

PLANTS TOXIC TO EQUINES

THE 10 MOST TOXIC PLANTS TO HORSES

Bracken Fern

Hemlock

Tansy Ragwort

Sudan Grass

Locoweed

Oleander

Red Maple

Yellow Star Thistle

Yew



OTHER COMMON PLANTS TOXIC TO HORSES

Azaleas

Black Walnut

Buckwheat

Ground Ivy or Creeping Charlie

Peach & Plum Tree

Wild Cherry Tree



Mycotoxins

- Highly toxic secondary metabolic by-products of molds
- Prevalent on grains (barley, wheat, corn, rye, oats) and pasture grasses
- Exist naturally in soil and can be synthesized in feeds not harvested or stored correctly
- Can enter horse via ingestion or inhalation of contaminated hay, grasses, and grains

“mykes” – mold

“toxicum” -poison

Alkyloids

- a group of naturally occurring chemical compounds that contain mostly nitrogen atoms
- Alkaloids are produced by a large variety of organisms, including bacteria, fungi, plants, and animals
- Codeine, curare, cocaine, morphine, strychnine
- Affect respiration, are analgesics, pain reduction, powerful narcotic
- Significant physiological effects on animals when alkyloid-rich plants are consumed
 - Poppy
 - Ranunculous (buttercup)
 - Nightshades
 - Amaryllis

Glycosides

- A glycoside is a molecule in which a sugar is bound to another functional group via a glycosidic bond
- If plant is chewed the bonds are broken and with aid of enzymes, toxin is produced
- Concern for horses are **cyanogenic glycosides**
 - *Prunus* family (apricots, peaches, plums, cherry) wilted leaves and fruits
 - sorghum

Creeping Charlie



Black Walnut

- The black walnut tree is not toxic when eaten but rather when the walnut pods fall of the tree, die and come in contact with your horse's feet.
- Horses bedded on shavings containing 20% more black walnut develop severe laminitis, limb edema and colic within 12/18 hours.



Buttercups

- Buttercups contain irritant juices that severely injure the digestive system.
- Sap from stems can cause inflammation and blistering on skin or mucous membranes and even around the hooves of horses used to harvest.
- The poison is inactive when buttercup is dried and included in hay.



Red Maple

- The toxic ingredient in red maple leaves is believed to be **gallic acid**
- Gallic acid causes methemoglobinemia (break down of RBCs)
- Ingestion of fresh leaves does not appear to cause disease. **Dry leaves!**
- the amount of toxin increases in leaves during the summer/fall
- Acute signs 1-2 days after ingestion include lethargy, depression, **red-brown urine**
- Beware of storm damage/blow downs



Sudan Grass / Johnson Grass

- Sudan grass is very similar to Johnson grass. (rhizomes vs. no rhizomes)
- Both are sorghums and contain varying amounts of **cyanogenic glycosides**
- Environmental stresses such as drought or frost can promote the formation of cyanogenic glycosides
- Chewing, crushing, trampling or grinding the plant material exposes the cyanogenic glycosides to enzymes in the grass, leading to the production of cyanide (prussic acid).

- Affected animals may show:

staggering gait

urine dribbling

Pregnant mares may abort.



Yew

- Yew is extremely toxic to horses and all grazing animals with yew poisoning the most common form of animal poisoning
- All parts (dead or living) are poisonous, especially the leaves
- Yew contains an **alkyloid** that depresses the action of the heart
- used in hedges or as an individual ornamental plant, e.g. be careful what you put in the show ring! Yew needles are greenish-yellow on the under surface and have no white stripes.



Oleander

- a common outdoor woody shrub in warmer regions and is grown occasionally as a large potted plant.
- Its flowers are showy and very fragrant, but the belief that their perfume is dangerous is unfounded.
- Oleander ranks with yew in toxicity and contains a poisonous principle similar to digitalis in its effect on the heart, causing arrhythmia and cardiac arrest.
- The effects are reversible and the horse may recover if he ingests a less-than-lethal dose (a single ounce of oleander leaves can kill a 1,000 lb. horse).

Bracken Fern

- found in open fields and woodlands.
- Leaves are poisonous to horses both fresh and dry in hay. Cattle are more likely to be poisoned than horses.
- Bracken fern contains **thiaminase**, -causes a deficiency in Vitamin B1 (thiamine) and which is important for proper nerve function. Signs of thiamine deficiency occur when hay containing bracken fern at 10%-20%, or more, of the horse's dry-matter intake is fed for approximately 4 weeks
- For the ave 1,000-lb horse, 2.2-4.5 lb of bracken fern would have to be consumed each day for a minimum of a month.
- Symptoms are slow to develop.

St. John's-Wort

- occurs throughout pastures, edges of woodlots, roadsides, abandoned fields, water areas, lawns
- If eaten by horses, may cause photosensitization since this weed contains black dots composed by **hypericin**, a pigment that is absorbed by the body and activated by exposure to sunlight.
- Ingestion can result in a condition in which patches of white or light-colored skin become seriously sunburned under normal exposure to sunlight.



Nightshade

- occurs in open woods, edges of fields, fence lines, roadsides and occasionally in hedges and gardens.
- Stems and leaves are poisonous to livestock.
- contains **alkaloids** that interfere with digestion by inhibiting the autonomic and parasympathetic nervous systems and by directly irritating the digestive system.



Horsetail

- found in poorly drained soils, as well as low, sandy or gravel soils with good drainage.
- especially poisonous in young horses. Hay containing this weed may be more poisonous than fresh plants in the field. Symptoms are slow to develop.



Tansy Ragwort

- The yellow flowers bloom from July to October
- flowers give off an unpleasant odor.
- contains liver-damaging **alkaloids** which cause liver cells to expand, then die.
- No known anti-dote for this alkaloid based toxin. Efforts should be concentrated on prevention through pasture management.

Alsike Clover

- the compound that causes the toxicity is not known for sure
- Two distinct syndromes are associated with poisoning
 1. "**dew poisoning**" is associated with a photosensitivity reaction: sunburn on non-pigmented skin
 2. recurring bouts of a condition known as "**big liver disease**"; animals develop a yellowish discoloration of membranes around the mouth and eyes, accompanied by weight loss, central nervous system depression, loss of appetite and coordination, dark, colored urine and a greatly enlarged, fibrotic liver



Tall Fescue

- **Equine fescue toxicosis** is caused when pregnant mares eat tall fescue that is infected with an **endophyte fungus**, *Acremonium coenophialum*. Both the mare and the foal can be affected when the mare eats endophyte-infected fescue
- The endophyte produces the toxic **alkaloid** substances
- Toxic effects in **broodmares only** including prolonged gestation and retained placenta
- Remove the mare from fescue pasture for the last 30-90 days prior to expected foaling date



Botulism

- Progressive, often fatal neuromuscular paralysis when equines ingest toxins produced by *Clostridium botulinum* bacterium
- Caused by exposure to decaying vegetation or decaying animal matter (prime environments for bacteria growth)
- Foals can develop intestinal botulism aka 'Shaker Foal Syndrome' due to their immature intestinal tracts
- Symptoms: loss of tone in lips, eyelids, tongue/incoordination/drooling/inability to eat
- Vaccine has been available for 20+ years
- Prevention:
 - Feed round bales with caution
 - Check for feed spoilage regularly
 - Dead animal carcasses
 - Keep hay out of mud

Slobbers

- Profuse, frothy salivation
- Non-life threatening
- Cool, wet weather aids in proliferation of a fungus (black patch) on clover
- Fungus produces a mycotoxin (**slaframine**) which is ingested
- Present on pasture and dried hay (potency diminishes)

