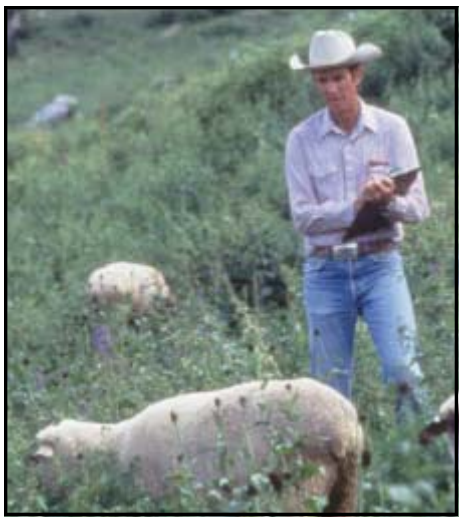
PLANTS POISONOUS TO HORSES AND LIVESTOCK



A GUIDE TO TOXIC PLANTS COMMONLY FOUND IN GRANT COUNTY WASHINGTON

Courtesy of Lincoln Co Weed Board

Grant County Noxious
Weed Control Board
32 C St.
Ephrata, Wa. 98823
509-754-2011

INDEX

PLANTS WITH A HIGH TOXICITY RATING:

Coast Fiddleneck 4
Common Cocklebur 4
Death Camas 5
Low Larkspur 5
Pigweed 6
Poison Hemlock 6
Pine Needles 7
Russian Knapweed/Yellow Starthistle 7
Western Waterhemlock 8
Lupine 8

PLANTS WITH A MODERATE TOXICITY RATING:

Field Horsetail/Scouringrush 9
Houndstongue 10
Leafy Spurge 10
Milkweeds 11

PLANTS WITH A LOW TOXICITY RATING:

Buttercups 12
Downy Brome 12
Mayweed Chamomile 13
St. Johnswort 13
Puncturevine 14

PLANT FAMILIES TO BE CAUTIOUS OF:

Mustard Family 14
Nitrate accumulating plants 15
Toxicity facts 15

Plants highlighted in **red** are **noxious** and on the Grant County Noxious Weed List.

PLANTS THAT ARE TOXIC TO HORSES AND LIVESTOCK

The following is a guide of several plants that can be found growing in Lincoln County that are poisonous to horses and livestock. To protect your animals from poisoning, learn to identify the poisonous plants that grow in your pasture or rangeland.

Prevention is the best medicine. Ensure that your horses and livestock have adequate hay and/or healthy pasture to graze. Provide adequate water and avoid overgrazing.

Most poisonous plants have an unpleasant taste that animals avoid if they have anything else to eat. However, if they have no choice but to eat these plants, they might develop a taste for them. Herbicides are derivatives of salts, and they often increase the palatability of plants, along with its sugar content. Be cautious when grazing animals after herbicide applications. Avoid grazing treated areas until plants have dried. You should wait until plants are dead before introducing animals to the site.

Watch for unusual behavior in your animals. If you suspect a poisoning, consult a veterinarian as soon as possible. Be sure to collect samples of the plants you suspect caused the poisoning for positive identification.

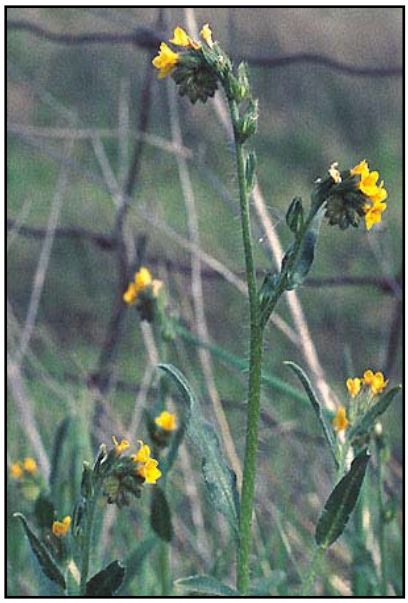
The signs listed in the following pages are those that are most likely to be observed. However, not all signs will be seen in all cases. Signs of poisoning may vary greatly, depending on the dosage and the time taken to consume the dose. Also, individual animals or species respond differently to poisons.

Yellow Flag (*Iris pseudacorus L.*)

Yellow flag will sicken livestock if ingested, and is generally avoided by herbivores. Contact with the resins can cause skin irritations in humans. Yellow flag is a wetland plant.

These Plants Have a High-Toxicity Rating:

COAST FIDDLENECK *(Amsinckia intermedia)*



Toxicity rating: High

Toxins: Pyrrolizidine alkaloids. All parts of plant, especially the seeds.

Animals affected: Cattle, horses and swine.

Signs: A variety of nervous signs; derangement, mania, drowsiness, yawning, walking aimlessly, liver damage, weight loss, depression, incoordination and death.

Description of plant: An erect annual weed with bristly or hairy stems, 1 to 2 1/2 feet tall with alternate leaves that are hairy and ovate. The leaves of a newly emerging plant are covered with little "blisters." Yellow flowers are arranged on one side of a "fiddleneck- shaped" axis.

COMMON COCKLEBUR *(Xanthium strumarium)*

Toxicity rating: High

Toxins: Glycoside, carboxyatractyloside, sesquiterpene lactones. The seeds and seedlings contain the highest quantity of toxins; yet the whole plant can be considered toxic. The seed burs can cause mechanical damage.

Animals affected: All animals: cattle, swine, sheep and poultry are more at risk than horses or pets.

Signs: Gastrointestinal irritation, weakness, breathing difficulty, hypoglycemia, cardiac abnormalities, death. Liver damage may result from toxins, and death is likely if 0.75% of body weight is ingested.

Description of plant: An annual that grows 2-4 ft. tall with an erect stem that is branched, ridged, spotted and rough. Leaves are triangular or heart-shaped and are rough on both sides. Flowers are small and the fruit is a hard, oval, prickly bur that contains 2 brown seeds.

DEATH CAMAS *(Zigadenus venenosus)*

Toxicity rating: High

Toxins: Steroidal, glycosidal alkaloids.

Animals affected: All animals are susceptible.

Signs: Salivation, weakness, respiratory difficulty, nausea, convulsions, coma, death. Respiratory problems occur in sheep after eating 1/2 to 2 pounds. The bulbs are less accessible to livestock, but they are reported to cause severe illness and death in humans who confuse it for wild onion.

Description of plant: A native perennial with scaly, underground bulbs that emerge in early spring. Plants have 5-6 thick, basal leaves with a grass-like appearance. Plants can reach 2 feet tall and have white to yellow flowers.

LOW LARKSPUR *(Delphinium nuttallianum)*

Toxicity: High

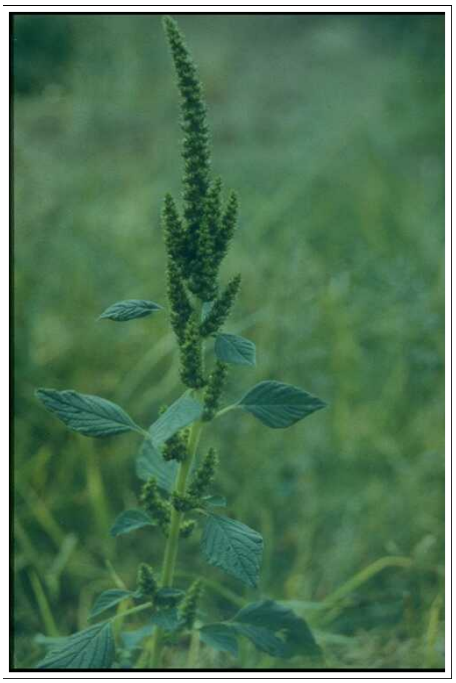
Toxins Delphinine alkaloids, cardiac glycosides. All parts of the plant are toxic; new growth and seeds contain the highest concentration of toxins. In most cases, pre-bloom tastes the best to animals.

Animals affected: Primarily cattle; but also goats, sheep and horses.

Signs: Nervousness, weakness, salivation, nausea, bloating, rapid heart rate, death within 3-4 hrs. of the first signs. Excitement and physical exercise after ingesting large amounts can intensify all signs of poisoning. Cattle seem to be attracted to larkspur and are lethally poisoned after eating 0.7% of their body weight in an hour.

Description of plant: A simple, rarely branched perennial that grows up to 20 inches in height with tuberous roots. Leaves are deeply divided into finger-like lobes. Flowers are blue-purple or sometimes pale blue or white with prominent spurs.

PIGWEED *(Amaranthus retroflexus)*



Toxicity rating: High

Toxins: Nephrotoxin that causes kidney failure; soluble oxalates and is capable of accumulating nitrates.

Animals affected: Cattle and swine; goats and sheep

Signs: Breathing problems, trembling, weakness, abortions, coma, death. Animals need to consume pigweed in fairly significant quantities over several days before kidney signs appear.

Description of plant: A large, coarse, annual with red stems and oval, wavy-margined, alternate leaves. The green, inconspicuous flowers are in short, compact clusters and green spines.

POISON HEMLOCK *(Conium maculatum)* **Class C noxious weed**

Toxicity rating: High

Toxins: Conine and gamma-conicine. All parts of the plant are poisonous; the toxicity increases throughout the growing season; the roots become toxic only later in the year.

Animals affected: All animals

Signs: Nervousness, trembling, incoordination, depression, coma, death, birth defects. Consumption of Poison Hemlock can cause repiratory failure in less than 3 hours. Animals show signs within 2 hours. A lethal dose for a horse is 4-5 pounds of leaves; cattle may be poisoned with 1-2 pounds and sheep with a half-pound or less.

Description of plant: A biennial noxious weed that grows 3-8 ft. tall and has a smooth, purple-spotted stem and triangular, finely-divided leaves. Leaves and roots have a parsnip-like odor. White flowers arranged in umbrella-like clusters open in early summer.

Stems have purple mottled spots.

PINE NEEDLES *(Pinus ponderosa)*

Toxicity rating: High

Toxins: Isocupressic acid. Twenty species of Pinus, Abies, Pseudo & Suga, Juniperus, Picea and Cupressus have been shown to contain the toxin, some more palatable than others.

Animals affected: Primarily cattle.

Signs: Abortion, indigestion. High doses may develop renal and neurological disease. Abortions generally occur between 48 hours and 2 weeks after exposure to pine needles. Dosage is highly variable. Some cows are sensitive, and a small amount of needles may induce an abortion.

YELLOW STARTHISTLE
(Centaurea solstitialsis)
Class B noxious weed

RUSSIAN KNAPWEED
(Acroptilon repens)
Class B noxious weed

These two plants only affect horses:

Russian Knapweed and Yellow Starthistle can cause a neurological disease called nigropallidal encephalomalacia, better known as “Chewing Disease.” It affects the muscle that allows the horse to swallow food; therefore, they die of starvation. The effects of the toxins are cumulative and horses will not eat these plants unless it is the only forage available.
Both of these weeds are on the Lincoln County Noxious Weed List.

WESTERN WATERHEMLOCK *(Cicuta douglasii)*

Toxicity rating: High

Animals affected: All animals, including humans

Signs: Nervousness, breathing difficulties, tremors, collapse, sudden death. As little as 8 ounces can kill a horse. Signs will develop within minutes of ingestion. Death can occur in 30 minutes. If the animal survives 4 to 6 hours, they may recover but suffer permanent damage to the heart.

Even the water it grows in is toxic!

Description of plant: A perennial native plant with erect stems. It grows to 7 feet tall. Stems are smooth, purple-striped and hollow. A yellow liquid exudes from cut stems and roots. Leaves are toothed, and white flowers bloom in late spring or early summer in umbrella-like clusters. It grows primarily along steam banks and irrigation canals, but it likes pastures or untilled areas. The cut root to the right shows the chambers with the distinctive characteristic.

LUPINE Species *(Lupinus)*

Toxicity rating: High

Toxins: Poisonous alkaloids; D-lupinine. All parts of the plant are toxic, especially pods with seeds.

Animals affected: All animals are susceptible, primarily sheep.

Signs: Spasms, cerebral excitement, breathing problems, behavioral changes, birth defects, death. Sheep seem to be the most susceptible; death can occur when they have eaten as little as 0.25% of their body weight. Cows that eat these plants in the first 40-70 days of pregnancy

This calf was born with crooked-calf syndrome.

can have deformed calves, a condition known as crooked-calf syndrome. Current research indicates poisoning can happen longer during gestation than first thought: between 35 to 100 days of gestation. The uterus shrinks down and paralyzes movement of the fetus, not allowing it to move or grow properly. Paralysis can last from hours to days. Growth continues during paralysis in the fetal position. Severity depends on the duration of paralysis.

Description of plant: A perennial plant that reproduces by seed. Stems are upright and branched, often forming large, showy clumps up to 18 inches in height. Flowers can be white to purple on elongated spikes, and leaflets and stems are covered with fine hairs. Palmate leaves are composed of 6-8 leaflets.

These Plants Have a Moderate-Toxicity Rating:

FIELD HORSETAIL/SCOURINGRUSH *(Equisetum spp)*

Toxicity rating: Moderate for most animals, high toxicity in horses.

Toxins: Thiaminase. All parts of the plant are toxic, both fresh and dried. Hay containing this weed may be more poisonous than fresh plants in the field!

Animals affected: Primarily horses and cattle; other animals can be affected also.

Signs: Weight loss, weakness, gait abnormalities, abnormal heart rate, inability to rise, death. Horses suffer from vitamin B1 deficiency, causing degeneration of peripheral nerves.

Description of plants: A tenacious perennial plant with stiff, hollow stems that are round and jointed. Scouringrush appears in early spring as a tan shoot, developing into cane-like shoots that grow 1 to 6 feet tall. Stems have a terminal spore-producing cone on the end. Field horsetail has green shoots that bear pine needle-like branches which look like a horse's tail.

HOUNDSTONGUE *(Cynoglossum officnale)* **Class B noxious weed**

Toxicity rating: Moderate

Toxins: Pyrrolizidine alkaloids. All parts of the plant are toxic, most poisonous in the rosette stage.

Animals affected: Horses and cattle are particularly susceptible to poisoning by houndstongue while sheep seem to be tolerant. However, burs lodge in the sheep wool and greatly reduce the value of the clip.

Signs: Weight loss, jaundice, depression, diarrhea, photosensitivity of non-pigmented skin. The alkaloids have a cumulative effect on the liver and can induce fatal poisoning once 5-10% of an animal's body weight has been consumed and up to six months after ingestion.

Description of plant: A biennial growing 1 to 4 feet tall and reproducing by seed. The heavy "tongue- shaped" leaves are alternate up the stem and are about 4-12 inches long. The leaves are hairy and rough and feel like a dog's tongue. The flowers are reddish to purple and appear at the end of the stem. Seed pods are covered with barbs that enable them to stick to animals, clothing, etc.

Noxious: Houndstongue is an aggressive weed which was introduced from Europe. It is a very fast-spreading and a hard-to-control weed. It spreads rapidly by means of burs which attach to people, domestic pets and wildlife.

Houndstongue burs stick like velcro on this cow, spreading seed through the pasture.

LEAFY SPURGE *(Euphorbia esula)* **Class B noxious weed**

Toxicity rating: Moderate

Toxins: White, latex sap which has co-carcinogenic factors that can increase the cancer-causing properties of other substances. All parts of the plant are toxic.

Animals affected: Other than goats and sheep, any animal consuming spurge exclusively, or that comes into contact with the sap. Humans who come into contact with the sap can experience severe skin irritation as well as temporary blindness (seldom permanent) if the sap gets into their eyes.

Signs: Gastrointestinal irritation, dermal and ocular irritation, weakness. Prolonged exposure to skin (legs and head primarily) will cause irritation, redness, swelling and salivation and head shaking if the oral mucosa is affected. Blistering and open sores are possible from exposure to the sap.

Description of plant: A perennial **noxious** weed that grows to 3 feet tall and reproduces vigorously by rootstalks and seed. Leaves are alternate and stems are thickly clustered. Flowers are yellowish-green, small and arranged in numerous small clusters, paired with heart-shaped, green bracts.

Usually, grazing animals avoid ingesting leafy spurge, but when they do, they may suffer severe lesions in the mouth, weakness, and sometimes death. Leafy spurge is also a human health hazard. The plant produces a white latex (see picture at right) which can cause severe dermatitis in humans and animals. Upon eye contact, the latex may even cause human blindness. In addition, the latex has co-carcinogenic factors which increase the cancer-causing properties of other substances.

Milky sap has toxic properties.

MILKWEED *(Asclepias spp.)*

Toxicity rating: Moderate

Toxins: Cardenolides and resinaids. Leaves and other above-ground parts of the plant are poisonous, Milkweed may cause losses at any time, but it is most dangerous during the active growing season.

Animals affected: Sheep and cattle, occasionally horses. Most livestock losses are a result of hungry animals being concentrated around Milkweed-infestations. Poisoning may occur if animals are fed hay containing large amounts of milkweed.

Signs: Depression, weakness, difficulty breathing, violent spasms, bloating, gastroenteritis. An average-size sheep which eats 30-100 grams of green leaves is likely to die of poisoning.

Description of plant: There are several milkweeds, but Labriform milkweed is the most toxic. Any species of *Asclepias* must be regarded as toxic. Refer to any of the references listed on page 16 for more information on this weed.

THESE PLANTS HAVE A LOW-TOXICITY RATING:

BUTTERCUPS *(Ranunculus spp.)*

Toxicity rating: Low to Moderate

Toxins: Ranunculas. The juice of the entire plant contains the toxins.

Animals affected: All animals, primarily cattle and sheep.

Signs: Blisters and ulcers in the mouth. In an infested pasture, milk cows can eat enough to taint their milk.

Description of plant: There are several buttercups found in northwest Washington. The most common are Creeping Buttercup, Tall Buttercup and Bur Buttercup. Please refer to any of the references listed on page 16 for more information on these plants.

DOWNY BROME *(Bromus tectorum)* *Also known as "Cheatgrass"*

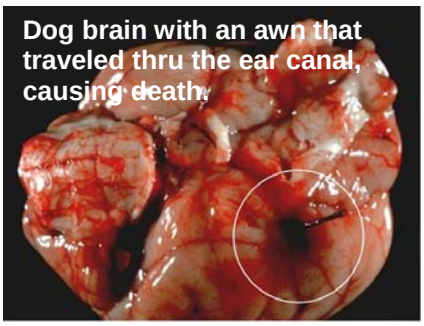
Toxicity rating: Low

Toxins: Large, coarse awns cause **mechanical injury** to mouth, eyes, and nose.

Animals affected: Grazing animals

Signs: Sores and infections to mouth, throat, intestines; weight loss.

Description of plant: An annual growing 4- to 30-inches tall, reproduced by seed. Leaf sheaths and flat blades are densely covered with soft hair. The seed head is dense, slender, drooping and often purple with nodding spikelets. Also known as cheatgrass.



The barbs on the awns can only go one way: in. They can cause quite severe mouth ulcers in horses and cattle. The awns (florets) can migrate all the way through the ear canal to the brain of dogs and cats, as shown in the picture to the right. The awns can also cause ocular and footpad problems in small animals.

MAYWEED CHAMOMILE *(Anthemis cotula)*

Toxicity rating: Low

Toxins: Irritant which affects the skin and mucous membranes of grazing livestock. It can add a foul taste to the milk of dairy animals.

Animals affected: All grazing animals

Signs: Skin rash, and soreness and blistering of the mouth and lips.

Description of plant: It is an annual, bushy-branched plant that grows from 1/2 to 2 feet tall with narrow, divided leaves. Flowers resemble those of a daisy, approximately 3/4 inch in diameter.

Animals will most likely avoid this plant because of its strong odor and bad taste. This plant is also referred to as dog fennel.

ST. JOHNSWORT *(Hypericum perforatum)* Class C weed

Also known as "**Goatweed"**

Toxicity rating: Low to moderate

Toxins: Hypericin. All parts of the plant are toxic.

Animals affected: Most animals are susceptible

Signs: Sunburn, skin slough, eye irritation, inflammation of non-pigmented skin. Hypericin is a pigment that when absorbed by the body and activated by sunlight can result in a condition known as photosensitivity, where **white or light-skinned animals become seriously sunburned under normal exposure to sunlight.** Animals must consume the plants for 4 to 5 days before clinical signs are noted.

Description of plant: A perennial noxious weed which reproduces by seeds or short runners. Stems are 1- to 3-feet high, erect with numerous branches that are rust-colored and woody at the base. Leaves are opposite, clasping the stem and oval-shaped. This plant is easily identified by the tiny, transparent dots visible in the leaves when held up to the light. Flowers are bright-yellow and have 5 petals with minute, black dots around the edges.

PUNCTUREVINE *(Tribulus terrestris)* Class c noxious weed

Toxicity rating: Low

Toxins: Saponins

Animals affected: Cattle & sheep and other ruminants.

Signs: Liver disease, weight loss, neurological signs

Description of plant: Annual, mat-forming, trailing stems up to 5 feet long. Leaves are opposite, hairy, divided into 4 to 8 pairs of leaflets. Flower is yellow with 5 petals in leaf axils, to 1/2-inch wide. The seeds break into 5 sections with 2 to 4 seeds per capsule. Capsules have tack-like structures with 2 sharp spines, resembling the head of a goat.

Puncturevine's sharp burs are especially dangerous for livestock. They can pierce and/or cut feet, skin, mouth, and the digestive track. Besides sharp burs, puncturevine contains toxins that cause liver damage in sheep and cattle.

PLANT FAMILY TO BE CAUTIOUS OF:

THE MUSTARD FAMILY:

Consumption of mustard plants by mares has caused a condition called Congenital Hypothyroid Dysmaturity Syndrome in foals. Signs of this condition include:

1. Abnormally long pregnancy
2. Foals commonly born with facial and lower jaw deformities
3. Deformities of the limbs

This syndrome occurs most often in mares who are bred late and fed hay that is contaminated with mustard; also with mares pastured in early-spring in fields with mustard plants, like Blue Mustard, Tumble Mustard, Flixweed and Shepherd's purse.

The syndrome appears to be caused by digestion of certain mustards during the last trimester of pregnancy. The chemicals are broken down into compounds that act on the thyroid gland. Make sure the hay is free of mustards, and keep mares late in pregnancy out of pastures with mustard plants.

NITRATE-ACCUMULATING PLANTS

- The effects of nitrate poisoning result largely from oxygen starvation or simply, suffocation.
- Plants differ in their ability to accumulate nitrate. The soil type, the availability of nitrogen present in the soil, various environmental factors and chemical or physical plant damage influence the amount of nitrate. For example, drought conditions, frost, or the treatment of nitrate-accumulating plants with 2,4-D may cause plants to accumulate excessive amounts of nitrate.
- Poisoning occurs primarily in ruminants.

- Kochia (Class B noxious weed)
- Alfalfa
- Pigweed
- Sorgham
- Russian thistle
- Nightshade
- Lambsquarter
- Oat hay
- Corn

Toxicity Facts

- Drought **increases** plant **toxicities.**
  - Plants growing under stress produce stronger toxins.
  - High-strength toxins require less energy to produce than lower-strength toxins.

- Animals allowed to graze in potato fields after a freeze or who feed on spoiled potatoes in the spring can be poisoned. The toxin **solanine** causes paralysis of the throat, constipation and even death. Besides potatoes, solanine is also found in night shade, tomatoes and buffalobur (a class A noxious weed). Children are also very susceptible to solanine poisoning.

- The curing process in hay does **not** dilute the **toxicity** in **most** plants.

- A plant may be more toxic during one part of the season than another.

- It is often the **dosage** that makes a particular plant poisonous.

- Poisonous plants often become more toxic during or after an extended drought, especially early in the growing season. Many poisonous plants mature early in the season (e.g., low larkspur, death camas, and locoweed). Poisonous plant infestations tend to increase after serious drought, but toxicity in plants can become more serious after a drought even when their numbers don't increase. After a dry year, there is less, if any, residual carry-over forage from the year before to buffer the toxins. The remaining forage can be more toxic. Dietary concentrations can reach toxic levels even when livestock do not increase their consumption of poisonous plants.

REFERENCES:

- Weeds of the West, 9th Edition, 2002.Toxic Plants of North America, 1st Edition, 2001.
- Western Washington Poisonous Plants Database; www.horsesforcleanwater.com
- Indiana Plants Poisonous to Livestock and Pets; www.vet.purdue.edu
- Cornell University Poisonous Plants Collection; www.ansci.cornell.edu
- War on Weeds, Noxious Weeds found in Montana; www.mtwow.org
- A Guide to Plants that are Poisonous to Horses and Livestock, Spokane County Noxious Weed Control Board.
- National Sustainable Agriculture Information Service; www.attra.ncat.org
- Toxic plants, Control Them Before They Kill! Seminar on 4/19/06, by Patricia Talcott, DVM, PhD, Diplomate ABVT, WA Animal Disease Diagnostic Lab, WSU, and Analytical Sciences Laboratory, UI.
- Texas A&M University System, Billy E. Warrick, Extension Agronomist.
- U.S.D.A. Agricultural Research Service; www.ars.gov
- Veterinary Pharmacology and Toxicology—Poisonous Plants, Spring 1997; Patricia A. Talcott, MS DVM, Ph.D., DABVT, Veterinary Toxicologist.

This handout does not contain a complete list of plants that are toxic to animals in Grant County. Please refer to the references listed above for more information.

Grant County Noxious Weed Control Board
Federal Bureau of Reclamation Building
32 C St. NW, Suite 321
Ephrata, WA 98823
Phone: (509) 754-2011 ext 375
FAX Number: (509) 754-6034
www.grantcountyweb.com/GCNW

Courtesy of Lincoln County Noxious Weed Control Board
P.O. Box 241, Davenport, WA 99122
509.725.3646
www.co.lincoln.wa.us