

Feeding Clover

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Providing research-based information to Minnesota horse owners



Red clover



Red clover (showing "V" mark)



White clover

Scientific Names: Red clover (*Trifolium pratense*), White clover (*Trifolium repense*), Alsike clover (*Trifolium hybridum*), and Sweetclover (*Melilotus species*).

Origin: Red clover (*Trifolium pratense*) was introduced from Asia and Europe; white clover was introduced from the Mediterranean and western Asia; sweetclover: introduced from Russia; and alsike clover was introduced from Europe and Asia.

Lifecycle: All clovers are perennials, reproducing by seed, with white clover reproducing by seeds and stolons. Stolons are above ground reproductive stems.

Identification: Red clover: trifoliolate leaf (three leaflets) that is non-serrated (smooth) and hairy. Most leaves have white "V" mark. Entire plant is usually hairy with reddish to purple colored flowers. White clover: trifoliolate leaf with serrated (toothed) leaf edges, extending to the base of the leaf. Most leaves have white "V" mark, and are shiny on the underside, with white flowers. Sweetclover: trifoliolate leaf with serrated leaf edges, extending to the base of the leaf, with white or yellow flowers. Alsike clover: trifoliolate leaf with finely serrated leaf edges, extending to the base of the leaf. Leaves lack "V" mark, and are dull on the underside with white flowers.

Distribution: All clover are commonly found throughout the United States.

Habitat: All clovers are found in pastures and ditches. Clover is a common component of many pasture and hay mixes. Clover is also commonly used by transportation departments for ditch or roadway.

Use: Clover can be a desirable feed source for most horses whether used in pasture or in hay because it provides useful energy and acceptable protein and fiber. Clovers can occasionally be infected with mold, causing slobbers, photosensitivity, and bleeding. Even with these potential problems, clover is still considered a useful forage for horses.

Control: Only moldy clover causes toxicity problems with horses. In very wet years or periods of high humidity, fencing horses out of clover rich pastures is probably the best control strategy. To decrease the chance of mold, you can increase air movement, by mowing, thinning clover stands, or improving drainage. When using clover for hay, keep in mind that clover, especially red clover, takes longer to dry than other forage species. If you wish to remove clover from your pasture or hay field, there are several effective herbicides available. When using a herbicide, be sure to carefully follow all grazing and harvesting restrictions and other pertinent information stated on the herbicide label.



Yellow sweetclover



Alsike clover

Slobbers

Growth of mold on clover is occasionally encountered. Two mold problems are generally associated with red, white, and alsike clovers. The molds are associated with weather above 80°F and humidity above 60%. The most well characterized mold problem is “slobbers”. Horses can literally fill several 5 gallon buckets full of saliva in one day. This condition is caused by slaframine, which is produced when red clover is infested with the mold *Rhizoctonia leguminicola*. The mold is generally a rust color seen on the upper side of the leaf. This mold normally “runs its course” or lasts about 2 to 4 weeks, depending on weather conditions.

Photosensitivity

The second problem in these clovers, Black Blotch Disease, is not as well characterized, but has been reported in Minnesota, Washington, and areas of Canada. Black Blotch Disease of clover, and other legumes, is caused by infestation with *Cymodothea trifolii* mold. The mold literally causes black blotches to occur on the underside of the clover leaves, usually closer to the ground where the humidity is highest. Horses ingesting clover with Black Blotch Disease have been known to develop excessive sunburn, or photosensitivity, which is really a thickening and reddening of the white areas of skin due to liver damage. Black or dark haired horses can experience liver damage even if the sunburn is not visible. Research has shown that photosensitive reactions can also occur in horses grazing alfalfa infested with *Cymodothea trifolii*.

Bleeding

A third mold condition affects a different clover, white and yellow sweetclover. These clovers are not common in pasture mixes, but are more frequently seen along roadways and older hay fields. The problem arises not from clover in pastures, but if sweetclover is harvested for hay and molds. An unknown mold converts the naturally occurring cumarol in the sweetclover to dicumerol, a blood thinning drug. Horses may bleed if moldy sweetclover hay is a substantial amount of their diet over several days. Dicumerol clears quickly. Taking the horse off the hay is the best treatment. Injections of vitamin K or blood transfusions may be necessary in extreme bleeding cases, but feeding a natural source of vitamin K, like fresh alfalfa hay, is usually all that is necessary. Crimping sweetclover at cutting reduces, but may not entirely eliminate the potential for molding. Crimping usually results in reduced drying times.

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In Partnership...



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