

The University of Maryland Extension Agriculture and Food Systems and Environment and Natural Resources Focus Teams proudly present this publication for commercial vegetable and fruit industries.

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July 9, 2015

Vegetable Crop Insect Update

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Melons

Continue to scout all melons for aphids, cucumber beetles, and spider mites.

Be sure to read all labels carefully for pollinator protection statements, rates and restrictions. Some materials are restricted to only one application as well as ground application only.



Lima Beans

Be sure to scout fields for leafhoppers, spider mites as well as plant bugs and stink bugs. As soon as pin pods are present, be sure to watch carefully for plant bug and stinkbug adults and nymphs. As a general guideline, treatment should be considered if you find 15 adults and/or nymphs per 50 sweeps. The higher rates of labeled products will be needed if stinkbugs are the predominant insect present.

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 (302-831-8851) or visit our website at

<http://agdev.anr.udel.edu/trap/trap.php>. At this time, you will also need to consider a treatment for pepper maggot.

Potatoes

Continue to scout fields for Colorado potato beetle, leafhoppers, and aphids. We are seeing an increase in leafhopper populations and low levels of aphids can be 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. On processing snap beans, sprays will be needed for corn borer at the bud and pin stages. Depending on trap catches of corn borer and corn earworm, additional sprays may also be needed after the pin spray on processing beans. Since trap catches can change quickly, be sure to check our website for the most recent trap catches and information on how to use this information to make a treatment decision in processing snap beans after bloom. After the pin spray on processing beans, the spray schedule will be determined by a combination of both moth catches and field scouting.

Sweet Corn

The first silk sprays will be needed for ear feeders as soon as ear shanks are visible. In addition to corn borer and corn earworm, you will also need to start scouting whorl stage corn for fall armyworm larvae. A treatment should be considered for whorl feeders 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.

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IPM Threshold Guide

Vegetable Crops

ECONOMIC THRESHOLD –

Level of pest activity when control action is suggested to prevent economic injury

Available at:

<https://extension.umd.edu/sites/default/files/docs/IPMGuideVegetables2009.pdf>

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ALERT! Downy Mildew on Watermelon

By Kate Everts
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July 2, 2015

The UD Plant Diagnostic Clinic confirmed downy mildew on watermelon July 1. This is very early for us to see downy mildew in Maryland or Delaware. Downy mildew can advance rapidly on watermelon and cause extensive yield losses. Fields should be protected with fungicide programs that include products that have specific efficacy on downy mildew. Products that work well on downy mildew include Zampro, Ranman and Gavel. Other materials that will contribute to diseases control can be used in rotation as tank mix partners with a protectant: Ariston (Contains chlorothalonil and the active ingredient in Curzate), Forum, Tanos, Curzate, or Presidio.

Organic growers have fewer choices, but can use copper and Serenade or Sonata to slow down the epidemic. Preventative applications are more effective than applications made after downy mildew is detected.

Symptoms of downy mildew on watermelon.



N Gregory

Potato Disease Advisory: Late Blight

July 8, 2015

Late blight on tomato was confirmed yesterday in Maryland on tomatoes grown at Beltsville. Tomato and potato crops in Prince Georges and surrounding counties should be treated with targeted sprays for late blight. All tomato and potato crops should be scouted aggressively for signs and symptoms of late blight.

Late blight forecasts are being generated for eight locations across Maryland based on the Blightcast model in the Cornell Decision Support System (DSS). Forecasts are initiated based on the estimated day of greenrow (50% emergence date). The 50% emergence dates we are using are May 4 for Mechanicsville; May 11 for Hurlock, Owings, Clinton, and Severn; May 14 for Dickerson and Freeland; and May 18 for Oakland. Below is a chart showing the number of DSV accumulated at the eight locations. For updates on where late blight is occurring in the USA, go to www.usablight.org. If you suspect late blight, send samples to the UM Plant Diagnostic Clinic or to your local Extension office.

Conventional recommendations: See EB236 for specific details <http://extension.umd.edu/news/2015-commercial-vegetable-production-recommendations-maryland-0>.

Organic recommendations: In the few replicated evaluations of organic approved materials for late blight management that have been conducted, copper applied on a regular preventive schedule is the most effective. A program of copper plus Regalia alternated with copper plus Actinovate may reduce disease increase. Initiate a program when 18 DSV accumulate and apply subsequent sprays when 7 additional DSV accumulate. Information on late blight for organic growers is available at: http://www.longislandhort.cornell.edu/vegpath/photos/lateblight_tomato.htm

Growers opting not to use the forecast system should apply the first late blight fungicide when the plants are 6 inches tall, and repeat every 7 days. For fungicides recommended for late blight control see the **2015 Commercial Vegetable Production Recommendations** at <http://extension.umd.edu/news/2015-commercial-vegetable-production-recommendations-maryland-0>

Date	Hurlock		Mechanicsville		Owings		Clinton		Severn		Dickerson		Freeland		Oakland	
	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV	Daily DSV	Total DSV
6/28 to 6/30	0	48	0	84	1	60	1	60	1	60	1	57	0	64	4	60
6/30 to 7/5	5	53	10	94	15	75	15	75	15	75	15	72	12	76	8	68
7/5 to 7/7	1	54	4	98	5	80	5	80	5	80	5	77	5	81	3	71

Vegetable Disease Update

By Kate Everts

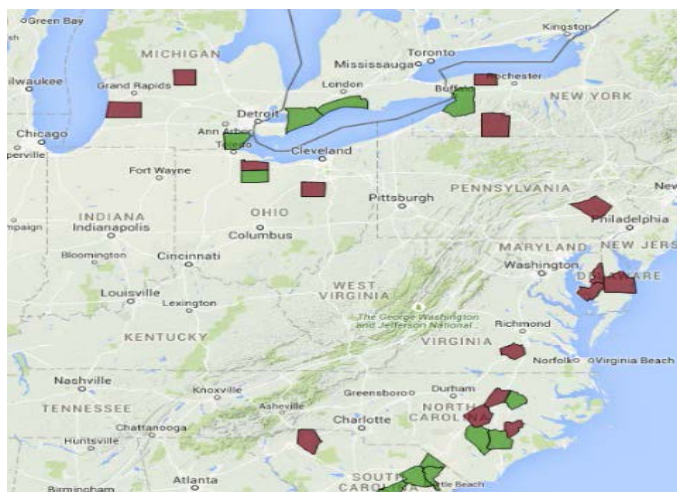
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July 8, 2015

Downy mildew on cucumber was confirmed July 7 on the border of Caroline and Dorchester county MD and Sussex county DE. It also was found on cucumber in Burks County, PA this week. Downy mildew does not overwinter here in the mid-Atlantic and must be reintroduced each year. The map here is from <http://cdm.ipmpipe.org/> site, which tracks movement of the pathogen throughout the US. The counties shaded red indicate new reports in the last 7 days. Downy mildew is spreading rapidly to new areas. Even though it has only been reported in two Maryland counties, I believe it is likely present, but not yet detected in additional counties. Preventative applications are more effective than applications made after disease is detected. Effective products such as Ranman and Previcur Flex should be tank mixed with a protectant and alternated with other efficacious materials such as Zampro, Tanos, Forum or Curzate. Organic cucumber can be protected with copper and Serenade or other biorationals.



Downy Mildew on Cucumber

Late blight on tomato was confirmed yesterday in Maryland on tomatoes grown at Beltsville. Tomato and potato crops in Prince Georges and surrounding counties should be treated with targeted sprays for late blight. All tomato and potato crops should be scouted aggressively for signs and symptoms of late blight.

Specific recommendations for conventional tomato and potato crops can be found at the University of Maryland Commercial Recommendation Guide EB 236.

Fungicides such as Curzate, Forum, Presidio, Previcur Flex, Ranman, Reason, Revus Top or Tanos should be tank mixed with a protectant fungicide. Fungicides with different modes of action should be alternated.

Organic tomato and potato crops should also receive sprays for protection. In the few replicated evaluations of organic approved preventive schedule is the most effective. A program of copper plus Regalia alternated with copper plus Actinovate may reduce disease spread. Information on late blight for organic growers is available at: http://www.longislandhort.cornell.edu/vegpath/photos/lateblight_tomato.htm



Upper and lower surface of leaf infected with late blight. Note white sporulation on the lower leaf surface.

Basil downy mildew has been confirmed in Howard county Maryland in a home garden. Excellent information is available from Dr. Meg McGrath at Cornell. Her website <http://vegetablemdonline.ppath.cornell.edu/NewsArticles/BasilDowny.html> includes information on both conventional and organic management options.

Notes from the field:

Bacteria spot in **tomato** is a perennial problem on the crop. A new tool has just been registered for conventional tomato production. Quintec, which was previously registered for bacterial spot on pepper, is now available for tomato bacterial spot. More information is available at: <http://www.growingproduce.com/vegetables/quintec-fungicide-receives-label-for-bacterial-spot-suppression-in-tomatoes/>

I continue to see lots of gummy stem blight on **watermelon**. Regular fungicide applications should slow the spread of lesions from the leaves onto the petioles or stems, where yield damage will occur. Our weather has been highly conducive to gummy stem blight. Continue regular fungicide sprays.

Downy mildew on **watermelon** is also present in Maryland. Effective products for this disease should be added to management programs.



Downy mildew on watermelon.

Several **yellow squash** fields throughout the state have powdery mildew, now! For conventional squash, continue applying a protectant fungicide and mix with a targeted products such as Torino, Procure, tebuconazole, Proline, Inspire super, Fontelis, Pristine, or Rally. Rotate materials with different modes of action. Organic producers can use copper and sulfur as well as biorational material such as Regalia, Cease, Sonata, Serenade, Oxidate, and others.

Phytophthora Fruit Rot

By Kate Everts

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July 2, 2015

June was very favorable for the development of Phytophthora fruit rot in several Delmarva watermelon fields. Conditions that favor Phytophthora fruit rot are rainfall amounts that lead to saturated fields for several hours. For example, we have had many heavy rains that produced up to 2 inches or more of rain and resulted in pooling in fields. When soil is saturated for 5 to 6 hours, the disease progress is greatly increased. Optimum temperature for the disease is 82°F, and it will spread well even at higher temperatures.

The best way to manage Phytophthora fruit rot is to implement good cultural disease management practices such as removing infected debris and diseased fruit from fields, using raised beds, and improving soil drainage through tillage. Also avoid susceptible host plants in the field rotation (snap and lima bean, cucurbits, eggplants and tomatoes).



Phytophthora fruit rot on watermelon.



"Felt-like" sporulation of Phytophthora on cantaloupe fruit.

Several trials have been conducted in the last 10 years by Dr. S. Kousik in South Carolina to evaluate efficacy of fungicides on managing Phytophthora fruit rot in watermelon. In these trials, Revus, Presidio and Zampro were the products that were most often included in the best treatment programs. In addition, Prophyt also improved management. One example of a good program for Phytophthora fruit rot is Actigard plus Prophye plus Kocide applied and alternated with an application that includes Zampro, Revus or Presidio. While it is expensive, Zampro applied four days before harvest performed well on post-harvest efficacy, which should relate to reduced disease spread during shipment. Revus and Presidio also performed well when applied four days before harvest in reducing post-harvest rot.

Watermelon fruit are susceptible to Phytophthora fruit rot at all growth stages. Therefore sprays targeted for Phytophthora fruit rot should begin when fruit are approximately grapefruit size.

Another question to consider before deciding whether to aggressively manage a Phytophthora fruit rot epidemic is how effective the best management program will be. In the same trials mentioned above, the best treatments, sprayed weekly for four or five weeks, reduced fruit rot between 60 to 75% over the nontreated plots. Therefore even in treated fields many fruit won't be harvestable.

Helping Fruit Set in Tomatoes

By Jerry Brust
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The high temperatures we have had this week and probably next week with daytime highs at 90oF and above and nighttime lows only getting down to 70oF in much of the mid-Atlantic may cause blossom drop and fruit abortion in tomatoes. Ordinarily in tomato fields pollination is achieved just by the action of the wind. Pollen is released from the tomato flower and falls onto the stigma. Without pollination flowers die and drop. In tomatoes the pedicle turns yellow before the flower falls from the plant (fig 1). Tomato flowers must be pollinated within approximately 2 days of becoming viable or they will abort. Tomato plants can tolerate extreme temperatures for short periods, but several days or nights with temperatures above 86oF (daytime) or 70oF (nighttime) will cause the plant to abort flowers (fig 2). At these temperatures the pollen can become sticky and/or nonviable, preventing pollination from occurring. The relative humidity also plays a role in pollination with high levels (>80% RH) during pollen shed causing the pollen not to be released properly resulting in poor or incomplete pollination.

There are some possible remedies to these high temperatures that could increase pollination and fruit set. One of the things I have been working on the last several years is using shade cloth that is draped over the tomato stakes when plants begin to set fruit. Timing of the shade cloth is important as you cannot put it over the plants during vegetative growth as this will decrease growth. However you also cannot wait too long after fruit set begins or you will lose the advantages of the shade on fruit quality. In my studies with shade cloth and tomatoes, yields were increased in the shaded areas by an average of 30%, quality and size of tomatoes increased significantly when the same varieties were shaded vs. when they were not (fig 3). Two years ago when it was not very hot and we had good rainfall throughout the summer yields still increased in the shaded areas vs non shaded areas by about 15%. I do not think growers should go out and cover all of their tomato fields with shade cloth, but it could be used for certain tomato varieties that are grown because customers really like them, but the tomatoes just do not produce well in the summer heat. This shade method does not work inside high tunnels as the entire structure needs to be covered to reduce heat, not just the rows inside. There are other trials being conducted to help tomatoes and other vegetables come through the heat, but those results will have to wait.

Fig. 1 Several flower pedicels turning yellow (arrows).



Fig. 2 Aborted flowers and fruit (arrows) on tomato plant caused by high temperatures.



Fig. 3 Tomatoes in the bin on the left were harvested from shaded areas with white plastic mulch while tomatoes in the bin on the right were harvested from non-shaded areas with black plastic mulch.



Tomato Ripening

By Jerry Brust
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Every year about this time I write something about tomato ripening problems I start to see in the field such as blotchy ripening, yellow shoulders, grey wall, internal whitening, etc. (figs 1, 2 and 3). By now everyone or most everyone should know that they all have the same root cause; a lower level of potassium (K+) than what is needed by the fruit to ripen properly. One of the more common problems I have seen is internal whitening, this occurs when the outside of the tomato appears nice and red, but when cut open there are large areas of white blotches of hard corky tissue which are not confined to the outer wall of the fruit but are found throughout the interior walls of the fruit (fig 2). We usually find that the soil potassium levels are adequate or even at high levels for K+, but the tissue samples are low to very low in K+ (2.5-1.5%). These maladies usually start to show up in the field in mid to late July when plants are putting on a heavy fruit load and the temperature and humidity are high. The cause is the same, K+ levels too low in the plant. This is often caused by roots that are concentrated in the top 6-8 inches of soil under black plastic, which can raise soil temperatures to the point where the uptake of K+ and other nutrients are reduced enough to cause ripening problems. Some things I have discussed in the past that help reduce these ripening problems include feeding more K+ through the drip, using foliar sprays to add a little more K+, using white plastic mulch instead of black for mid-season tomatoes and using a 30% shade cover over the tomatoes.

Fig.1 Various forms of ripening problems for tomatoes in the mid-Atlantic.



Fig 2. Internal whitening of tomato fruit.



Fig 3 Yellow shoulders in tomato.



Blossom End Rot in Tomato

By Jerry Brust
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This is just a reminder with the peculiar weather we have had lately with stretches of very high temperatures then cooler days and throw in the very heavy down pours we have had over the last few weeks, blossom end rot can become a real problem in tomatoes. The sunny days with low humidity will suck water through a plant quickly and the downpours will disrupt calcium movement through the plant. The key is to try and maintain consistent soil moisture while the fruit is developing. Easier said than done I know, but soil moisture levels need to be monitored as best as they can. When you see something like figure 1, with all the tomatoes on a cluster with blossom end rot you know the soil moisture fluctuated greatly over a period of time. Applying some foliar calcium sprays will help, but the applications can't overcome poor soil moisture management.

Fig. 1 All the tomatoes on this one cluster have blossom end rot—indicating poor soil moisture management.



Black Flies, or “Gnats” in Nuisance Swarms in Western Maryland

By Rebecca Wilson and Dr. Bill Lamp, Department of Entomology, University of Maryland

Many residents of western Maryland are bothered by persistent swarms of small flies while working outdoors during the summer. These flies are commonly called “gnats,” and form characteristic swarms around the head and face of both humans and livestock. Following inquiries by Washington County residents in 2013, we determined that these gnats of western Maryland were a species of black fly, known as *Simulium jenningsi*. Research is ongoing to determine where in Maryland this species is a nuisance concern, and where its aquatic breeding sites are located.



Female *Simulium jenningsi*. Photo by Jake Bodart.

Biology and Characteristics of *Simulium jenningsi*

Adult *S. jenningsi* are small flies, about 3mm long and dark brown in color. *S. jenningsi* larvae are aquatic and develop in fast-flowing regions of larger streams and rivers. In Maryland, the largest source of *S. jenningsi* appears to be the Potomac River. Although many residents of Western Maryland may feel confident their backyard streams are to blame for their flies, the larvae of this species do not live in any stream less than 20 feet wide. They are truly a large river species. Female adult *S. jenningsi* need blood meals to develop their eggs, and can fly nearly 35 miles away from their breeding source to find a meal. In this way, locations that are not directly next to the Potomac or its larger tributaries may still have a nuisance problem. Host-seeking *S. jenningsi* females are attracted to the carbon dioxide exhaled by humans and livestock. Unlike the more voracious species of black flies of New England, the primary annoyance of *S. jenningsi* comes from their swarming behavior rather than their bites. They are not vectors of any human diseases, but can transmit the parasitic nematode *Onchocerca lienalis* to cattle. *S. jenningsi* has several generations per year in Maryland and adults have been found in Washington County from April until November.

Distribution of *Simulium jenningsi* in Maryland

S. jenningsi has been found to some extent in Washington, Frederick, Montgomery, and Prince George’s counties. However, this is unlikely to be the full extent of the species range in Maryland.

Nuisance complaints from residents have primarily originated from Washington and Frederick counties, with complaints from Montgomery County reaching us in 2015. *S. jenningsi* populations in urbanized areas are often too small to create a nuisance concern. Rural communities experience the worst nuisance problems, as the flies appear to prefer vegetated habitats. Historically, *S. jenningsi* swarms were a problem throughout a large portion of central Maryland and D.C. as recently as the 1950’s. *S. jenningsi* needs relatively unpolluted water to breed in, and as river conditions improve in Maryland the species may regain its former distribution.



A breeding site of *S. jenningsi* in the Potomac River. Photo by Claire Weber.

Black Fly Suppression

Black flies are most effectively managed with pesticide during their less-mobile larval stage. The pesticide of choice is *Bacillus thuringiensis israelensis* (Bti), a bacterial based pesticide that targets aquatic fly larvae. In Pennsylvania and West Virginia, Bti is applied to large rivers to target *S. jenningsi*. Because the application of Bti to large bodies of water requires aerial or boat-based spraying over long distances to be effective, residents of these states rely on government programs to manage the fly populations. As of 2015, Maryland does not have any form of organized management against *S. jenningsi*.

Current Research

Our ongoing research involves determining not only where *S. jenningsi* is a nuisance pest, but why it is a pest in some regions but not others. Long term sampling in Washington and Frederick counties will be used to determine the effects of weather and land use patterns on fly populations. Over the course of the next few years

our goal is to develop predictive models for the occurrence of both larval and adult *S. jenningsi* in Maryland. Residents of western and Maryland have greatly helped this project through reports of nuisance activity and through the sampling of flies in their backyards. Visit our website at www.mdblackfly.com to learn more about our research or to contact us with questions or reports of *S. jenningsi* nuisance activity. A one-page fact sheet on the black fly is available to download at our website. We appreciate any comments or observations from residents concerned with nuisance gnats!



Sampling for *Simulium jenningsi* using an aerial net and human bait. Photo by Bill Lamp



Growing High Density Broccoli

By Gordon Johnson

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Broccoli production in the East has gained more interest in recent years. There has been a multistate research and breeding effort underway to develop and evaluate broccoli varieties for adaptation to high density production systems for the Eastern US in an effort to compete with West Coast broccoli.

Broccoli has been grown commercially in our region for many years for large single head harvest that goes to regional and local sales. High density broccoli production is different in that it is geared for medium sized uniform short stem crowns 4.5-5.5" in diameter for the wholesale shipping market. Bunching broccoli is another option and is planted at even higher densities

On Delmarva, the summer planted, fall harvested crop is more reliably grown than a spring planted crop in that temperatures are cooler during head formation reducing the potential for premature flowering that can be problematic in spring planted crops.

Broccoli varieties selected should have tight (dense) domed heads, small bead, and uniform maturity. Color depends on the market, as there are green types and blue-green types. For September-harvested broccoli crowns the varieties should also have some heat tolerance. Avoid varieties that produce hollow stems and that are susceptible to brown bead.

For wholesale production it is most economical to have minimal trips across the field to harvest the crop for any one planting. This is managed by choosing uniform maturing varieties and optimizing populations.

To have a steady supply of broccoli over the fall period, it will be necessary to plant varieties of different maturities, plant at different dates, or do a combination of both.

Direct seeding is possible but can lead to more variable stands. When direct seeding, overseeding and then hand thinning will achieve the most uniform stands. When direct seeding make successive plantings June 20 to July 20.

Most broccoli will be transplanted. Start transplants 4-5 weeks ahead of transplanting. Seed in 72 to 128 cell plug trays or sow in transplant production field beds at 10 seeds per foot of row in rows 12 to 18 inches apart to be lifted as bare root plants.

For high density plantings, for crowns or bunching, highest yields are obtained with narrow rows, 18 to 20 inches apart, plants 6 to 10 inches in the row, for a final population of 27,000 to 34,000 plants per acre. Seed June 20 to July 10 for transplants ready to plant in the field July 20 to August 15. Variety selection is important for the different planting periods. As you get into later plantings in August, switch to shorter maturing varieties. Broccoli has a high nitrogen requirement: 200 lbs N/A recommended split into three applications – prior to transplanting and 2 additional applications as a sidedressing at 2-3 week intervals. This is critical for high density production. Phosphorus and potassium should be applied according to soil tests. Broccoli also needs additional sulfur and requires 1.5-3 lbs. of boron/A.

Steady, even, irrigation is critical for broccoli production. Soils should not be allowed to dry out more than 30% of the water holding capacity. This is particularly important during warmer periods during the growing season.

High density broccoli can also be grown on raised beds with white plastic mulch and drip irrigation.

A number of herbicides are labelled for broccoli production including Trifluralin, Bensulide, Oxyfluorfen, DCPA, and Napropamide.

Common insect pests include Imported Cabbageworm, Cabbage Looper, Diamondback Moth, and other caterpillars as well as Harlequin Bugs. Common diseases include Alternaria, Downy Mildew, and Bacterial Head Rot. Common disorders include hollow stem and brown bead.

Broccoli should be harvested when heads have reached the desired diameter (4.5-5.5" for crown harvest) and flower buds (beads) are still tight. Bunched broccoli heads are tied together in groups of 3-4 with a rubber band. Store broccoli and 32°F and relative humidity of 95 to 100 %. Broccoli should be hydrocooled or packed in ice immediately after harvest and kept at 32°F to maintain salable condition.

While average yields for broccoli in our region have been 400-500 boxes (20-23 lbs) per acre, high density broccoli has the potential for yields of greater than 600 boxes per acre.



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The MSBA's Ag Law Section and the Ag Law Education Initiative recently completed an update of the Legal Services Directory to reflect the section's growing membership. A digital copy is available at <http://ter.ps/LegDirect>. Hard copies also available – Email: umaglaw@umd.edu to ask for a hard copy.



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TPM/IPM Weekly Report

Peach Tree Borer

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www.Extension.umd.edu/ipm - IPM Alerts

I picked up the first adult male peach tree borer, *Synanthedon exitiosa*, on July 28. I found more in my traps over the July 4th weekend. The adult male activity means females are also out and mating is occurring. It usually takes about two weeks before they start depositing eggs on susceptible trees. The larval stage bores into the crown and trunk of the tree and mines the cambial layer. Gum exuding from around the [base of the trunk](#) is evidence of peachtree borer.

[Larvae](#) of the peachtree borer, are white with brown heads. [Adults](#) are clear-winged moths with blue-black bodies having yellow or orange bands across the abdomen. They infested plums, peaches, and cherry laurel tree. Protectant spray of bifenthrin (Onyx) or permethrin can be use on ornamental trees. There are commercial brands of pesticides containing bifenthrin labeled for fruit tree applications.

Article of Interest

Pursuing a Unifying Message: A University Perspective

Foundation Report Summarizes Discussion Among University Leaders on Common Ground for Developing a Unifying Message

The [Charles Valentine Riley Memorial Foundation \(RMF\)](#) released a new report Tuesday, June 16, 2015, on a university perspective for making the case that agricultural research should be a higher national priority.

The report, "Pursuing a Unifying Message: Elevating Food, Agricultural and Natural Resources Research as a National Priority. A University Perspective," is [available on the RMF website](#).

The report summarizes an April 2015 discussion among 23 leaders of universities, university associations and others on the need for reversing an alarming lack of federal investment in food, agricultural and natural resources research.





EPA Pesticide Program Updates

From EPA's Office of Pesticide Programs

www.epa.gov/pesticides

June 30, 2015

July 2015

Cover Crop Sign-up Ends July 15

The Maryland Department of Agriculture (MDA) reminds farmers that sign-up for its 2015-2016 Cover Crop Program runs through Wednesday, July 15, 2015 at soil conservation district offices statewide.

Approximately \$22 million in conservation grants is available through the program to help farmers offset the cost of planting cover crops on their fields this fall to conserve nutrients, reduce soil erosion and protect water quality in the Chesapeake Bay and its tributaries. For more information, visit www.mda.maryland.gov and type "cover crops" on the search tab.

Nutrient Management Plan Writing Workshops Offered September 22 and 29, 2015

The Maryland Department of Agriculture and University of Maryland Extension will offer two, one-day workshops titled, How to Write a Nutrient Management Plan on Tuesday, September 22, 2015 at the Montgomery County Extension Office in Derwood and Tuesday, September 29, 2015 at the Wye Research and Education Center in Queenstown. The course is aimed at newly certified consultants and provides six Maryland Nutrient Management continuing education credits. To register, call 410-841-5959 or visit www.mda.maryland.gov. Scroll down the Quick Links to Nutrient Management and click on Nutrient Management Training Classes for a registration form.

Homeowners Urged to Use Lawn Best Management Practices In Summer

The Maryland Department of Agriculture advises homeowners to mow the grass high to shade out weeds and conserve moisture during periods of hot, dry weather. Raise the mower's cutting height by ½ inch to 1 inch and remember to leave grass clippings on the lawn as a source of free fertilizer. For more tips and information on Maryland's Lawn Fertilizer Law, visit www.mda.maryland.gov/fertilizer or www.extension.umd.edu/hgic

EPA Releases Screening Results of Endocrine Disruptor Screening for 52 Pesticide Chemicals

The U.S. Environmental Protection Agency has released its reviews of the Tier 1 screening assay results for the first 52 pesticide chemicals (active and inert ingredients) in the Endocrine Disruptor Screening Program. This is an important step in a multi-step process to protect public health and the environment by ensuring that exposure to chemicals does not result in adverse effects that can occur from the disruption of hormones. The Tier 1 screening data are the best way to determine whether a chemical has the potential to interact with the endocrine system and requires more thorough testing.

EPA currently uses a two-tiered screening program that examines chemicals to determine whether they have the potential to affect endocrine systems. The first step is Tier 1 screening, which uses a battery of 11 assays to determine whether chemicals have the potential to interact with the estrogen, androgen or thyroid hormonal pathways. For each chemical, EPA decides whether additional (Tier 2) testing is necessary. These decisions are based on weighing whether the evidence from the assay results and other scientifically relevant data, shows more potential for endocrine bioactivity than the evidence that it does not.

Tier 2 testing includes multigenerational, longer-term testing across various species (e.g., frog, fish, bird and rat) and is designed to confirm interaction with the endocrine system, identify any adverse endocrine-related effects caused by the substance and establish a quantitative relationship between the dose and that endocrine effect.

The first 52 chemicals to be screened were not selected because of their potential to interact with endocrine systems but rather for their potential for human exposure. It is important not to equate a chemical's bioactivity with the conclusion that the chemical harms the endocrine system in humans and wildlife. Bioactivity is an indicator that a chemical has the potential to alter endocrine function, but without further testing, one cannot determine (1) whether the chemical actually alters endocrine function and (2) whether that altered function produces an adverse outcome in humans and animals.

The Tier 1 screening assays include five in vitro (cell systems) and six in vivo (live animal) systems for determining the potential of a chemical to interact with the estrogen, androgen or thyroid hormonal pathways. In determining whether a chemical interacts with those pathways, we evaluated the number and type of effects induced and the magnitude and pattern of responses observed. We also considered the conditions under which effects occur, in particular, whether or not the dose(s) at which endocrine-related responses occurred happened concurrently with general systemic toxicity.

EPA is moving toward new technologies that would substantially speed up screening of chemicals for their potential to disrupt hormones in humans and wildlife and reduce animal use in screening. Thus far, these technologies provide alternatives to the three estrogen-related screening tests but not the androgen and thyroid tests. New tests for those hormonal systems are under development. Science is evolving, and EPA will continue to incorporate new methods involving high-throughput assays and computational toxicology.

More information, including the screening assessment results, can be accessed at:

<http://www2.epa.gov/ingredients-used-pesticide-products/endocrine-disruptor-screening-program-tier-1-assessments>

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CDMS:
Pesticide Labels and MSDS On-Line at:
<http://www.cdms.net/>

June 15, 2015

University of Maryland Extension Focuses on Eastern Shore Agricultural Industry

Farmers along Maryland's Eastern Shore are passionate about promoting the importance of agriculture to legislators and the general public, have concerns about the loss of farmland in their regions due to urban encroachment and want to be more involved in developing regulations that affect farming communities. These are just some of the findings from a recent survey completed by University of Maryland Extension (UME) assessing the needs of farmers in the state's nine

Eastern Shore counties.

Roughly 300 Maryland farmers living and working the land along the Eastern Shore completed the survey on paper or through an online link. The results will be used to help UME better understand issues facing Eastern Shore agriculture, identify agricultural and educational needs and focus UME trainings and resources.

"We felt it was important to take a comprehensive look at farming all along the Eastern Shore of the state to paint a better overall picture of what farmers in the region are going through and how we can serve them best," said Shannon Dill, Principal Agent for agriculture and natural resources in UME's Talbot County office.

"Typically we conduct surveys on a county-by-county basis but in this instance, all nine county agricultural Extension educators located along Maryland's Eastern Shore were involved in making sure this assessment was as thorough as possible."

The survey included four sections: industry priorities, concerns and viability; research and education needs; education and training preferences; and demographic and farm information.

Topics ranking high in importance with responding farmers included increasing legislators' and the general public's understanding of agriculture production and its effect on the economy, farmer involvement in the legislative process and regulation development, maintenance and protection of adequate agricultural land, and environmental stewardship. In terms of research and education input, farmers showed avid interest in environmental law, nutrient management technologies, soil science and increasing soil health, integrated pest management practices and conservation practices.

Information gained from the survey also provides demographic details about farming on Maryland's Eastern Shore:

- One-third of respondents report tilling 101-500 acres, followed by 17% at 0-10 acres and 13% at 501-1,000 acres.
- 61% of respondents farm full-time with 73% farming more than 20 years.
- The majority of responders report farms growing field crops (77%) followed by livestock (26%), fruit and/or vegetables (24%) and poultry (22%).
- Those responding to the survey were male (79%), non-Hispanic (100%) and white (98%).
- More than 87% of farmers were over the age of 45 with the majority being in the range of 55-64 (33%), 65-75 (22%) and 45-54 (21%). *The results for gender, ethnicity, race and age are consistent with data from the 2012 Agriculture Census.

Moving forward, UME will continue to analyze the data and prepare a plan to respond to the requests and meet the needs of farmers and landowners in the nine counties along Maryland's Eastern Shore. Organizers of the survey would like to extend a gracious "Thank You" to those farmers who took the time to complete the survey and provide comments.



Save the Date: 2015 Aronia Twilight Tour August 20th

The 2015 Aronia Twilight Tour has been scheduled for Thursday, August 20th at 5 PM at the Wye Research and Education Center in Queenstown, MD. This twilight tour will be focused on useful information for both new farmers interested in growing Aronia and for veteran Aronia growers.

We will include Paul Goeringer, our Extension Legal Specialist from Agriculture and Resource Economics, who will discuss his "right to farm" extension programs as a legal resource for farmers. Additionally, Dr. Rohan Tikekar, Assistant Professor at the Department of

Nutrition and Food Science, will present information about safe fruit processing practices, including handling, washing, and storing Aronia for sale. He will also present updates to Good Agricultural Practices and the Federal Food Security Modernization Act and how that will affect all fruit growers. Drs. Victoria Volkis and Andrew Ristvey will give research updates on cultural management and Aronia fruit phytochemical content.

Whether you are organic or conventional, a veteran Aronia grower or just interested in possibly growing Aronia, this is a program you do not want to miss! For more information, please contact Andrew Ristvey at (410) 827-8056 x113.

Commercial 2015 Vegetable Production Recommendations Maryland EB 236



On-Line at

http://extension.umd.edu/sites/default/files/docs/programs/mdvegetables/2015_CommercialIVegRecommend_MarylandBook.pdf

Vegetable & Fruit News

A timely publication for the commercial vegetable and fruit industry available electronically in 2015 from April through October on the following dates: April 16; May 14; June 11; July 9; August 13; September 10; and October 22.

Published by the University of Maryland Extension Focus Teams 1) Agriculture and Food Systems; and 2) Environment and Natural Resources.

Submit Articles to:

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Article submission deadlines for 2015 at 4:30 p.m.

on: April 15; May 13; June 10; July 8; August 12; September 9; and October 21.

The University of Maryland Extension programs are open to any person and will not discriminate against anyone because of race, age, sex, color, sexual orientation, physical or mental disability, religion, ancestry, national origin, marital status, genetic information, political affiliation, and gender identity or expression.

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