

MANAGEMENT OF SQUASH BUG ON CUCURBIT CROPS

Thomas P. Kuhar (Professor)
Dept. of Entomology, Virginia Tech
Blacksburg, VA 24061-0319
tkuhar@vt.edu

In the mid-Atlantic U.S., cucurbit vine crops are frequently attacked by squash bug, *Anasa tristis* DeGeer (Hemiptera: Coreidae). Squash bug prefers pumpkin (*Cucurbita maxima*) and squash (*C. pepo*), and injures plants with its piercing-sucking mouthparts by feeding on the vascular tissues of cucurbit leaves and injecting a toxic saliva. Leaves often wilt and die under heavy feeding by this pest. Squash bug overwinters as an adult and can vector *Serratia marcescens*, a bacterium that causes Cucurbit Yellow Vine Decline (CYVD) that can lead to stand and yield loss. This disease was reported in pumpkins in Pennsylvania in 2013 by Dr. Beth Gugino (see the Proceedings of the 2014 Mid-Atlantic Fruit & Vegetable Convention). It is important to understand the ecology and pest management of this bug in squash and pumpkin production systems.

Adult squash bugs spend the winter in a diapause state under leaf litter and seek out cucurbits in the spring or early summer. Adults are often cryptic preferring to hide under leaves and ground mulch, which makes control of squash bug difficult and risky when considering its potential to vector the virulent CYVD. Adult females lay groups of eggs on plants throughout the summer. After a week or so, eggs will hatch and 1st instar nymphs will remain on or near the egg mass for a period of time, and then will spread out over the plant. However, not all eggs hatch into damaging squash bug nymphs.

While monitoring pumpkin plots in southwest Virginia for levels of squash bugs in the summer of 2013, a decline in egg hatch numbers led us to rear egg masses in the lab. Squash bug egg masses collected from the field and reared in the lab yielded mostly parasitoid wasps. The level of parasitism for a total of 84 egg masses was 66%, which was much higher than ever reported in the literature. The predominant parasitoid species was *Gryon pennsylvanicum* (Ashmead: Hymenoptera: Platygasteridae), which had been previously attacking squash bug eggs in North Carolina and Kentucky. In 2014, we conducted a large survey of 32 counties in Virginia, Tennessee, South Carolina, and Kentucky. The parasitoid was widespread in squash bug eggs causing tremendous egg mortality across the mid-Atlantic Region. This native natural enemy plays a significant role in the natural control of squash bug in our region. The effects of broad or narrow-spectrum insecticides on this natural enemy and on squash bug in general needs further examination. We are currently researching this at Virginia Tech. So far, most of the registered insecticides for squash bug control cannot penetrate the hard egg chorion of the squash bug and are not toxic to either squash bug eggs or the developing parasitoids within. Many of them including pyrethroids, neonicotinoids, and carbamates are toxic to the adult parasitoids. Thus we are investigating the most IPM-

friendly insecticide options and their efficacy on squash bug. The results of a recent insecticide efficacy test conducted on squash in Virginia are presented below. Results indicated that several new IPM-friendly insecticides have activity against squash bugs.

Control of squash bugs in summer squash planted 17 June, 2014 in Painter, VA. Foliar insecticide sprays applied on 28 July, 4, 11, 18 Aug

Treatment	Rate / acre	No. squash bug nymphs/ 5 plants	
		18 Aug	25 Aug
Untreated Control		29.0	13.5
Sivanto	7.5 fl oz	2.5	0.0
Sivanto	10 fl oz	0.0	0.0
Movento + NIS	4 fl oz + 0.5% v/v	2.5	2.3
Movento + NIS	5 fl oz + 0.5% v/v	0.3	0.0
Cyclaniliprole 50SL	22 fl oz	0.5	0.0
Cyclaniliprole 50SL	16.4 fl oz	2.3	0.5
Cyclaniliprole 50SL	11 fl oz	0.0	0.0
Closer + NIS	2 fl oz + 0.5% v/v	0.3	0.0
Warrior II	1.92 fl oz	0.0	0.0