

Common Plants Causing Toxicity to Horses in Virginia

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Common Pasture Weeds Causing Toxicity in Horses



- **Brackenfern (*Pteridium aquilinum*) – Toxin(s) involved: Thiaminase. Potential for Toxicity: Moderate. Toxic when dry? Yes. Clinical Signs: Thiamin deficiency resulting in neurologic symptoms including incoordination and severe tremors. Requires significant intake over 1-2 months. Treatment: Daily thiamin injections for up to two weeks. If not treated, death may occur within 2-10 days.**

- **Buckwheat (*Fagopyrum esculentum*) – Toxin(s) involved: Fagopyrin. Potential for Toxicity: Low. Toxic when dry? Yes. Clinical signs: Photosensitization after a moderate-large intake. Most common when horses fed hay contaminated with the weed. Treatment: Remove horse from the source. Protect from sunlight. Recovery is generally quick.**

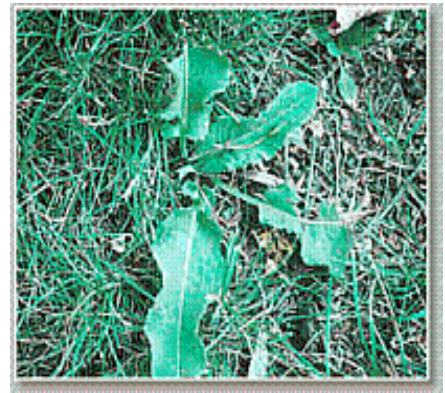


- **Buttercup (*Ranunculus* spp) – Toxin(s) involved: Protoanemonin. Potential for Toxicity: Low. Toxic when dry? No. Clinical Signs: Oral and gastrointestinal irritation and blistering. Treatment: Recovery is uneventful when animals removed from source.**



- **Curly Dock (*Rumex crispus*) – Toxin(s) involved:** Soluble Oxalates. **Potential for Toxicity:** Moderate. **Toxic when dry?** N/A **Clinical Signs:** Oxalates bind to calcium and magnesium in the blood leading to muscle tremors, weakness, depression, and recumbency. **Treatment:** Intravenous Ca, Mg, glucose, electrolytes. Oral limewater to decrease further oxalation.

- **Groundsel/ ragwort (*Senecio vulgaris*) – Toxin(s) involved:** Pyrrolizidine alkaloids. **Potential for Toxicity:** Extremely high. **Toxic when dry?** Yes. **Clinical Signs:** 15 mg/kg BW over 2 weeks induces irreversible liver disease. May also cause photo-sensitization, weight loss, and jaundice. **Treatment:** Once liver damage is done, treatment is unsuccessful. Humane euthanasia recommended.



- **Hemp Dogbane (*Apocynum cannabinum*) – Toxin(s) involved:** Cynarin and apocynin. **Potential for Toxicity:** Low-moderate. **Toxic when dry?** Yes. **Clinical Signs:** Diarrhea, colic, hemorrhagic, gastroenteritis, abnormal heartbeat. 15-30 grams of leaves can be lethal. **Treatment:** Symptomatic treatment.

- **Horse Nettle (*Solanum carolinense*) – Toxin(s) involved:** Solanine. **Potential for Toxicity:** Moderate. **Toxic when dry?** Yes. **Clinical Signs:** Toxic effects more common when plant is in processed feed. Symptoms include Salivation, colic, diarrhea, muscle tremors, and weakness. **Treatment:** Fluid therapy, activated charcoal, via stomach tube. Physostigmine may be used cautiously in severely poisoned animals.





- **Jimsonweed (*Datura stramonium*) - Toxin(s) involved:** Hyoscyamine, Hyoscine, and Atropine. **Potential for Toxicity:** High. **Toxic when dry?** N/a. **Clinical Signs:** Within minutes to hours of ingestion, symptoms such as behavioral changes, colic or diarrhea appear. **Treatment:** Symptomatic therapy and activated charcoal to prevent further absorption. Severely affected animals may benefit from treatment with Physostigmine.

- **Milkweed (*Asclepias* species) – Toxin(s) involved:** Cardenolides. **Potential for Toxicity:** Moderate. **Toxic when dry?** Yes. **Clinical Signs:** Colic, incoordination, tremors, heart problems, respiratory difficulty. **Treatment:** Supportive therapy.



- **Onions and Garlic (*Allium* spp) – Toxin(s) involved:** N-propyl disulphide. **Potential for Toxicity:** Low. **Toxic when dry?** Yes. **Clinical Signs:** More than 25% of the diet as onions will result in fast, weak pulse; staggering and collapse as a result of anemia. **Treatment:** Reduce stress, whole blood transfusions in severely anemic animals.



- **Poison Hemlock (Conium maculatum) –**
Toxin(s) involved: Coniine, gamma-coniceine.
Potential for Toxicity: High. **Toxic when dry?** Less toxic when dry. **Clinical Signs:** Toxins block spinal cord reflexes leading to muscle tremors, incoordination, paralysis, frequent urination, and sudden death. 4-5 pounds of leaves are lethal to a horse. **Treatment:** Supportive Therapy.

- **Pokeweed (Phytolacca Americana) –**
Toxin(s) involved: Phytolaccatoxin and Phytolaccigenin.
Potential for Toxicity: Low. **Toxic when dry?** Yes.
Clinical Signs: Colic and diarrhea. **Treatment:** Supportive Therapy.



- **Water Hemlock (Cicuta maculate) –**
Toxin(s) involved: Cicutoxin, and cicutol. **Potential for Toxicity:** Extremely High. **Toxic when dry?** Yes. **Clinical Signs:** The most toxic poisonous plant known. 0.05%BW intake is lethal. Signs include convulsions and death due to respiratory failure. **Treatment:** Due to rapid 15 minute - 8 hours following ingestion, veterinary intervention is unlikely. In some cases sodium Phenobarbital may help.



- **Yellow and White Sweet Clover (Melilotus spp) – Toxin(s) involved: Coumarin. Potential for Toxicity: Moderate. Toxic when dry? Yes *fresh undamaged sweet clover is safe for consumption. Clinical Signs: Toxin, coumarin, can be converted to dicoumarol in moldy hay containing sweet clover. Signs include weakness, visible bleeding, and pale mucous membranes. Treatment: Vitamin K administration.**

Common Forage Plants Causing Toxicity in Horses



- **Alsike Clover (Trifolium hybridum) – Toxin(s) involved: Unknown. Potential for Toxicity: Low-moderate. Toxic when dry? Yes. Clinical Signs: Primary sign is photosensitization especially in non-pigmented areas. May advance to chronic liver damage with prolonged intake. Treatment: Remove horse from the source. Prognosis is good if photosensitivity is only sign, poor when liver damage is involved.**
- **Tall fescue (festuca arundinacea) – Toxin(s) involved: Acremonium coenophialum. Potential for Toxicity: Moderate. Toxic when dry? Yes. Clinical Signs: Toxic effects in broodmares only including prolonged gestation, retained placenta andagalactia. Treatment: Remove the mare form fescue for the last 30-90 days prior to expected foaling date. Treatment with oral Domperidone at least 15 days prior to expected foaling date.**



Common Trees Causing Toxicity in Horses



- **Black Locust (*Robinia pseudoacacia*, and *neomexicana*)** – **Toxic(s) involved:** Robin. **Potential for Toxicity:** Moderate. **Toxic when dry?** Unknown. **Clinical Signs:** Colic, constipation, diarrhea, muscle weakness, laminitis and irregular heartbeat may occur within one hour of eating; Fatalities are rare. **Treatment:** Prevent further ingestion and treat clinic signs.

- **Black Walnut (*Juglans nigra*)** – **Toxin(s) involved:** Unknown. **Potential for Toxicity:** Moderate. **Toxic when dry?** Yes. **Clinical Signs:** Horses bedded on shavings containing 20% more black walnut develop severe laminitis, limb edema and colic within 12/18 hours. **Treatment:** Remove the bedding, treat the clinical signs.



- **Buckeye/ Horse Chestnut (*Aesculus* spp.)** – **Toxin(s) involved:** Aesculin, fraxin and possibly narcotic alkaloid. **Potential for Toxicity:** Moderate. **Toxic when dry?** Unknown. **Clinical Signs:** Toxin is found in leaves and young sprouts. Clinical signs include colic and neurologic signs such as trembling, staggering, and difficulty in breathing. **Treatment:** Supportive Therapy.

- **Cherry (*Prunus* spp.) – Toxin(s) Involved:** Cyanide **Potential for Toxicity:** High **Toxic when dry?** Probably not **Clinical Signs:** Breathing difficulties, anxiety, staggering, convulsions, collapse, and death, within minutes of ingestion **Treatment:** If horse is alive after 2-3 hours, chances are good it will recover. Veterinary treatment includes intravenous administration of sodium thiosulfate and sodium uirite.

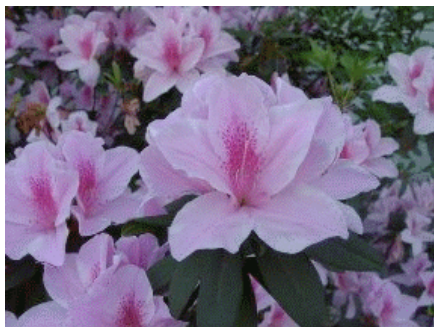


- **Oak (*Quercus* spp.) – Toxin(s) Involved:** Gallotoxins. **Potential for Toxicity:** Moderate. **Toxic when dry?** Unknown. **Clinical Signs:** New young leaves and green acorns most toxic leading to poor appetite, weight loss, diarrhea or constipation, increased drinking, increased urination, edema, death is possible. **Treatment:** Aggressive fluid therapy and low stress environment.

- **Red Maple and hybrids of red maple (*Acer rubrum*) – Toxin(s) involved:** Unknown. **Potential for Toxicity:** Extremely High. **Toxic when dry?** Yes. **Clinical signs:** Massive destruction of red blood cells leading to breathing difficulties, jaundice, dark brown urine, and death. **Treatment:** Supportive therapy, Ingestion of 1 ½ kg is toxic, 3 kg is lethal to horses (50-75% death/euthanasia rate).



Common Ornamentals causing toxicity in Horses



- **Rhododendron, Mountain Laurel, Azalea (*Rhododendron* spp.) – Toxin(s) involved:** Grayanotoxins (glycosides) **Potential for Toxicity:** Moderate. **Toxic when dry?** No. **Clinical Signs:** 0.2% BW green leaves will cause colic, abnormal heart rate and rhythm, convulsions, coma, and death. **Treatment:** Supportive Therapy.



- **Spurge (Euphorbia spp.) – Toxin(s) involved:** Diterpene esters. **Potential for Toxicity:** Moderate. **Toxic when dry?** Yes. **Clinical Signs:** Blistering upon contact, colic and gastrointestinal irritation. **Treatment:** Remove plants from animal's diet and they will recover uneventfully.

- **Yew, English or Japanese (Taxus spp.) – Toxin(s) involved:** Taxine (alkaloid). **Potential for Toxicity:** Extremely High. **Toxic when dry?** Unknown. **Clinical Signs:** Within one hour of ingestion: paresis, ataxia, trembling and death within 15 minutes of appearance of clinical signs. **Treatment:** Supportive therapy including activated charcoal and saline cathartic. Atropine to counter depression.



Resources

- Equine Nutrition Problems: Toxic Plants in the Mid-Atlantic
 - Erin D. Pittman, Institute of Applied Agriculture, University of Maryland, College Park, MD 20742.
- Photos courtesy of Virginia Tech Weed ID Guide.