

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.

Volume 3 Issue 3 May 10, 2012

Spring Observations from WYEREC

By Michael Newell
Horticultural Crop Program Manager, UME
mnewell@umd.edu

Peach

- ✓ Bacterial spot leaf symptoms may be evident on the most susceptible varieties now. Maintain coverage with antibiotics or copper. Applications before anticipated rainfall is important for control.
- ✓ If blossom thinning was not done, hand thinning should be well under way. Research has shown that early thinning has the greatest impact on final fruit size.
- ✓ I have had calls about a large number of double fruits on some peach cultivars. This occurs because of tree stress during flower initiation and development which occurred last summer. Drought and/or high heat conditions last summer are usually the cause. These should be thinned out.

Apple/Pear

- ✓ Late bloom can still be found in some varieties. The continued unsettled weather patterns may warrant additional FireBlight control measures.
- ✓ FireBlight strikes can be seen in some early blooming pear trees. These should be cut out and removed from the orchard to limit further movement in the tree and become a source of disease inoculum for additional infection.

Strawberry Plasticulture

- ✓ Chandler harvest is in full swing. Recent cooler temperatures have helped slow down ripening which is a good thing to help spread out the harvest. If there is a second flush of flowers, these need to be protected from Grey mold. Be aware that there have been reports of resistance to some of the chemistries used for control. Tank mixing with broad spectrum (Captan) materials is a good way to help reduce resistance. Always read, understand and follow the pesticide label.



Spring Vegetable Crop Update

Vegetable Crop Insects –
Joanne Whalen, Extension IPM
Specialist
jwhalen@udel.edu

Melons

As soon as plants are set in the field, be sure to scout for aphids, cucumber beetles, and spider mites. The first cucumber beetles have been observed and with the predicted warmer weather for the end of week we could see an increase in activity. Since beetles can continue to re-infest fields as well as hide under the plastic, multiple applications are often needed to achieve control.

Potatoes

Low levels of the first emerged adults continue to be found in fields where an at planting insecticide was not used. A treatment should not be needed for adults until you find 25 beetles per 50 plants and defoliation has reached the 10% level.

Snap Beans

Be sure to sample all seedling stage fields for leafhopper and thrips activity. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by one third.

Sweet Corn

Be sure to scout emerged fields for cutworms and flea beetles. As a general guideline, treatments should be applied for cutworms if you find 3% cut plants or 10% leaf feeding. In order to get an accurate estimate of flea beetle populations, fields should be scouted mid-day when beetles are active. A treatment will be needed if 5% of the plants are infested with beetles. In fields that were planted under plastic, begin to scout for corn borers as soon as the plastic is removed.

Blackhawk Naturalyte Insecticide Label

Vegetable Crop Insects
Joanne Whalen, Extension IPM Specialist
jwhalen@udel.edu

Blackhawk Naturalyte insecticide from Dow AgroSciences with the active ingredient spinosad is labeled in Delaware on the following vegetable crops: sweet corn, legume vegetables (which includes peas, snap beans and lima beans) and potatoes. Please check the following link for insects controlled, use rates and restrictions: <http://www.cdms.net/LDat/ld97E002.pdf>

Potato Late Blight Confirmed in North Carolina

Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
kevverts@umd.edu

Late blight has been confirmed on potato in a field in North Carolina on May 2, 2012. Growers in Maryland and Delaware should scout their fields and apply a preventative fungicide such as chlorothalonil, mancozeb or Polyram. If the disease spreads north to Virginia, be prepared to apply a more targeted fungicide.



Downy Mildew on Cucurbits

Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
kevverts@umd.edu

Downy mildew on cucurbits has been a problem on Delmarva beginning in early July for the last few years. Good fungicides for management are available. However, last year in my trials, one of these fungicides, Presidio, was not as effective as expected. Looking ahead to your spray program, be careful not to rely on one fungicide class. It is difficult to know which fungicides will be effective here, because our population does not overwinter and is reintroduced from the south each year. Therefore use excellent resistance management practices to avoid allowing the pathogen to develop resistance and to improve the efficacy of your fungicide management program.

Fungicide Resistance management guidelines by crop are available online <http://mdvegdisease.umd.edu/Disease%20Management/Fungicide.cfm> and hard copies are available in Delaware at the county extension offices.

MELCAST for Watermelons

Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
kevverts@umd.edu

The weather based forecasting program MELCAST on watermelon will begin next week. MELCAST is a weather-based spray scheduling program for anthracnose and gummy stem blight of watermelon. If you received a report in 2011, you should automatically receive the first report next week. If your email or Fax number has changed, please call us. If you do not receive a report and would like to, please call Karen Adams at (302)856-7303 and give us your name and Fax number or e-mail address. MELCAST also is available online - bookmark the site: <http://mdvegdisease.umd.edu/forecasting/index.cfm> Click on the watermelon picture.

To use MELCAST for watermelons, apply the first fungicide spray when the watermelon vines meet within the row. Additional sprays should be applied using MELCAST. Accumulate EFI (environmental favorability index) values beginning the day after your first fungicide spray. Apply a fungicide spray when **30 EFI values** have accumulated by the weather station nearest your fields. Add 2 points for each overhead irrigation that is applied. After a fungicide is applied, reset your counter to 0 and start over. If a spray has not been applied in 14 days, apply a fungicide, reset the counter to 0 and start over. Please call if you have any questions on how to use MELCAST on your crop (Kate Everts at 410-742-8789).

Do not use Quadris, Cabrio or Flint on watermelons in Maryland or Delaware. Under low disease pressure, use Chlorothalonil (Bravo, etc.) applied according to MELCAST. Under high disease pressure alternate chlorothalonil with Pristine *plus* chlorothalonil, Folicur *plus* chlorothalonil, Inspire Super *plus* chlorothalonil or Luna Experience *plus* chlorothalonil applied according to MELCAST. If a severe disease outbreak occurs in your field, return to a weekly spray schedule.

Garlic Bloat Nematode Found in Several Garlic Samples

Jerry Brust, IPM Vegetable Specialist;
Karen Rane, Pathologist
University of Maryland; jbrust@umd.edu

This must be a bad year for garlic because besides finding bulb mites we also have found garlic bloat nematode in several samples of damaged garlic. I wrote about this nematode last year and advised garlic growers to watch for it and to test any bad looking bulbs for it. This year growers are sending in their bad looking garlic bulbs and unfortunately many are infested with this nematode. The garlic bloat nematode *Ditylenchus dipsaci* can destroy a crop of garlic in one season. It probably came from Canada in garlic that was imported for food, but was planted as seed garlic. The problem then spread through distributors because there is no certification program for seed garlic and is it now widespread throughout New York. Symptoms of bloat nematode in garlic plants include: bloated, twisted, swollen leaves, distorted and cracked bulbs with dark rings (fig.1). Infested tissues become spongy, distorted and predisposes the plant to other problems like fusarium or white rot (fig. 2) and bulb mites. These nematodes also can move to the inflorescence and remain in seeds for long periods of time in some plant species, i.e., beans, clover, and alfalfa where they are major sources of nematode dispersal. The nematodes can be spread around fields by equipment or on clothing and shoes. Garlic bloat nematodes can overwinter in soil or crop debris. If a grower has purchased or brought in new planting material over the last few years, especially if it came from Ontario or New York, you may have this pest. If you have not made any new introductions in a while you are probably safe. If you have garlic bulbs that look something like they do in figure 1 or 2 you should send a sample to a nematode laboratory for testing.

To prevent build-up of the nematode populations in a field, rotate away from any *Allium* crops (garlic, onions, and leeks) and control nightshades for at least 4 years. Another method to reduce levels of bloat nematodes in the soil is to keep the fields where garlic was grown moist, because bloat nematodes cannot survive for long periods in moist soils. They can persist for several years though, in dry soil and on dry plant residue. Bloat

nematodes can actually survive better in dried crop debris than in soil.

Growers can use soil fumigants to reduce or eliminate the nematodes from infested areas of the field. Growers can also use bio-fumigant cover crops that can be planted after harvesting garlic. Mustard, sorghum-sudangrass have been shown to reduce nematode populations due to the bio-fumigant constituents they produce. Be sure to clean equipment and storage areas with meticulous sanitation techniques.



Fig. 1 The lack of roots on one side of plate and bulb deformation can be indicators of bloat nematode infection.



Fig. 2 Non-infested garlic bulbs (left) and infested garlic bulbs (right) with bloat nematode

Bulb Mite Found in Problem Garlic Fields

Jerry Brust, IPM Vegetable Specialist;
Karen Rane, Pathologist
University of Maryland; jbrust@umd.edu

Several garlic fields have been having problems the last few years with rotting bulbs. Some seedcorn maggot was found feeding on the bulbs and we thought this was the major problem. But damage continued beyond what the maggots could do. On a second look very tiny bulb mites were found in the damaged garlic. Bulb mites are a problem of garlic and sometimes of onion that usually goes unrecognized (as in this case). These pests can reduce stands, slow plant vigor, and increase post-harvest diseases by their feeding on the roots and the stem plate. Bulb mites have a very wide host range, but cause most of their damage to onions and garlic. These mite pests are usually not seen on the bulb and prefer crawling into crevices between the roots and stem plate.

The best way to determine whether these mites are present is to carefully dissect the region where the roots and bulb come together. The mites also could be under one or two layers of scales at the lower end of the bulb. There are usually other mites present, but with a hand lens the bulb mites usually can be identified from other mites.

The mite is bulb shaped with its legs moved forward and a bulbous rear end and many long fine hairs (fig. 1). The mouthparts and legs are purplish-brown while the main body is creamy white. These mites have been described as looking like tiny pearls with legs. The mites are extremely small (from 0.02 to 0.04 inches) and are very slow moving. They are usually found in clusters underneath scales and at the base of the roots.

It is not just the direct feeding of these mites on garlic and onions that causes problems, but also their feeding allows pathogens to enter through the wounds they create. These wounds are very good entry points for pathogens like *Fusarium* spp., *Sclerotium cepivorum* (causes the disease white rot), and various soft-rotting bacteria. The white rot fungus does best in cool temperatures, and symptoms include white fungal growth on the stem or bulb with small, dark structures called sclerotia in the decayed tissue (fig. 2). Early in the growing season, bulb mites can cause poor plant stands and stunted growth as they feed on the plants (fig. 3). Infested plants easily can be pulled out of the soil because of the poor root growth. Later in the season, higher than normal amounts of soft rot and *Fusarium* dry rot may be seen because of the wounds caused by these mites (as we saw in a couple of the garlic fields).

Bulb mites survive in the soil on organic matter left behind from the previous crop. **As long as there is decaying allium vegetable matter in the soil, bulb mites can survive in the field.** The best way to control bulb mites is to allow the vegetation from the previous crop to breakdown before any new crop, especially garlic or onions are planted again. Low areas of the field that stay wet and have high levels of organic matter are especially prone to greater bulb mite survival. These mites may also come into a clean field on infested garlic cloves. The use of clean garlic clove seed or seed that has been hot water treated will control these pests. Effective hot water treatment will also, unfortunately, reduce bulb vigor.



Fig. 1 Garlic bulb mites greatly magnified



Fig. 2 White rot (white fungus) with microsclerotia (arrows) in garlic stem



Fig. 3 Garlic plants damaged by bulb mite feeding and invasive fungi

SWD Traps in Strawberries

&

USDA Develops New Lure for BMSB

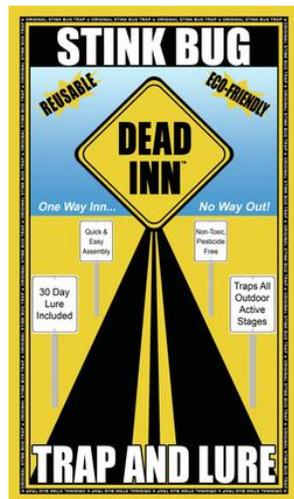
By Bryan Butler

Senior Agent, Carroll County & Mid-Maryland Tree Fruit Agent, UME
bbutlers@umd.edu

Hopefully you have placed your Spotted Wing Drosophila (SWD) traps in your strawberries. Traps should be placed at ground level. Make sure to check them weekly as the fruit is beginning to ripen. Hopefully you will not be finding much but be aware that it is possible that larvae can be found in fruit before adults have been



detected in the crop because we are monitoring for adult males and SWD overwinters as a bred female. It would be a good idea to periodically check some ripening fruit for larval activity. In the field, fruit can be pulled apart and checked for larvae during harvest. If you would like to look at a larger sample you can crush the fruit in a plastic freezer bag, and adding a 1:16 solution of salt to water (1/4 cup salt to 4 cups water). The white larvae will float to the surface of the water after about 15 minutes, while the fruit will sink. SWD larvae are very small (about 1/8" long when full-sized), white, and have no obvious head.



As for Brown Marmorated Stink Bug (BMSB) the new lure developed by the USDA that is being tested right now appears to have great potential to catch BMSB. They

have been erratically moving out from overwintering sites for the past several weeks, but the big push hasn't hit as of the May 7th. It will be important to watch crops like peaches for early season activity. Last year the first large incursion into tree fruit was the third week of May so it is important to be ready. It is anyone guess how this season will unfold but having some products on hand that are effective on BMSB would be a good idea so they can be added to your pest management programs as needed.

Performance of Selected Insecticides on BMSB

T. Kuhar, H. Doughty, K. Kamminga, L. Lilliston, J. Jenrette, A. Wallingford, A. Wimer and C. Philips
 Department of Entomology, Virginia Tech, 216 Price Hall, Blacksburg, VA 24061-0319; tkuhar@vt.edu

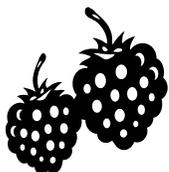
Selected insecticides were evaluated at Virginia Tech in 2011 using green bean dip bioassays on brown marmorated stink bug nymphs and adults, as well as field efficacy trials on bell peppers. For the latter, four weekly spray applications were made using a backpack sprayer, and % stink bug injury to pepper fruit was assessed on three post-spray harvest dates (in Aug). Insecticides were ranked based on their average performance across all three experiments.

Product	Rate oz/Acre	% mortality from bean dip bioassay*		% control in the field: peppers**	Avg. % control from all three experiments
		Nymph	Adult		
Permethrin 3.2EC	8	97.5	98.8	60.6	85.6
Scorpion 3.24	7.7	76.7	90.0	85.4	84.0
Bifenture 10DF	12.8	100.0	81.9	56.3	79.4
Trebion	8	100.0	100.0	36.5	78.8
Baythroid XL	2.8	92.5	88.2	52.8	77.8
Venom 70	4	100.0	80.0	46.0	75.3
Endigo ZC	4.5	75.0	98.7	49.2	74.3
Acephate 97UP	16	100.0	51.8	70.4	74.1
Lannate LV	40	66.7	75.3	79.8	73.9
Leverage 360	2.8 [#]	97.3	74.5	49.9	73.9
Brigadier	9.85	76.7	70.0	69.9	72.2
Hero EC	10.3	91.7	50.0	72.8	71.5
Vydate L	48	85.0	47.0	79.7	70.6
Warrior II	2.5	100.0	72.8	38.0	70.3
Belay	4	75.0	67.5	66.7	69.7
Actara 50 WG	5.5	66.7	81.0	60.3	69.3
MustangMax	4	100.0	35.0	72.8	69.3
Danitol	16	93.3	42.5	60.3	65.4
Assail 30 G	4	90.0	32.8	70.4	64.4
Lambda-cy	3.84	86.0	32.3	62.0	60.1
Asana XL	9	35.0	27.5	76.4	46.3

* Mortality refers to the percentage of dead + moribund individuals after 72 hrs.

** Based on reduction in stink bug injury to pepper fruit from three harvests.

[#] Not the highest labeled rate for all vegetables.



University of Delaware Small Fruit Twilight

Tuesday, May 22, 2012 6:00-8:00 p.m.
Carvel Research and Education Center
16483 County Seat Highway, Georgetown, DE 19947

Participants will have the opportunity to tour experimental plots and hear about current research on June-bearing and day-neutral strawberries, blueberries and blackberries. **For additional program information, contact Gordon Johnson at 302-856-7303 or [gcjohn@udel.edu](mailto:gjohn@udel.edu)**



Maryland Rural Enterprise Development Center Co-Sponsors Food for Profit Class in June

Ginger S. Myers
UME Marketing Specialist & Director
Maryland Rural Enterprise Development Center
gsmyers@umd.edu
<http://mredc.umd.edu/>

Food for Profit is a one-day workshop designed to help you work through the maze of local and state regulations, food safety issues, and business management concepts that all must be considered in setting up a commercial food business. The course will be held at the Washington County Agricultural Education Center, 7303 Sharpsburg Pike (building door #4), Boonsboro, MD 21713 on **Wednesday, June 6, 2012 from 9:00 a.m. to 4:00 p.m.**

Registration Information:

Food for Profit will meet from **9:00 am to 4:00 pm., on June 6, 2012** at the Washington County Agricultural Education Center, 7303 Sharpsburg Pike (building door #4), Boonsboro, MD, 21713, The tuition cost of \$40 per person includes all materials and lunch. Registration is through the Penn State event on-line system at <http://www.cvent.com/d/zcg155> or by calling 877-489-1398.

For further information about workshop content, contact Extension Educator Winifred McGee, www1@psu.edu, 717-270-4391 or Ginger S. Myers, University of Maryland Extension Specialist at gsmyers@umd.edu, 301-432-2767 x338.



Maryland's Container Recycling Program 2012

Maryland's container recycling program is a combined effort of state, county and federal agencies, as well as private industry, working together to protect the environment.

A schedule of collection dates and sites is available on the MDA website at www.mda.state.md.us/pdf/recycle.pdf.



See the attached flier for full details.

For additional information, or to schedule a chipping date at your site, contact Rob Hofstetter, special programs coordinator, Pesticide Regulation Section, Maryland Department of Agriculture, Annapolis, MD, telephone 410-841-5710.

Vegetable & Fruit Headline News

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2012 from April through September on the following dates: April 12 & 26; May 10 & 24; June 7 & 21; July 12 & 26; August 16; September 6

*Published by the University of Maryland
Extension Agriculture and Natural Resources
Profitability Impact Team*

Submit Articles to:

Editor,
R. David Myers, Extension Educator
Agriculture and Natural Resources
7320 Ritchie Highway, Suite 210
Glen Burnie, MD 21061
410 222-6759
myersrd@umd.edu



Article submission deadlines for 2012: April 11 & 25; May 9 & 23; June 6 & 20; July 11 & 25; August 15; September 5

Note: Registered Trade Mark® Products, Manufacturers, or Companies mentioned within this newsletter are not to be considered as sole endorsements. The information has been provided for educational purposes only.

MARYLAND DEPARTMENT OF AGRICULTURE'S 2012 PESTICIDE CONTAINER RECYCLING COLLECTION DATES

EASTERN SHORE

Kent County - Chestertown

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
Nicholson	June 15	9:00 - 3:00
Transfer Facility on	July 13	9:00 - 3:00
Earl Nicholson Road	August 10	9:00 - 3:00
	September 14	9:00 - 3:00

Talbot County - Easton*

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
MidShore	June 22	8:00 - 12:00
Regional Solid Waste Facility on Barker's Landing Road	July 20	8:00 - 12:00
	August 17	8:00 - 12:00
	September 21	8:00 - 12:00

Wicomico County - Salisbury

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
Newland Park	June 29	9:00 - 3:00
Landfill on	July 27	9:00 - 3:00
Brick Kiln Road	August 24	9:00 - 3:00
	September 28	9:00 - 3:00

* **Note** - Because of legal restraints, only residents from Caroline, Kent, Queen Anne's and Talbot counties are able to use the collection site in Easton. Lower Shore residents must use the collection site in Salisbury.

CENTRAL AND SOUTHERN MARYLAND

Harford County - Street

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
Scarboro	June 8	9:00 - 3:00
Landfill,	July 6	9:00 - 3:00
3241 Scarboro Road	August 3	9:00 - 3:00
	September 7	9:00 - 3:00

Harford County - White Hall

The Mill of Black Horse
4551 Norrisville Road

Facility will be accepting clean, empty containers from June 1 through September 30, during normal business hours. *Containers will be collected from their current customers, only. Call 410-329-6010 or 410-692-2200 for hours of operation and drop-off instructions.*

Containers must be cleaned (triple-rinsed or pressure-rinsed) according to label directions. *Please remember to remove lids and label booklets from the containers prior to drop-off.*

WESTERN MARYLAND

Frederick County - Frederick **

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
Frederick	June 26	9:00 - 3:00
County	July 24	9:00 - 3:00
Landfill,	August 21	9:00 - 3:00
9031 Reich's Ford Road	September 18	9:00 - 3:00

Washington County - Hagerstown

<u>LOCATION</u>	<u>DATES</u>	<u>TIME</u>
Martin's	June 6	9:00 - 3:00
Elevator	July 11	9:00 - 3:00
13219 Mau-	August 8	9:00 - 3:00
gansville Road	September 5	9:00 - 3:00

** **Note** - Frederick County has agreed to allow residents from outside Frederick County to submit empty pesticide containers for recycling, but NO TRASH from outside of the county will be accepted at the landfill under any terms.

INSPECTION CHECKLIST

- All containers must be made from high density polyethylene (HDPE).
- The container must have held an EPA-registered pesticide or adjuvant, crop oil, etc.
- Any size container will be accepted. All containers over 30 gallons must be cut prior to recycling (contact MDA for instructions).
- Pesticide containers must be properly rinsed (pressure-rinsed or triple-rinsed).
- Caps and other non-HDPE parts, such as metal handles and rubber linings, cannot be recycled.
- Stained containers are acceptable provided no material can be smeared or removed when touched by a rubber glove.
- Please remove lids and label booklets prior to recycling.**

