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 apocynein. **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 and agalactia. 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 clinical 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 urirate.

- **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.