

Blister Beetles

Recently, there have been reports of blister beetle poisoning in horses. You may be asking yourself, “What’s a blister beetle?” Blister beetles are plant-feeding insects (in the Family Meloidae) that just happen to have a taste for alfalfa. If a horse ingests just a few beetles, it can lead to severe colic and potentially death. These beetles are also toxic to sheep, cattle, goats, dogs, cats, rabbits, rats and humans. So, here is some basic information to help you understand more about the blister beetle and the risks to horses.

Toxicity

Blister beetles contain a toxic chemical called cantharidin. The purpose of cantharidin is to protect the beetle from predators. Contact between cantharidin and external skin surfaces produces painful blisters, which, while uncomfortable, are generally not harmful and will subside on their own. Of greater concern is internal exposure if the toxin is consumed (Table 1). Cantharidin is present in beetles whether they are alive or dead, so the nasty side effects don’t go away with the demise of the insect. Cantharidin is a very stable compound that can withstand degrades with heating and drying. Thus, if the beetles are present in an alfalfa field and are crushed in the harvesting process, the toxin will still be present.

Estimated Lethal Dose of Blister Beetles

Cantharidin Content Per Beetle (mg.)	Horse Weight (Lbs.)	Number of Beetles
1.0	555	250
	835	375
	1,200	545
3.0	555	83
	835	124
	1,200	182
5.0	555	50
	835	75
	1,200	109

Table 1. Estimated number of ingested blister beetles needed to provide a lethal dose to horses (assuming a minimum lethal dose of 0.45 mg. of cantharidin/lb. body weight).**

**From the University of Arkansas Division of Agriculture, Fact Sheet: FSA7054. Full reference below.

Appearance

There are many species of blister beetles. Typically, blister beetles are ½ - 1 inch in length and have a narrow, cylindrical, soft body. They also have a distinct “neck-like” appearance when viewed from above. The beetles can be black, grey, brown or have orange stripes (see photos).



Striped blister beetles, one of many species in the family Meloidae.*

**Photo courtesy of the University of Missouri Extension, Fact Sheet #G4569. Full reference below.*



Adult “Florida” blister beetle.

*Photograph by Lyle J. Buss, University of Florida. Full reference below****



Adult blister beetle.

*Photograph by Lyle J. Buss, University of Florida. Full reference below****

Symptoms of Toxicity

Horses are the most susceptible to blister beetle poisoning. Consumption of as little as 5-6 grams of dried beetles stuck in hay can be lethal. However, the severity of the reaction to cantharidin exposure typically depends on the amount of the toxin ingested. Symptoms usually appear within hours of exposure, and may include irritation and inflammation of the digestive & urinary tracts, colic, and straining during frequent urination. Ulceration around the mouth, pawing, diarrhea, unusual stretching and contractions of the diaphragm (similar to a hiccup) are also potential symptoms. Calcium and magnesium concentration in the blood may be lowered, and heart muscle tissue is subject to damage. Animals can die within 72 hours of exposure, so immediate attention from a veterinarian is essential.

Where blister beetles like to be

Blister beetles gather in clusters and tend to be attracted to flowering plants. Adult blister beetles also like to chew on flowering weeds, for example ragweed and pigweed. Additionally, the beetles favor vegetables, clover, alfalfa and mustard, and like to eat leaves, leaving behind stems. Often, the damage caused by blister beetles is limited to the outside borders of crop areas.

Blister beetle larvae are voracious consumers of grasshopper egg pods. For this reason, blister beetles are commonly found in areas with an abundant grasshopper population, so attention should also be paid to the presence of these insects as a risk factor for attracting blister beetles. There are no known natural predators or parasites to effectively control blister beetles.

To help minimize the risk of blister beetle contamination, alfalfa should be harvested before blooming, and before weeds in the same field bloom. There is no guarantee that any cutting will be blister beetle-free, but this is one way to minimize risk. Blister beetles are not typically active during the part of the season when the first cut of alfalfa is harvested. Thus, this may be the safest cut of hay to acquire. Blister beetles are most active in the mid- to late-

summer (Mid-July to August) when second and third cuttings are most likely to occur. There are pesticides available and approved for blister beetle control as well. It can be helpful to develop a relationship with your local hay supplier and/or producer, and ask about their pest management practices to gain an understanding of the risk of blister beetle contamination.

Take Home Message

It is not safe to feed alfalfa contaminated with blister beetles to horses. Inspect hay before feeding it. If blister beetles are found or even suspected, do NOT feed the alfalfa to horses or any other livestock, and keep pets away. Contact your veterinarian immediately – don't wait! Simply removing the beetles will not eliminate the toxic contamination by cantharidin. Contaminated alfalfa should be safely discarded in a way that animals cannot access it.

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