

## **SKIN CONDITIONS SECOND SERIES: Photosensitization & Clover**

### **Alsike Clover toxicity in horses.**

The most common symptom of alsike clover poisoning is photosensitization or a reaction to light. The real problem, however, which is not so readily observed, is liver damage. The photosensitization is not caused directly by the alsike, but rather is a secondary problem, possibly an alkaloid, which causes liver dysfunction.

The plant material that the horse eats contains chlorophyll. Bacteria in the intestinal tract change the chlorophyll into another substance, phylloerythrin. This is all quite normal. In an animal with a healthy liver, the phylloerythrin is removed from the blood by the liver, and excreted in the bile. However, in an animal where the liver has been damaged, it cannot pick up the phylloerythrin. It then is carried by the blood and deposited in the skin cells. When light of a certain wavelength is absorbed by the skin it reacts with the compound, damaging the cell and causing inflammation and redness. This occurs only on areas unprotected by thick skin, hair covering or pigmentation, such as in black skin.

The more common and acute lesions related to alsike clover are photosensitization characterized by “reddening of the skin under the influence of sunlight, followed by either superficial or deep dry necrosis of the skin or by edematous swelling and serious discharge,” resulting in crusty inflamed areas, especially in the unpigmented pink-skinned areas of the face.

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Horses that are outside during the day, blanketed while outside, or have minimum exposure to ultraviolet light may not show the hair loss and crusty inflamed skin typical of photosensitization. In these cases, a slight edema of the skin may be the only noticeable sign. Close observation of the oral mucosa of the mouth and under the tongue may reveal petechial haemorrhage and linear ulcers. Diarrhea and colic may also be experienced.

Slobbering is caused by a fungus found in clover.

Red clover seems to be the most likely species to cause this condition, but all clovers and legumes can host the fungus that causes slobbers. It is not actually the plant itself causing this problem, but a fungus that grows on the plant, or hay made from red clover. The fungus *Rhizoctonia leguminicola* produces a mycotoxin called slaframine.

The fungus flourishes in cool, wet, and humid conditions. It appears in late spring and early summer and even in fall months as tiny black specks on the clover plants. It is so small that it is difficult to see with the naked eye. Some horses apparently really love clover, while others can take it or leave it, which explains why some horses are affected and others are not. Some horses may be more susceptible than others to the mycotoxins.

That being said, mechanical or chemical reactions to plants can also cause salivation. Irritation from the hairy stems of clover can cause this gross reaction, and plants other than clover including burdock and foxtail can also cause slobbers. One common plant that can cause a chemical irritation is buttercups. The best defense from these weeds is to keep your pastures mowed regularly.

Hay made from the clover can also cause salivation if it contains the fungus. The most immediate danger from clover slobbers is dehydration since the horse is losing fluids from the salivation.

**The first thing to do to “cure” slobbers is take the horse off the pasture. The slobbering will cease within 24 hours. Be sure the horse drinks plenty of water.**

**Mowing the pasture and removing the infected plants can alleviate the problem.**



**Red clover leaves are usually hairy and may contain an inverted "V" watermark. The flowers are usually dark purple and are borne at the terminal end of the stems which also bear leaflet clusters.**



**Alsike clover flowers are usually pink and white in color but can be darker depending on growing conditions. The flower stem originates from the same point off the main stalk as separate leaflet stems.**