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Weed Identification and Control in Grass Pastures

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Controlling weeds is probably one of the most important decision to think about when managing grass pastures. Weeds are generally less palatable, less nutritious, lower yielding, and are less dependable as a forage supply to horses than the desirable grass pasture species they replace. Many pasture weeds are on the Minnesota noxious weed list and several other pasture weeds are poisonous to horses. According to the Minnesota noxious weed law, primary noxious weeds must be controlled on all private and public land in the state. Of the ten primary Minnesota noxious weeds, five are common pasture weeds: bull thistle, plumless thistle, Canada thistle, musk thistle and perennial sowthistle. About thirteen poisonous plants can affect horses in Minnesota: redroot pigweed, nightshades, common lambsquarter, common cocklebur, hoary alyssim, buttercup, horsetail, poison hemlock, bracken fern and white snakeroot. Most poisonings occur in the early spring or during a drought when the pasture forage is in short supply.

From a control standpoint, grouping weeds into categories based on life span is most practical. Annual, biennial and perennial are the main life spans of weeds.

Annual

An annual germinates from seed, grows, matures, and dies in less than one year or when killed by frost. Chemical control of annuals works best when applied in the spring to actively growing, young weeds. Mechanical control, such as mowing, is very effective against annuals.

Table 1. Common Annual Broadleaf Pasture Weeds.

Weed	Description	Noxious	Poisonous	Chemical Control	Mechanical Control
Catchweed Bedstraw	Prostrate. Leaves narrow in groups of 6-8. White flowers	No	No	2,4-D	Hand Pulling
Common Cocklebur	Erect. Large,	No	Yes	Stinger	Hand Pulling

	rough leaves. Oval bur easily lodges in hair.				
Common Lambsquarter	Erect. Toothed leaves with white coat.	No	Yes	2,4-D, MCPA	Frequent Mowing
Eastern Black Nightshade	Erect or prostrate. Wavy leaves. Green/black berries.	No	Yes	2,4-D, MCPA	Frequent Mowing
Marestail (Horseweed)	Erect. Numerous leaves, no branches.	No	No	2,4-D	Hand Pulling

Redroot Pigweed	Erect. Dull green oval leaves.
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Biennials

Biennials require two years to complete their life cycles. They form a rosette (group of leaves at ground level) and store food in their roots the first year and flower the second year. Control measures, chemical or mechanical, are most effective when applied during the first year's growth. If treatment is delayed until the second year, early season application of a herbicide before bloom is important.

Table 2. Common Biennial Broadleaf Pasture Weeds.

Weed	Description	Noxious	Poisonous	Chemical Control	Mechanical Control
Bull Thistle	Erect. Leaves deeply cut and spiny.	Yes	No	Stinger, 2,4-D Banvel	Hand Pulling
Common Burdock	Erect. Leaves large	No	No	2,4-D, Banvel	Hand Pulling

	and hart-shaped. Burs.				
Common Mullen	Erect. Dense soft hairs. Yellow flowers.	No	No	Roundup*	Hand Pulling
Musk Thistle	Erect. Very spiny. Flower heads droop.	Yes	No	Stinger, 2,4-D Banvel	Hand Pulling
Plumless Thistle	Erect. Leaves divided. Flowers globe shaped.	Yes	No	Stinger, 2,4-D Banvel	Hand Pulling
Poison Hemlock	Erect. Lace-like leaves. Umbrella-like flowers.	No	Yes	2,4-D	Hand Pulling
Spotted Knapweed	Erect. Narrow hairy leaves. Purple flowers.	No	No	2,4-D , MCPA	Frequent Mowing

* Roundup is used as a spot treatment only.

Perennials

Perennials live more than two years, and grow back from the same roots year after year. Perennials move nutrients into their roots during fall to prepare for winter. Because of this, chemical control of perennials works best when applied in the fall to actively growing and well-developed foliage. As the nutrients move into the roots, the chemical will too. However, the herbicide applied in the fall must be able to move within the plant. The ability of a herbicide to move within a plant is called systemic. When choosing your chemical for perennial weed control, make sure it is systemic. Application of herbicides in spring, or frequent moving during the summer is also effective in controlling growth until fall. However, mowing alone may take a few growing seasons to effectively control the weeds.

Hoary Alyssum

Hoary Alyssum is a concern for many horse owners. Some horses experience depression and stocking up or swelling of the lower legs twelve to twenty four hours following ingestion of Hoary Alyssum in hay or pasture. In more severe cases, which are rare, an apparent founder with a stiffness of joints and reluctance of the animals to move has been observed. In very rare cases, where Hoary Alyssum comprised extremely high percentages of the hay (30 to 70%), circumstantial evidence exists associating the plant with the death of a few horses. However, to date, death has not occurred in horses fed hay containing Hoary Alyssum under experimental conditions. Considering the widespread distribution of Hoary Alyssum in Minnesota and the lack of reported toxicity to animals, it is of relatively low toxicity to livestock in that sense. Horse owners should be aware of toxicity symptoms and manage pasture to reduce populations of Hoary Alyssum. Hay containing greater than 30% Hoary Alyssum should not be fed to horses.

Table 3. Common Perennial Broadleaf Pasture Weeds.

Weed	Description	Noxious	Poisonous	Chemical Control	Mechanical Control
Absinth Wormwood	Shrub-like. Leaves are hairy and silver in color.	No	No	Banvel, 2,4-D	Frequent Mowing
Bracken Fern	A true fern. Erect.	No	Yes	Ally	Frequent Mowing
Buttercup	Erect. Stems slightly hairy. Yellow flowers.	No	Yes	Banvel MCPA	Hand Pulling
Canada Thistle	Erect. Leaves have crinkled edges and spines	Yes	No	Stinger	Frequent Mowing
Common Dandelion	Leaves contain milky	No	No	2,4-D	Hand Pulling

	juice. Yellow flowers.				
Curly Dock	Erect. Leaves with wavy or curled edges.	No	No	Banvel, Roundup*	Hand Pulling
Goldenrod	Erect. Leaves are hairy, grayish. Yellow flowers.	No	No	Banvel, Roundup*	Hand Pulling
Hoary Alyssum	Erect. Plant gray- green and hairy. White flowers.	No	Yes	Stinger, Roundup*	Frequent Mowing
Horsetail	Erect. Hollow, jointed stems.	No	Yes	Stinger, Roundup*	Frequent Mowing
Perennial Sowthistle	Erect. Milky juice. Yellow flowers.	Yes	No	Banvel, Roundup*	Hand Pulling
Stinging Nettle	Erect. Leaves covered with stinging hairs.	No	No	Banvel, Roundup*	Hoeing
White Snakeroot	Erect. Leaves have toothed edges.	No	No	Stinger, Roundup*	Hand Pulling

* Roundup is used as a spot treatment only.

Trees, Shrubs, Wild Flowers and Grass Weeds

Trees, shrubs, wild flowers and weedy grasses can also be detrimental to grass pastures and horses. Chokecherry bark, leaves and seeds are poisonous to all grazing animals. However, the number one poisoning problems of horses has been from maple tree leaves. During the late 1980's, twelve to fifteen cases of horses poisoning occurred in Minnesota. Some species of oaks can cause livestock poisonings. Gamble and Shinnery Oak are responsible for most livestock poisoning. However, do not cut down mature trees in a pasture. Trees provide shelter from the weather and bugs. Trim up branches to reduce the chance of leaf ingestion by horses.

Several wild flowers can be found in pastures. Few are poisonous and horses will usually not eat them if other forage is present. Crabgrass and quackgrass are common grass weeds in grass pastures. They are almost impossible to control chemically. If large percentage of grass forage is crabgrass or quackgrass, reseeding may be required. Quackgrass and crabgrass are believed to have less nutritional value than other pasture forages. Other annual grass weeds, like foxtail, can be controlled by timely mowing.

Herbicides

When using herbicides, always read and follow labels carefully. Always follow grazing recommendations after herbicide application. Herbicide may make toxic weeds more palatable to horses. Horses should be excluded from the sprayed area for seven to ten days after treatment if poisonous plants are present. And, remember that herbicides alone will not result in a weed-free pasture. Below is a list of common herbicides used in grass pasture weed control. This is not a complete list of available herbicide options.

- 2,4-D and MCPA can be applied to control many annual, biennial and perennial broadleaf weeds and small brush. Repeat treatments of two or more years is usually necessary for good control of perennial weeds. 2,4-D is the most commonly used pasture herbicide.
- Roundup is used as a spot treatment only. Roundup is non-selective in a grass pasture and will kill any plant material it comes into contact with. Roundup is a good choice if reseeding a pasture.
- Banvel controls most annual, biennial, and perennial broadleaf weeds in a grass pasture. Do not apply banvel near trees or during high temperatures. Use caution when applying banvel in areas susceptible to contamination of surface and ground water.
- Stinger control many annual, biennial, and perennial broadleaf weeds, including thistles. Stinger is expensive and should only be used

when controlling large areas of thistles.

- Ally is used to control a select group of biennial and perennial weeds. This list includes: bull thistle, musk thistle, plumless thistle, bracken fern, buttercup and dandelion. Ally should be used only on established pastures.

Steps To Minimize Weeds in Grass Pastures

1. Proper grazing management is a must. Overgrazing easily damages grass pastures. Overgrazing tends to pull out grass roots, giving weeds space to take hold.

2. Protect new seedlings from grazing until they are well established and graze moderately there after.

3. Allow established pastures a recovery period after grazing by removing the horses for three to four weeks. This will reduce weeds and increase pasture yield and nutrition value.

4. If possible, mow after each grazing period to control many pasture weeds and encourage new pasture growth. However, do not mow the pasture closer than four inches above the soil.

5. During hot and dry spells, remove horses from pastures.

6. In very weedy pastures where pasture forages are thin, reseeding may be the best practice.

7. Finally, remember that thick, well-managed pastures will choke out weeds.