

## Blister Beetle in Alfalfa and Pasture

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As consistent warmer weather of the summer takes hold and intermittent rainfall occurs, potential of increased blister beetle activity becomes more of a concern.

Scouting alfalfa fields at the Cimarron Valley Research Station in Perkins, OK (Payne County) last week, I found several areas of striped blister (*Epicauta occidentalis*) beetle activity (Fig. 1). I have also been in contact with horse farms in the southern part of the state reporting blister beetles showing up in their grazing pastures.



In Oklahoma, after overwintering as larvae, pupation occurs, and adults emerge May through June. In late summer, females lay eggs in cracks at the soil surface, eggs hatch and small larvae feed for a time on grasshopper eggs, and the cycle begins again. The blister beetles found in alfalfa complete one generation per year.

Figure 1. Adult Striped Blister Beetle. (Photo Credit: Bug Guide.)

The source of many blister beetles is from feeding on foliage and blooms in alfalfa hay fields. However, they are also attracted to broadleaf weeds and other plants blooming near alfalfa fields or in grass pastures.

While minimal feeding damage can occur, the major concern with blister beetles is “Cantharidin”, a highly stable chemical that remains active even within the dried remains of beetles. The blistering agent is highly toxic and may cause illness or death in livestock, particularly horses, when consumed in forage. If the beetles are killed during alfalfa harvesting, as would occur when a crimper/conditioner is used for swathing, they may be baled into hay and inadvertently fed to livestock.

Several species of blister beetles are common in Oklahoma. The species found in alfalfa range in color from a uniform black or gray to a striped pattern of alternating brown and orange (Fig. 2-5). Research has shown, it is the striped blister beetle that most commonly forms large aggregates or "swarms" in alfalfa fields and has been shown to contain high levels of cantharidin (Fig. 6).



Figures 2-5. Most common blister beetles found in Oklahoma. L-R, striped, margined, ash gray, and black. (Photo Credit: Bug Guide).



Figure 6. Striped blister beetle swarm. (Photo Credit: Extension Entomology, Texas A&M University).

**Sampling and Control.** There is no way to guarantee that alfalfa hay harvested is completely free of blister beetle contamination. However, several precautions can be taken to greatly reduce the chances that hay will be contaminated. Similarly, some of the same precautions can be used for pastures outside the hay field.

- Scout fields and pastures beginning in border areas to look for “swarms” of blister beetles. Often, they will be found within 50-100 yards of the field edge but can occur anywhere in fields. If swarms are found, a short residual insecticide can be applied before cutting. Follow label recommendation for any harvest or grazing restrictions.
- Management of grasshoppers.
- Do not use a crimper when cutting hay intended for horses, especially during midsummer when beetles are most active. If left alone, a vast majority of beetles will crawl away shortly after cutting or mowing.
- Avoid driving over windrows. Studies have shown beetles crushed by tire tracks are more likely to have forage with cantharidin due to crushed beetles.

- Cut alfalfa in the bud stage; the presence of blooms is attractive to blister beetles and increases the likelihood of infestations. Also, one of the simplest ways to reduce blister beetle populations in and around horse barns, homes and other facilities is to eliminate weeds either by mowing or with an approved herbicide.
- When small amounts of hay are being handled as when feeding small, square bales, examine hay carefully as it is fed to detect the presence of blister beetle bodies or body parts.

As there is no way to completely eliminate the threat of blister beetles in alfalfa, the prudent approach for management is to take all possible precautions to reduce the likelihood that they are present, particularly when marketing hay to horse owners. Additional information on blister beetles in alfalfa can be obtained from OSU Extension Factsheet F-2072.