



# Pest e-alerts



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## Alfalfa Growers Who Market to Horse Owners Should Watch for Blister Beetles

Phil Mulder, Professor and Head and Extension Entomologist



Scouting alfalfa fields, taking precautions while harvesting, spraying fields or infested areas, and inspecting baled hay all help prevent toxicity in horses from consumption of alfalfa containing blister beetles. Recently, specimens of striped blister beetles have been coming into the office in droves.

Blister beetles contain a toxic blistering agent, cantharidin, which can cause irritation or serious damage to the stomach lining and other organs of the digestive and urinary tracts of horses. According

to some reports, ingestion of as few as 15 beetles can cause illness, and consumption of 50-100 can cause death. Irrespective of an exact figure, these beetles are toxic in their fresh or dead, dried form. If toxicity symptoms are seen in horses, a veterinarian should be called immediately. If a large amount of cantharidin is consumed, a horse may die within six hours. Small amounts consumed may cause mild colic. A frequent symptom of cantharidin toxicosis in horses is placing the muzzle in water and playing in the water with the lips and tongue. Severe poisoning may result in low blood calcium and magnesium, which can cause stiffness and an exaggerated "goose-stepping" gait. Horses that survive 24 hours may strain frequently, and small amounts of blood may be seen in the urine.

Blister beetle adults emerge from the soil in late spring or early summer, and large numbers normally will congregate in small areas of fields, usually within 50 yards of field margins. The

predominant species found in Oklahoma is the yellow and black striped blister beetle. Because of the aggregating nature of this species, beetles can be easily killed during the alfalfa harvest operation and can be concentrated in only a few hay bales or small portions of bales.



When infesting alfalfa, blister beetles prefer to feed on blossoms or leaves. Swarms of beetles can be crushed by crimper rollers of the swather and are trapped in windrowed hay. If beetles remain alive in the windrows, most of them will crawl out. They also can be trapped and killed in hay if windrows are driven on before beetles have had time to escape. Therefore, two of the best ways to avoid blister beetle problems in hay from an infested field are swathing without the crimpers and avoiding wheel traffic on freshly cut windrows.

Application of a short-residual insecticide to infested areas, entire fields, fence rows, and borders can kill beetles just before harvest. Sevin and Warrior can provide good results; however, both products have a seven-day waiting period before harvest. Other products have shorter waiting periods (Malathion – 0 days) but their labels may not list blister beetles as a target pest, and effectiveness of their potential to effectively control the beetles in Oklahoma has not been tested thoroughly.

Part of the responsibility associated with feeding hay that is at risk for a blister beetle problem should fall on the livestock owner that purchases the hay. Buyers that purchase alfalfa should know their supplier well and find out what precautions were taken to avoid blister beetles in hay. If presence of beetles is suspected, hay should be inspected thoroughly before feeding. Purchasing smaller hay bales will help horse owners inspect the product more thoroughly. In addition, purchase of alfalfa harvested before May or after September reduces blister beetle risks significantly. This means essentially first and last cuttings are the least at risk from a blister beetle problem. For buyers that have a good relationship with their hay grower, it would not be inexpensive insurance to insist on an application of insecticide before harvest of summer cuttings. The cost of this application can be paid for by the purchaser or split among the two parties however they see fit. Although this treatment is contrary to IPM principles, with a million dollar horse at risk, sometimes principles get outweighed by good ole fashioned “horse sense.”

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## **Blister Beetles Running Rampant in Home Gardens**

Phil Mulder, Professor and Head and Extension Entomologist

Blister beetle calls and specimens have been extremely common this summer. It seems they know when the grasshopper populations are going to be extreme and this summer they are also quite abundant. Immature stages (larvae) of blister beetles feed on grasshopper egg pods. Many calls have been received about blister beetles on tomatoes or potatoes in home gardens. These insects love to defoliate solanaceous plants (nightshade or potato family) which include tomato, potato, nightshade, tobacco, chili peppers, etc. They are also attracted to leguminous plants such as peanut, alfalfa or



soybean. One of the worst culprits is the striped blister beetle, which has a tendency to occur in large aggregations that may exceed several thousand individuals. This species also possesses the greatest content of cantharidin, the blistering agent that gives the beetles their name. This substance is passed from male beetles to female beetles during mating.

If left unchecked, blister beetle swarms have been known to totally defoliate an entire garden area, particular the plants mentioned above. Their transient nature, here one day and gone the next, makes it difficult sometimes to diagnose the problem. Gardeners who use Sevin® insecticide for blister beetle control are generally satisfied with results; however, in this day and age many folks are looking for products that are gentler on beneficial organisms or have a shorter residual. Some gardeners have turned to pyrethrins (naturally derived from chrysanthemum) to control this pest and these are likely effective on blister beetles. Commercial products of this nature include Pyganic EC or Evergreen EC. Organic growers may choose to handpick and destroy the beetles until they notice the immense amount of work involved and/or blisters that arise on their skin, from crushing the beetles. These growers may resort to use of Surround (kaolin clay) to deter the beetles from the plants; however, this fine powder is difficult to remove from fruit. Another commercial organic product, known as Entrust®, is effective at controlling other beetle pests (Colorado potato beetle) and hence will likely control blister beetles. Ultimately, some growers have simply tried the soapy water approach which can be effective but needs to be re-applied after watering and generally has to land on the beetles to be effective.

Growers using the handpicking approach should wear gloves and try not to crush the beetles. They can be simply swept into a bucket of soapy water or some other agent that will kill them readily.

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## **Time to Spray RR or LL Crops for Weeds? Scout Fields for Grasshoppers and Other Defoliators Before You Spray**

Tom A. Royer, Extension Entomologist

This hot, dry summer brings out some unwanted leaf-eating insect pests in various crops. Roy Ball, Extension Educator in Craig County has observed full maturity and double crop soybean fields that are infested with striped blister beetles and grasshoppers. Grasshopper problems are being reported in SW Oklahoma in cotton fields and in pastures in various areas of Oklahoma. Striped blister beetle swarms are dotting the state as well. It is important to minimize stress to a crop from these foliage-feeding insects.

If it's time to overspray your Roundup Ready or Liberty Link crops for weeds, take some time to scout for grasshoppers and other defoliators. If they are at economically treatable numbers, it would be prudent to include a registered insecticide with the overspray and save a trip across the field.



Grasshoppers are equal opportunity eaters. They will injure soybean, corn, cotton and sorghum. Threats from grasshoppers are not wide spread in a “typical” year, but this hot extra-dry summer weather favors their survival. So, by late summer they are likely to be numerous and difficult to control. Fortunately, for a little while longer most grasshoppers are still small, wingless nymphs; so they can’t migrate as far and are more susceptible to control with an insecticide.

For those producers that are growing non-herbicide tolerant crops, the scouting methods and decisions for control of grasshoppers are similar.

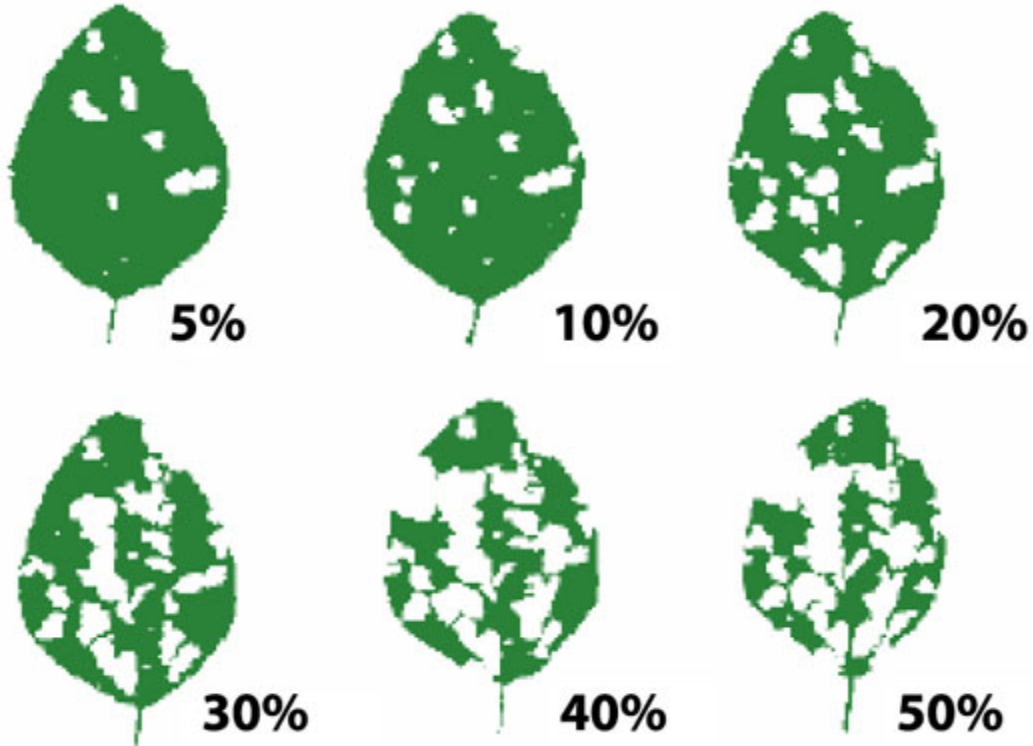
There are three methods that can be used to determine the need for control; estimating stand loss (for all crops, especially double-cropped or late-planted ones), counting grasshopper density (for all crops), or estimating defoliation levels (for soybeans).

To estimate stand loss, check 20 row-feet in 5 locations in the field and determine the percent of plants cut or missing (1 foot of row is blank) at each location. Estimate an average % stand loss from the 5 samples. The treatment threshold for any crop is about 5-10% stand loss.

To estimate grasshopper density, walk in a straight line across the field, focus your eyes about 9-12 feet in front and visualize a 1 square yard area. Keep your eyes trained on that area and slowly walk forward, counting the number of grasshoppers that you see jumping. Record the count, walk about 50-75 feet and take another count. Take counts in at least 5 different areas of the field (or field margin) and average them out. Use the following guidelines provided by the University of Nebraska to determine the need to treat.

<b><u>Grasshopper Population</u></b>	<b><u>Field: # yd<sup>2</sup></u></b>	<b><u>Field Margin: # yd<sup>2</sup></u></b>	<b><u>Treatment Necessary?</u></b>
Non Economic	0-2	5-10	NO
Light	3-7	11-20	Depends on crop
Moderate	8-14	20-40	Probably
Abundant	15 or more	41 or more	YES

To estimate defoliation in soybean, randomly collect 6 leaflets (2 from the lower, 2 from the middle, and 2 from the top of the canopy) in 5 locations and estimate % defoliation by averaging the defoliation level from 30 leaflets using the visual chart below.



**Plant Stage**

**Treatment Threshold**

3-leaf to beginning of bloom

35% average defoliation

Bloom to pod fill:

15-20% average defoliation

Full pod fill to maturity:

35-40% average defoliation,  
or 5-10% pods damaged

Dr. Joe Armstrong, Extension Weed Specialist, reminds all producers to carefully read the herbicide and insecticide labels before mixing to assure their compatibility. With all of the new combinations of herbicide products that are designed to target glyphosate-resistant and tolerant weeds, it is critical that tank-mixing directions are followed. Consult CR-2781, Components and Ratios of Pre-mix Herbicides for Use in Soybean, and CR-2782, Components and Ratios of Pre-mix Herbicides for Use in Corn and Grain Sorghum for more information on herbicide mixes.

Talk with your County Extension Educator for specific guidelines for your area. Several publications contain additional information for managing pests in field crops. For more information on managing grasshoppers, consult, EPP-7196, Grasshopper Management in Rangeland, Pastures and Crops. For more information on blister beetles and their management, consult EPP-2072, Blister Beetles and Alfalfa. Specific recommendations for control of grasshoppers, blister beetles and other defoliators are listed by crop in E-832, 2011 OSU Extension Agents' Handbook of Insect, Plant disease and Weed Control.

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