

# What a Stinking Shame

## The Stink Bug War on Mirlitons (Chayote)

By Lance Hill



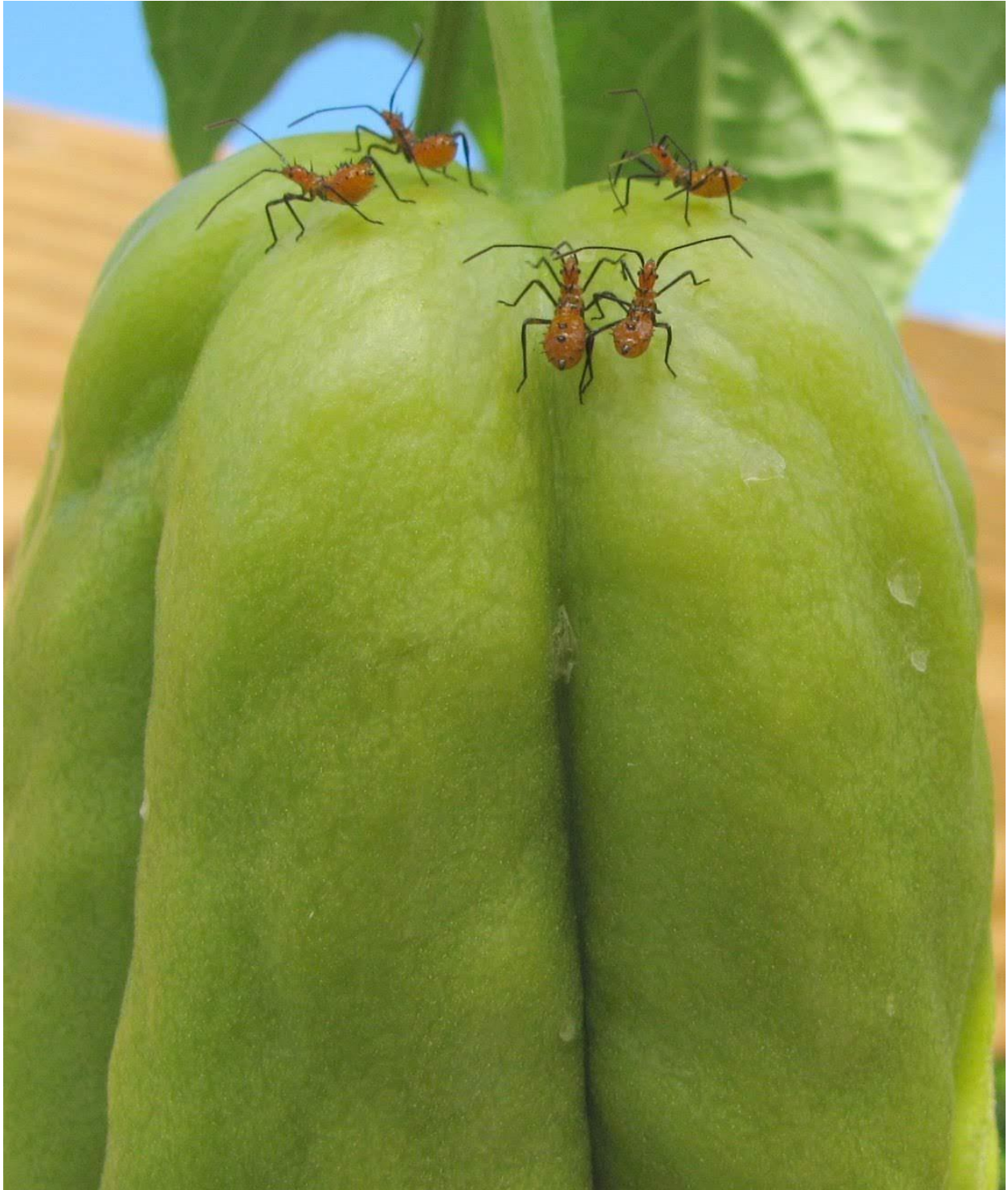
Figure 1 *Leptoglossus zonatus* (Dallas). Photograph by Natasha Wright, Florida Department of Agriculture and Consumer Services.

Leaffooted stink bugs have invaded our mirliton, gardens and orchards. They feed on flowers and fruit, killing flowers and injecting enzymes and diseases into the fruits that ruins the flavors or bruises them. And, yes, they stink.

There are several leaffooted stink bug species in the Gulf Coast South, but the principal culprit is a new arrival *Leptoglossus zonatus* (Dallas), widely known as the “western leaffooted bug”. They are with us year-round and overwinter in weeds and tree bark. They emerge in the spring as “nymphs” (immature bugs) and go through five stages called *instars*. We will concentrate on two of the stages that gardeners are most likely to see on their vines: nymphs and mature bugs.

### How to Identify:

#### Nymph leaffooted bug:



*Figure 2 Immature nymph leaffooted bug in characteristic swarming behavior*

**Mature leaffooted bug:**



*Figure 3 Mature leaffooted bug. Note white mark across back and flared "leaves" on back legs*

**Fruit Damage**



Figure 4 Stink bug damage to young mirliton fruit. Note exudate emerging on top left.

Identifying leaffooted bugs is tricky since they look almost identical to assassin bugs, which are beneficial insects---they eat bad bugs and don't damage plants. Because they are physically similar, sometimes people try to distinguish them based on different markings of the two species. That will work for mature stink bugs, but markings are not always useful for nymphs because they don't appear in all instars. A simpler way to identify stink bugs is by behavior:

**Nymph stage:** For most of the growing season, stink bug nymphs are easily identified by their *aggregating (swarming) behavior*. They like to aggregate into bug gangs and search for young flowers and immature fruit. Assassin bugs are solitary hunters, even as nymphs, and won't be found in gangs. So don't worry about markings; if they are in a gang--give them a bang. You can eliminate them at this early stage with neem oil, which won't harm bees.

**Mature stage.** Adults can't be sprayed away; they have a hard exoskeletal structure that protects them from topical insecticides. They are also solitary foragers like assassin bugs, but they are easily identified because they are vegans. While assassin bugs only eat other bugs, leaffooted bugs feed on flowers and fruits. They have to be removed by hand by picking them off, capturing with a butterfly net or with a portable vacuum. I prefer the hand vacuum (with a homemade pvc extension) because it's quick and effective and kids love to use it. The contents of the vacuum can be emptied into a pail of water with insecticide. Leaffooted bugs and assassin bugs are quick and elusive and difficult to identify as adults. If you accidentally removed an assassin bug, it will not hurt the species since they forage everywhere,

unlike leaffooted bugs that target your vegetables and fruits.



*Figure 5 The Dewalt portable vacuum has the power to vacuum up large bugs and can be used for household and automotive cleaning. It can be fitted with a 1/2-inch PVC pipe extension.*

### **Trap Cropping:**

One promising solution to leaffooted bugs is *trap cropping*. Mirliton.Org has experimented with this technique in the last year. In a trap crop strategy, gardeners plant a crop that is more attractive to stink bugs than the mirliton, which then distracts the targeted insect before it gets to the mirliton vine. The trap crop is checked daily and all stink bugs are removed or killed. There are three steps in designing an effective trap crop:

1. *The right trap crops.* Stink bugs are attracted to specific grain crops like sorghum, triticale, millet, etc. We tested two new sorghum varieties, Alta Seeds hybrids AG1201 and AG1203, that worked well.
2. *The right bloom sequence.* Synchronize blooming of the trap crop to the mirliton. The trap crop *must* have the same bloom season that matches the mirliton. Trap crops need to compete with mirlitons, so their seed head bloom must overlap with the mirliton blooming and fruiting in

September and October. That means the trap crop grain heads should be in their attractive starchy “milk stage” or “dough stage” when mirlitons are flowering and fruiting. By staggering the plantings, the Ag1201 and AG1203 hybrids planted together covered the two-month period bloom period.

3. *The right positioning* of the trap crop. Stink bugs must be distracted *before* they get to your mirliton. Place the trap crop along the perimeter of the mirliton vine. Trap crops can be planted in the ground or in containers.

### **New Directions**

There are possibly other methods of managing stink bugs on mirlitons, but no agricultural school has stepped up to the plate. University agriculture departments could investigate biopesticides and design and test trap crops and other pest management to effectively control leaffooted stink bugs for both the spring and fall harvest. This information could also be used for citrus and pecans.

Click [here](#) for an excellent recently updated fact sheet on *Leptoglossus zonatus* (Dallas)