



# BUG BIZ

Pest Management and Insect Identification Series



## Spined Soldier Bug

Scientific name: *Podisus maculiventris* (Say) (Insecta: Hemiptera: Pentatomidae)

### Introduction

The spined soldier bug *Podisus maculiventris* (Say) is a beneficial insect. This stink bug is a predator of many arthropod species including garden, crop and forest pests. Adults are pale brown in color and get their name from the spines on their shoulders (Figures 1 and 5).

### Distribution

This is a common stink bug throughout the United States with distribution ranging from Mexico to Canada. Spined soldier bugs can be located in a variety of habitats including woodlands, near streams and agricultural systems (De Clerq, 2008).

### Life cycle

**Egg:** Eggs are 1 mm or 0.04 inches in diameter with long, characteristic projections around the operculum (egg cover). Spined soldier bug eggs vary from a light cream to black color (Figure 2) and often remain in this stage for five to eight days.

**Nymph:** There are five nymphal instars in this species. Nymphs, through all instars, are oval shaped, lacking the characteristic shield and shoulder spines possessed by adults. Spined soldier bug nymphs are black in the 1st instar but subsequent instars have red, orange, or cream markings (Figures 3 and 4). Nymphs can range from 1.3 to 9 mm or 0.05 to 0.35 inches depending on the instar (De Clercq, 2008). Nymphs do not have fully developed wings, and therefore do not have high dispersal capabilities.

**Adult:** *Podisus maculiventris* (Say) takes four to five weeks to go from egg to adult. Adults are pale brown and 10-14 mm long or 0.4 to 0.55 inches (De Clerq, 2008). The shoulders have an outward projecting spined tip and a dark spot on the membranous tip of the wing. In the northern and central United States, there are two to three generations per year; however, the warmer Louisiana climate allows for the possibility of additional generations. Adults can live up to four months (De Clercq, 2008).

### Target Pests

Nymphs of the spined soldier bug are gregarious feeders. Spined soldier bug prey on a wide variety of prey including 90 insect species across eight orders and possess the capability of controlling more than 75 of these species in different agroecosystems (De Clerq, 2008 and Baek, 2013). These insects primarily feed on soft bodied larvae of Coleoptera



Figure 1. Adult spined soldier bug *Podisus maculiventris* (Say). Note the pale brown color and spiny shoulders. Photograph by Cecil Montemayor.



Figure 2. *Podisus maculiventris* (Say) eggs. Note the projections around the top that are characteristic of this species. Photograph by Cecil Montemayor.



Figure 3. Spined soldier bug 3rd instar feeding on a larvae. Photograph by Cecil Montemayor.

and Lepidoptera (Mukerji, 1965). Adults and nymphs are cannibalistic. Research in Louisiana indicates the spined soldier bug will prey on pest stink bug species, including the southern green stinkbug, *Nezara viridula* (Ragsdale, 1981). It also preys on many other economically important pest species in Louisiana including: Colorado potato beetle, *Leptinotarsa decemlineata*, Mexican bean beetle, *Epilachna varivestis*, fall webworm, *Hyphantria cunea*, cotton leafworm, *Alabama argillacea*, bollworm, *Helicoverpa zea*, tobacco budworm, *Heliothis virescens*, fall armyworm, *Spodoptera frugiperda*, diamondback moth, *Plutella xylostella*, velvetbean caterpillar, *Anticarsia gemmatalis*, European corn borer, *Ostrinia nubilalis*, and beet armyworm, *Spodoptera exigua*, forest tent caterpillar, *Malacosoma disstria* (De Clercq, 2008; Hoffman, 1993 and Smith, 1986).

## Use in Biological Control

Spined soldier bugs are available for purchase as biological control agents. Multiple companies sell egg masses which can be released into gardens or greenhouses. In the absence of prey, they may feed on plant fluids but this is often not damaging to the plant. It is important to practice integrated pest management (IPM) which highlights the use of selective insecticides in agriculture systems, and to only utilize them if necessary. Use of the most selective insecticide should allow the continued presence of this beneficial insect (Boyd, 1998).

## Selected References

Baek, S., Son, Y., & Park, Y. L. (2014). Temperature-dependent development and survival of *Podisus maculiventris* (Hemiptera: Pentatomidae): implications for mass rearing and biological control. *Journal of pest science*, 87(2), 331-340.

Boyd, M. L., & Boethel, D. J. (1998). Susceptibility of predaceous hemipteran species to selected insecticides on soybean in Louisiana. *Journal of Economic Entomology*, 91(2), 401-409.

De Clercq P. 2008. Spined soldier bug, *Podisus maculiventris* Say (Hemiptera: Pentatomidae:Asopinae). pp. 3508-3510. In Capinera JL. (editor.) *Encyclopedia of Entomology*, Vol 4. Springer, Heidelberg.

Hoffmann MP, Frodsham AC. 1993. *Natural Enemies of Vegetable Insect Pests*. Cornell University, Ithaca, NY. 63 pp.

Mukerji MK, LeRoux EJ. 1965. Laboratory rearing of a Quebec strain of the pentatomid predator, *Podisus maculiventris* (Say) (Hemiptera: Pentatomidae). *Phytoprotection* 46: 40-60.

Ragsdale, D.W., Larson, A. D., & Newsom, L. D. (1981). Quantitative assessment of the predators of *Nezara viridula* eggs and nymphs within a soybean agroecosystem using an ELISA. *Environmental Entomology*, 10(3), 402-405.

Smith, J. D., & Goyer, R.A. (1986). Population fluctuations and causes of mortality for the forest tent caterpillar, *Malacosoma disstria* (Lepidoptera: Lasiocampidae), on three different sites in southern Louisiana. *Environmental entomology*, 15(6), 1184-1188.



Figure 4: 4th and 5th instars feeding on prey. Photograph by Cecil Montemayor.



Figure 5. Adult spined soldier bug feeding on a larva. Photograph by Cecil Montemayor.

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