

The University of Maryland Extension Agriculture and Natural Resources Profitability Impact Team proudly presents this bi-weekly publication for the commercial vegetable and fruit industry.

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Field Observations from Southern Maryland

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- ✓ Farmers are busy weeding, cultivating, spraying and beginning to harvest main season crops.
- ✓ Muskmelons, tomatoes, squash, and cucumbers are now being harvested.
- ✓ Sweet corn harvest continues. Worm pressure from corn borer and armyworm is high in many fields.
- ✓ Most field plantings under irrigation look good.
- ✓ Cucumber beetles and squash bug populations are very high and brown marmorated stink bugs can be found on most farms.
- ✓ There are reports of poor fruit set in some crops such as tomatoes and squash, most likely due to the hot conditions earlier in the month.

Spring Observations from WYEREC

By Michael Newell
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Observations from WyeREC

June 29, 2011

Strawberry Plasticulture- Summer cover crops are planted. Sudan Grass at 50 lbs/a will make a large amount of biomass by August 1st, to be plowed down before plastic-laying in early September. If you plan to fumigate, you will need to determine how much time you need to wait after fumigation before you can plant and figure that into your cover crop plow down and your desired planting date.

Please do not wait to order plants for a fall planting; This link of plant suppliers is provided by the North Carolina Strawberry Association at:

<http://www.ncstrawberry.org/docs/2011PlantSupplierList.pdf>

Strawberry Perennial Matted Row- Renovate after harvest by mowing off the leaves and narrowing the rows to keep the field productive. Apply 1/3 to 1/2 of the total nitrogen needed, use a pre-emergent herbicide and monitor and treat for leaf diseases and insects. Don't forget to irrigate.



Apples- Think about summer disease control options, pressure will be increasing as we get into July. Continue to remove Fire Blight strikes during dry conditions. Monitor for leafhoppers.

Peach- We harvested our first Crimson Lady peaches this week. We had > 30% damage from the Brown Marmorated Stink Bug! Although we have found very few adults in the orchards and I thought I was using the appropriate materials (Assail, Actara and Lannate) with good coverage, I obviously missed! This is recent damage. I plan to move to a shorter alternate row spray program for the remainder of the season.

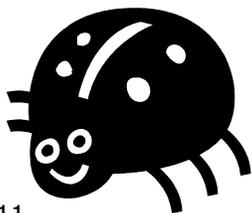


Pumpkins- We are just about at flop-stage, this is an excellent time to treat the base of the plant with materials to control squash vine borer. We continue to find squash bug egg masses on the leaves.

Grapes- Final go-through for shoot positioning; Topping of vigorous varieties. Leaf pulling will be coming up next. A few Japanese beetles are flying, nothing to worry about yet.

Vegetable Crop Insect Update

By Joanne Whalen
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June 24, 2011

Melons - Continue to scout all melons for aphids, cucumber beetles, and spider mites. With the recent hot weather, be sure to watch for an increase in spider mite activity. The threshold for mites is 20-30% infested crowns with 1-2 mites per leaf. Acramite, Agri-Mek, bifenthrin, Danitol, Oberon, Portal and Zeal are labeled on melons for mite control. Be sure to read all labels carefully for rates and restrictions since some are restricted to only one application as well as ground application only.

Peppers - As soon as the first flowers can be found, be sure to consider a corn borer treatment. Depending on local corn borer trap catches, sprays should be applied on a 7 to 10-day schedule once pepper fruit is ¼ – ½ inch in diameter. Be sure to check local moth catches in your area by calling the Crop Pest Hotline (instate: 800-345-7544; out of state: 302-831-8851) or visiting our website at <http://ag.udel.edu/extension/IPM/traps/latestblt.html>. You will also need to consider a treatment for pepper maggot. Be sure to watch for beet armyworm since we have received reports of the first detection of larvae which can quickly cause defoliation.

Potatoes - Continue to scout fields for Colorado potato beetle and leafhoppers. We have seen an increase in leafhopper populations and low levels of aphids have also been found. Controls will be needed for green peach aphids if you find 2 aphids per leaf during bloom and 4 aphids per leaf post bloom. This threshold increases to 10 per leaf at 2 weeks from vine death/kill. If melon aphids are found, the threshold should be reduced by ½.

Snap Beans - Continue to sample all seedling stage fields for leafhopper and thrips activity. As a general guideline, once corn borer catches reach 2 per night, fresh market and processing snap beans in the bud to pin stages should be sprayed for corn borer. Sprays will be needed at the bud and pin stages on processing beans. Acephate can be used at the bud and pin stages on processing beans but remember it has a 14 day wait until harvest. Additional sprays may be needed after the pin spray on processing beans. snap beans and corn borer trap catches are above 2 per night, a 7 to 10-day schedule should be maintained for corn borer control.

Sweet Corn - Continue to sample all fields from the whorl through pre-tassel stage for corn borers and corn earworms. Both species can be found feeding in whorls and tassels of sweet corn. A treatment should be applied if 15% of the plants are infested with larvae. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible.

You will also need to scout for fall armyworm larvae in whorl stage sweet corn. A treatment should be considered when 12-15% of the plants are infested. Since fall armyworm feeds deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control.



PESTICIDE REGULATION SECTION
(410) 841-5710
June 28, 2011

Section 18 Approval of the Use of Dinotefuran to Control Brown Marmorated Stink Bugs in Stone and Pome Fruit in Maryland.

By Dennis Howard, MDA
Chief, Pesticide Regulation Section

The U.S. Environmental Protection Agency has recently approved the Maryland Department of Agriculture's request for a specific exemption under section 18 of FIFRA. This exemption allows the use of Dinotefuran to control Brown marmorated stink bugs in pome and stone fruit in Maryland orchards. This specific exemption expires October 15, 2011.

Under this specific exemption, Venom Insecticide, EPA Registration Number 59639-134, manufactured by Valent U.S.A. Corporation and Scorpion 35SL, EPA Registration Number #10163-137, manufactured by Gowan Company, LLC, to control Brown marmorated stink bugs in stone and pome fruit orchards. Venom Insecticide may be applied to stone and pome fruit at a maximum rate of 4 - 6.75 fluid ounces (0.179 - 0.302 lbs a.i.) of product per acre. Scorpion 35SL Insecticide may be applied to stone and pome fruit at a maximum rate of 8 -12 fluid ounces (0.203 - 0.304 lbs a.i.) of product per acre. For each of these products, a maximum of 2 applications can be made per acre per season and with a minimum 7 - day application interval.

No more than 0.608 lbs a.i. may be applied per acre per season. Only foliar applications made by ground equipment are permitted under this specific exemption. All applicable directions, restrictions, and precautions on the EPA registered products, as well as those outlined on the Section 18 labels use direction must be followed. A maximum of 3,730 acres of stone and pome fruit may be treated in Maryland under this specific exemption. A 12-hour restricted entry interval (REI) and 3 - day preharvest interval (PHI) must be observed.

To minimize exposure to pollinators, the following statement on the application timing must be observed. "Do not apply this product until after petal fall."

Hot Weather & Blossom End Rot

By Jerry Brust
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The extreme heat that just recently ended was exceptionally stressful on plants, especially newly transplanted plants. But even well established plants found in high tunnels or that were planted early in the year were stressed. Tomato plants in a high tunnel I visited had severe blossom end rot problems that are just now becoming apparent. Usually with blossom end rot you get a few tomato fruit that are all of one general size scattered about on plants. This shows that calcium uptake was deficient just as the fruit was developing. Tomato fruit that reaches the size of a dime usually has all the calcium it is going to need and if it does not the cells of the fruit furthest from the stem do not develop normally and collapse as the cells and fruit expands causing blossom end rot. Calcium (Ca) moves to the plant via mass flow, i.e., where dissolved minerals like calcium move to the root in soil water that is flowing towards the roots. If anything interrupts this constant flow calcium deficiency can occur in developing fruit.

For different sized fruit to develop blossom end rot there must have been an extended disruption in calcium uptake. This can be seen in figure 1 where several different size fruit all have developed blossom end rot. Figure 2 shows that large fruit on this particular plant developed before there was a Ca interruption, but the fruit a little younger suffered the hot weather induced Ca interruption, with the smallest, youngest fruit suffering the greatest damage. Tissue analysis from this same set of plants showed that calcium was in the high range when the blossom end rot took place, demonstrating the importance of irrigation and water supply to reduce blossom end rot.



Fig. 1 Several fruit of different sizes with blossom end rot

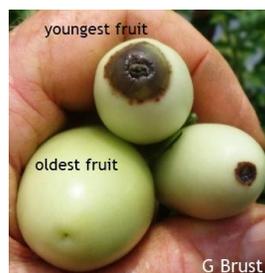


Fig. 2 Older, larger fruit received enough Ca, but younger, smaller fruit did not

No-Till, No-Herbicide Planting of Early Vegetable Crops?

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Even though the trials and tribulations of this year's wet cool spring seem like ancient history, Now! Is the time to start thinking about early fall cover crops that just might be able to help you get your early spring vegetables started earlier next year.

A new project entitled, *No-Till, No-Herbicide Planting of Early Vegetable Crops* aims to enable earlier vegetable planting in spring without the use of herbicides or tillage through the use of alternative winter killed, low residue cover crops. Funded by a grant from Northeast SARE, a team of research scientists, Extension agents and farmers from Maryland, Pennsylvania, and New Jersey are working to develop new systems of no-herbicide no-till planting of early vegetables into a seedbed prepared by low-residue winter-killed cover crops such as forage radish.

Background

- ✓ Wet spring weather can delay planting. Soils are cold and too wet to till.
- ✓ Even in a normal year, having the soil prepped and ready can save time and money.
- ✓ Winter-killed covers like radish provide numerous benefits, but unlike rye or vetch, they don't keep soils cold and wet in spring. There is no need to kill them and work them in before you can plant, eliminating the need for tillage.



Kohlrabi no-till seeded into forage radish residue using no fertilizer or herbicide.

Previous Research

Forage radish is a unique cover crop that can capture large amounts of nitrogen in fall and release it again early in spring, while loosening compacted soils and effectively suppressing weeds in early spring. In fact, by early spring, the soil after forage radish is essentially weed free, has very little residue, and is drier and warmer and ready to plant earlier than soils under most other cover crops or just winter weeds. View the Forage Radish Extension Fact Sheet at:

<http://www.hgic.umd.edu/content/documents/FS824ForageRadishNewMultipurposecovercrop.pdf>

Project Goals

This new project is designed to see if it is practical to plant early crops directly into this seedbed without tilling it first and without spraying a burn-down herbicide.

A few of the questions the project will be asking are:

- ✓ Will this work with conventional planters commonly used by small and medium-scale growers?
- ✓ Will early crops be able to use the nitrogen released by the radish?
- ✓ Will weeds be controllable once the crop is up?

Visit our new website and stay tuned for research and demonstration results!

<http://www.agnr.umd.edu/Academics/departments/ENST/labs/Radish/index.cfm>

Squash Bugs in Pumpkin Fields

By Jerry Brust

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Every year it seems just as pumpkin plants are coming up squash bugs magically appear. This year is no exception as squash bugs were found feeding at the base of 3-5 leaf pumpkin plants (fig. 1). The adults are very difficult to see when they hide out at the base of plants whether the plants are on plastic or in dead mulch. Growers need to be sure to check the base of their pumpkin plants for the adults. Heavy feeding at this early stage of pumpkin development can cause plants to wilt and die or at least fall behind in development by a few weeks. Sprays need to be directed at the base of the plant, using an air-blast sprayer may not get enough material down to the base of the plant.



Fig. 1 Squash bugs feeding at base of pumpkin plant

Downy Mildew Update

By Kate Everts

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Cucurbit Downy Mildew

Cucurbit Downy Mildew has not yet been found in Maryland. However both New Jersey and North Carolina have seen outbreaks within the past week on cucumber. Growers should scout aggressively for this disease on cucumber and other cucurbits. In areas where rainfall has occurred, growers may want to apply targeted fungicides to cucumbers. Tank-mix Presidio, Ranman, or Previcur Flex with a protectant fungicide and alternate sprays with a material with a different mode of action. Consult the Commercial Vegetable Production Recommendations Publication EB 236 Because downy mildew has only been found in adjacent states on cucumber, targeted sprays on other cucurbit crops (pumpkin, squash, watermelon, etc.) are not necessary, at this time. Instead scout aggressively and continue a broad-spectrum spray program. Scout plants rigorously and monitor the CDM website: <http://cdm.ipmpipe.org/>



Lower leaf surface of a cucumber leaf infected with downy mildew. Courtesy of Gerald Holmes, Valent USA Corporation, Bugwood.org



Downy mildew symptoms on upper leaf surface of cucumber.



Downy mildew symptoms on watermelon, note the differences.

Downy mildew on Basil

Basil downy mildew has been reported in two locations in Maryland this week. It was confirmed in Ellicott City, and reported in Calvert County. Growers should check their plants carefully for disease symptoms. Products that are labeled for Basil Downy mildew are Pro-Phyt, Fosphite, K-Phite, and Quadris. These products have some efficacy on this disease in trials.



Downy mildew infected basil: lower leaf sporulation and yellowing on the upper leaf surfaces. (Image courtesy of Meg McGrath)

Powdery Mildew on Watermelon

By Kate Everts

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Watermelon is the least susceptible to powdery mildew of all locally grown cucurbit crops. However in recent years the Southeast region of the U.S. has seen an increase in powdery mildew on watermelon. Yield loss has been observed under some conditions, particularly hot and dry weather. Disease is also favored by low light intensity (such as cloudy weather or low in the canopy). Because powdery mildew doesn't overwinter here, and is introduced each year, the disease should always be confirmed before applying a fungicide.



Powdery mildew sporulation on the upper surface of a watermelon leaf. (Photo courtesy of Bugwood images and David Langston.)

To determine if a fungicide spray is warranted, scout at least 50 leaves across a field. For example a minimum of 10 plants and 5 leaves on each plant should be examined. Typical symptoms are chlorotic spots on the upper leaf surface accompanied by sporulation on the lower surface. Alternatively sporulation may occur on both upper and lower leaf surfaces or on petioles or stems. Because sporulation is sparse, powdery mildew on watermelon is more difficult to

diagnose than on other cucurbits, and a sample may need to be submitted to University of Maryland or University of Delaware for confirmation.

If powdery mildew is confirmed, an initial fungicide application is warranted. A good program would be to alternate Quintec (6 fl. oz/ A) plus chlorothalonil with one of the following products tank mixed with chlorothalonil: Procure (8 oz/A), or Rally 5 oz/A, or Folicur (4-6 fl. oz/A). Once the first spray is applied, scout the field to determine if a follow up spray is needed. If the disease does not spread or if weather conditions change, additional sprays are not necessary.

Crop Alert: Late Blight has been found in Potatoes in Delaware and Eastern Shore of Virginia. Growers are urged to be vigilant and protective fungicide applications are recommended immediately.

Sudeep Mathew and Dr. Kate Everts, University of Maryland Extension with material excerpted from reports by Dr. Steve Rideout, Virginia Tech and Bob Mulrooney, University of Delaware

On June 27 Bob Mulrooney, Extension Plant Pathologist, University of Delaware confirmed late blight in a Kent county, DE potato field. Only several stems with good symptoms were found in a small area under power lines that were not well covered with protectant fungicides, which had been applied regularly all season. Identified stem lesions were found sporulating. The variety was 'Envol' and seed was reported to be from PEI in Canada. The sample was sent to Cornell for further identification and genotyping. This is an isolated find at a very low level of infection. The hot weather predicted for this weekend will not favor new infections. Also on Tuesday June 28th, late blight on potatoes was confirmed on the eastern shore of Virginia by Dr. Steve Rideout of Virginia Tech.

Late blight of potatoes and tomatoes is caused by the fungal like organism *Phytophthora infestans* which causes a devastating plant disease and was responsible for the Irish Potato famine in mid-nineteen century. It can infect and destroy the leaves, stems, fruits, and tubers of potato and tomato plants. Although there are many management options today, it can have a devastating effect and can cause complete crop loss under favorable conditions if left unmanaged.

A late blight-specific fungicide application is recommended for commercial potato and tomato growers in the region. Previous research has indicated that Curzate, Forum, Gavel, Presidio, Previcur Flex, Ranman, Reason, Revus Top, and Tanos are the most effective options. Also, remember to

include a protectant material (containing either chlorothalonil or mancozeb) in your spray mixture. In potato, Omega and Agri-Tin/Super Tin are also available options.

This disease presents a challenge to homeowners and gardeners. Most fungicides at stores will contain the active ingredient chlorothalonil. This is the most active choice for home gardens. You will need to spray every 3-5 days if these conditions persist. If you have late blight and do not spray, unfortunately, your plants will most likely perish. Untreated plants will also serve as inoculum for your uninfected tomato or potato plants and for your neighbor's garden as well.

Potato and tomato growers of Eastern Shore and Southern Maryland are to be considered at risk by infection of late blight. Growers in these areas should consider protective measures immediately. For help with identification and spray recommendation, please consult your local Extension Agents.

Potato Twilight Meeting

July 26, 2011



University of Maryland Extension will conduct a potato twilight meeting for growers on Tuesday, July 26th from 6.00–7:00 p.m. at East New Market Rhodesdale Rd, Hwy 14 near North Dorchester High School in Dorchester County Maryland. This meeting will provide an opportunity to observe potato genotype and variety research plots and potato crop modeling research for managing irrigation and production.

Interact with University of Maryland Extension specialists and USDA researchers at the site. Materials and refreshments will be served. Please contact Rhonda Barnhart for registration and more information at 410-228-8800 or rbarnhar@umd.edu

Aronia Twilight Tour

August 23, 2011



Aronia (*Chokeberry*) is a new alternative crop which has high concentrations of flavonoids and several nutraceutical qualities.

University of Maryland Extension will conduct a Twilight Tour of the Aronia research orchard on August 23rd, 5.30 pm at Wye Research and Education Center, 211 Farm Lane, Queenstown MD, 21658.

Participants will learn about highly nutritive Aronia berries; varieties and yield; plant densities and propagation; cultural and production methods; fertility practices; and experience ripe Aronia fruit. The event is free, however, registration is requested. Please contact Debby Dant for additional information and/or to register at: 410-827-8056 X 115, ddant@umd.edu

Vegetable & Fruit Headline News

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2011 from April through September on the following dates: April 14 & 28; May 12 & 26; June 9 & 30; July 14 & 28; August 18; September 8

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Article submission deadlines for 2011: April 13 & 27; May 11 & 25; June 8 & 29; July 13 & 27; August 17; September 7.

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