Note to HB candidates

Here’s what you should expect at the HB certification regarding toxic plants:

• You will be provided a bank of 10-12 plants from the test organizer and/or PIP (10-12 depending on the # of candidates at the test).

• You should learn all 10-12 plants (not just 3 of your choice, as some have understood in the past).
• You will be asked to identify 3 of the 12 that you’ve learned. (The three may or may not be your choice, so you need to study the whole bank they've been provided.) You must discuss specific signs of poisoning for each plant which would indicate a need to call the vet, i.e. change in temperature, pulse and respiration. This would include all the standard symptoms like colic, depression, weakness, etc.

• You could exceed standard by knowing the system the toxin effects, and describing the progression of damage to that system.
Why should we know about toxic plants?

- There are hundreds of plants that are toxic to horses.
- Toxic plants can be found in every part of the country, on just about any farm or equine property.
- Exposure can be minimized by a good knowledge of local toxic plants and by practicing proper equine management.
- It’s often difficult to determine a diagnosis since many of the symptoms resemble other physiological problems. Symptoms can result from just a single exposure or from repeated contact with toxic plants.
Good News!

• Most toxic plants do not taste good to horses.

• Horses tend to stay away from toxic plants unless they are in stressful situations, or accidentally ingest harmful material.

• Due to their size, a horse typically has to ingest a very large amount of toxic material to become affected.

• Proper pasture management such as soil testing, liming and fertilizing, good grazing management, proper mowing and dragging, and effective weed, disease, and insect control, can prevent exposure to toxic plants.
Outside the pasture

- Ornamental shrubs and flowers are often planted around the farm house, outbuildings, and barns.
- Bridle paths and roadsides are often home to toxic plants.
Solutions....

• Know how to identify problem plants and be aware of their location.

• Don’t plant toxic shrubs and flowers in horse accessible areas of the property.

• Pay attention to the surroundings when hand grazing your horse.
Inside the pasture

- Overgrazing can cause good grass to be replaced by toxic plants.

- Dry conditions can also cause healthy grass to die and be overrun with problem plants.

- The edges of the pasture are still within reach for many horses and if hungry enough, they will eat toxic plants.

- Overcrowded pastures can affect access to healthy food sources.

- Horses can eat toxic leaves and debris from shade trees growing in the pasture.
Solutions....

• Eliminate toxic trees and shrubs from the pasture.

• Remove dead branches/leaves as soon as they fall (after a storm), don’t dump leaves and garden clippings in the pasture.

• Rotate pastures often, keep grass well irrigated, don’t overcrowd pastures.

• Remove toxic plants when located or fence off area.

• Remove toxic plants from the perimeter of the pasture.
Inside the Barn

- Moldy hay and grain may be toxic.
- Poor quality hay may have a higher content of toxic weeds.
Solution....

• Inspect hay and only feed fresh hay and grain.

• Purchase good quality hay from a reputable source.

• Know what’s in your horse’s hay.
Local Poisonous Plants

[Map showing the states of New Hampshire, Vermont, Massachusetts, Connecticut, and Rhode Island with different colors]
Black Walnut

Specific toxin unknown – Bedding containing black walnut shavings can cause dermatitis/toxicity from contact with bedding, and ingestion.

Depression, stiff gait, edema, warm hooves, laminitis, colic, elevated pulse, respiration, and temperature can occur.
Red Clover

Toxin called slaframine is produced by Rhizoctonia fungus growing on red clover in periods of high stress-high humidity, drought, and over grazing. Slaframine can remain in hay for several years.

Slaframine stimulates salivary glands which results in excessive drooling known as slobbers. Also, tearing, skin lesions, difficulty breathing, excessive Urination, and lack of appetite. May cause abortions in mares.
Bracken Fern

Toxin thiaminase found in leaves and stems inhibits the absorption of thiamin (Vitamin B1). Thiamin is necessary to nerve function and deficiencies can lead to neurological impairment. Some horses develop a taste for bracken fern.

Uncoordinated, depressed, blindness. Death can occur within days/weeks if not removed from source. Can treat with large doses of thiamin if neurological symptoms not too severe.
Red Maple

Toxin unknown, but it causes red blood cells to break down so they don't carry oxygen to the kidneys, liver, and other organs.

Fresh leaves are not a problem, but ingestion of wilted leaves is extremely toxic- common problem with fallen branches after a storm. Signs can appear within a few hours, or up to 4-5 days.

Weakness, depression, pale gums and mucous membranes, which turn darker with time, dark brown urine, abortion, death.

As little as 1-2 pounds can be fatal. Only treatment is large amounts of IV fluids and possibly blood transfusions.
Oak

Toxins are tannins (gallotannins). Oak buds in spring, and green acorn hulls in fall are toxic. Immature leaves have the highest tannin concentration. Tannins kill surface cells of the digestive tract, entering the blood stream.

Anorexia, constipation, rough coat, colic, thirst, frequent urination, bloody diarrhea, and possibly death.

Kidney and gastrointestinal support such as fluid and electrolyte therapy may be tried.
Water Hemlock

Both Water Hemlock and Poison Hemlock (next slide) look similar in appearance to Queen Anne’s lace and like to grow in swampy areas. Water Hemlock has larger serrated leaves and Poison Hemlock has small fernlike leaves. Water Hemlock contains short chain alcohols -cicutoxin and cicutol. Less than a pound is lethal.

Water Hemlock toxins are primarily concentrated in the roots but all parts are poisonous. Horses can easily pull up plants and ingest roots.

Symptoms include nervousness, excessive salivation and frothing, muscle twitching, dilation of the pupils, rapid pulse, rapid breathing, tremors, violent convulsions, grand mal seizures, and coma. Death may occur as early as 15 minutes after a lethal dose is consumed. Skeletal and cardiac myofiber degeneration and necrosis possible.

Most often a horse is just found dead after ingestion. If a horse survives 8 hours, it should recover. Sedation may help. There is no antidote.
Poison Hemlock

Poison Hemlock contains coniine, g-goniceine, and other alkaloids. 4-5 pounds is lethal.

Poison Hemlock toxins are found in the seeds, leaves, and stems, less in roots. The toxicity increases in over time. The stems have purple spots, which are most evident near the base of the plant.

Symptoms include bloating, pupil dilation, nervousness, trembling, weak pulse, cold extremities, coma, paralysis, and respiratory failure. Symptoms appear within hours or days.
Buttercup

Toxin is called ranunculan and is found in the fresh leaves and flowers.

Ranunculan causes oral irritation resulting in salivation, depression, nervousness, blindness, blood-stained urine, ulcerated lips, colic.
Black Nightshade (Eastern Nightshade)

Toxins are highest in the leaves, shoots and green berries. The toxins are tropane alkaloids, (mainly solanine). Toxicity affects the central nervous system and gastrointestinal tract.

Symptoms include weak rapid pulse, dilated pupils, dry mouth, incoordination, diarrhea, convulsions, coma.

1-10 pounds is fatal.
Rhododendron

Glycosides called grayonotoxins or andromedotoxins, affect the stomach, intestines, and cardio system. All of plant is toxic, but especially leaves.

Salivation, repeated swallowing, depression, bloating, colic, weakness, coma, and death – can also have cardiac affects.

Those surviving suffer kidney and liver damage.
Yew (Ground Hemlock)

Taxine, which is an alkaloid is the toxin. Leaves, fruit, and seeds are all poisonous, fresh or dried in hay.

Only .1% of body weight of green forage is needed to cause death.

Initially the horse might appear trembling or colicky. Nervousness, confusion, diarrhea, irritated digestive tract leading to slowing of heart and circulation. Collapse/death can also occur immediately upon ingestion.

No treatment, avoid exposure, and don’t throw trimmings in the pasture!
Pokeweed

Toxins include saponins and alkaloids. Phytolaccotoxin causes burning in the mouth. Taproots are most toxic part, followed by leaves, stems, fruit.

Salivation, colic, weakness, diarrhea (often bloody) leads to respiratory failure, anemia, and ulcerative gastritis.
Chokecherry

Toxin is cyanide, found principally in wilted leaves. Best practice is to remove chokecherry from your pasture completely.

Distress, salivation, muscle twitching, rapid breathing, gasping, deep red mucous membranes and gums, staggering, convulsions, coma, bloat. Large quantities consumed in short periods of time is most deadly.