

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.

Issue #13 September 16, 2010

Casual Observations from Southern Maryland

Ben Beale
Extension Educator & CED, Agriculture
St. Mary's County

- ✓ Conditions are once again very dry. Rains on Sunday will help fall crops, provide some soil moisture for cover crops and replenish irrigation supplies.
- ✓ Most vegetable farmers are feeling the impact of hot weather in July and August with limited fruit set and poor harvest of main stay crops like tomatoes.
- ✓ Worm pressure is still high; though it is starting to wane.
- ✓ Pumpkins and winter squash continue to be bombarded with squash bug pressure.

Vegetable Crop Insect Update

Joanne Whalen
DE Extension IPM Specialist
jwhalen@udel.edu

September 10, 2010

Cabbage

Continue to scout all fields for beet armyworm, fall armyworm, diamondback and cabbage looper larvae.

Lima Beans

Continue to scout all fields for lygus bugs, stinkbugs, corn earworm, soybean loopers and beet armyworm. Multiple sprays will be needed for worm control.

Peppers

Be sure to maintain a 5 to 7-day spray schedule for corn borer, corn earworm, beet armyworm and fall armyworm control. You should also watch for flares in aphid populations.

Snap Beans

All fresh market and processing snap beans will need to be sprayed from the bud stage through harvest for corn borer and corn earworm control. You should also watch for beet armyworm and soybean loopers. In addition, the highest labeled rates may be needed if population pressure is heavy in your area.

Spinach

Garden webworm, Hawaiian beet webworms and beet armyworms are active at this time and controls need to be applied when worms are small and before they have moved deep into the hearts of the plants. Controls need to be applied early when worms are small and before significant webbing occurs. Generally, at least 2 applications are needed to achieve control of webworms and beet armyworm.

September Vegetable Observations

Gordon Johnson
DE Extension Vegetable & Fruit Specialist
gcjohn@udel.edu

Lima Beans

Lima bean harvest is fully underway across the region and the following are some observations in this challenging year. Late May, June, and some early July plantings lost the first set almost completely (heat induced blossom and small pod abortions). The second set is extremely variable and in many fields, economic yields will depend on what happens with the third set. Growers have commented that they are letting fields advance well above the 10% white/dry seed level that is normal for harvest to allow the later set to fill. Some fields are being harvested at the 20-30% dry seed stage (coming from the earlier set). For harvest considerations, it is better to lose a set completely and harvest the later set than to have a bad split set. There is still considerable dry land lima bean acreage and I am always amazed at how much drought that lima beans can stand without wilting or showing outward water stress. Plants may be smaller but they survive drought and heat very well. Unfortunately,

even though lima beans can survive drought, pod set will be limited. Research has shown over and over again that irrigation is necessary to achieve high lima bean yields. In a year such as 2010 where excess heat is also an issue, pod set can be adversely affected, even under irrigation.

We should emphasize again that water is still the most important nutrient for high lima bean yields. In a research plot area where we were looking at residual effects of biofumigant crops and compost this year, we planted snap beans and lima beans in early June as test crops in a dry land situation. After several weeks of drought and heat the snap beans were wilting during the day and were stunted while the lima beans kept on going. To rescue the plots (so that we could get data), we installed drip irrigation between every 2 rows. The snap beans did recover somewhat but with permanently stunted plants, poor bean quality, and a severe split set. In contrast, the lima beans lost the first set but did put on a decent second set and had good plant health and plant size.

Snap Beans

Summer planted snap beans for September harvest are yielding much better than the summer harvested crops. We are seeing yields in the normal 4 ton/A or better range where there was adequate irrigation (compared to summer yields in the 1-2 ton range).

Pickle Cucumbers

Late crops of pickle cucumbers are variable, largely due to stand loss and inadequate water in fields planted during summer high heat periods. In addition, downy mildew has hit a number of later fields adversely, even where fungicides were applied in a timely manner. Pickle harvest should be completed in the next 7-10 days.

Watermelons

I am amazed at how long some watermelon fields have produced this year where attention has been paid to vine health, nutrition, and water. This certainly is the year where you are able to evaluate the yield potential and longevity of main season varieties and effectiveness of pollenizers. On another note, watermelon fields with good weed control (morningglory in particular), had much better later yields.

Tomatoes

Tomatoes had a difficult year in 2010 with most fields having much shorter harvest periods due to the extra heat stress. This is especially evident where beds were allowed to dry out at any time during these stressful periods. Somewhat surprising also is the presence of more disease than would be expected in a dry year.



Fall Diseases of Cole Crops

Bob Mulrooney
DE Extension Plant Pathologist
bobmul@udel.edu

Downy mildew and **Alternaria** can be a problem in fall crops (cabbage, collards, broccoli, cauliflower, and kale). When the disease first appears, apply a fungicide every 7 to 10 days. Quadris, chlorothalonil, Cabrio, Endura (Alternaria only), Ridomil Gold Bravo, or Switch (Alternaria only) and Actigard (Downy mildew only) and Aliette (Downy mildew only) are labeled for control. For more information on control please see the *2010 Maryland Commercial Vegetable Production Recommendations*.

Fall Nematode Sampling

Bob Mulrooney
DE Extension Plant Pathologist
bobmul@udel.edu

The fall is generally the best time to sample for nematode populations in vegetables and field crops. After harvest is complete but before any fall tillage is the best time for taking survey samples. **With the very dry conditions, however, I would delay taking fall nematode samples until we get some rain.** Samples taken from very dry soil may not be representative of what is present in the field.

One other observation is that nematode soil samples should not represent any more than 20 acres. Nematodes are not uniformly distributed in the soil and it would be easy to miss significant numbers if a single sample of 20 soil cores represented a large acreage. I am not trying to generate more work, just better information on which to make an informed recommendation.

Maryland Extension Plant Nematology Diagnostic Laboratory Closes in October 2010

NOTICE

The Maryland Extension Plant Nematology Diagnostic Laboratory will be closing in October 2010. Maryland Residents requiring sample analysis for plant - parasitic nematodes should submit samples to this laboratory no later than 8 October to ensure sample processing can be completed.

Nematode sample contact and mailing address:

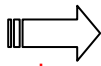
Sandra Sardanelli, Director
Plant Nematology Laboratory
Entomology Department
Plant Sciences Building, Rm. 4112
University of Maryland, College Park, MD 20742
email: ssardane@umd.edu
phone: 301-405-7877

The Maryland Extension Plant Diagnostic Laboratory will NOT be handling/routing nematode soil samples. Maryland residents will be directed by Maryland Extension Personnel and Web Resources to alternate avenues for submitting soil samples for plant-parasitic nematode diagnostics as they are identified. Home gardeners should work with the Home and Garden Information Center to solve landscape problems: telephone 1-800-342-2507 or visit their website at: <http://www.hgic.umd.edu>



The Delaware Plant Diagnostic Clinic has agreed to accept Maryland Extension nematode samples.

Plant Diagnostic Clinic
151 Townsend Hall
University of Delaware
Newark, DE 19716-2170
Phone: 302-831-1390
E-mail - bobmul@udel.edu
Fax: 302-831-0605
Web site: ag.udel.edu/Extension/pdc/index.htm
(for sample submission instructions and forms)



The Virginia Tech Nematode Assay laboratory has agreed to accept Maryland Extension nematode samples.

Nematode Assay Laboratory
115 Price Hall
Virginia Tech
Blacksburg, VA 24061-0331 Phone: (540)231-4650
Fax: (540)231-7477
Email: jon@vt.edu
Web site: <http://www.ppws.vt.edu/~clinic/nematode.php>
(for sample submission instructions and forms)

Various End-of-Year Items: Less Stress on Vegetables Now; Root Zone Temperature; and Tomato Fruit Ripening Problems

Jerry Brust
UME, Vegetable IPM Specialist
jbrust@umd.edu

Figure 1 shows part of a tomato field that I wrote about a few weeks ago concerning how environmental stress (high temperatures and drought) on the plants greatly affected plant viability and fruit quality.

Figure 2 is the same field today (Sept 22) with new green growth, lots of flowers and fruit some of which will make it to harvest. This field has not been irrigated for the past 3 weeks and it is still growing well. It is amazing how vigorous the plants are without the stress of the environment and a heavy fruit load. Too often I think growers do not give environmental stress on their plants enough "credit" for some of the problems they see later in the season regarding fruit set and fruit quality.



Fig. 1 Stressed tomato plants, August.



Fig. 2 Same plants recovered, September.

One of the difficulties I have been having about some fruit ripening problems we see each year in tomatoes is why the problem seems to occur at about the same time of the season regardless of the maturity of the tomato plants (although plants with a heavy fruit load tended to have more problems than those



with lighter fruit loads). One thing I was looking at was potassium (K) levels in plant tissue, which were greatly reduced in plants that were having the fruit problems. But why was the K and sometimes phosphorous (P) levels dropping in these plants at about the same time? One possibility I found was that when root zone temperatures (RZT) reached 82o F or greater the plants slowed their uptake of many nutrients including K, P and at times calcium according to leaf tissue analysis. This phenomenon usually occurred earlier in the season and more severely in high tunnel tomato production systems. The problem is that sometimes as the levels of K decreased it was not always correlated with an increase in fruit problems. There appears to be other additional factors involved besides lack of some plant nutrients. Would cooling roots somehow help offset the heating of the root zone and could irrigation water from a well help this? From preliminary studies that I am still working on it appears the answer is no to both. Plots that were irrigated with well water vs. those irrigated from pond water seemed to have a slightly greater reduction in nutrient uptake, even though the RZT drop was greater temporarily.

Figure 3 reveals another study I worked on this year, which showed that I was able to reproduce "thrips" or "mite" feeding injury on tomato fruit with no (actually very low) thrips or mite populations being present. This was done by stressing plants that had a heavy fruit load. The more stressed the plants were (including RZT) the more the "thrips damage" showed up. Plants that were not stressed had little or no "thrips damage"; all plants had the same density of thrips and mites on them—very low. What then is causing this damage to tomato fruit? I still do not know. When I talk to hydroponic tomato growers they recognize this damage as nutrient imbalances and not as insect. This would make sense as the plants in the field become stressed the malady suddenly appears. I'll talk more about this in winter meetings.



Figure 3: Damage to tomato fruit usually attributed to thrips or mites, but with no thrips or mites present.

STINK BUGS BECOMING A HOMEOWNER NUISANCE AND AGRICULTURAL MENACE

Homeowners and gardeners should contact UMD Home and Garden Information Center; Farmers are referred to UMD Extension

Annapolis, MD (Sept. 15, 2010) – The brown marmorated stink bug (*Halyomorpha halys*), a native of Asia, is emerging as a major nuisance to homeowners and a devastating pest to orchardists and potentially to soybean growers in Maryland. Residents across Maryland are reporting large numbers of the insect in and around their homes and gardens and are seeking relief. The Maryland Department of Agriculture (MDA) recommends contacting the University of Maryland Extension Home and Garden Information Center (HGIC) to learn more about the stink bug and ways to exclude them from buildings before contacting a licensed pest control company. Farmers will want to work with their University of Maryland Extension agents and crop advisors to devise strategies to control the stink bug and limit impact on other beneficial insects. The stink bug does not bite or sting and can't harm humans or homes.

"These particular stink bugs are fairly new to Maryland and are making themselves known to residents and farmers in large numbers and in unpleasant ways," said Agriculture Secretary Buddy Hance. "While this is not a regulated pest for which MDA is able to run a control program, we do want to point people in the right direction for information and assistance. The University of Maryland Extension's Home and Garden Information Center is the best source of information for non-farming residents and backyard gardeners. While the University of Maryland Extension along with other research institutions are working to find solutions for farmers, there is currently no quick answer to control this new pest in agricultural settings. It is very trying for many farmers who have seen significant crop losses this year."

Native to Asia, the brown marmorated stink bug was first identified in Allentown, PA in 2001, though sightings may date back to 1996. Many sources of information maintain that it is just a nuisance pest and mostly to home owners, but not to commercial fruit or

vegetable growers. That has all changed this year in Maryland with significant damage to commercial growers. It is a significant pest of fruit trees such as apples and peaches, and legumes such as soybeans, with extreme damage being reported in Western and Central Maryland orchards for the first time this year. Many backyard gardeners have noticed the stink bug on tomatoes, peppers, and raspberries for example. A number of tree species and ornamental plants also serve as hosts.

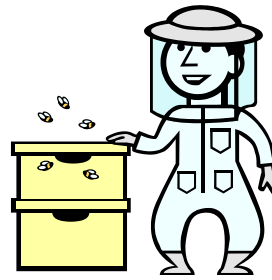
According to the UME HGIC, the brown marmorated stink bug adults emerge from overwintering sites during late May through the beginning of June. They mate and lay eggs from June through August and probably into September. The eggs hatch into small black and red nymphs that go through five molts throughout July and August. Adults begin to show in mid-August. Their flights for overwintering sites start in mid-September and continue through October. The insects will start heading indoors to over winter as the weather cools.

For homeowners, the HGIC recommends preventing the insect from coming in the home by sealing up cracks with caulk, use weather stripping around doors and windows, remove window air conditioners, close all possible entry points. Once the insect is indoors, residents can vacuum them up and place in an outdoor trash receptacle. It should be noted that if many of them are squashed or pulled into a vacuum cleaner, their odor can be quite strong.

There are no chemical recommendations currently available for home use to control brown marmorated stink bug populations. Because these pests are so difficult to control, there have been situations in which pesticides not intended for residential applications have been improperly used or applied at greater rates than the label allows. While controlling these insects is challenging, consumers should never use, or allow anyone else to use, a pesticide indoors that is intended for outdoor use, as indicated on the label. Using the wrong pesticide or using it incorrectly can cause illness in people and pets. It can also make homes unsafe to live in – and may not solve the pest problem. For heavy infestations outdoors, contact a pest control professional.

Additional information is available from the following sources:

University of Maryland Home and Garden Information Center (residents and backyard gardeners) –
www.hgic.umd.edu or toll free from Maryland 800-342-2507
University of Maryland College of Agriculture and Natural Resources, Extension www.extension.umd.edu
Maryland Department of Agriculture Pesticide Regulation Section www.mda.state.md.us/plants-pests/pesticide_regulation/
Rutgers University - <http://njaes.rutgers.edu/stinkbug/>
Penn State University - <http://ento.psu.edu/extension/factsheets/brown-marmorated-stink-bug>
Northeastern IPM Center - www.ncipmc.org/alerts/stinkbug_alert.pdf



BEE NEWS

Fall, 2010

Mike Embrey
Extension Apiculturalist

Synopsis of Year

It has been a very hot year! The bees are holding on but they need to be fed. Why? Because it was so hot many nectar sources this late spring and summer dried up. Now our bees are using what they have already collected and they pay a price to do that. Right now bee colonies are trying to make winter bees and with low food supplies, they may not make enough of these girls to take in whatever fall honey flow we have or have sufficient populations to make it through the winter. In some ways, August is the beginning of the New Year in beekeeping.

Everything that is done in your colonies from now on is to prepare your bees for the coming spring. Now that you have removed any honey supers and are starting to examine and treat for Varroa mites, it is time to start feeding your bees again. You can start with 1:1 syrup in August but later, around mid-September, boost that up to 2:1 syrup and feed like it has to last all winter!

Speaking about Varroa, I just checked 23 of my bee colonies for these little crabs and the population numbers have come back all over the place, some colonies were over threshold and others bouncing around with less than 10 mites per day. For you first year beekeepers, it would not be a big year for you with Varroa, but it is still worth looking and sampling for these critters. As for the rest of us... you know what you need to do.

I have done a lot of sampling this summer for Small Hive Beetle both at my colonies, other colonies in Dorchester and Wicomico counties, and in Beltsville, Maryland. The late summer is the time to trap adult SHB beetles that are seeking homes in the colonies for the winter. If your hive looks super and strong, do not be fooled. These are just the colonies that these guys are looking for. Get some kind of trap and start removing these beetles now before they can become a problem next spring.

Honey surplus is looking fair to low and there are a few reasons for that. First, we had a cold spring and most bees did not build up like they should. However, plants did not wait for the bees and started flowering early or on time so the colonies could not utilize the flowers as well as they should have with larger populations. Later, in June the rain stopped and the heat went up, up, up. This caused many plants to abort flowers or to produce less nectar in each flower, so bees worked harder to find less nectar. So if you

removed your honey in late June, you did ok. But if you waited until now, bees have been eating your surplus honey. Example: I went to my colonies in Beltsville in late June and estimated there was close to six hundred pounds of surplus honey on 12 colonies but in late July when I had harvested, it had dropped by 200 pounds!

This was a good year to get swarms. I got so many calls I was passing them off to others. Unfortunately, many of these swarms had taken up new homes inside of buildings. Let us face it, the public does not get along well with bees and most beekeepers are not carpenters. If you are interested in collecting swarms, make sure you sign up when you renew your registration with MDA in December.

Class announcement

I would like to announce my upcoming classes for the fall. In September we will be having our class on bee diseases. This will occur here at the Wye Research Center on September 11th at our usual time 9:00AM until Noon. I have asked Bart Smith to share his knowledge of American Foul brood and some other diseases and what the Beltsville Bee Laboratory can do for you. David Morris will be returning to speak on the Nosema diseases. Dean Burroughs will also be here to speak with you about Varroa Mites. I will be giving my updates on Small Hive Beetles and comments on some of the traps that can be used in control of these beetles.

On October 9th we will have our final meeting of the year (same place same time). This one will deal with winterizing your bees and preparing them for next spring. Every year we find that over wintering our bees becomes more difficult. I get asked about insulation, what and when to feed and so on. I think this class is needed. After this year I am going to move this meeting to August to better relate to the coming New Honey Bee Year. I have invited Dr. Barry Thompson and David Bernard to come and share their ideas and thoughts on managing your bees during this important time of the year.

Chalkbrood

Another bee disease that appears quite often in our colonies is Chalkbrood. This disease, like the diseases European Foul Brood (EFB) and Sacbrood (SB), usually occur in the early spring, but sometimes with the right weather conditions, can appear later in the summer. Unfortunately, there is no control method (medicine) for Chalkbrood. There are some management options that will lessen the impact of this problem. Chalkbrood is a fungus (*Ascoaphera apis*) and needs moisture. When bee larvae become infected with the spores of this fungus, they are rapidly consumed by the mycelia and swell to fill the cell. They look like small pieces of white chalk. Later, these mummies will turn dark or black. When this happens, they will release new spores to infect other larvae in your colonies. Adult bees spot these mummies and work

hard at removing them from the hive. What to look for: You don't have to do a frame by frame inspection to find out if you have this problem. You can find these mummies on the entrance landing area and on your bottom board inside the colony.

What to do if you find these mummies: Sometimes you do not have to do anything. If it is a hot or a dry spring, it is unusual for this ailment to appear since fungi need moisture. If we have a wet spring the first management technique you could try is getting your hives up off the ground. Keeping your colonies dry and well ventilated will reduce the impact of these problems. If you keep your bees in the shade; get them out in the sun! Again, we see fewer incidences of the disease when bees are kept in sunny locations.

New Class





I would like to announce that I will be starting a new **Beginners Bee Class** here in January, 2011 on the third Saturday of that month. If you want to attend again as a refresher, you are more than welcome. I may even use you in presenting information to the new students. If you know someone that would like to start beekeeping, tell them to get in touch. They may contact me or Debby Dant, 410-827-8056 X115, ddant@umd.edu, for information or to register.



The 2010 Pumpkin and Sweet Corn Twilight Meeting will be held on Tuesday, September 21st, at the Wye Research and Education Center in Queenstown from 4:30-7:00 PM.

This year there will be 20 pumpkin varieties, Bt sweet corn variety trials, and sampling of Aronia products. Our speakers will be University of Maryland experts Jerry Brust, Kate Everts, Galen Dively, Andrew Ristvey, Mike Newell, and Sudeep Mathew.

A light dinner will be available and although there is no cost for this program, please register by September 17 with Debby Dant at 410-827-8056 X115, or ddant@umd.edu.

	WMREC FRUIT & VEGETABLE TWILIGHT MEETING Thursday, September 23, 2010 4:30 p.m. - 7:00 p.m.
	Western Maryland Research & Education Center 18330 Keedysville Road, Keedysville, MD 21756
	This educational meeting is intended to provide producers the opportunity to get a firsthand look at several of the ongoing projects at the University of Maryland's research facility in Keedysville.
Highlights include:	
<ul style="list-style-type: none"> • Updates from University of Maryland Extension researchers and specialists — Jerry Brust, Bryan Butler, Galen Dively, Kate Everts, and Chris Walsh • Maryland pumpkin trials with 20 varieties • New NC 140 cg rootstock Trial planting with Cripp's Pink and Brookfield Gala on G.202 rootstock budded directly from tissue culture, G.202, G.935, and G.41 rootstocks all budded from stool bed plants • Apple seedling evaluations • Bt sweet corn varieties • Mobile high tunnel with strawberry, tomato and raspberry production 	
Sandwiches and refreshments will be provided. Registration is not required, but will help us to plan for handouts and refreshments. Please RSVP to 301-432-2767 x350 or cmason@umd.edu.	
To view data from last year's Pumpkin Variety Trials, visit http://carroll.umd.edu/Agriculture/PumpkinExperiment.cfm	
Questions? Contact Bryan Butler at bbutlers@umd.edu or 888-326-9645	
 UNIVERSITY OF MARYLAND College of Agriculture & Natural Resources University of Maryland Extension • Maryland Agricultural Experiment Station <small>Equal opportunity employer and equal access programs</small>	

Vegetable & Fruit Headline News

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2010 from March through September on the following dates: March 18; April 1 & 15; May 6 & 20; June 3 & 17; July 8 & 22; August 5 & 19; September 2 & 16.

**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 2010: March 17 & 31; April 14; May 5 & 19; June 2 & 16; July 7 & 21; August 4 & 18; September 1 & 15.

WMREC FRUIT & VEGETABLE TWILIGHT MEETING

September 23, 2010 at 4:30 p.m. - 7:00 p.m. at the Western Maryland Research and Education Center 18330 Keedysville Road, Keedysville, MD 21756 301-432-2767 X350

This educational meeting is intended to provide producers the opportunity to get a firsthand look at several of the ongoing projects at the University of Maryland's research facility in Keedysville.

Highlights include:

- **Updates from University of Maryland Extension researchers and specialists — Jerry Brust, Bryan Butler, Galen Dively, Kate Everts, and Chris Walsh**
- **Maryland pumpkin trials with 20 varieties**
- **New NC 140 cg rootstock Trial planting with Cripp's Pink and Brookfield Gala on G.202 rootstock budded directly from tissue culture, G.202, G.935, and G.41 rootstocks all budded from stool bed plants**
- **Apple seedling evaluations**
- **Bt sweet corn varieties**
- **Mobile high tunnel with strawberry, tomato, and raspberry production**

Sandwiches and refreshments will be provided. Registration is not required, but will help us to plan for handouts and refreshments.

Please RSVP to 301-432-2767 x350 or cmason@umd.edu. To view data from last year's Pumpkin Variety Trials, visit: <http://carroll.umd.edu/Agriculture/PumpkinExperiment.cfm>