

VEGETABLE CROPS HOTLINE

A newsletter for commercial vegetable growers prepared by the Purdue University Cooperative Extension Service

Liz Maynard, Editor
600 Vale Park Road
Valparaiso, IN 46383
(219) 531-4200
emaynard@purdue.edu



vegcropshotline.org

No. 587
July 24, 2014

IN THIS ISSUE

- TOMATO RUSSET MITE
- SWEET CORN INSECTS
- ROOT KNOT OF CUCURBITS
- UPCOMING EVENTS
- TIME TO DISPOSE OF UNWANTED PESTICIDES
- CLEAN SWEEP PLANNING FORM

TOMATO RUSSET MITE - (Rick Foster, fosterre@purdue.edu, 765-494-9572) - Last week we discovered a very damaging infestation of tomato russet mites in our high tunnels on the Throckmorton Farm near Lafayette. The infestation consisted of enormous numbers of russet mites and the result was severe wilting and stunting of the plants. I've been doing this a long time and this is the first infestation of tomato russet mites I've ever seen, although we have only been working in high tunnels for a few years.

Russet mites are extremely small, much smaller even than twospotted spider mites (see Figure 1). It is difficult to see them even with a hand lens. It really requires a microscope to see them well. Russet mites feed by puncturing cells on either the upper or lower surface of the leaves. Damage is usually first observed on the lower leaves and moves upward. The leaves may curl at the edges and later drop from the plant (see Figure 2). When working in infested high tunnels, care should be taken to not spread them to other tunnels. Sulfur and Agri-Mek are effective and can be used in high tunnels. The type of irrigation is apparently not a factor in keeping numbers down so using overhead irrigation in your high tunnels will not help.



Figure 1. Russet mites on tomato leaf with pin point for size comparison. (Photo by John Obermeyer)



Figure 2. Tomato leaf showing damage from russet mite (right) and undamaged leaf (left). (Photo by John Obermeyer)



SWEET CORN INSECTS - (Rick Foster, fosterre@purdue.edu, 765-494-9572) - As expected, we are now between generations of corn earworms. Actually, I expected it to occur a little sooner than it did but pheromone trap catches are down pretty much all over the state. Now is a good time to save some time and money by avoiding sprays in sweet corn that is silking. Since most field corn is silking now, we can revert to our old threshold of

10 moths per night, and most traps are well below that level.

I have seen fall armyworms in sweet corn here in Lafayette. Their arrival is a little earlier than normal but not unexpected. They overwinter in the far south and move northward over several generations. The optimal time for control of fall armyworm is the same as European corn borer, just before tassels start to emerge. Fall armyworms also feed down in the whorl and move to the ears when the tassels emerge. Pyrethroid insecticides such as Warrior, Brigade, and Mustang Max do an excellent job controlling fall armyworm.

Western bean cutworm can damage sweet corn, especially in the northern part of the state. Moths are flying and laying eggs now. This is not a major problem generally, but can be serious locally if your sweet corn is in the right stage at the right place at the right time. Again, the timing of management is a single application of insecticide (pyrethroids work well) just before the tassels shoot.

During this time of year, we used to see lots of corn rootworm beetles feeding on silks. The advent of rootworm resistant corn hybrids has dramatically reduced the populations of rootworms, so they tend not to be a problem feeding on silks of sweet corn. The same is generally true of Japanese beetles. Don't routinely put a spray on silking sweet corn in anticipation that these insects will be there. Wait until you see them before you spray.

Picnic beetles are often a problem on fresh market sweet corn. They enter the tips of the ears and feed on ripe kernels. Probably the best solution is to avoid the problem by selecting varieties that have good tip cover and tight husks. Sometimes your customers prefer hybrids that don't have these characteristics, which means you may need to revert to chemical control. I have always thought the pyrethroid insecticides worked well but I received a report earlier today that they were not working. Lannate is a good option but has limited residual activity, which is a good thing when you are going to be harvesting your sweet corn soon but not so good if you need extended control. Therefore, spray the lowest labeled rate, but spray more frequently to get the best control.



ROOT KNOT OF CUCURBITS - (*Dan Egel, egel@purdue.edu, 812-886-0198*) - It is perhaps fitting that in this relatively dry year, most diseases that I have observed are ones that don't require leaf wetness such as root knot nematode. Recently I made my first observation of root knot nematode for 2014—unfortunately, I will probably see more cases.

The symptoms of root knot nematode (RKN) one is likely to see first are the wilting and decline of affected plants (see Figure 3). Many things can cause a plant to wilt, but the roots of RKN affected plants will have galls or 'knots' on them (see Figure 4). The size and number

of the galls may vary, but by the time wilt occurs the galls should be obvious on the roots. To observe the roots, don't pull up the plant, dig as many of the roots as possible with a shovel.

Bacterial wilt will also cause a plant to wilt. However, bacterial wilt affected plants will not have galls on the roots. While RKN affected plants tend to be clustered on sandy ridges, plants with bacterial wilt are often randomly distributed across the field. Also, bacterial wilt affected plants will have signs of cucumber beetle feeding, since this insect spreads the causal bacterium from plant to plant.

It is typical of RKN of cucurbits for symptoms to show up when the fruit have developed some size and therefore have begun to stress the plant for water. Also, it may take several weeks for the galls to develop some size, so it is not at all unusual for RKN symptoms to show up mid to late season.

It is typical of RKN affected plants to be observed first on sandy ridges. From these places, the disease may appear to spread to other areas of the field. However, the disease is not truly spreading from plant to plant. Instead, the plants affected initially are in areas of the field where the soil is most conducive to disease and where the highest concentration of RKN exists. Next, one is likely to see plants affected in areas of the field with less sand and RKN. The next season, however, the disease may spread to other areas of the field as tillage or water drainage spreads RKN.

The microscopic nematode that causes RKN has a huge host range and can affect a wide variety of plants including all cucurbits. The RKN nematode is also able to overwinter for years. The galls that are formed as a part of the disease-causing process form a safe haven for the nematodes and also disrupt the flow of water and nutrients to the plant.

Management options for RKN of cucurbits are few. Long crop rotations, 5-6 years or more with small grains, will help to avoid a buildup of the nematodes in the soil. It should be noted that soybeans are a host of the RKN nematode and are not a good rotational crop. Increases in soil organic matter tend to lessen disease severity; some cover crops will help to increase organic matter. Cover crops such as rape and radish contain compounds that act to kill the RKN nematodes. The measures mentioned above will help to manage RKN, but will not eliminate the problem.

While there are a few commercial products that are available for growers, none of the products will successfully manage RKN without using the cultural methods mentioned in the above paragraph. Labeled products include Vydate®, described in more detail in the *Midwest Vegetable Production Guide for Commercial Growers* (mwvegguide.org). Although relatively expensive, some growers have successfully used fumigants to manage RKN.

This article was originally published July 15, 2014 at the Veggie Diseases Blog veggiediseaseblog.org.



Figure 3. Cantaloupe plants with wilt symptoms due to root knot nematode. (Photo by Dan Egel)



Figure 4. Gall symptoms of root knot nematode of cantaloupe. (Photo by Dan Egel)



UPCOMING EVENTS

Organic Vegetable Tour at EcOhio Farm. Tuesday, August 5, 2014, 9:00 A.M. to 12:00 P.M. EDT. 2210 S. Mason Montgomery Rd. Mason, OH 45040. Learn about organic vegetable production, fertility management, on-farm participatory research, and evaluating soil health on your farm. Free, but pre-registration is encouraged. Register at: https://jfe.qualtrics.com/form/SV_djnhP-gOmIqiMJBH. If you have any problem registering please contact Lori Jolly-Brown at 765-494-1301.

High Tunnel Tomato Twilight Meeting at Pinney Purdue. Tuesday, August 12, 2014, 6:00 P.M. to 8:00 P.M. Central Time. 11402 South County Line Rd., Wanatah, IN. See three varieties of tomatoes grown with different support methods in organic and conventionally-managed

high tunnels, and help us evaluate tomato eating quality. Learn about disease management from Dan Egel. Free, but pre-registration is encouraged. Register online at: https://purdue.qualtrics.com/SE/?SID=SV_bfs1K-mQ4iY4aeBn, or send an email to vegacrops@purdue.edu with names of those attending, or leave message for Cassandra at 219-531-4200 ext. 4201.



TIME TO DISPOSE OF UNWANTED PESTICIDES - (info provided by Office of the Indiana State Chemist, 765-494-1492, www.isco.purdue.edu) - The Indiana Pesticide Clean Sweep Project designed to collect and dispose of suspended, canceled, banned, unusable, opened, unopened or just unwanted pesticides (weed killers, insecticides, rodenticides, fungicides, miticides, etc.) is being sponsored by the Office of Indiana State Chemist (OISC). This disposal service is free of charge up to 250 pounds per participant. Over 250 pounds there will be a \$2.00 per pound charge. This is a great opportunity for you to legally dispose of unwanted products at little or no cost.

All public and private schools, golf courses, nurseries, farmers, ag dealers, cities, towns, municipalities and county units of government or others receiving this notice are eligible to participate.

Pesticides will be accepted from 9:00 a.m. to 3:00 p.m. Local Time at the following dates and locations in August, 2014:

August 12: Clay County Fairgrounds, Brazil, IN

August 13: Dubois County Fairgrounds, Huntingburg, IN

August 19: Lake County Fairgrounds, Crown Point, IN

August 20: Tippecanoe County Fairgrounds, Lafayette, IN

August 21: Hendricks County Fairgrounds, Danville, IN

To dispose of pesticides, first, complete the Pesticide Clean Sweep Planning Form to the best of your ability (p. 4 of this newsletter, or download from http://www.oisc.purdue.edu/pesticide/clean_sweep.html). Mail, fax or e-mail the completed form to Kevin Neal at OISC, 175 S. University, W. Lafayette, IN 47907-2063, 765-494-4331, or nealk@purdue.edu no later than **Monday, July 28, 2014**. Then bring your labeled, leak free and safe to transport containers to the collection site. DO NOT mix materials. In case of an emergency, you should bring with you a list of products you are carrying and a contact phone number.

OISC reserves the right to cancel this Pesticide Clean Sweep Project if there is not adequate demand. Participants submitting the planning form by July 28, 2014 will be contacted immediately if cancellation is necessary.

2014 PESTICIDE CLEAN SWEEP PLANNING FORM

I have the following pesticides (weed killers, insecticides, rodenticides, fungicides, miticides, etc.) to bring to the Indiana Pesticide Clean Sweep. I understand that there will be no charge for disposal of up to 250 pounds of pesticides per participant. I also understand that if there is not adequate demand for these disposal services, I will be contacted by the Office of Indiana State Chemist to be notified of the program cancellation.

Contact Name _____ Contact Phone # _____

Please indicate at which location you will be participating.

Brazil – August 12

Huntingburg – August 13

Crown Point – August 19

Lafayette – August 20

Danville – August 21

List of pesticide products to be disposed:

1. Trade Name _____

Active Ingredient _____

Check One: Solid ____ Pounds Liquid ____ Gallons Aerosol

2. Trade Name _____

Active Ingredient _____

Check One: Solid ____ Pounds Liquid ____ Gallons Aerosol

3. Trade Name _____

Active Ingredient _____

Check One: Solid ____ Pounds Liquid ____ Gallons Aerosol

4. Trade Name _____

Active Ingredient _____

Check One: Solid ____ Pounds Liquid ____ Gallons Aerosol

**RETURN BY July 28, 2014 TO KEVIN NEAL, nealk@purdue.edu OR 765-494-4331 (fax).
Questions may be directed to Kevin at 765-494-1585.**

It is the policy of the Purdue University Cooperative Extension Service that all persons have equal opportunity and access to its educational programs, services, activities, and facilities without regard to race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability or status as a veteran. Purdue is an Affirmative Action Institution. This material may be available in alternative formats. 1-888-EXT-INFO <<http://the-education-store.com>> Disclaimer: Reference to products in this publication is not intended to be an endorsement to the exclusion of others which may have similar uses. Any person using products listed in this publication assumes full responsibility for their use in accordance with current directions of the manufacturer.