Strawberry Notes from WyeREC
By Michael Newell
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Strawberry plasticulture:
If you have not ordered your plants for the 2018 Fall planting, you better get moving! Many vendors only produce plugs based on orders.

Depending on the recommended planting date for your area, if you have a cover crop planted, consider how much time you’ll need to terminate the cover crop and allow for the residue to decompose enough for proper bed preparation. If you fumigate don’t forget about the plant-back time.

Strawberry matted-row system
If you planted new this Spring or renovated an existing field after harvest, your rows should be filling in nicely with runners. Remember to not let your rows get too wide. Strawberry plants like to produce there premium fruit on the edge of the row. This would translate into more rows per acre = higher yields per acre.

Although not an issue this week, but be sure not to limit irrigations as we head into August and September. Flower bud initiation will begin soon and early flower bud development will soon follow. Big healthy buds in the Fall mean big flowers and fruit next Spring. Good Luck!

Cucurbits at Risk for Downy and Powdery Mildew
By Kate Everts
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Powdery Mildew on Cucurbits
Powdery mildew on cucurbits is now beginning to progress. The powdery mildew pathogen is windborne and, unlike many other pathogens, can even efficiently infect during dry periods. Effectively managing powdery mildew requires fungicides. However, because the pathogen is prone to resistance, fungicide resistance within the pathogen population (Podosphaera xanthii) must be considered. Bioassays to evaluate the presence of resistance throughout the region have been conducted in the past year. Quintec (FRAC 13), Luna products (FRAC 7), and Vivando (FRAC U8) were all highly effective throughout the Mid-Atlantic and Northeast. Torino (FRAC U6) was effective in some locations but moderately effective in others including in my Maryland trials.
Remember that the FRAC group 11 and 1 fungicides, which include strobilurin fungicides like Flint, and Tospox M, are ineffective. FRAC group 3 and 7 fungicides, which include Myclobutanil (Nova), boscalid (one of the active ingredients in Pristine), Fontelis and Folicur are in an intermediate group. We do know that resistance to FRAC groups 3 and 7 can be found in our pathogen populations, but if these products are used judiciously and in rotation with other effective products, they can be useful. Always tank mix fungicides with broad spectrum materials such as chlorothalonil, and alternate with a fungicide that has a different mode-of-action (FRAC group).

A good strategy is to use moderately resistant cultivars and then alternate fungicides in FRAC groups where resistance has not been detected with fungicides in FRAC groups 3 or 7.

**Downy Mildew on Cucumber**

Downy mildew on cucumber has now been confirmed in Salem County, NJ. All cucumbers should be protected with targeted fungicides. Other cucurbits should be scouted aggressively for the presence of downy mildew.

**Note:** Please read labels carefully as some of the fungicides mentioned in this article are not labelled on all cucurbits.

**Bacterial Fruit Blotch on Muskmelon and Watermelon**

By Kate Everts
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There have been a couple of positive confirmations of bacterial fruit blotch over the past two weeks in the region. Scout for the appearance of small water soaked lesions on watermelon or muskmelon leaves. However, be aware that plants can harbor this pathogen and not show symptoms until harvest.

Some research-based information that we have on bacterial fruit blotch (BFB) is that it will only spread from infected transplants to plants during flowering and shortly afterward. In addition, spread of BFB will occur most rapidly under warm, humid conditions and during rainfall or overhead irrigation. When the bacterium is deposited on the watermelon flower, it can penetrate through stomates and infect fruit. The infections that cause fruit lesions on watermelon flower, it can penetrate through stomates and infect fruit. The infections that cause fruit loss can only take place during flowering and fruit development before wax deposition (wax seals the stomates). That means that the yield damaging infections occur only during flowering and for about 3 weeks afterward. Although infections occur early in the season, fruit symptoms often do not develop until harvest.

**Chemical treatments (i.e. copper)** to protect the crop should be applied before and during flowering, and for three weeks afterward. If subsequent harvests are anticipated, those fruit will also need to be protected. Actigard also can be beneficial if applied prior to flowering (see the Mid-Atlantic Commercial Vegetable Recommendations for additional information).

I recommend that the workers work in uninfected fields first and any suspect fields last in the day. They should shower and wash their clothes and shoes before going into another field the next morning.

If the pathogen is introduced into the field it will survive for a short time as debris on plastic. If plants are removed and clean transplants are placed in those holes, infection could occur. The soil can remain infested for two years. However, be aware that if volunteer plants are present in the field in the intervening year, the pathogen may survive longer.

A frequent question that I get is how to clean a greenhouse after a BFB outbreak. Discard trays, wash surfaces with a greenhouse cleaner that indicates that it is a bactericide (for example: quaternary ammonium compounds such as Green-Shield®, Physan 20®, and KleenGrow™; hydrogen peroxide & peroxyacetic acid such as Sanidate®; hydrogen dioxide such as ZeroTol® 2.0, Oxidate® 2.0; or chlorine bleach) etc.

Another question is if equipment can carry the pathogen from one field to another. The biggest risk is taking debris across a field on wheels that crush the foliage. To reduce field to field spread, remove any debris stuck on the truck or equipment and wash the truck with soap and water. If you are concerned about the wheels, they can be washed with the greenhouse sanitizers described above.

**Bacterial Wilt Problems in Cucurbits This Year**

By Jerry Brust
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In a sentinel plot of cucurbits (cantaloupe, cucumber, watermelon, pumpkin, etc.) near Cambridge, MD on the Eastern Shore and in a few other cantaloupe and cucumber fields are some of the worse cucurbit bacterial wilt (Erwinia tracheiphila) infections I have seen in the past 5-7 years. Most of the infected plants were fed on by cucumber beetles 3-4 weeks ago. The first sign of bacterial wilt infection is when leaves near the base of the plant wilt and turn a brownish-gray/green and then dry up (fig. 1). Then other leaves on the vine with those first dying leaves will begin to flag and wilt in the mid-afternoon (fig. 2). In a few more days the entire vine will wilt. Sometimes that maybe the only problem but often another vine will start to wilt and then another until the
The base leaves of an infected vine begin to wilt and then dry up and die.

Fig. 1 The base leaves of an infected vine begin to wilt and then dry up and die

After 7-10 days, leaves on the infected vine become flaccid.

Under this sort of pressure applying neonics to plants while they were in the tray or that were drenched at planting (which is usually sufficient) often will not be enough to hold back beetle transmission of the bacteria 7-10 days after treatment. Foliar sprays with other insecticides would be needed. But how do you know when more beetles are going to act as vectors—you don’t. And that is the problem, next year do you over treat because of one outlier season or continue with what you have been doing? My guess is that this is a onetime blip that so many more beetles were infective than normal. If your cantaloupe or cucumber plants look good and do not have any more than the usual amount of bacterial wilt you can consider your striped cucumber beetle management to be good.

Growers may already be seeing leaf symptoms on their cantaloupe plants that are often misdiagnosed as a foliar disease. However, these leaf symptoms described below indicate manganese (Mn) toxicity which is related to low soil pH.

Symptoms: Symptoms of manganese toxicity usually appear on older leaves of cantaloupe when fruit begin to net or when fruit are the size of billiard balls and there have been heavy rains. The worse symptoms appear shortly before harvest and in lower areas of the field. The best way to determine whether you have Mn toxicity is to take an affected leaf and hold it up to the sun. Tiny pinhole sized lesions with yellow halos clustered between the veins will be visible (Fig. 1). As the lesions mature, they will coalesce, and turn brown (Fig. 2). Some cantaloupe rows often seem to be worse than adjacent rows. Affected plants frequently appear as clusters in the field. Moderately to severely affected cantaloupe plants will demonstrate poor vegetative growth and reduced or incomplete fruit maturation. The combination of all these symptoms often can be confused with several infectious diseases. Because of the symptoms growers will at times increase their fungicide sprays, which may lead to phytotoxic problems.
Manganese toxicity is caused by soil pH levels that are at or below 5.8. Excess soil acidity allows manganese that is normally bound to soil particles to be released and taken up by the plant in very high concentrations, i.e., toxic levels. Manganese levels of 800-900 ppm and above in foliar tissue is usually toxic. Losses to manganese toxicity can be severe. The apparent “spread of the disease” is due to plants in the field where pH is lower developing symptoms first and plants in areas where the pH is not as low developing symptoms days or even weeks later. Growers may have had their soil tested and had spread lime in the fall but still have this problem—low pH in some parts of the field.

One of the reasons for the drop in pH even though lime has been applied is the use of pH lowering fertilizers such as ammonium and urea. These acidifying fertilizers can have a long-term effect on soil that is cumulative and leads to lower pH levels. Ammonium sulfate, (NH₄)₂ SO₄, can significantly lower pH, while ammonium nitrate (NH₄NO₃) and dried blood make soil moderately more acid, and urea makes soil only slightly more acid. Ammonium is made up of nitrogen and hydrogen and over time is converted to nitrate by soil bacteria, the warmer the soil, the faster the conversion. During the conversion to nitrate, nitrogen loses hydrogen and adds oxygen. The hydrogen ions are free in the water solution between soil particles to react with various substances. Plants have difficulty obtaining the nutrients they need in the proper amounts when the soil water solution has too many hydrogen ions (low pH).

Symptoms of Mn toxicity are worse when there are heavy rains because of the lack of soil oxygen, which results in changes in the availability of some nutrients like manganese. Under saturated soil conditions manganese is made more readily available to plants and in low pH soils the likelihood of manganese toxicity increases.

Magnesium (Mg) deficiency is also a possibility when pH levels drop below 5.8. In this case plants do not take up enough of the nutrient. Deficient plants exhibit interveinal chlorosis (yellowing or scorching of leaf tissue between veins) with the veins remaining green (fig. 3). If soils are acidic and low in Mg, dolomitic lime can be used in the fall or to help right now magnesium fertilizers can be used.

Prevention: Soil acidity levels should be maintained above a pH of 6.3. Soil tests on sandy soils need to be done every year, at least for pH levels. The pH levels can change even after one year on sandy, low organic matter soils. Lime should be mixed into the soil at least several months before planting. While many plants do not grow well in acidic soils, cantaloupe is especially sensitive to the lower pH levels. Watermelon will rarely show signs of Mn toxicity even at a low pH. There is little that can be done to correct for manganese toxicity during the season. However, using fertilizers with a nitrogen source of nitrate-nitrogen (calcium nitrate and potassium nitrate) instead of ammonium-nitrogen may help increase soil pH. Potassium carbonate also can raise soil pH. It is water soluble and can be applied through drip systems. However, correcting soil pH can be an arduous and lengthy process and it’s probably too late to see a yield response in the current season if the symptoms have already been observed.
Spider Mites Common This Year
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There have been several reports of two spotted spider mites *Tetranychus urticae* Koch in multiple crops, with injury in tomatoes and a variety of cucurbits, mostly watermelon. Spider mites love hot, dry weather and that is what we had through the first 3 weeks of July. But even with the heavy rains of late the mites will still be present. They tend to start out at field edges or by drive rows. Anywhere dust settles on the crop is a likely spot for the earliest infestations. Mites often infest weeds and cover crops near vegetable fields and it is therefore advisable to check the areas for mites before doing any tilling or mowing as this will cause the mites to move into crop areas. In watermelon, infestations usually start in the crown and spread from there. The oldest leaves will take on a yellow color along the midrib with necrotic spots (fig. 1). This damage can be misjudged as a disease. Check for the mites on the underside of leaves to verify their presence (fig. 2).

Agri-Mek has translaminar movement, so if it is sprayed on the upper leaf surface it will penetrate into the leaf and reside there. Portal works on all stages of mites while Acramite is primarily active on the motile stages of mites (not eggs) but it has a long residual. Oberon can take longer to work (check back in 5-7 days) but will give excellent control. Zeal is a growth regulator and will not kill adults but will kill immature mites, it works especially well if you catch the infestation early on. Neem oil as well as horticultural oils can help, but the coverage must be very thorough, and you'll need multiple applications to control a moderate to heavy infestation. As always be sure to check the label before spraying any pesticides.

Fig. 1 Mite damage to watermelon crown leaves.

Fig. 2 Two spotted spider mites on underside of watermelon leaf.

For control there are several good miticides out there, but you need high gallonages of water 70-100 gallons/A and thorough coverage of the top and underside of the foliage or you will not reach all the well-hidden mites.

Fruit Disease Update
By Kari Peter
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The peach and nectarine season is here, and the apple season isn’t far off. Consequently, preventing fruit rots is now the priority. Significant rainfall has occurred in the region since the weekend and any fungicides applied last week have been washed off. Unfortunately, these rainy, humid conditions are quite favorable for rot, both in establishment and spread. I’m sure growers are anxious for a window of time to get protection on their crop and hope their tractor won’t get stuck in the mud during the process. Vigilance is needed in the orchard, especially if brown rot pops up. Some nuggets of wisdom to keep in mind:

**Peaches and nectarines: A review of brown rot management strategies**

Peaches and nectarines are ripening, which means ‘tis the season for brown rot. The fungus causing brown rot is quite opportunistic: it can kill blossoms and it can also ruin the fruit you’ve worked hard all season to grow. Brown rot disease is favored by warm, wet weather conditions. Under optimum temperature conditions, fruit infections can occur with only three hours of wetness when inoculum levels are high. Longer wet periods during infection result in shorter incubation times so symptoms develop more rapidly. It’s not uncommon to have brown rot appear “overnight” on fruit.

Spores produced on early maturing cultivars can fuel a continuing outbreak on late maturing cultivars – this is especially important for those who have battled rot infections already this season. To add another headache to the issue, insects can be important vectors of the fungal spores during fruit ripening: they can carry spores to injury sites produced by oriental fruit moth, Japanese beetle, green June beetle, and other insects that can injure fruit. Wounded fruit are much more susceptible to brown rot than unwounded fruit. It’s critical to be on top of insect management. Another concern to worry about is split pit. Unfortunately, these fruit are quite prone to rot problems. Keep in mind: under the right conditions,
“healthy” fruit harvested can be contaminated and may decay later during storage.

Research at Rutgers has shown that timing brown rot sprays 18 days, 9 days, and 1 day before harvest provided greater than 95 percent control under heavy disease pressure. When following this regime, rotate chemistries by FRAC group for resistance management. Keeping in mind products that were used to control blossom blight, be sure to be in compliance by obtaining the current usage regulations and reading the product label. For example, one could spray the following (provided the maximum number of sprays has not been exceeded for that chemistry):

- 18 days: Fontelis (FRAC Group 7; 0 day PHI)
- 9 days: Indar (FRAC Group 3; 0 day PHI)
- 1 day: Merivon (FRAC Group 7 +11; 0 day PHI).

Other options to rotate:

- Luna Sensation (FRAC Group 7 + 11; 1 day PHI)
- Luna Experience (FRAC Group 7 + 3; 0 day PHI)
- Tilt (FRAC Group 3; 0 day PHI)
- Quash (FRAC Group Code 3; 14 day PHI)
- Flint Extra (FRAC Group 11; 1 day PHI)
- Captan (FRAC Group M4; 0 day PHI)

As a result of the rain, postharvest diseases, such as Rhizopus rot, might create headaches. The spray closest to harvest will be important: the best options are Merivon or Luna Sensation. These products are labeled to control Rhizopus rot.

[Image of peaches]

**Additional options for peach/ nectarine rot management**

The key for growers who farm organically or prefer using alternative products is to spray as often as possible as disease conditions persist, manage insects, scout often, and prompt removal of infected fruit as soon as you see it. Spraying often ensures you have continuous protection; removing infected fruit from the trees ensures you are decreasing the amount of spores available to cause disease and hopefully minimizing an epidemic. Knocking infected fruit to the ground will be enough to limit spread. Vigilance is important and this may translate spraying every few days, especially if rain washes off products. According to studies at Rutgers, sulfur is not effective for controlling brown rot. Some organic options labeled for brown rot control are Cueva, Double Nickel, Serenade Opti (or Serenade ASO), and Regalia.

**Apples: Protecting fruit from rot**

We are nearing the home stretch of the apple season and folks will want to be considering sprays to keep their apples free of rot, especially while in storage. Not only a headache in the field, but the fungi causing fruit rots can be quite stealth since spores will land on the fruit and cause symptoms only after the fruit have been in storage. This is especially significant if your apples are headed for a packinghouse or even fresh market.

The most problematic fruit rot this year may be bitter rot. There have been several reports of growers already observing bitter rot on some of their immature fruit. The optimum conditions for disease development include rainfall, relative humidity of 80 to 100 percent, and warm temperatures (80 – 90 ºF). Unlike other fungi causing rot, the bitter rot fungus does not require fruit wounding to establish an infection and can directly penetrate the fruit skin. Rot spots usually appear on the side of the apple directly exposed to the sun as small, circular brown lesions and change to sunken, dark brown lesions as they enlarge. During humid conditions, large numbers of creamy to salmon colored spores are produced. Fruiting bodies visible to the naked eye appear after the lesion is one inch in diameter and are arranged in a concentric circle pattern in the center of the lesion (see picture). These spores are spread through the tree canopy via rain splashing. This is problematic now with the frequent rain events we have been experiencing and it is important to maintain vigilance with protection, especially when the high amount of rain falling this week is most likely washing off fungicides.

I highly encourage growers to use Merivon (FRAC Groups 7 + 11; 0 day PHI) or Luna Sensation (FRAC Groups 7 + 11; 14 day PHI) as their last one or two sprays prior to harvest since these products do show efficacy keeping rots in check while in storage. If you are struggling or have struggled with bitter rot in the past,
also including Topsin M (1 lb/A) with Merivon or Luna Sensation is recommended. Topsin M does not include bitter rot as one of the diseases it controls; however, other rots are included. We have preliminary research indicating it does help limit infection. This recommendation is both for fresh market and juicing apples: the pack houses and processors will thank you! There are a couple of sprays up to that point and the following are additional options for control (be mindful of the maximum limit for sprays for each product/FRAC Group):

Flint Extra (FRAC Group 11; 14 day PHI)
Sovran (FRAC Group 11; 30 day PHI)
Topsin M (FRAC Group 1; 1 day PHI)
Omega (FRAC Group 29; 28 day PHI – best used for later varieties since the PHI is so long)
Captan (FRAC Group M4; 0 day PHI – used alone or tank mixed with a single mode of action product)
Ziram (FRAC Group M3; 14 day PHI)
Serenade Opti (biofungicide – B. subtilis; 0 PHI)

We evaluated Serenade Opti the last few seasons for summer disease control at 16 oz/A as the last two cover sprays, with a conventional program up to these sprays. We observed minimal fruit rot diseases in the field and storage, at least on Golden Delicious. These results may vary with other cultivars, depending on their susceptibility to certain rot diseases, as well as severity of disease conditions.

2016 - 2017
Mid-Atlantic Commercial Vegetable Production Recommendations

On-Line at: Commercial vegetable Guide
horticultural crops and for home horticultural uses. The metal content of Bloom are far below standards established by E.P.A. The heavy metal content of biosolids are monitored regularly, by an independent soil testing laboratory and are available on demand.

The term “heavy metals” is frequently mentioned but few know what they include: aluminum (Al), arsenic (As), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe) lead (Pb), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), Selenium (Se), and Zinc (Zn). Plants and soil micro-organisms require all of the above, except aluminum, arsenic, cadmium, lead, mercury, nickel and selenium. Some of these metals utilized by plants are quite common in native soils. The heavy metals of greatest concern are lead and cadmium. The availability of both of these metals are fixed in the presence of soil organic matter.

Bloom cannot be classified at 100% organic because iron sulfate is added to precipitate phosphorus (P) and polymers are also added to flocculate suspended particles. The water returning to the Potomac is crystal clear.

Availability
The Blue Plains facility will sell Bloom directly to customers for $3.50 per ton and will deliver at the cost of $4 per mile. The Bloom, available from Blue Plains, has a musty odor. Dry granulated Bloom is available from Homestead Gardens in Davidsonville, MD. The dry granulated form is relatively odor free and has the appearance of granulated fertilizer.

Physical Properties
Unlike composted biosolids, Bloom is a more consistent uniform product because there are no bulking materials such as wood-chips, straw or other organic products added to the biosolids to achieve desirable conditions for composting. Because Bloom has a C/N ratio of 7/1, there is limited shrinkage in volume when used in formulating potting media as compared to composted biosolids has a C/N of 15/1 to 19/1. Higher C/N ratios, common in composted products results causes a loss of media volume as compost ages. Since Bloom has a C.E.C. of 48 and above, it has high nutrient holding capacity which makes it an ideal amendment for formulating potting media. Composted biosolids do however contain beneficial soil fungicides and several beneficial micro-organisms that support the growth of plants.

Recommended Uses
Initial results indicate that concentrations of Bloom in formulating potting blends should not exceed 20% by volume. Since Bloom is relatively low in potassium (K) and rich in phosphorus, amending the blend with yard debris compost, such as “LeafGro”, will provide additional K and beneficial microorganisms generally present in composted products.

The studies were conducted by blending equal amount of peat moss and “LeafGro” amended with 4.75 oz. of dolomite limestone per cubic foot. Twenty percent of this volume was amended with dry granular bloom. The studies included peppers, tomatoes cabbage, broccoli and an assortment of annual flowering plants. The plants were irrigated with well water as necessary for a period of 7 to 9 weeks depending on species.

The plants maintained a dark green color with dark green cotyledons firmly attached on all plants at the time of transplanting. Soil applications of Bloom have also resulted in outstanding results. Bloom was applied at 5.4 cubic feet per 100 sq. ft. and soil incorporated prior to planting onions, cabbage and broccoli. Eight varieties onions grown in the Bloom amended soil average 1/4” to ½” larger in diameter than similar plants grown in the check treatment amended with 10 cubic feet of debris compost per 100 sq. ft. Only visual observation were made of the cabbage and broccoli plants.

Seeing is believing! Enjoy the Bloom YouTube:

While Maryland's summer produce is coming in strong now, farmers markets are seeing lower sales and fewer customers. What's going on at the markets? Here is a link to an article that talks about the problem throughout the Mid-Atlantic:

The University of Maryland Extension's Ag Marketing Program is participating in the project mentioned in this article to collect data from a wide range of consumers. We plan to look for more opportunities to improve farmers market sales while expanding the market for locally grown food at several other points of purchase.

Here is a link to the survey we're conducting.
| Qualtrics Survey Software
https://cornell.qualtrics.com/jfe/form/SV_72s6sR6z0cs4D1X

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Urban Farmer Survey: Please share your thoughts!

Extension education is a community-engaged process. Our goal is to help you learn what you need to better achieve your goals. To be able to do this, we need to listen to you. We invite you to share your experiences and thoughts about urban farming in a survey and/or interview.

The survey should take less than 15 minutes to complete. It is open to all individuals who are at least 18 years old and have an interest in urban farming in Maryland. The survey is available online at: https://go.umd.edu/urbanagsurvey

To request a paper version of the survey, please call 410-856-1850 x123. Participants in the survey may choose to enter in a raffle to win one of four $50 gift cards to Johnny's Seeds.

If you would also be interested in sharing your input through a one-hour interview, please contact me at nglittle@umd.edu or call 410-856-1850 x123. Interview participants will be entered in a separate raffle to win one of four $50 gift cards to Johnny's Seeds.

This research has been approved by the University of Maryland Institutional Review Board. If you have any questions, please contact Neith Little at nglittle@umd.edu or call 410-856-1850 x123.

Welcome! To the Grapes and Fruit website. Statewide Extension and research programs (link is external) for viticulture (grape growing), tree & small fruits, and enology (winemaking), are being created and implemented at Western Maryland Research and Education Center by Dr. Joseph A. Fiola (link is external), Extension Specialist in Viticulture and Small Fruit. Dr. Fiola works with existing vineyard and winery owners to increase production and improve quality. He is working to expand the industry in Maryland by educating new vineyard owners. This site is designed for the commercial grower or someone who would like to start a vineyard.

Mid-Season (June-July)

- Brown Marmorated Stink Bug (BMSB) - Part 1 (pdf)
- Brown Marmorated Stink Bug (BMSB) - Part 2 (pdf)
- Crop Estimation (html) (pdf)
- Crop Management (html) (pdf)
- Disease Management - Botrytis (html) (pdf)
- Drought Stress, Vine Performance, and Grape Quality (pdf)
- Grape Berry Moth (html) (pdf)
- Hail Damage (pdf)
- Japanese Beetles (html) (pdf)
- Mid-Season Disease Management (pdf)
- Red Leaves in the Vineyard—Diagnosis and Management (html) (pdf)

Pre-Harvest (August)

- Brown Marmorated Stink Bug (BMSB) - Part 1 (pdf)
- Brown Marmorated Stink Bug (BMSB) - Part 2 (pdf)
- Brown Marmorated Stink Bug (BMSB) - Part 3 (Fruit Damage and Juice/Wine Taint) (pdf)
- Crop Development Sampling (html) (pdf)
- Crop Management (pdf)
- Disease Management - Botrytis (pdf)
- Early Warning: Multi-Colored Asian Ladybeetle (MALB) for Grape Growers (pdf)
- Evaluating Grape Samples for Ripeness (html) (pdf)
- Grape Berry Moth (html) (pdf)
- Harvest Priorities (pdf)
- Nematode Sampling (pdf)
- Pre-Harvest Disease Management (pdf)
- Red Leaves in the Vineyard—Diagnosis and Management (html) (pdf)
- Round Two: Multi-colored Asian Ladybeetle (MALD) Management for Grape Growers (pdf)
- The Spotted Wing Drosophila (SWD) - Part 1: History, Background, and Damage (html) (pdf)
- The Spotted Wing Drosophila (SWD) - Part 2: Management (html) (pdf)
DHS and MDA Statement on SNAP Access at Farmers Markets

On July 12, 2018, the United States Department of Agriculture (USDA) notified states that Novo Dia Group, creator of Mobile Market+ (MM+) for mobile point-of-sale SNAP acceptance, intends to phase out operations on July 31, 2018. The Maryland Department of Agriculture (MDA) and the Maryland Department of Human Services (DHS) are aware of this issue and recognize its potential impact on farmers and SNAP recipients. The agencies have been coordinating to help those affected find alternative solutions.

The National Association of Farmers Market Nutrition Programs (NAFMNP) recently announced it will provide short-term funding to keep the Market Link program operating until August 30, 2018. Additionally, USDA indicated that it is working on viable alternatives in order to avoid interruption of the ability of farmers’ markets to accept SNAP in the coming weeks.

SNAP recipients should note that this does not impact their SNAP benefits. SNAP recipients, will continue to have access to purchasing food from any market that has the ability to process EBT payments. Local farmers’ markets that do not use the MM+ app to process payments are not impacted. We hope that all vendors using the app will identify an alternative EBT processor before August 30, 2018 when the MM+ app is effectively discontinued.

We also realize that many SNAP recipients would like to maintain their ability to purchase fresh fruit, vegetables, and other nutritious foods from their local farms and farmers’ markets. In 2017 alone, more than 19,000 Marylanders spent $333,961 in federal nutrition benefits and Maryland Market Money matching dollars at Maryland farmers’ markets. Those purchases supported 237 agricultural producers at 24 farmers markets across our state.

To ensure continuity, we encourage farmers’ markets and vendors to purchase or rent EBT processors so they will have an alternative method of processing federal nutrition electronic benefits, including SNAP, once the 30-day extension ends. We have identified potential options for farmers’ markets and farmers to explore, and a list of vendors for EBT processors, along with their contact information, was provided to farmers’ markets and farmers by MDA. Additionally, if markets do not have a place where they can plug in the machine, they may run manual vouchers.

Lourdes R. Padilla  
Secretary, DHS

Joseph Bartenfelder  
Secretary, MDA

SMADCA Announces Funding for Two New Rounds of Farmer Mini-Grants

By Shelby Watson-Hampton

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The Southern Maryland Agricultural Development Commission (SMADC) is pleased to announce two new rounds of the Southern Maryland Agricultural Farmer Mini-Grant program.

The SMADC Mini-Grant program was first launched in 2017. Since the inception of the program 24 projects representing diverse farming operations in all 5 Southern Maryland Counties have been approved for funding.

Mini-Grant funds can be used for a variety of projects. Examples include the purchase of foundation livestock, purchase of plant stock, marketing and promotion activities, fencing, hoop house, and on-farm upgrades to enhance food safety. SMADC will award up to $2,000 per applicant for qualified projects, with a one-to-one dollar match by the farmer. Administrative expenses and events are not eligible for program funding.

The first new Mini-Grant round will begin accepting applications July 1, 2018 and close September 1, 2018 with awards being made by mid-October. The second grant round is expected to open in November 2018 and close in January 2019. To access the SMADC Agricultural Farmer Mini-Grant Program information (criteria, guidelines, and application form), visit ‘Farmer Resources’ to find the ‘Farm Grants’ page at www.SMADC.com

See the Mini-Grant Information Page HERE

Access the SMADC Mini-Grant Submission Form HERE
Tickborne Diseases Are Likely to Increase, Say NIH Officials

The incidence of tickborne infections in the United States has risen significantly within the past decade. It is imperative, therefore, that public health officials and scientists build a robust understanding of pathogenesis, design improved diagnostics, and develop preventive vaccines, according to a new commentary in the New England Journal of Medicine from leading scientists at the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. Bacteria cause most tickborne diseases in the United States, with Lyme disease representing the majority (82 percent) of reported cases.

The spirochete Borrelia burgdorferi is the primary cause of Lyme disease in North America; it is carried by hard-bodied ticks that then feed on smaller mammals, such as white-footed mice, and larger animals, such as white-tailed deer. Although there are likely many factors contributing to increased Lyme disease incidence in the U.S., greater tick densities and their expanding geographical range have played a key role, the authors write. For example, the Ixodes scapularis tick, which is the primary source of Lyme disease in the northeastern U.S., had been detected in nearly 50 percent more counties by 2015 than was previously reported in 1996. Although most cases of Lyme disease are successfully treated with antibiotics, 10 to 20 percent of patients report lingering symptoms after effective antimicrobial therapy. Scientists need to better understand this lingering morbidity, note the authors.

Tickborne virus infections are also increasing and could cause serious illness and death. For example, Powassan virus (POWV), recognized in 1958, causes a febrile illness that can be followed by progressive and severe neurologic conditions, resulting in death in 10 to 15 percent of cases and long-term symptoms in as many as 70 percent of survivors. Only 20 U.S. cases of POWV infection were reported before 2006; 99 cases were reported between 2006 and 2016.

The public health burden of tickborne disease is considerably underreported, according to the authors. For example, the U.S. Centers for Disease Control and Prevention (CDC) reports approximately 30,000 cases of Lyme disease annually in the U.S. but estimates that the true incidence is 10 times that number. According to the authors, this is due in part to the limitations of current tickborne disease surveillance, as well as current diagnostics, which may be imprecise in some cases and are unable to recognize new tickborne pathogens as they emerge. These limitations have led researchers to explore new, innovative diagnostics with different platforms that may provide clinical benefit in the future.

It is also critical that scientists develop vaccines to prevent disease, the authors write. A vaccine to protect against Lyme disease was previously developed, but was pulled from the market and is no longer available. Future protective measures could include vaccines specifically designed to create an immune response to a pathogen, or to target pathogens inside the ticks that carry them.

By focusing research on the epidemiology of tickborne diseases, improving diagnostics, finding new treatments and developing preventive vaccines, public health officials and researchers may be able to stem the growing threat these diseases pose. In the meantime, the authors suggest, healthcare providers should advise their patients to use basic prevention techniques: wear insect repellant, wear long pants when walking in the woods or working outdoors, and check for ticks.


Register Now for the Integrated Pest Management Pollinator Habitat Promotion Webinar

EPA is offering a free webinar titled “Integrated Pest Management: Strategies for Pollinator Habitat Promotion and Conservation in Agricultural Areas” on August 28, 2018, from 1 – 2:30 pm ET. This webinar is tailored for growers, pesticide applicators, agricultural land managers, and other interested stakeholders who work in crop production.

Our presenter will be Dr. Allan Felsot, professor and extension specialist from Washington State University. The presentation will cover land management topics such as cultural management practices, bio-economics, and integrated insect and weed management.

Register for the webinar here.

Learn more about integrated pest management and pollinator protection.
Hops Production and Brewery Resources
Publications & Presentations | Organizations | University Resources | Local Breweries from Tourism Websites | Other Important Resources

Hops Yard at WMREC
2017 Hops Test Yard Budget
Hops and malting Barley Production in Maryland

Helping Hops | UMD

University of Maryland Extension Offers
Urban Farmer Field School

Helping urban farmers move from surviving to thriving!

University of Maryland Extension will host five farmer field school workshops to help urban farmers develop their agricultural enterprises for success. Held at farms across Prince George’s County and Baltimore City, each Urban Farmer Field School in the series will cover a different topic and provide participants with the opportunity to learn in a hands-on setting, and set goals for improving the financial viability of their urban farms.

The series, developed as part of a grant from the Northeast Extension Risk Management Education Center, funded through the USDA National Institute of Food and Agriculture (NIFA), will help current and aspiring commercial urban farmers in the Baltimore and Washington D.C. metro regions move from crisis-management to proactive risk management.

“Many urban farmers become overwhelmed by the daily challenges of farming, spending their time seeking short-term financial solutions to keep their urban farms afloat,” said Neith Little, urban agriculture Extension educator in Baltimore. “We want to help urban farmers use risk management strategies to move from survival mode to a more proactive understanding of what their farms need to thrive.”

In June, UMD Extension hosted focus groups in both Baltimore City and Prince George’s Co. to collect feedback on current challenges, needs, and opportunities for growth in urban agriculture in the region. The feedback determined the content of the farmer field schools, as a well as a future guidebook, to assist urban farmers.

“Achieving economic viability is an urgent concern for urban farmers,” said Mariya Strauss, executive director of the Farm Alliance of Baltimore, a grassroots membership group of 16 urban farms in the city. “They face unique challenges such as having less land than rural farms do, and sometimes they struggle even to keep the little land they do have. The Urban Farmer Field School project will help them with business planning and other key pieces to support them in these unique struggles.”

Neith Little is the Baltimore City Extension Educator for Urban Agriculture. Her role is to support urban farmers through technical assistance and educational programs.

- To stay up-to-date with Baltimore City’s urban farming program, please subscribe to the newsletter here.
- To see what educational events are coming up in Baltimore and nearby, please click here.
- To see what online educational resources University of Maryland Extension offers, please see our Useful Links here.
- For other questions, please contact Neith Little: 410-856-1850 x123 nglittle@umd.edu
The Urban Farmer Field School series begins in August. Topics include marketing, self-care, business structure, insurance, and production techniques such as irrigation. Workshops are three hours, include light refreshments, and require a $10 investment. For more information and to register, please visit go.umd.edu/UFFS.

The Urban Farmer Field School series is organized by UMD Extension, with support from the Northeast Extension Risk Management Education Center funded through the USDA National Institute of Food and Agriculture (NIFA), EcoCity Farms, Farm Alliance of Baltimore, Prince George's County Soil Conservation District, MidAtlantic Farm Credit, The Greener Garden Urban Farm, and Real Food Farm.

**Upcoming Urban Farmer Events:**
- **Urban Farmer Field School: Saving money and water with drip irrigation**
  Monday, Aug. 13, 2018 - 5:30pm to 8:00pm
  The Greener Garden, Baltimore, MD
  Come learn about the use and trouble-shooting of drip irrigation equipment. We'll have a hands-on workshop from 5:30 to 7, with a potluck dinner at 7. Registration: Free, online here: [https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329](https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329)

- **Urban Farmer Field School: Caring for Your Most Important Tool: Your Mind & Body!**
  Wednesday, Aug. 15, 2018 - 5:30pm to 8:30pm
  EcoCity Farm, Hyattsville, MD
  The business of farming can be tough on your mind and body. It's more crucial than ever to focus on work-life balance as one of the most important keys to the health of you, your family, and your business. Learn a variety of self-care tips including ergonomics for your hard-working body, strategies to build your immune system, and other stress reduction techniques for your mind and body. Registration: $10, online here: [https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329](https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329)

- **Cultivate Baltimore: Farm equipment inside high tunnels**
  Thursday, Sep. 6, 2018 - 5:30pm to 7:30pm
  Strength to Love 2 urban farm, Baltimore, MD
  Come see a demonstration of small farm equipment useful in high tunnel production. The speakers will demonstrate the use of multiple kinds of small planters and a leafy greens harvester. Light refreshments will be provided. Registration online at: [https://www.eventbrite.com/e/cultivate-baltimore-2018-tickets-43898291973](https://www.eventbrite.com/e/cultivate-baltimore-2018-tickets-43898291973)

- **Urban Farmer Field School: Mastering Marketing**
  Wednesday, Sep. 12, 2018 - 5:30pm to 8:30pm
  EcoCity Farm, Hyattsville, MD
  Urban farms have a unique vantage point when it comes to direct marketing. Learn more about these market opportunities, as well as, strategies to engage customer segments and tell your story. We'll also help you sift through the appropriate tools to cultivate buyers for your unique urban Ag enterprise. Registration: $10, online here: [https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329](https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329)

- **Urban Farmer Field School: Insurance and business structures**
  Monday, Sep. 24, 2018 - 5:30pm to 8:30pm
  Civic Works’ Clifton Mansion, Baltimore, MD
  Bewildered by the many types of farm insurance? Confused about the difference between a sole proprietorship, an LLC, a corporation, and a cooperative? Come to this workshop to sort through your options. Registration: $10, online here: [https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329](https://www.eventbrite.com/e/urban-farmer-field-schools-tickets-45993009329)

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Crops Twilight

Barbecue & Ice Cream Social

CMREC Upper Marlboro Farm
August 8, 2018

You are invited to a Fields Crops Research Twilight, Barbecue and Ice Cream Social at the Central Maryland Research & Education Center, 2005 Largo Road, Upper Marlboro, Maryland on Wednesday, August 8, 2018 from 4:15 to 9 PM. A barbecue dinner will be served at 4:15 pm followed by homemade ice cream prior to the evening tour. University of Maryland Extension Educators and Specialists will showcase their field crop, vegetable and fruit research plots.

Barbeque begins at 4:15 PM
Ice cream Served at 5:15 PM
Crops Twilight at 6:00 PM

Please arrive on time as the tour will start promptly at 6:00 PM.

This event is free. However, a reserved meal ticket is required.

If you need special assistance to participate, please contact the Anne Arundel County Extension office at 410-222-3906 by August 6th.

Register on-line at the Anne Arundel County Extension website: [http://extension.umd.edu/anne-arundel-county](http://extension.umd.edu/anne-arundel-county)

Click to Register or call 410 222-3906.

See the attached Program!
2018 Organic Vegetable Field Day
CMREC Upper Marlboro Farm

Where: Upper Marlboro Research and Education Center
2005 Largo Rd, Upper Marlboro, MD 20774

When: Wednesday, August 15 from 5-8:30 pm. Dinner at 5:00 and tour starts at 5:45 pm.

Who: Anyone interested in organic or sustainable vegetable production.

What: Topics will include:
- Use and value of cover crops in a fertility program.
- Weed control and management.
- Companion planting for pest management.
- Cucumber beetle control.
- Others.

Questions? Contact Jerry Brust at: jbrust@umd.edu

See the Attachments!
1. On-Farm Readiness Review Form.
2. CMREC Upper Marlboro Crops Twilight Program.

Vegetable & Fruit News
A timely publication for the commercial vegetable and fruit industry available electronically in 2018 from April through October on the following dates: April 26, May 24, June 19, July 26, August 23, September 20 and October 25 (Special Research & Meeting Edition).

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

Submit Articles to:
R. David Myers, Extension Educator
Agriculture and Natural Resources
97 Dairy Lane
Gambrills, MD 21054
410 222-3906
myersrd@umd.edu

Article submission deadlines for 2018 at 4:30 p.m.
ON: April 25, May 23, June 18, July 25, August 22, September 19 and October 24 (Special Research Edition).

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.

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.
On Farm Readiness Review (OFRR) Request

On Farm Readiness Reviews (OFRR) are being offered by MDA, UMD, UMES and UME teams. The purpose is to help you better understand and meet the requirements of the federal Food Safety Modernization Act Produce Safety Rule. The focus is compliance with the Produce Safety Rule and OFRRs are not audits, inspections, pass/fail, or designed to assure you meet the requirements of other voluntary certification programs such as Organic Certification, GAP, etc. The OFRRs are being offered at no charge to Maryland farmers and are funded through MDA’s cooperative agreement with FDA to provide outreach, education, technical assistance, inspection and enforcement related to the FSMA Produce Safety Rule. The OFRRs are not regulatory – the purpose is to provide education and technical assistance to farmers who are required to comply with the Produce Safety Rule.

Name of Farm: ____________________________

Contact for Farm: _______________________

Farm Address: ___________________________

Contact Phone Number: ___________________

Contact Email: ___________________________

The following information is requested to prioritize scheduling.

Have you taken the Produce Safety Alliance Produce Safety Rule Grower Training? □ Yes □ No

Compliance Date – Please check one:

☐ Produce Sales over $500,000 annually January 2018

☐ Produce Sales $250,000 up to $500,000 annually January 2019

☐ Produce Sales $25,000 up to $250,000 annually January 2020

Completed form can be emailed to produce.safety@maryland.gov, faxed to 410-841-2750 or mailed to Food Quality Assurance, Maryland Department of Agriculture, 50 Harry S. Truman Parkway, Annapolis, MD 21401. Once we receive your form, we will contact you to find out more about your farm to personalize your OFRR and set a date and time. Please contact us at 410-841-5769 or produce.safety@maryland.gov if you have any questions.

Funding was made possible, in part, by the Food and Drug Administration through grant PAR-16-137. The views expressed in written materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Department of Health & Human Services; nor does any mention of trade names, commercial practices, or organization imply endorsement by the United States Government.

The University of Maryland Extension programs are open to all and will not discriminate against anyone because of race, age, sex, color, sexual orientation, physical or mental disability, religion, ancestry, or natural origin, marital status, genetic information, political affiliation, or gender identity and expression.
The College of Agriculture and Natural Resources, the Maryland Agricultural Experiment Station, and the University of Maryland Extension welcomes you to the Crops Twilight Tour.

The following activities and research projects will be highlighted as part of the evening program:

**Barbecue Begins at 4:15**

**Ice Cream Served at 5:15**

**Wagon Tour Departs at 6:00**

1. **Enhancing Yield and Protein in Grain Legumes with Sulfur**
   - Dana Rushovich
   - Graduate student, ENST

2. **Corn Insect IPM**
   - Kelly Hamby
   - Specialist, Entomology, PSLA

3. **Southern Maryland Small Fruit Project**
   - Ben Beale
   - Senior Agent, UME

4. **Heartnuts in the Meadow Orchard**
   - Dave Myers
   - Principal Agent, UME

5. **Benefits of Living Mulch for Vegetable Production**
   - Alan Leslie
   - Post Doctorate, PSLA

6. **Vegetable Strip-Tillage**
   - Cerruti Hooks
   - Associate Professor, Entomology, PSLA

7. **Using Kaolin Clay to Control Cucurbit Bacterial Wilt**
   - Jerry Brust
   - Vegetable IPM Specialist, UME

8. **Early Detection and Control of Downy Mildew on Cucurbits**
   - Jake Jones
   - Graduate Student, PSLA

9. **Managing White Mold on Tomatoes**
   - Habtamu Demissie
   - Graduate Student, PSLA

**Stop 1**
- Start: 6:10
- End: 6:20

**Stop 2**
- Start: 6:30
- End: 6:40

**Stop 3**
- Start: 6:55
- End: 7:05

**Stop 4**
- Start: 7:15
- End: 7:25

**Stop 5**
- Start: 7:30
- End: 7:40

**Stop 6**
- Start: 7:55
- End: 8:10

**Stop 7**
- Start: 8:20
- End: 8:50