

Southern Green Stink Bug, *Nezara viridula* Linnaeus (Insecta: Hemiptera: Pentatomidae)¹

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Introduction

The southern green stink bug, *Nezara viridula* (Linnaeus), is in the order Hemiptera or "true bugs." Stink bugs are in the family Pentatomidae and are recognized by their ovoid shape, five segmented antennae, and their malodorous scent. The southern green stink bug is a highly polyphagous feeder, attacking many important food crops. This species should not be confused with the green stink bug *Nezara hiliaris* Say. The range of *Nezara hiliaris* extends farther north than *Nezara viridula* and there are physical differences. The shape of the stink gland pore, located on the sternum between the second and third leg, is short and broad in the southern green stink bug but long and curved in the green stink bug.

Distribution

The southern green stink bug is believed to have originated in Ethiopia. Its distribution now includes Europe, Asia, Africa and North and South America. In the United States it is known to be found in the southern states of Virginia, Florida, Louisiana, Alabama, Mississippi, Georgia, California, Texas, and Hawaii.

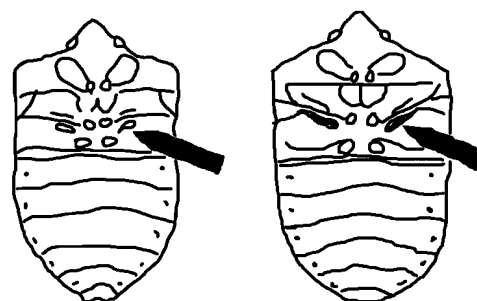


Figure 1. Stink glands of southern green stink bug, *Nezara viridula*, on left; and those of the green stink bug, *N. hiliaris* on the right. Credits: Jason Squitier, University of Florida

Description

Egg

Eggs have been found as early as the second week of April and as late as December 12th. The eggs are deposited in masses that range from 30 to 130 eggs per mass. The female oviposits on the undersurface of leaves in the upper portions of canopied crops and weeds. Weeds that are favored by the southern green stink bug include beggerweed,

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rattlebox, Mexican clover, wild blackberry and nut grass. The eggs are firmly glued together and to the substrate. The eggs are white to light yellow in color and barrel shaped with tops that are flat with a disc shaped lid. There are 28 to 32 finger-like projections around the lid called chorial processes. The egg is 1/20 of an inch in length and 1/29 inch wide. The incubation time for the eggs is five days in the summer and two to three weeks in early spring and late fall. As incubation continues the eggs turn pinkish in color.

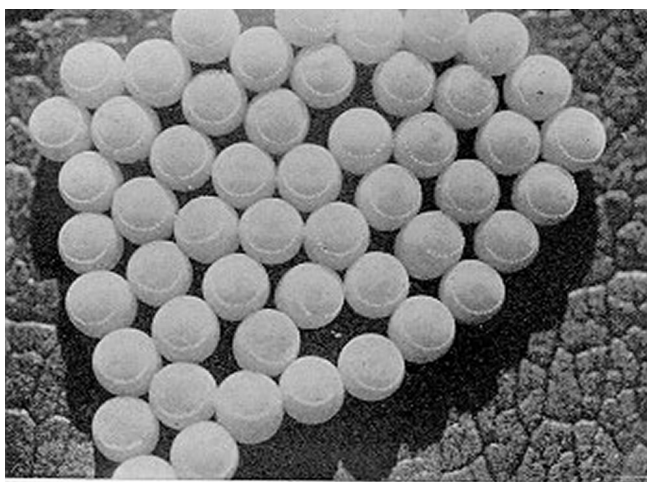


Figure 2. Eggs of southern green stink bug, *Nezara viridula* Linnaeus. Credits: R.D. Whitmarsh, Ohio Agricultural Experiment Station

Nymph

The nymph hatches from the egg by opening the disc shaped cap. The nymph slowly wiggles out of the shell. Each hatchling takes five to six minutes to escape from the egg, and the entire pod hatches in 1.5 hours. The first instars aggregate by the empty eggs and do not feed. The possible benefits of aggregation are to deter predation from the pooling of their chemical defenses. The nymphs are light yellowish in color with red eyes and transparent legs and antennae. The time until the next molt is three days. Feeding begins with the second instar. The second instar has black legs, head, thorax, and antennae. The abdomen is red and so are the spaces between the second, third, and fourth antennal segments. The thorax has a yellow spot on each outer side. The length of time spent in the second instar is five days. The third and fourth instars differ from the second in size and an overall greenish color becoming apparent. The length of each of these instars is seven days. Wing pads

mark the arrival at the fifth instar. The abdomen is yellowish green with red spots on the median line. The southern green stink bug usually spends eight days as a fifth instar before the final molt to an adult.



Figure 3. 5th instar, southern green stink bug, *Nezara viridula* Linnaeus. Credits: Jason M. Squitier, University of Florida

Adult

The adult is shield-shaped with an overall dull green color. The eyes are dark red or black. Small black dots can be found along the sides of the abdomen. The wings completely cover the abdomen. The males average 12.1 mm in length and females 13.15 mm in length. Copulation may last a few minutes to a few days. Females can lay eggs three to four weeks after becoming adults. The average female lays one egg mass but production of two egg masses is not uncommon. A female southern green stink bug could lay as many as 260 eggs over her life span.

Life Cycle

The southern green stink bug can complete its life cycle in 65 to 70 days. It is most prevalent during the periods of October through December and again in March through April. The southern green stink bug is known to have up to four generations per year in warm climates. The southern green stink bug overwinters as an adult, and hides in the bark of trees, leaf litter, or other locations to obtain protection from the weather. As spring temperatures begin to warm,



Figure 4. Southern green stink bug, *Nezara viridula* Linnaeus, with attached parasite egg. Credits: John Capinera, University of Florida

the southern green stink bug moves out of the winter cover and begins feeding and oviposition.

Damage

The southern green stink bug has piercing-sucking mouthparts. The mouth consists of a long beak-like structure called the rostrum. Salivary fluid is pumped down the salivary duct and liquefied food is pumped up the food canal. All plant parts are likely to be fed upon, but growing shoots and developing fruit are preferred. Attached shoots usually wither, or in extreme cases may die. The damage on fruit from the punctures is hard brownish or black spots. These punctures affect the fruit's edible qualities and decidedly lower its market value. Young fruit growth is retarded and it often withers and drops from the plant. In addition to the visual damage caused by southern green stink bug feeding, the mechanical transmission of tomato bacterial spot may also result.

Action Threshold

The economic threshold for southern green stink bug in soybeans is reported as 36 stink bugs per 100 swings of a net. For cowpea (southern pea), a population level of 5000 southern green stink bug per ha. would be large enough to down grade peas from Grade A to Grade B. In cotton an accepted threshold is three to four stink bugs per 100 swings with a sweep net.

Biological Control

Biological control of the southern green stink bug is provided by parasites, usually wasps and flies. In Florida a tachinid fly, *Trichopoda pennipes*, parasitizes adults and nymphs, and a wasp, *Trissolcus basalus*, parasitizes eggs. These two parasites have been introduced as biological control agents in places such as Australia and Hawaii to control the southern green stink bug. Recently California used *T. basalus* in an effort to control its southern green stink bug population.

Management

The use of trap crops is not a widely accepted idea for control of the southern green stink bug but it has excellent potential as a type of control. The choice for trap crops in the summer would be leguminous plants such as cowpeas and beans. In the late fall and early spring cruciferous plants are recommended. The trap crop should be sprayed or plowed under before the developing southern green stink bugs become adults to prevent them from migrating to the main crop. Insecticides are commonly applied at blossom and fruit formation. Consult the Florida Insect Management Guide for chemical controls.

For more management information see:

- Insect Management Guide of Citrus (http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_CG005)
- Insect Management Guide for Cotton (http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_IG059)
- Insect Management Guide for Legumes (http://edis.ifas.ufl.edu/BODY_IG151)
- Insect Management Guide for Okra (http://edis.ifas.ufl.edu/BODY_IG152)
- Insect Management Guide for Peaches (http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_IG075)
- Insect Management Guide for Pecans (http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_IG077)

- Insect Management Guide for Soybeans (http://edis.ifas.ufl.edu/scripts/htmlgen.exe?DOCUMENT_IG064)
- Insect Management Guide for Tomatoes, Peppers, and Eggplant (http://edis.ifas.ufl.edu/BODY_IN169)

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