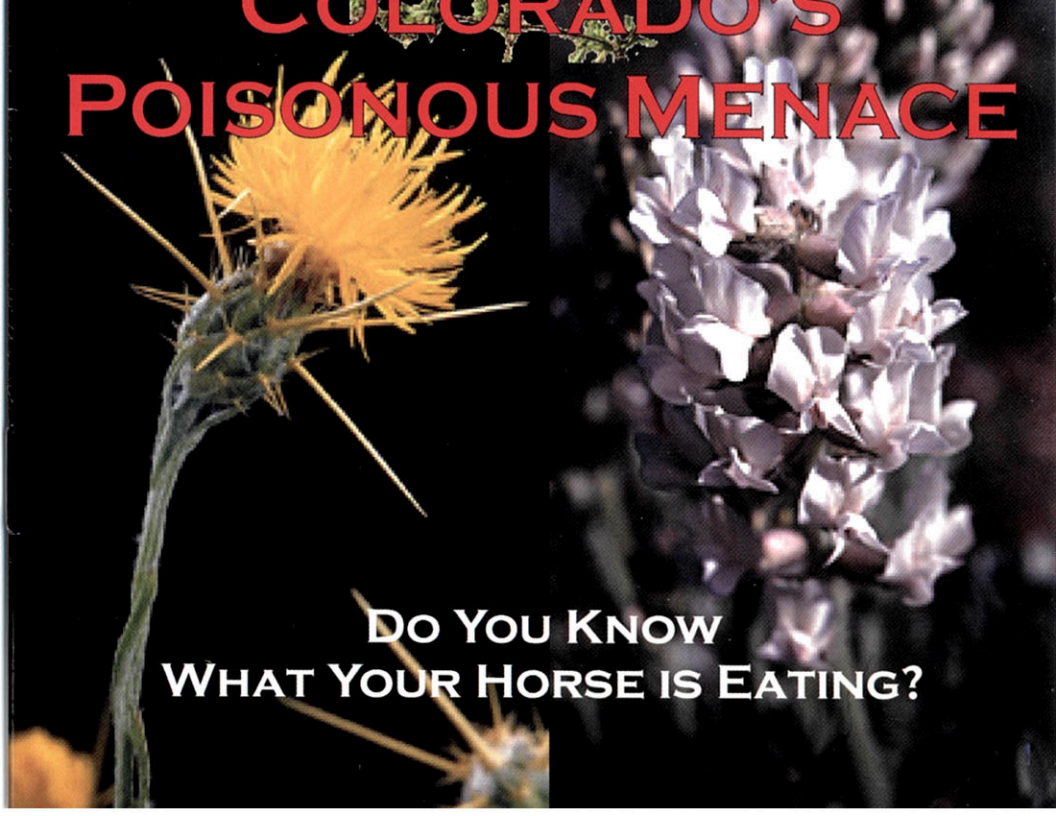


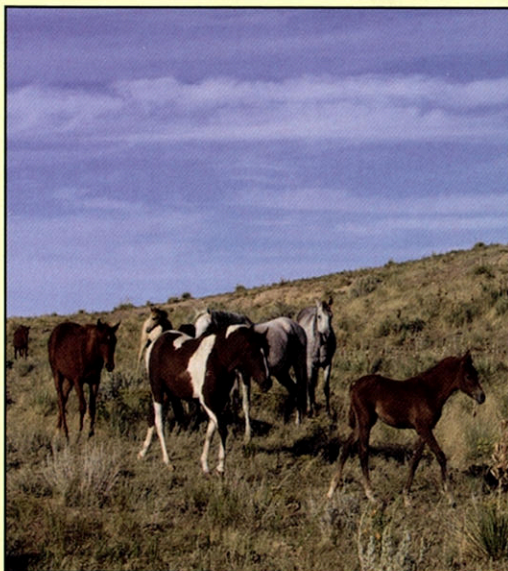
COLORADO'S POISONOUS MENACE



**DO YOU KNOW
WHAT YOUR HORSE IS EATING?**

Horses in Colorado

According to the Colorado Horse Development Authority, there were over 145,000 horses in Colorado as of September 1999; and undoubtedly that number is still growing. Colorado's horse industry pumps \$2.6 billion into our state's economy each year and provides almost 31,000 Coloradans with full time jobs.



But in addition to these impressive numbers, horses have a value beyond money. They are intelligent and beautiful animals that provide loyal service and companionship to their owners year after year. In return, owners take care of their horses, providing them with forage, pastureland and shelter.

Unfortunately, there are plants growing in Colorado that do not provide horses with nourishment. Rather, these poisonous weeds cause illness and even death in horses...even if the horse only ingests a small amount of the plant.

The main reasons horses are harmed by poisonous weeds:

- The prolific number of these weeds found in Colorado
- Lack of knowledge on weed identification
- Poor and uninformed pasture management practices



The Colorado Department of Agriculture is committed to the management of noxious weeds in our state. Horses are a valuable resource to the state of Colorado for agriculture and recreation, and one well worth protecting.

This brochure has been designed to help horse owners prevent and recognize weed problems before any harm can occur to your horses. It will help you pinpoint weed species in your area and recognize any developing or existing health problems that your horses may have. Recognition and prevention will keep your horses safe from weed poisoning.

Poisonous Weeds In Colorado

• These six weeds, which are dangerous for horses, are most commonly found in Colorado pastures and rangelands. All but one causes irreparable harm to horses, and yellow starthistle and Russian knapweed are deadly, causing symptoms that will result in the death of the horse. These six plants should be at the top of your list to identify and remove from your horse's pasture.

Top Six Offenders

Senecio
Russian Knapweed
Yellow Starthistle
Houndstongue
Locoweed
Sages (2 species)



Yellow starthistle



Russian knapweed

• Selenium Accumulator plants absorb selenium from the soil that, when ingested by the horse, replaces the sulfur found in keratin, the primary protein in hoof and hair structures. Altering the composition of keratin, an important building block for strong hoofs, may cause severe abnormalities. As the structure of the hoof breaks down, its walls may crack. While not fatal, prolonged ingestion of these plants can cause permanent damage and possibly cripple the horse for life.

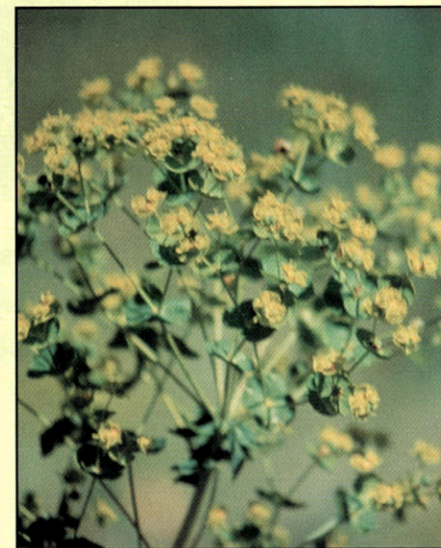
Selenium Accumulators

Gum Weed
Penstemon
Prince's Plume
Saltbush
Woody Aster
Milkvetch
(certain species)

Pasture Problems

Leafy Spurge
Field Bindweed
Yellow Sweet Clover
Alsike Clover

• These weeds are not deadly or permanently disabling to horses, but they can increase skin sensitivity to light or cause colic and burns. These four plants are common in Colorado. Although horses will not generally eat them if other forage is available these plants will quickly overrun a pasture, crowding out nutritious species which horses do prefer.



Leafy spurge



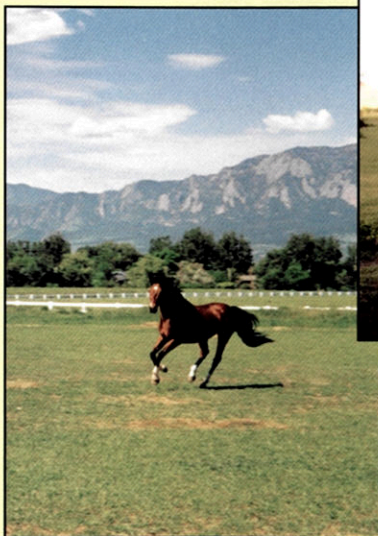
• These other plant species are toxic to horses, causing a range of medical problems. A few, such as water hemlock and nightshade, can cause immediate death. Others result in death or permanent damage to the horse if not caught in time. They are, however, rarely found in Colorado pastures and there are few cases of horse poisonings due to these plants.

Others to Mention

Bracken Fern
Water Hemlock
Monkshood, Milkweed
Horse Nettle
Horse Tail
Oak, Nightshade

Be aware: What is your horse eating?

The easiest and most cost effective way to protect your horse is to prevent it from ingesting harmful weeds in the first place. Providing your horse with good pasture is where the battle against illness begins. Horses, for the most part, will not eat plants that are bad for them as long as other forage is available. This means providing them with a good pasture during the spring and summer months, and making sure they are fed good quality, weed-free hay or alfalfa during the winter.

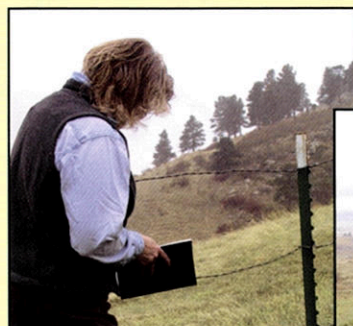


Locoweed

Three major steps for illness prevention:

1. Correctly identify toxic weeds.
2. Successfully remove them.
3. Cultivate plants and grasses that provide nutritious forage for horses.

Step One: Identification Identify what should and should not be growing in your pastures. Many plants are easy to identify once they have bloomed; however, by that time weeds have already begun to spread and will be more difficult to remove. Early detection is important, so horse owners should familiarize themselves with not only the flowering stage of weeds, but preflowering stages as well. Contact your county weed supervisor, CSU extension agent, or the Department of Agriculture for help with identification.



Step Two: Weed Control Be proactive in controlling harmful weeds. A well managed pasture is a natural shield against toxic encroachers. Many weeds appear in recently disturbed or untended fields, and if good forage is encouraged, these invaders will have less chance to take root.



Step Three: Pasture Management

Provide good forage for your horses and they will be less likely to seek out or graze on toxic plants. Plant palatable native or introduced grasses and plants that your horse can feed on, and encourage these plants to grow in your pastures. Keep your horses safe! Practice good pasture management.

Identifying Colorado's Six Worst Weeds For Horses



Senecio vulgaris

Senecio (Senecio species)

- Small yellow flowers, petals in a ray pattern.
- Flowers bunched at top of a few tall stalks.
- Leaves a bright green color.



Houndstongue

Houndstongue (*Cynoglossum officinale*)

- Named for leaves that are shaped like a dog's tongue in the first year of growth.
- Second year, the stems reach 2-4 feet in height.
- Flowers are reddish-purple and grow along the length of the stem.

Russian Knapweed (*Acroptilon repens*)

- Purple to white flowers with papery bracts at base of flower.
- Flowers bunched at top of stalks, 2-3 feet in height.
- Leaves and stems have a silvery-green appearance.
- Black root at base of stem.



Russian knapweed

Locoweed (3 species)

Purple (*Oxytropis lamertii*)
White (*Oxytropis sericea*)
Woolly (*Astragalus mollissimus*)

- Leaves common link in all three species, paired off along stem. Long and thin or slightly rounded.
- White flowers, purple flowers on those named.
- Woolly locoweed leaves have a covering of white hairs that give them a silvery-blue appearance.



Locoweed species



Yellow starthistle

Yellow Starthistle (*Centaurea solstitialis*)

- Yellow flowers surrounded by 1-2cm spines.
- Blue-green leaves.
- Up to 3 feet in height, flowers at ends of branches.



Sand and Fringed Sage

Sages (2 species) Sand (*Artemisia filifolia*) Fringed (*Artemisia frigida*)

- Sand sage: 4 feet high, stems and leaves silvery-green, woody plant.
- Fringed sage: shrub-like, low-growing plant, bluish gray in color, small white flowers.
- Sage smell indicative of plant belonging to sage family.

What To Look For: Symptoms of Poisoning

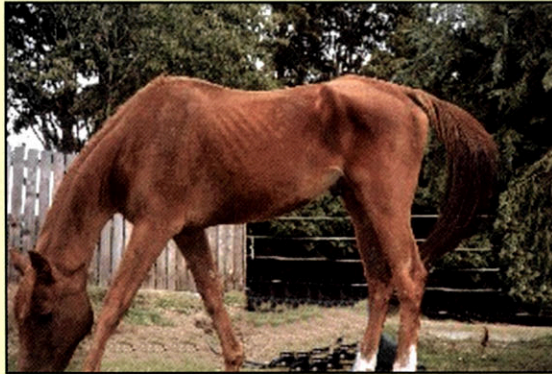


photosensitization

Russian Knapweed (*Acroptilon repens*)

- Facial muscles frozen, excess salivation, severe weight loss, inability to chew or drink, drooping lip or facial features.

- No treatment, euthanasia recommended to avoid subjecting horse to starvation.



Yellow Starthistle (*Centaurea solstitialis*)

- Facial muscles frozen, excess salivation, severe weight loss, inability to chew or drink, drooping lip or facial features.

- No treatment, euthanasia recommended to avoid subjecting horse to starvation.



Senecio (*Senecio* species)

- Diarrhea, marked weight loss, sensitivity to light, circling, aimless wandering, head pressing, excessive tearing, swollen red eyes, yellow coloration of mucous membranes, red urine.

- No treatment for the liver disease.

Houndstongue (*Cynoglossum officinale*)

- Weight loss, excessive yawning, circling, sensitivity to light, jaundice, diarrhea, red urine.

- No treatment for liver disease.



Houndstongue

Locoweed (3 species)

Purple (*Oxytropis lamertii*)

White (*Oxytropis sericea*)

Woolly (*Astragalus mollissimus*)



White locoweed

- Weight loss, abortions, fetal deaths, and abnormal births in pregnant horses, sudden changes in temperament, depression, excessive sleeping, violent reactions to routines such as putting halters on.

- No treatment for locoweed poisoning.

Sages (2 species)

Sand (*Artemisia filifolia*)

Fringed (*Artemisia frigida*)

- Very similar to locoweed poisoning, except key indicator is sage smell to breath and feces.

- Remove horses from sage and feed nutritious diet. Do not ride until fully recovered.



Sand sage

Pasture Management for Horses on Small Acreages

As a horse owner, you will need to make a decision. Will your pasture be used for recreation or nutrition? Answering the following questions can help you make that decision:

- How many horses do you have?
- What size is your pasture?
- Is the pasture irrigated or without irrigation?
- How long will you need the pasture?
- What months do you want to use this pasture?



Horse Needs for Recreation Pastures

If the stocking rate averages one 1,000-pound horse per acre on irrigated pasture the use of the pasture should be considered recreation. Grass species for a recreational pasture should be selected based on their ability to withstand wear and tear and not be based on forage quality. Species such as Kentucky bluegrass, crested wheatgrass, intermediate wheatgrass, and tall fescue (endophyte free) should be considered.

A mature horse should consume 1.5 percent or more of its body weight per day in forage dry matter. If the major nutrient source is pasture, a 1,000-pound horse will consume and waste approximately 3000 pounds of forage dry matter during a typical 6-month grazing season. Thus, with average management, it would take about 2-3 acres of good pasture to meet the nutrient needs of a mature horse.



Grass Species for Nutrition Pastures

Many of the irrigated pastures along the Front Range of Colorado contain cool-season grasses such as tall fescue, orchardgrass and smooth brome grass. These species are highly palatable to horses. Cool-season grass species have their maximum production during the early spring and early fall. During the hot summer months, the production of these species

is reduced. Under irrigated conditions, a horse pasture can be productive for about 6 months of the growing season. The key is to be able to determine how much forage your pasture will produce during that 6-month grazing season.



Horse owners also keep their animals on pastures that are not irrigated. Under these conditions, forage production can

be greatly reduced. Cool-season grass species found on dry pastures include tall wheatgrass, intermediate wheatgrass, pubescent wheatgrass and smooth brome grass. These species will be most productive in the early spring when we anticipate getting most of our annual moisture, and later in the fall when the temperatures begin to cool. The wheatgrass species will become less palatable as the plants mature. This may result in selective grazing by horses to more desirable species and, consequently, overgrazing of the more palatable species.

Other dry pastures may be composed of warm-season grass species. Warm-season grasses begin to grow later in the spring compared to cool-season species. Grass species such as big bluestem, little bluestem, switch grass and buffalo grass are examples of warm-season grass species. Maximum production is usually obtained during the summer months. Overgrazing easily damages warm-season grasses.

Grazing Management

The timing of grazing can have a long-term impact on your pasture. Grazing too early in the spring can reduce the potential total yield of your pasture. Grass should be allowed to grow before a horse is permitted to graze. This grass growth will vary depending on the grass species. For example, smooth brome and orchard-grass should be allowed to grow to a height of 6-8 inches before grazing is initiated. But other grasses may have different recommended height requirement prior to the initiation of grazing.



The phrase “grazing management” is very important. A horse that is grazing should not remove more than 50% of the available forage. Simply put, if your horse eats 50% of the grass that was there before he started, remove him and allow the pasture to rest approximately 30 days or until the grass regrows to the original height. This approach is called “take half and leave half.”

Divide your pasture into grazing cells to allow for rotational grazing to take place. After a cell has been grazed, move the animals to a fresh cell while the grazed cell rests and regrows. The improved management afforded by rotational grazing can greatly increase forage productivity and pasture health.

Weed Management

Weeds can impact your horse pasture in many ways. They compete with desirable forages such as grass and legumes for soil moisture, light and nutrients. Noxious weeds such as Canada thistle, leafy spurge and diffuse knapweed must be managed based on both state noxious weed law and county/municipal ordinances. Some weeds can be poisonous to horses. For example, Russian knapweed causes “chewing disease,” an affliction characterized by increased rigidity and lack of coordination of the muscles responsible for chewing food.



To manage weeds properly, you must first be able to identify them. Following identification, a weed management plan can be developed. Some weeds are easier to control than others. While some may require the application of a herbicide, others may be successfully managed using a variety of biological, cultural, and mechanical techniques. In Colorado, integrated weed management is the preferred approach. This means the planning and implementation of a coordinated program utilizing a variety of methods for managing noxious weeds in order to promote desirable plant communities in a safe and economical way.

For free help in developing an integrated weed management plan for your property, contact your local county or municipal weed manager. A list of county weed supervisors can be found at: <http://www.ag.state.co.us/dpi/weeds/weed.html>.

For additional information about poisonous plants and weed management, see:

CSU's Guide to Poisonous Plants:
www.vth.colostate.edu/poisonous_plants/index.cfm

Colorado Department of Agriculture:
www.ag.state.co.us/dpi/weeds/weed.html

Colorado Weed Management Association: www.cwma.org

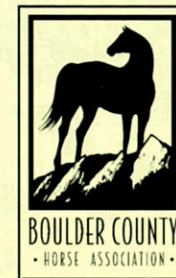
CSU Extension Offices: www.ext.colostate.edu/staffres/02perdir.pdf

Boulder County Horse Association: www.boulderhorse.org

Colorado Horse Development Authority: www.chda.org 303.292.4981

"A Guide to Plant Poisoning of Animals in North America,"
by Anthony P. Knight and Richard G. Walter.
Teton NewMedia, Jackson, Wyoming.

Sponsors:



Layout and some photos by Patricia Jarvis Images
Some poisonous plant photos by Dr. Anthony Knight.
Produced by the Colorado Department of Agriculture with
assistance from Paul Aravis (CSU Cooperative Extension)
and Dr. Anthony Knight (CSU).