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Research and Extension

Green Stink Bug

Insect Pest of Grapes

The green stink bug, *Chinavia hilaris* (formerly *Acrosternum hilaris*), is an insect pest native to North America that feeds on a wide range of agricultural and horticultural crops including: apple, corn, cotton, green bean, peach, soybean, and tomato. In addition, the green stink bug feeds on grape leaves and fruit. This publication provides information on the biology, damage, and management of the green stink bug.

Biology

Green stink bug adults are light green, ½ to ¾ of an inch (13 to 19 mm) long, and shield-shaped with wings (Figure 1). After mating, female green stink bugs lay eggs in May. Eggs are laid in clusters of 30 to 40 on the underside or top side of grape leaves (Figure 2) or fruit (Figure 3). Newly laid eggs are yellow-green (Figure 4), turning pink to gray (Figure 5) before nymphs emerge (eclose).

Nymphs emerge (eclose) from eggs after approximately seven days. The green stink bug has five nymphal instars (stages between each molt). The first instar nymphs that emerge from the eggs are oval-shaped and orange (Figure 6). The young nymphs eventually develop a black abdomen with white stripes (Figures 7 and 8). Young

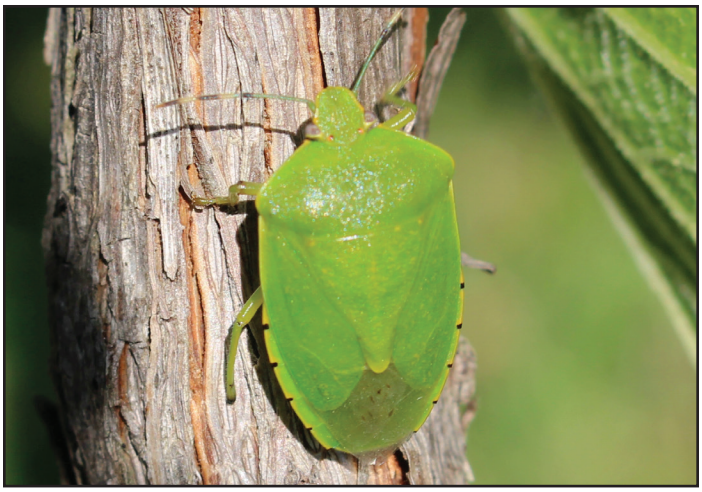
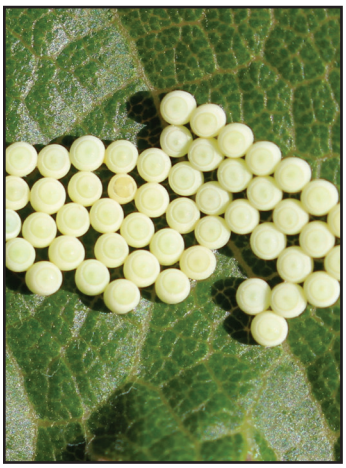


Figure 1. Green stink bug adult. (Raymond Cloyd)

Figures 4 and 5. Newly laid eggs of the green stink bug (left) and eggs before nymphs emerge or eclose (right). (Raymond Cloyd)



Figures 2 and 3. Green stink bug eggs laid on grape leaves (left) or fruit in which the nymphs have already emerged. (right) (Raymond Cloyd)

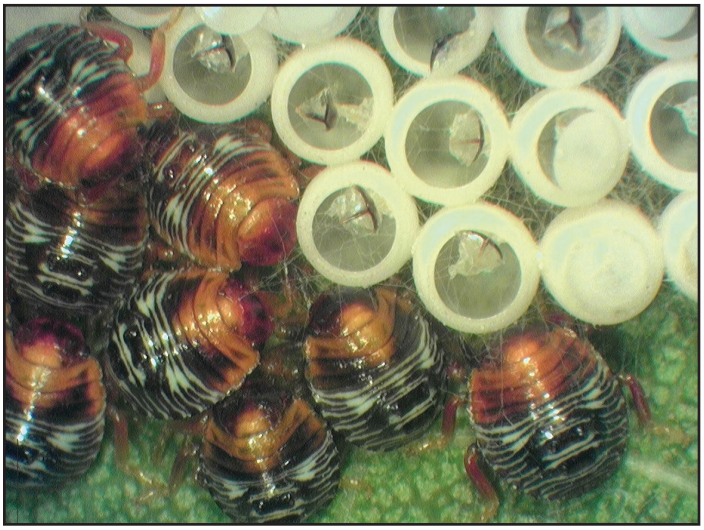
Figure 6. Green stink bug first instar nymphs that have emerged (eclosed) from eggs. (Raymond Cloyd)

nymphs do not feed initially but congregate together around empty egg cases (Figure 9) before dispersing to feed on plant leaves. Older or later instar nymphs are green (Figures 10 and 11) and lack the stripes on the abdomen that are present on young nymphs. The older or fifth-instar nymphs then become adults.

Nymphs are present from May through July. Adults are present from May through September. The life cycle, from egg to adult, takes 30 to 45 days to complete. Adults are active and begin feeding on young leaves in spring when temperatures are above 70 degrees Fahrenheit (21 degrees Celsius). Adults live up to two months and hide in leaf debris or under the bark of plants. The male green stink bug produces a compound (aggregation pheromone) that attracts males and females. Green stink bug overwinters as an adult in leaf debris, under the bark of grape plants, and under the bark of trees in wooded areas. There is one generation per year in Kansas.

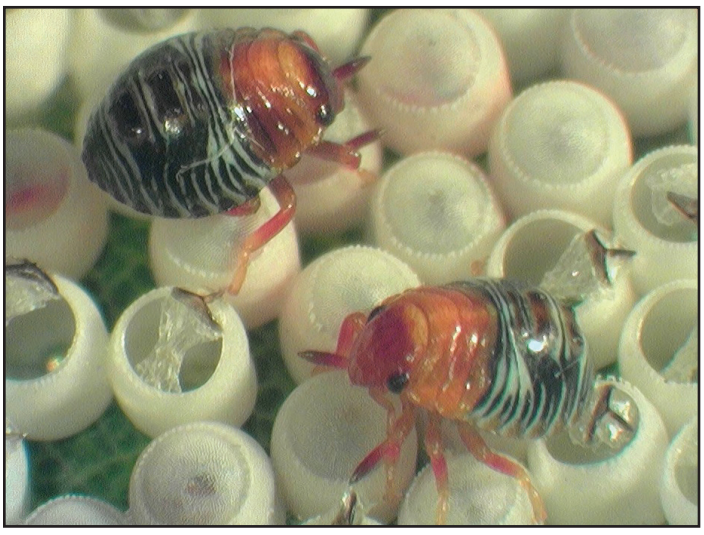
Damage

Nymphs and adults remove plant fluids from leaves and fruits using their stylet-like mouthparts. Nymphs and adults feed on leaves and fruit. They inject enzymes that liquefy the fruit, which helps to digest food. The liquefied fruit collapses at the feeding site, reducing fruit quality. Entire clusters of grapes may shrivel in response to extensive feeding damage by green stink bug nymphs and adults. In addition, feeding wounds created by green stink bug nymphs and adults provide entry sites for plant pathogenic bacteria and fungi. Green stink bug adults present in harvested grapes can reduce the quality of the processed wine.



Figures 7. Green stink bug young nymphs. (Raymond Cloyd)

Figure 9. Young green stink bug nymphs congregating around empty egg cases. (Raymond Cloyd)



Figures 8. Green stink bug young nymphs. (Raymond Cloyd)

Figures 10 and 11. Older green stink bug nymph. (Raymond Cloyd)

Management

Scout once a week from May through June looking for egg masses on the underside of grape leaves. After June, scout for nymphs and adults on the underside and top side of grape leaves and on grape clusters (Figure 12).

For grape vineyards smaller than 1 acre, green stink bug adults can be removed by hand and killed by placing them into a container of soapy water, which will reduce the number of eggs laid and subsequent damage to grape leaves and fruit. However, hand removal is not practical for grape vineyards larger than 1 acre in size.

Insecticides should be applied before or after the nymphs have emerged (eclosed) from the eggs. Horticultural oils can be applied when eggs or nymphs are present. Horticultural oils kill the eggs and nymphs by means of suffocation.

Figure 12. Scouting for green stink bug nymphs and adults on grape clusters. (Raymond Cloyd)

Contact insecticides can be applied when the nymphs and adults are present. Timing insecticide applications accordingly and applying a sufficient volume of spray solution will kill nymphs and adults, thus protecting grape leaves and fruit from green stink bug feeding damage.

Green stink bugs are susceptible to attack from several beneficial organisms including parasitoids that attack the eggs, and predators such as green lacewings, and spiders that feed on the nymphs and adults. However, these beneficial organisms do not kill enough nymphs or adults to affect green stink bug populations and reduce plant and fruit damage.

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MF3606 June 2022