

Common Minnesota Horse Pasture Grass and Legume Species

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Orchardgrass



Perennial Ryegrass



Tall Fescue



Timothy



Crested Wheatgrass



Kentucky Bluegrass

There is no single “silver bullet” plant species that is ideal for every horse pasture. Below is a list of common perennial (grows for 2 or more years), cool-season pasture species divided into bunch and sod-forming grasses, legumes, and suggested seeding rates.

Cool-season grasses grow rapidly in spring and fall, and are not as productive during the heat of the summer. However, cool-season grasses are well suited for pastures in the upper Midwest. Bunch grasses tend to grow in “bunches”, while sod-forming grasses usually cover most of the soil surface. When selecting pasture forages, try to include both types of grasses. Legumes add nutrition to grass pastures, and reduce the amount of nitrogen fertilizer that is needed (legumes fix nitrogen from the atmosphere). However, if seeding a mixed pasture (grasses and legume), broadcast herbicide applications are no longer a weed control option.

Bunch Grasses

Orchardgrass (*Dactylis glomerata*) is leafy, has rapid regrowth, and has good early (spring) and late (fall) season growth. However, orchardgrass can be competitive with legumes, has marginal winter hardiness without snow cover, and can be very bunchy in its growth habit if planted at low rates.

Perennial Ryegrass (*Lolium perenne*) has rapid regrowth, high quality (very leafy), and is palatable when in the vegetative stage. However, perennial ryegrass has marginal winter hardiness, limited heat and drought tolerance, is susceptible to disease and can be competitive with legumes.



Reed Canarygrass



Smooth Bromegrass



Alfalfa



Birdsfoot Trefoil



Red Clover

Tall Fescue (*Festuca arundinacea*) is adapted to a wide range of soils including wet soils, is somewhat tolerant of continuous grazing, and has excellent fall productivity. Tall fescue can have marginal winter hardiness and low palatability. Endophyte-infected fescues can cause reproductive problems in mares and stallions and dry gangrene in all horses. Labels of pasture mix containing tall fescue (and other fescues) should be checked to ensure the fescue is endophyte free. Endophyte-infected or enhanced fescues should not be planted in horse pastures.

Timothy (*Phleum pratense*) is winter hardy, and has a broad window for quality and palatable forage because it is late maturing. Timothy does well in cool, moist areas. However, timothy has an uneven yield distribution, slow regrowth, and poor heat/drought tolerance.

Crested Wheatgrass (*Agropyron desertorum*) is leafy and hardy, and because of its deep roots, is more drought tolerant than other species. If kept in the vegetative stage, the quality is excellent. Once established, crested wheatgrass will persist for many years.

Sod-Forming Grasses

Kentucky Bluegrass (*Poa pratensis*) is winter hardy and somewhat tolerant of continuous grazing. However, Kentucky Bluegrass has poor heat/drought tolerance. Because of its short, low growing growth habit, it can have lower yields compared to other pasture grasses.

Reed Canarygrass (*Phalaris arundinacea*) is tolerant of flooding and poorly drained soils. Reed Canarygrass is relatively productive during heat and drought. However, reed canarygrass is relatively coarse and unpalatable when mature, and is slow to establish. Newer varieties are less invasive than older varieties. Use only low-alkaloid varieties. Many naturalized stands of reed canarygrass have alkaloids (a potential toxin), and should be grazed with caution.



White Clover



Alsike Clover



Sweetclover

Smooth Bromegrass (*Bromus inermis*) is very winter hardy, and persists through heat and drought. However, smooth bromegrass can have uneven yield distribution, slow regrowth, poor summer productivity, and should not be used under continuous grazing.

Perennial Legumes

Alfalfa (*Medicago sativa*) requires a soil pH of 6.5 – 7.0, high soil fertility, and can not withstand water logged soils or flooding. Pure alfalfa hay and pasture is not recommended for most horses because it usually contains more protein than most horses require. Research has shown that horses grazing pastures planted with high population of alfalfa can exhibit photosensitive reactions or “sunburn,” which is really a thickening and reddening of the white areas of skin due to liver damage. Light haired horses commonly exhibit these symptoms, but black haired horses also get liver damage, but the “sunburn” is not visible.

Birdsfoot Trefoil (*Lotus corniculatus*) is low growing with bright yellow flowers, and is commonly used by highway departments for roadside seedings. Birdsfoot trefoil is best suited for acidic, poorly drained soils. Birdsfoot trefoil seed is more expensive than other legumes and is difficult to establish. However, once established, it persists via natural reseeding and provides high quality forage, even at or after maturity.

Red Clover (*Trifolium pretense*) has hairy stems and leaves, and large, red or reddish-purple flowers. It grows best on acidic, wet soils, and is usually used in areas where alfalfa will not grow. Mold infested red clover can cause slobbers and sunburn or photosensitive reactions.

White Clover (*Trifolium repense*), **Alsike Clover** (*Trifolium hybridum*), and **Sweetclover** (*Melilotus species*) grow better in moist conditions. Although they are rarely recommended, they are commonly found in pre-packaged pasture mixes. Mold infested white clover, alsike clover, and sweet clover can cause sunburn or photosensitive reactions.

Example Grass Pasture Mix for Heavy (Clay) Soils

Kentucky Bluegrass	8- 10 lb/ac
Orchardgrass	8-10 lb/ac
Perennial Ryegrass	3-5 lb/ac
Timothy	3-5 lb/ac

*Nitrogen fertilizer will be needed.

Example Grass Pasture Mix for Well-Drained or Sandy Soils

Kentucky Bluegrass	8-10 lb/ac
Orchardgrass	3-5 lb/ac
Timothy	2-3 lb/ac
Perennial Ryegrass	2-3 lb/ac
Smooth Bromegrass	2-3 lb/ac
Crested Wheatgrass	2-3 lb/ac

*Nitrogen fertilizer will be needed.

Example Legume/Grass Pasture Mix for Heavy (Clay) or Wet Soils

Low-alkaloid Reed Canarygrass	6-8 lb/ac
Timothy	3-5 lb/ac
Birdsfoot Trefoil	3-5 lb/ac
Red Clover	2-4 lb/ac

Example Legume/Grass Pasture Mix for Well-Drained or Sandy Soils

Smooth bromegrass	8-10 lb/ac
Orchardgrass or Ryegrass	3-5 lb/ac
Alfalfa	3-5 lb/ac
Red clover	2-3 lb/ac

Overseeding Options

Italian Ryegrass	10-20 lb/ac
Perennial Ryegrass	10-15 lb/ac
Red Clover	2-4 lb/ac
White Clover	1-3 lb/ac
Orchardgrass	5-8 lb/ac

*Overseeding – seeding into a thin, but existing pasture. Over seed no more than two of the above species at one time.

Example of High Traffic Area Seeding

Kentucky Bluegrass	20-25 lb/ac
or	
Endophyte-free Tall Fescue	20-25 lb/ac

Cover Crops

Cover crops are fast growing annual (grows for one year) species that reduce weed pressure and erosion. Cover crops are commonly planted when establishing a new hay field, and can be used when establishing a new pasture. Oat (1 bu/A) and Italian Ryegrass (2 to 3 lbs/A) are common cover crops, and can be grazed. The key to using cover crops with a pasture seeding is removing the cover crop forage before it becomes too mature and competitive or goes to seed. If the pasture mix includes perennial ryegrass, there is no need for a cover crop.

Cautions

Keep horses off newly seeded pasture until the plants are well established and have been mowed a few times. Introducing horses to lush pasture gradually will reduce the chance of laminitis and colic.

Most photos in this publication show plants in the flowering or seedhead stage when species are easiest to differentiate and identify. With good pasture management, plants should not be allowed to mature as the photos depict.

Reviewers: Dan Undersander, PhD, University of Wisconsin; Betsy Gilkerson, University of Minnesota; Harlan Anderson, DVM; and Ron Genrick, Assurance Feeds.

Photos Courtesy of: University of Minnesota Strand Memorial Herbarium and the Authors.

Related Fact Sheets:

Martinson, K., and Peterson, P. 2007. Buying and Storing Horse Hay. 4 pages. University of Minnesota Extension Service Fact Sheet M08463.

Martinson, K., and Peterson, P. 2007. Managing Established Horse Pastures. 4 pages. University of Minnesota Extension Service Fact Sheet M08460.

Martinson, K. and Stahl, L. 2007. Use Caution with Buying and Harvesting Ditch Hay. 2 pages. University of Minnesota Extension Service Fact Sheet M1197.

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