Now is the Time to Order Plasticulture Strawberry Plants
By Michael Newell
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If you haven’t ordered your plants for planting this fall, don’t wait! Most strawberry plug nurseries are custom growers. If you are planting in the spring, contact plant suppliers to be sure the varieties you want will be available.

This is a good time to have a summer cover crop growing prior to the fall planting. Cover crops can increase organic matter and help with weed exclusions. After termination and incorporation of the cover crop, it is during the decomposition process of the cover crop that we can see activity against nematodes and pathogenic soil microbes. Be sure to time the destruction of the cover crop to allow for adequate decomposition leading up to strawberry bedding operations.

Soil sampling for nutrient analysis is critical at this time for pre-bedding fertilizer applications.

If you fumigate, review your fumigant management plan, be sure you are in compliance and always follow the label for “plant-back” times and Worker Protection Safety requirements.

This Fall I’ll be planting a variety trial with 12 selections including Benicia, Albion, Radiance and San Andreas. Don’t forget to stop by next spring to have a look.

Vegetable Crop Insects
By Joanne Whalen
DE Extension IPM Specialist
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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 rates and restrictions since some materials, especially miticides, are restricted to only one application as well as ground application only.

Lima Beans
Be sure to scout fields for leafhoppers, spider mites, 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
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. At this time, you will also need to consider a treatment for pepper maggot. The first beet armyworms (BAW) have also been detected – chemical selection is important once this insect is found in peppers. Be sure to select a material that also has BAW control on the label.

Potatoes
Continue to scout fields for Colorado potato beetle, leafhoppers, and aphids. 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 half.
Sweet Corn
Continue to sample all fields through pre-tassel stage for whorl feeders (corn borer, corn earworm and fall armyworm). A treatment should be applied if 12-15% of the plants are infested with larvae (regardless of the species). The predominant whorl feeder being found at this time is the fall armyworm. Since fall armyworm (FAW) feed deep in the whorls, sprays should be directed into the whorls and multiple applications are often needed to achieve control. FAW can also be a problem in silk stage sweet corn, especially in outbreak years. The first silk sprays will be needed for corn earworm as soon as ear shanks are visible.

University of Maryland Late Blight Potato Advisory for July 11, 2014.
Kate Everts, Vegetable Pathologist
University of Delaware and University of Maryland; keverts@umd.edu

The first late blight fungicide application is recommended once 18 DSV’s accumulate from green row. Green row is estimated to occur in the first week of May for much of Maryland. The table below uses May 4 as the estimate of green row for all locations except Oakland, where green row was estimated to be May 14. We have exceeded the threshold of 18 DSV’s at all locations. A protectant fungicide such as mancozeb or chlorothalonil should be applied.

There have been confirmed reports of late blight in Cambria, Chester and Lancaster Counties, PA. The genotype that is present is US23. Please scout your fields aggressively for presence of late blight. For more details on locations of current late blight outbreaks see http://www.usablight.org/

BMSB SWD Update in Central Maryland
By Bryan Butler
Carroll County Extension Agent & Mid-Maryland Tree Fruit Agent
University of Maryland Extension bbutlers@umd.edu

It has seemed this season, as we have seen in the last couple of years that BMSB has been looming in the borders and in wooded areas since June. Every once in a while they seem to be moving into orchards and other crops but damage has not appeared to be significant in horticultural crops that are being well managed, i.e. not letting adults lay eggs in the field or allowing nymph populations to persist in the field. Japanese Beetles and Green June Beetles however, have been have their way in peaches, grapes and early apples.

As we move into the end of the 2014 season and as the number of crops in the field begin to decrease, it is important to remember BMSB numbers tended to increase in the 2008-2010 seasons and in 2012 it was not till the end of the season that damage occurred at a significant level in orchards, mainly because we thought he danger had passed but it hadn’t. That could mean trouble for late crops again this year. We have seen increasing BMSB captures in baited pyramid traps in some locations. This information is presented simply to encourage everyone to be vigilant in terms of scouting, especially considering the value of the apple crop this year and remember we do have section 18 labels again this year for bifenthrin and dinotefuron so you do have two elect weapons if BMSB should become a major problem on your farm.

After the first detections of SWD males in Maryland last week, it seemed logical that we would find them in an expanded area this week, and that occurred, but still in relatively low numbers. In Pennsylvania, a total of 3 males were found from the 40 traps using the new Trece commercial lure, two SWD in tart cherries near Biglerville that were not harvested this year due to a light crop. The late hanging fruit are probably going to be a nice nursery for SWD populations to build. The other PA male SWD was in Black Raspberries which are being picked now and are the first crop at risk for both states according to our past work. Maryland also had 2 males again this week picked up in the 12 traps. The good news is one was in a tart cherry block in Howard County that ended harvest the week before and the other was again in sweet cherry in Frederick with harvest also completed earlier in the week. So far no detections in Black Raspberries in Maryland. If SWD follows its usual pattern, trap counts will remain low for a couple of weeks but as blackberries and blueberries move into full swing the game should be fully afoot. We will have to continue to be watchful and will continue scouting to help you have an idea of what’s going on.
For now, it is important to plan your strategy for sprays and harvest to prevent from leaving yourself open to infestation. It has seemed over the last several years that being proactive leads to a much better crop than letting the population build and possibly losing the crop because the infestation cannot be controlled. Thanks again to Dave Biddinger from the Penn State FREC Lab for working with us on the timely I.D. of our trap captures and the Maryland State Horticulture Society for funding these efforts.

Below are some products that have efficacy against SWD. Please read and understand the label on all the products and make sure they fit for your crop and your harvest schedule. This is not an all-inclusive listing and please check the label before applying. To avoid resistance, consider using the same product twice in a row then switching to a different material in a different group and using that twice in a row and following that pattern to avoid resistance development. Any attempts at increased sanitation in the fields will certainly be useful but a seven day spray schedule is probably more practical in pick your own situations.

**Good, shorter residual about 3 days:**
Delegate 25WG - Caneberries, Blueberries, Cherries
Malathion 8F - Caneberries, Cherries, Blueberries
Pyganic EC - Blueberries, Caneberries, Cherries

**Good, use for rotations 3-7 days:**
Entrust SC - Blueberries, Caneberries, Cherries
Sevin - Blueberries, Caneberries, Cherries
Assail - Blueberries, Cherries, Caneberries

**Good, Longer residuals 7-14 days depending on conditions:**
Danitol - Blueberries, Cherries, Caneberries,
Mustang Max - Caneberries, Cherries
Bifenture - Caneberries,
Imidan 70WP - Blueberries, Cherries
Lannate 90SP - Blueberries
Exirel - New blueberry product for 2014

Be sure to read the label and make sure the crop is on the label and be aware of REI and PHI as well as other limits on the label as far as number of applications and amounts allowed on a crop per season.

**SWD First in Maryland**
**Now in Pennsylvania**

By David Biddinger
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**SWD Update**
**July 10, 2014**

Growers of raspberries (both red and black), blackberries, and blueberries in particular should be monitoring for spotted wing drosophila (check traps daily if possible), and should be prepared with effective materials for control.

Spotted wing drosophila (SWD) was found in very low numbers in traps in southeastern PA (3 males out of 40 traps using a new commercially-available SWD Lure – Trece, Inc). Two of the SWD were in an unharvested cherry block, and one was in a trap in black raspberries. No female SWD were found at these sites yet, but judging from our brief experience with this pest in PA, it won’t be long.

An "at-a-glance" graph of a national efficacy ranking of insecticides for SWD control, developed by Rufus Isaacs at Michigan State, is posted in a recent issue of the Rutgers Blueberry Bulletin. When spraying, be sure to maximize coverage throughout the entire plant canopy, as a few missed SWD can rapidly re-infest the planting, and rotate among pesticide classes. SWD’s multiple generations per year makes resistance development more likely than usual, and the only thing that we need less than SWD is pesticide-resistant SWD. Also utilize all cultural controls to minimize buildup of SWD populations, though cultural controls alone have not been enough to control this pest.

**Information on all of these topics is available in the Penn State SWD fact sheets updated in 2013:**
Part 1, Overview and Identification
Part 2, Natural History
Part 3, Monitoring
Part 4, Management
Current pesticide labels, including 24C (Special Local Needs for Malathion 8F) and 2(ee) labels for SWD can be obtained at Crop Data Management Systems by clicking on "Services" and then choosing "Labels/MSDS".

Comprehensive entomology updates are posted each Friday at the Penn State Fruit Research and Extension Center website.
Squash Vine Borers & Squash Bugs Very Active this Year
By Jerry Brust
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On several farms I have visited lately with squash I was surprised to see several wilted plants (fig 1) that upon further inspection had squash vine borers. Some of these squash plants were pretty young with the base of the plants being \( \leq \frac{1}{2} \) inch in diameter, but there was one small entrance hole (fig 2) and one squash vine borer in the base of the stem (fig 3). Usually the plants need to be older and have a larger base to support borers. The vine borer over winters in the same field where they attacked plants the year before, therefore crop rotation is a good management tactic. Adults emerge sometime in mid-late June, mate and females begin to lay eggs. Most of the eggs she lays (78%) will be laid at the base of a squash or pumpkin plant. Once larvae are in the stem nothing will control them—systemic insecticides will not work at this point and heaping soil at the base of the plant will not work. On several of the farms I saw female moths; they are day flyers, flying in and around squash plants. The moths lay eggs over a 4-6 week period, if you have SQVB moths you’ll need to protect the base of your squash or pumpkin plants from now until early August.

Tomato Ripening Problems
By Jerry Brust
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I have been getting emails and calls about tomato ripening problems such as blotchy ripening, yellow shoulders, grey wall, internal whitening, etc. (figs 1, 2 and 3). 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 K+ 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%). We also are starting to see problems in the field with yellow shoulders and uneven ripening (figs 1 and 3). These maladies come in mid to late July when plants are putting on a heavy fruit load and temperatures 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.

Blossom End Rot
Very Common this Summer
By Jerry Brust
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This summer has been unusual as it has been about normal for temperatures, but we have had a large number of cloudy days and in some areas of the mid-Atlantic much greater rainfall amounts. Long periods of overcast skies cause a slowdown of transpiration in the plant and water logged soils also slow water movement into the plant. Calcium (Ca) moves to the plant via mass flow, i.e., where dissolved minerals like calcium move to the root in soil water that is flowing towards the roots. As it passes through the plant Ca is deposited in tiny amounts into the fruit. If anything slows or interrupts this stream the tiny amount of Ca needed at that moment is not deposited and the area furthest from the top of the fruit suffers—resulting in blossom end rot (BER). I have seen more BER this year on a large number of vegetables than I have in the past 5 years (fig 1). Figure 2 shows how precise and constant the Ca flow in a plant has to be to supply just the right amount of Ca at the right time. The large fruit on this particular plant developed before there was a Ca interruption, but the fruit a little younger suffered a Ca interruption, with the smallest (youngest) fruit suffering the greatest Ca interruption. Tissue analysis from this same plant showed that calcium was in the high range when the blossom end rot took place, demonstrating the importance of irrigation and water supply to reduce blossom end rot and not necessarily the level of calcium in the soil. Not much you can do about overcast skies and heavy rains. You could add a foliar calcium nutrient spray weekly or so. It helps a little and sometimes a little is all you need.
Fungal Entomopathogens: An Enigmatic Pest
Control Alternative
Nicole Rusconi and Cerruti R
Hooks

Entomopathogens as Insecticides
Entomopathogens are bacteria, fungi, protozoans or viruses that can infect and subsequently cause disease in insects and other arthropods. They can indirectly impact cropping systems by serving as naturally suppressors of insect and mite pests. When there are epizootic outbreaks, entomopathogens are capable of causing rapid declines in large populations of their arthropod hosts. Many of these naturally occurring pathogens have been formulated and commercialized as insecticides. Among entomopathogens, fungi have garnered the most interest for research and use as biologically based insecticides. In 2006, 129 fungus-based insecticides (mycoinsecticides) were reported to have been developed for commercial use. Mycoinsecticides are considered environmentally friendly alternatives to synthetic chemical insecticides; and similar to other pesticides, mycoinsecticides can be administered by ground or aerial sprays as well as broadcasted or applied as dusts or granules. However, development, commercialization and use of mycoinsecticides are not always easy. Developers and users of these products must consider ecological, environmental and economic factors associated with their use to maximize their effectiveness.

Fungal Entomopathogens
Fungal diseases of insects (insect-pathogenic fungi - IPF) are common and widespread and contribute to the natural regulation of insect populations. Many insect pathogens (bacterial and viral pathogens of insects) must be eaten to infect their host but most fungal pathogens infect by contact and directly penetrate the insect cuticle (skin). Fungal pathogens are capable of forming spores. Insects can come in direct contact with fungal spores when spores land on the surface of their bodies or indirectly by touching a fungus-contaminated plant or soil surface. After coming in contact with the cuticle of a susceptible insect, fungal spores usually enter inside its body within 24 hours. Once inside, they reproduce and often kill the insect. Before death, some infected insects are liable to behavioral changes mediated by the entomopathogen. Some infected insects crawl to the top of the plant and face upwards. This increases the opportunity that spores which are produced within the insect's body encounter additional insect host after being released into the environment.

Beauveria bassiana (Hyphomycetes) is a fungus that grows naturally in soils throughout the world. It infects a wide range of immature and adult insects and is available commercially as a microbial insecticide. It causes a disease in insects known as the white muscadine disease. When fungal spores come in contact with the cuticle of insect hosts, they germinate on the cuticle and invade the insect body, usually by a combination of physical force and enzymatic action. There, the fungus multiplies throughout the insect's body, producing toxins and draining the insect of nutrients, eventually killing it. Once the fungus has killed its host, it grows back out through softer areas of the cuticle while covering the insect with white mold. This mold creates millions of new infective spores that are released into the environment. Figures 1 and 2 show a healthy Colorado potato beetle (Leptinotarsa decemlineata) and one that has been infected by the pathogenic fungus, B. bassiana. Figures 3 and 4 show a healthy brown marmorated stink bug (Halyomorpha halys) and one that has been infected by B. bassiana.

Effect of Chemical Pesticides on Fungal Entomopathogens
Chemical sprays can have a negative impact on IPF by killing or inhibiting fungal spores. Insecticide, fungicide and herbicide sprays can impact entomopathogenic fungi found in the soil and within the plant foliage. For instance, a fungicide used to kill or inhibit a fungi that is harmful to crops (plant pathogen), may kill fungi that infect insects. Among various pesticides, fungicides are thought to be the most detrimental to beneficial fungi activity and some studies have shown that fungicide applications disrupt the ability of naturally occurring fungal pathogens to control aphids. Therefore, caution should be taken before using pesticides especially fungicides when there is activity by beneficial pathogenic fungi in cropping systems. As studies have shown, if naturally occurring entomopathogens that help keep arthropod pests in check are suppressed by pesticides, this may lead to an outbreak of the pest’s population. Additionally, pesticides may impact entomopathogens indirectly by eliminating insect hosts that they need for further reproduction and disease transmission.

Factors Impacting the Use and Efficacy of Mycoinsecticides
The use of IPF as mycoinsecticides and part of a pest management program has received limited interest from producers. This may be credited partially to the fact that the ecology of fungi is not well understood compared to other biological control agents such as predators, parasitoids and bacteria based insecticides. Further, fungi are affected by a number of environmental factors including sunlight, rain, temperature, humidity and leaf surface chemistry all of which could impact its effectiveness in managing crop pests. Sunlight is a major mortality factor of fungal propagules (spores) and can lower the persistency of mycoinsecticides. Moreover, excessive rainfall or irrigation following a mycoinsecticide application can reduce its efficacy. Humidity is very crucial for fungal pathogens and though insects can become infected at lower humidity, high humidity is a general requirement for spore germination. Though ambient temperature influences the efficacy of fungal entomopathogens, different fungal pathogens vary in their temperature tolerance. Temperature can have a negative or positive impact on the germination and growth rate of fungal entomopathogens and is one of the most important factors.
Insect Behavioral Defense Against Pathogenic Fungi

Insects don’t have the privilege of visiting an insect clinic when they catch a fungal pathogen, and are predominantly dependent upon cuticular, hemolymph bodily fluids and cellular defenses to resist aggression by fungal pathogens. The cuticle is the primary and possibly the most important barrier to fungal infection. Fungal fatty acids, enzymes and melanin can help stop fungal penetration through the insect cuticle. However, if the pathogen is able to breach the cuticle, it still has to contend with the host’s immune system. Further, insects may change their behavior in response to a fungal infection. For example, some insects when infected by a pathogen, elevate their body temperature several degrees above ambient by directly or indirectly absorbing heat from the sun (e.g. basking) or from the plant in an attempt to fight off the pathogen. Basking behavior has been shown to reduce disease severity. Some refer to this as “behavioral fever” which may be defined as the elevation of body temperatures higher than normal levels using behavioral means.

How Can Entomopathogenic Fungi Activity be Enhanced

If entomopathogens are naturally occurring in agroecosystems, slight changes in crop husbandry practices could enhance their survival and activity density. There are several ways that cropping habitats may be manipulated to enhance the survival and activity density of naturally occurring fungal pathogens. High relative humidity is one of the most vital requirements for fungal activity. Generally, ambient humidity of greater than 90% is required for their germination, sporulation and infection. As such, activities that can be adopted to raise the humidity within a cropping system may be used to enhance fungal activity. Increasing relative humidity through irrigation is a simple method that can be used in many cropping systems. However, operating the irrigation system for the sole purpose of enhancing fungal activity may prove too costly for low value crops and may make some crops more vulnerable to plant pathogens. Decreasing the row spacing of a crop or interplanting it with additional plant species may help protect fungi from UV degradation and concomitantly raise relative humidity within the cropping habitat by increasing canopy cover.

Soil plays an important role as a reservoir of IPF and several species of pathogenic fungi have been recorded in cultivated soils worldwide. Land managers cultivation practices impact the occurrence and abundance of soil borne insect pathogens. Conservation tillage practices such as no-till planting could enhance fungal activity density by bringing them in closer proximity to their insect host. A reduced tillage regime was found to enhance levels of the IPF, B. bassiana in the soil. Frequent ploughing, reseeding and fertilizing may prevent the build-up of high populations on fungal pathogens by disrupting infection foci, exposing pathogens to adverse environmental conditions on the soil surface or burying them away from potential insect hosts. If fungal structures are buried deep within the soil during a tillage operation, this could position them beyond the range of any insect hosts. However, not all tillage is bad as any tillage operation that moves fungal structures closer to a host or within new host populations may enhance their activity. Fertilizer amendments may impact a pathogenic fungi persistence and efficacy. In laboratory studies, researchers found that composted cow manure enhanced the persistence of the IPF, B. bassiana, whereas urea was neutral. Organically managed soils might be more suitable habitats for IPF. Some research has shown a greater likelihood of finding IPF in arable fields of organically compared with conventionally managed soil.

Integrated Control Programs

Research has shown some promising results when entomopathogens are integrated with other pest management tactics. One such approach is to combine entomopathogens with chemical insecticides. The idea of this approach is to use chemicals that have no adverse effects on the entomopathogen ability to control the targeted pests and are effective in managing pests that are not impacted by the entomopathogen. Applications of fungal agents alone are often insufficient to control insect pests, so the inclusion of certain biologically compatible chemicals such as imidacloprid in fungal formulations may enhance fungal effects on insect pests. Thus, a more promising use of entomopathogens is as part of an IPM program.

Another strategy involves using a combination of an IPF and low insecticide dosage. Some studies have shown that using this strategy works better in insect pest suppression compared to using either tactic alone. The philosophy behind combining low insecticide dosage with IPF is that the low-dose insecticide application weakens insects which subsequently makes them more vulnerable to fungal infection. Further, this strategy may allow fungal pathogens to establish themselves within targeted host populations under adverse environmental conditions. Another approach is to use predatory and parasitic insects that will complement fungal pathogens in regulating insect pest populations. It has been suggested that the concurrent use of predators, parasitoids and mycoinsecticides can have an additive effect on insect pests under greenhouse conditions. Research on integrated control programs that combines entomopathogens with other control strategies may lead to future pest management programs that minimizes the negative side effects of chemical use on ecosystem health and prove to be more sustainable.

Finishing Remarks

Despite the large number of available products, mycoinsecticides are not widely known or used in the US. Compared to chemical pesticides, mycoinsecticides lack consistent rapid efficacy in dealing with insect pest problems and require greater intricacy in use. This does not fit the familiar chemical paradigm of farmers who expect simple instructions and rapid extreme efficacy for any product used for managing insect pests. Still there are opportunities to use IPF as both naturally occurring and commercialized mycoinsecticides. Entomopathogens can be very selective and in some systems, and can work as well or
better than synthetic chemicals. Further, IPF are naturally occurring and self-reproducing organisms. Most IPFs specifically infect insects and other arthropods which means they are less likely to harm the environment or impact beneficial organisms.

Despite these positive attributes, there are some potential challenges to using fungal entomopathogens such as finding the best fungus in relation to production, application and infection, as well as identifying the most facilitating abiotic conditions of moisture, light, and temperature to insure efficacy. Further, farm husbandry practices influence the occurrence and abundance of IPF and there are no recipes or instructions on production practices that should be followed to enhance their effectiveness according to pest, cropping system and other farming parameters. There is also the issue of the time frame of effectiveness; whereas a chemical will immediately kill insects, these biological methods require time to infect, reproduce, spread, and infect again. The colonization, multiplication and activity of IPF in various cropping systems are incompletely understood. However, much of this research area is new and evolving, and there are many more species of fungus to explore. Still we hope that this article will bring greater attention to an often overlooked and underestimated naturally occurring pest management tool, and that possible entomopathogens will eventually be used as part of sustainable pest management programs.

By Joe Fiola, University of Maryland
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“Timely Viticulture” is designed to give those in the Maryland and Eastern grape industry a timely reminder of things they should be considering in an established vineyard or when establishing a planting.

As vine development is starting to “catch-up”, please see the following information on timely crop estimation. In many locations freeze damage has reduced the number of primary shoots or caused damage to developing clusters and poor fruit set, so overall some vineyards may have reduced crop. I have seen a wide range of set from full crop to no crop in various varieties in my R&D blocks and commercial vineyards throughout the state. An important role of running an efficient business is to know your inventory. In the case of a winery, that is the quantity of grapes that you have on the vine and how that relates to the quantity of grapes that you need to achieve your wine production goals or not overshoot your tank space. In the case of a vineyard, that is the quantity of grapes that you will have available to sell to a winery. This TimelyVit will give specific instructions on how to get a good estimate of what you will have at harvest time. Be diligent and good luck out there!

Article (reading on line):
http://www.extension.umd.edu/learn/crop-estimation

PDF (for printing):
https://www.extension.umd.edu/sites/default/files/_docs/articles/TVCropEstimation_0.pdf

Additional “TimelyVits” – sorted by plant development stage:
http://extension.umd.edu/smallfruit/grapes/timely-viticulture and other information is always available on my web site at:
http://extension.umd.edu/smallfruit/grapes
The Summer 2014 issue of the “Ag Marketing Newsletter” has been posted on the web at: http://extension.umd.edu/sites/default/files/docs/newsletters/AgMktgNewsletterSummer2014.pdf

**Topics in this issue include:**
- Business Coaches For Ag Entrepreneurs
- 40 Maps That Explain Food In America
- Market Research—Look Before You Leap
- How Do Customers Find You?
- Food Hub Benchmarking Study Results Available
- Agriculture By The Numbers

If you have questions or comments about this publication or have clients or colleagues that would value receiving it as well, please contact Ginger Myers at gsmyers@umd.edu or simply reply to this message.

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**Organic Vegetable Twilight Tour**

**What:** Tours of University of Maryland organic research plots

- The effect of cover crops, plastic and other parameters on soil CO₂ emissions
- Weed control in organic systems
- How climate change can effect vegetable production practices
- Cover crop effects on pests and natural enemies
- Speakers include organic growers and University of Maryland researchers

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

**When:** August 14, 2014. Dinner served from 5-6 p.m. Wagon tours start at 6 p.m.

**Who:** All organic vegetable growers or those interested in organic vegetable production

There is no charge for the meeting, but registration is requested to help with meal planning. To register, send an email to Jerry Brust jbrust@umd.edu

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**Vegetable & Fruit Headline News**

A timely publication for the commercial vegetable and fruit industry available electronically in 2014 from April through October on the following dates: April 17; May 15; June 19; July 17; August 14; September 18; and October 23.

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Remaining Article submission deadlines for 2014:
August 13; September 17; and October 20.

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