



Bug-Wise
No. 6

Office: 662-325-2085

July 17, 2012

blayton@entomology.msstate.edu

Insect Pests in Late-Season Vegetable Gardens: Most insect pests have several generations per year and populations increase with each generation, often exponentially. This is one reason insect control can be so challenging in late-summer and early-fall vegetable gardens. The other reason is the "funnel effect." Many vegetable insect pests are also pests of major row crops, such as cotton, corn, or soybeans. As these crops mature in late summer, pests like stink bugs, tomato fruitworms, and fall armyworms from thousands of acres of row crops are forced to seek other hosts. Young, well-watered late-season vegetable crops are attractive targets for such pests!

It is possible to grow some great late-season vegetables. Butter beans usually produce better after temperatures begin to drop in the fall, and fall-grown peas often taste better. But you have to pay much closer attention to insect control. Often spraying for insects becomes a necessity, something you have to do to have a chance of producing a decent crop, and not an option, as it often is earlier in the season, when you will probably still make some vegetables even if you do not spray. Here we discuss a few of the more important insect pests of late-season vegetable gardens and how to control them when pest pressure is high. Only a few treatments are listed here. See the publication mentioned at the end of the article for more treatment options.

Southern Peas (like crowder peas and purple hulls): Cowpea curculios and stink bugs are the two key pests of southern peas. Both these pests feed directly on the seed and damage levels in unprotected peas can be so high that they are just not worth the trouble of shelling. Spray for curculios as soon as you see the first ½ inch long pods, making two or three sprays four or five days apart. Apply additional sprays to control stink bugs if necessary, but be sure to pay attention to the pre-harvest interval. Two of the more effective insecticide treatments are bifenthrin (Ortho Bug-B-Gon Max spray) and permethrin (Bonide Eight Flower & Vegetable Spray is one example).

Butter Beans: If you don't spray your fall butter bean crop you will usually end up with heavy infestations of immature and adult stink bugs, representing several different species, and shelling butter beans that have heavy stink bug damage can be a discouraging exercise. A couple of timely sprayings, making sure to get good coverage of the heavy foliage usually present on running beans at this time of year, will usually reduce stink bug injury to a tolerable level. Bifenthrin (Ortho Bug-B-Gon Max spray) is an effective treatment here as well. Late season snap beans may also require protection from stink bugs.

Tomatoes and Peppers: Forget the hornworms; tomato fruitworms, stink bugs, and leaffooted bugs are the major pests of late-season tomatoes and peppers. If you spray enough to control these pests, you won't have many hornworms. Products containing spinosad (Fertilome and Greenlight are two commercial sources) work great on fruitworms, but they will not control the bug pests. Spraying with bifenthrin (Ortho Bug-B-Gon Max spray) or permethrin (Green Light Conquest Insecticide Concentrate is one example) will control the bug pests and the caterpillars. Watch the pre-harvest intervals. Bifenthrin has a 1 day PHI on tomatoes, but it is 7 days on peppers and eggplant. If you are going to spray for insects, then you might as well spray for diseases as well. Diseases are usually more of a limiting factor than insects on these crops. Disease control products can usually be tank-mixed with insecticides, but check product labels to be sure.

Summer Squash: Yellow squash and zucchini will grow well in the fall, but you have to control insect pests, especially squash bugs and squash vine borers. Bifenthrin (Ortho Bug-B-Gon Max spray) and permethrin (Hi-Yield Garden, Pet, and Livestock Spray) work well on these pests, but both products have 3 day PHIs on squash. You can usually make this work if you pick "close," then spray immediately, and pick again in 3 days. Even if you have to throw away a few fruit that have gotten too big, you will still keep your vines healthy longer and harvest a lot more squash in the long run.

Pumpkins and Winter Squash: Pumpkins and winter squash have the same pests as summer squash, but you have more leeway with the pre-harvest intervals. The permethrin and bifenthrin products work on pumpkins too, and both products have a 3 day PHI on pumpkins, but this is less of an issue than for summer squash because pumpkins are not harvested repeatedly. As with squash, direct sprays to the base of the plant to control squash bugs and spray the leaves and stems to control vine borers. Squash vine bore moths lay their eggs on the leaves and stems, and the newly hatched caterpillars quickly bore into the plant, where they are safe from topical insecticides. This is why you have to spray at least weekly to do a good job controlling vine borers. Pickleworms are another important threat to pumpkins. They attack squash also, but are more important in pumpkins. These small caterpillars bore BB-sized holes into the fruit, causing it to rot at the site. It can be disappointing to have a big trophy pumpkin you were planning to take to the county fair collapse because of a pickleworm. Granted, pumpkins can often be grown successfully without spraying for insect pests, but this is not always the case. Cushaws and butternut squash usually have fewer insect problems than pumpkins or summer squash.

Sweet Corn: You can have fresh sweet corn in late summer and fall, but you are likely going to have to fight for it. Corn earworms and fall armyworms love sweet corn, and both these caterpillar pests have usually developed huge populations by late summer. It only takes a few moths to load a small patch of sweet corn with eggs, and moth flights can be almost constant at this time of year. This means late-planted sweet corn requires a lot of insecticide spraying to make a successful crop, and most gardeners figure it is just not worth the effort. If you do grow late sweet corn, start spraying shortly after emergence, making a point of directing sprays into the whorl where fall armyworm and other caterpillar pests feed. Once ears begin to form, direct sprays at silks. This is where earworm moths lay their eggs, and you have to kill newly hatched caterpillars before they have made their way into the ear. Having one earworm at the tip of each ear may not be that big a problem, but earworm infestations can exceed three larvae per ear at this time, and there's also fall armyworms and stink bugs. Again, permethrin and bifenthrin are good treatment options, and they also control stink bugs. Products containing spinosad work well on caterpillar pests, but do not control stink bugs. Avoid spraying the tassels and spray late in the day to minimize damage to bees collecting pollen.

Cole Crops: Early planted cole crops, like broccoli and cabbage, may need to be treated for loopers and other defoliating caterpillar pests. This is one case where permethrin and bifentrhin are not good options. Use spinosad products instead. Fertilome, Bonide, Greenlight, and Monterey all make products that contain spinosad, and spinosad is an effective treatment for all types of caterpillar pests. Forget the Bt products. Spinosad is more effective and some formulations are considered "organic" (The active ingredient is organic, but some formulations contain non-organic inert ingredients that keep them from being listed as organic).

If you have gotten the idea that permethrin and bifenthrin are especially useful insecticides for home vegetable gardeners, you are right. Permethrin can be used on most garden vegetables, will control most vegetable insects, and is available under many different brand names. But there are important exceptions. Permethrin can't be used on some garden vegetables, and there are some pests that it will not control. In fact, repeated applications of permethrin, as well as bifenthrin and other pyrethroids, can actually trigger outbreaks of pests like aphids, whiteflies, and spider mites. Bifenthrin is generally a bit more effective than permethrin, but tends to have longer pre-harvest intervals, and is not labeled for use on as many crops. There are also other pyrethroid insecticides, like cyfluthrin, lambda-cyhalothrin, and esfenvalerate, labeled for use on some home vegetables, but these are also labeled for fewer crops and tend to have longer PHIs than permethrin.

For more detailed information on insect control in home vegetable gardens see Extension Publication 2347, Insect Pests of the Home Vegetable Garden. You can pick up a copy at your local county extension office. Or, you can find a copy by going to www.msucares.com, clicking on "Publications," and "searching" for the title.

Blake Layton, Extension Entomology Specialist