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Vegetable & Fruit Headline News

The University of Maryland Extension Agriculture and Natural Resources Profitability Impact Team proudly presents this bi-weekly publication for the commercial vegetable and fruit industry.

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Field Observations from Southern Maryland

By Ben Beale
Extension Educator & CED, Agriculture
St. Mary's County, UME
bbeale@umd.edu

- ✓ Transplanting of warm season crops continues, with most crops in the ground now.
- ✓ There have been some cases of root rots especially in those fields planted early with wetter soils.
- ✓ Timber rot is now prevalent in high tunnels.
- ✓ Harvest of cool-season crops such as broccoli, cauliflower, beets and peas is continuing.
- ✓ The first squash and zucchini are coming off now.
- ✓ Cucumber beetles can now be observed in the field, especially near the base of the plant and under the plastic near the planting hole.
- ✓ Squash bugs and stink bugs have also been observed in squash and tomato fields.

Vegetable Crop Insect Update

By Joanne Whalen
DE Extension IPM Specialist
jwhalen@udel.edu

Melons **May 20, 2011**

Continue to scout all melons for aphids, cucumber beetles, and spider mites. In many fields, lady beetle populations are high and have helped to keep aphid populations in check. We are starting to find cucumber beetles, especially in cantaloupe fields. As soon as we get a day of warm, sunny weather, populations can explode so be sure to scout carefully since damage can occur quickly. Since beetles can continue to re-infest fields as well as hide under the plastic, multiple applications are often needed to achieve control. Foliar products labeled for cucumber beetle control on melons include Assail, a number of pyrethroids, Lannate, and endosulfan (Thionex). As a reminder, the Phase Out Labels are in effect for endosulfan so be sure to check the most recent labels for rates as well as new REIs and PHIs at:
http://www.cdms.net/LDat/ld9P4000.pdf

The Actara label only states cucumber beetle suppression. Be sure to check all labels for rates, precautions and restrictions, especially as they apply to pollinators.

Peppers

Continue to sample for thrips and corn borers. On young plants, corn borer larvae can bore into the stems and petioles. In areas where peppers are isolated or corn is growing slowly, moths are often attracted to young pepper plants. Therefore, you should watch for corn borer moths laying eggs in all fields. As a general guideline, treatment may be needed if there is no corn in the area or you are using rye strips as windbreaks. You should also look for egg masses on the leaves.

Snap Beans

Continue to sample all seedling stage fields for leafhopper and thrips activity. The thrips threshold is 5-6 per leaflet and the leafhopper threshold is 5 per sweep. If both insects are present, the threshold for each should be reduced by $^1/_3$. In addition, be sure to watch for bean leaf beetle. Damage appears as circular holes in leaves and significant defoliation can quickly occur. As a general guideline, a treatment should be considered if defoliation exceeds 20% prebloom. A pyrethroid, dimethoate or Sevin are labeled for control.

Sweet Corn

Continue to sample for cutworms and flea beetles. As a general guideline, treatments should be applied if you find 3% cut plants or 10% leaf feeding. In order to get an accurate estimate of flea beetle populations, fields should be scouted mid-day when beetles are active. A treatment will be needed if 5% of the plants are infested with beetles. Small corn borer larvae can be found in the whorls of the earliest planted fields. A treatment should be applied if 15% of the plants are infested. Corn earworms can also be found in light traps and pheromone traps. In sweet corn planted under plastic, silk sprays will be needed for corn borer and corn earworm as soon as ear shanks are visible.

BMSB Injury on Young Peach

Brown Marmorated Stink Bugs Damaging Peaches and Apples in WV, NJ, MD and VA

By Joanne Whalen
DE Extension IPM Specialist
jwhalen@udel.edu

Over the past week, we received reports of Brown Marmorated Stink Bug adults being found in peaches and apple trees in West Virginia, NJ, Western Maryland and Virginia. So far, we have not heard of reports on the Eastern Shore but it is important that you scout orchards for activity. Reports from Dr. Tracy Leskey (USDA/ARS in WVA) indicated that the feeding in peaches was concentrated in the upper third of the canopy – and in some situations it appears that this is also the case with our native green and brown stink bugs. Please see the photos (courtesy of Dr. Tracy Leskey) of damage to young peaches online at: **http://agdev.anr.udel.edu/weeklycropupdate/wp-content/uploads/2011/05/BMSBonSmallPeaches.pdf.**

Grape Flee Beetle Found Feeding in Local Vineyard

By Sudeep Mathew & Shannon Potter Dill
Extension Agents, UME Talbot & Dorchester

The larvae found doing significant damage in a local vineyard in Dorchester County were identified as the Grape Flea Beetle larvae. A local vintner noticed new shoots that looked like they were crippled, but sort of ignored it until 2-3 larvae per leaf were discovered on a few leaves of each vines, particularly the muscadines.

The University of Minnesota offers an excellent web site that reveals the entire story of the grape flea beetle:
http://www.vegedge.umn.edu/vegpest/grapes/FleaBeetle.htm

Grape Flea Beetle Larvae

Grape Flee Beetle Life Cycle

Grape Flea Beetles, Altica spp. are approximately 1/10 inch, long, shiny blue purple to blue green, with enlarged hind legs for jumping. Grape flea beetles overwinter as adults under the soil surface or in wood crevices, in and around the grapevines. In the early spring, adults emerge from overwintering sites, feed upon grape buds, mate and lay eggs. Larvae emerge in about two weeks and feed on leaves. Between late June and late July larvae will fall to the ground to pupate. Adult beetles emerge in late July and feed on grapevine leaves, but do not mate or lay eggs. In the fall the adults move to overwintering sites.
There is one generation per year.

Damage

Adult beetles damage primary buds when they feed on them, which prevents them from developing into shoots, which results in decreased grape yield.
Larvae feed on the foliage but this is typically limited to several leaves and vines. Fortunately, larval damage does not usually affect grape quality or yield.

Management

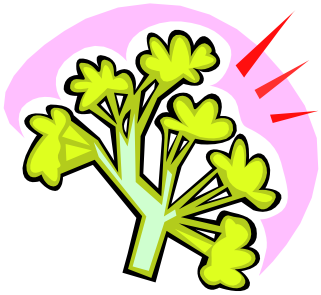
Monitor grapevines in the early spring for grape flea beetle activity. Although grape flea beetles are active later in the summer, it is not important to monitor their activity then.

Cultural/Physical

Remove debris and leaf litter in and around grapevines. This will help to eliminate overwintering sites.

IPM

In particularly heavy infestations, if >4% of grape buds are infested, spray an application of carbaryl, esfenvalerate, or pyrethrin to reduce grape flea beetles. Proper timing of the insecticide is imperative to provide good control of grape flea beetles.



Bolting in Spring-Planted Vegetables

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

Bolting is the term used for flower stalk formation in vegetables. Bolting response may be related to temperature, day length, or a combination.
Bolting in spinach, lettuce, and some radishes (oriental types) will occur naturally as days get longer. High temperatures will accelerate bolting in spinach and lettuce.

Many mustard family plants need a cold period along with lengthening days to flower. The amount of cold needed depends on the species and variety. Mustards are very prone to cold initiated spring bolting; turnips, Chinese cabbage, and salad radishes require more cold to initiate the bolting response.

In the cole crop group, cabbage planted very early in cold springs may bolt and premature flowering in broccoli, cauliflower, kale, and collards also occurs when planted too early, or if the spring is abnormally cold. However, cole crop transplants have to be of a certain age to be susceptible to this cold-initiated bolting.

Other biennial vegetables such as beets, carrots, and onions also can be induced to bolt but only once plants have reached a certain size (they are past the juvenile growth stage). This is uncommon in our region.
Controlling bolting starts with planting during the recommended planting window. Early planting will contribute to bolting in some crops (such as cabbage), late planting in others (such as lettuce).
Select varieties that are adapted to the spring planting season (an example would be Savannah mustard).
Chose slow bolting varieties of spinach and lettuce.
Choose spring adapted varieties of oriental radishes and Chinese cabbage.

One issue that complicates this is the use of high tunnels for early production. High tunnels allow for earlier planting but cold snaps still may drop temperatures enough to cause the cold induced flowering response in many of these crops.

Grower's Guide to Understanding the Protectant Fungicides FRAC Codes M1 – M9

Bob Mulrooney
DE Extension Plant Pathologist
bobmul@udel.edu

The following article is excerpted from Rutgers Plant and Pest Advisory Newsletter and is a good refresher on fungicide basics. It was written by Andy Wyenandt, Ph.D., Specialist in Vegetable Pathology, Rutgers University

Protectant (or contact) fungicides, such as copper (FRAC code M1) and sulfur (M2), the dithiocarbamates (mancozeb, FRAC code M3) and chlorothalonil (M5) belong to FRAC groups which have a low chance for fungicide resistance to develop. Protectant fungicides typically offer broad spectrum control for many different pathogens. So, why wouldn't fungi develop resistance to protectant fungicides? Protectant fungicides are used all the time, often in a weekly manner throughout much of the growing season. The answer is in their modes-of-action (MOA). Protectant fungicides have MOA's that affect (i.e., prevent) fungal development in different manners. In inorganic compounds, sulfur (M2) prevents fungal growth (i.e., spore germination) by disrupting electron transport in the mitochondria. Coppers (M1), on the other hand, cause non-specific denaturation of proteins.

Chlorothalonil (M5) inactivates amino acids, proteins and enzymes by combining with thiol (sulfur) groups. In all cases, a protectant fungicide's chemistry disrupts fungal growth and development either non-specifically or in multiple manners. Because of this, there is a much lower chance for fungi to develop resistance to them.

Protectant fungicides are contact fungicides, meaning they must be present on the leaf surface prior to the arrival of the fungus and must then come into direct contact with the fungus. Protectant fungicides can be redistributed on the leaf surface with rainfall or overhead irrigation, but can also be washed off by too much of either! Remember, that with protectant fungicides, any new growth is unprotected until the next protectant fungicide is applied, in other words, protectant fungicides are not systemic and do not have translaminar activity like some of the newer chemistries.

Protectant fungicides should be tank-mixed with fungicides with higher risks for resistance development. Protectant fungicides used in this manner will help slow (or reduce the chances for) fungicide resistance development on your farm. In any case, it's best to always follow the label and tank mix protectant fungicides with those fungicides with a high-risk for resistance development when required to do so.

Potato Disease Advisory #2

Bob Mulrooney
DE Extension Plant Pathologist
bobmul@udel.edu

Late blight Advisory **May 19, 2011**

We are using the E-WEATHER SERVICE from SkyBit, Inc. as we have in the past. The service determines specific requested weather parameters (temperature, relative humidity and rainfall) based on calculations of data from the nearest National Weather Service stations.

This weather data is used in the WISDOM software program for predicting late blight and early blight and making spray recommendations.

Location: Art and Keith Wicks Farm, Rt. 9, Little Creek, Kent County Greenrow: May 3

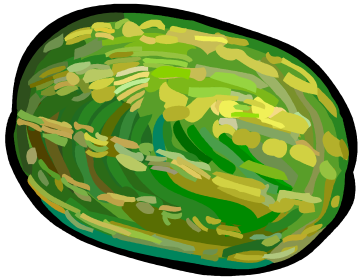
Date	DSV	Total DSV	Spray Recommendation
5/3–5/12	0	0	none
5/13-5/15	11	11	none
5/15-5/16	3	14	none
5/16–5/18	16	30	5-days

The threat of late blight from seed infection is low, but there was some in Wisconsin last season. Maine was reported to be late blight free in 2010. Be vigilant anyway, given this recent weather pattern, which is supposed to continue for several more days. The first late blight fungicide application is recommended once 18 Disease Severity Values (DSVs) accumulate from green row. Green row occurred on approximately May 3, 2011 at this location.

Please be vigilant and keep a look out for suspect infections on young plants coming from infected seed pieces! Growers opting not to use the forecast system should put the first late blight fungicide application on when the plants are 6 inches tall, and repeat every 7 days. There are numerous fungicides now labeled for late blight control; however, use of mancozeb (Manzate, Penncozeb, or Dithane) or cholorthalonil (Bravo) is still a very effective early season protective fungicide to use. A recent addition to the list of late blight fungicides available for use in DE is Presidio from Valent.

This registration came out after the 2011 Commercial Vegetable Production Recommendations was printed so it is not in the current book.

The threshold of 18 DSVs has been exceeded as of today. Thirty (30) DSVs have accumulated so far for any potatoes that established green row approximately 50% emergence) prior to and since May 3. Spraying as soon as possible with a protectant fungicide would be advised.



Watermelon Bacterial Fruit Blotch Epidemiology

By Kate Everts
MD/DE Vegetable Pathologist
keverts@umd.edu

I have continued to receive questions about bacterial fruit blotch (BFB), including how it spreads through a transplant house and the production field during the growing season. To understand BFB it is important to understand a little about its' epidemiology.

Infected transplants are the most common source of BFB inoculum in Delmarva fields. (However, it can overwinter on debris and on infected volunteer plants). The reason that transplants remain a major source of inoculum is that 100% detection of infested seed is not possible. Many steps are taken by seed companies and transplant growers to avoid infestation, detect infection, and eliminate the disease. However, currently we don't have the technology to accomplish this.

The environmental conditions in watermelon transplant production houses are highly conducive to disease development and spread of BFB. High temperatures, high humidity, overhead irrigation and high plant populations favor BFB and result in rapid symptom development. As a result, detection of BFB in transplant production is common.

BFB spreads from plant to plant on hands or equipment, in splashing water (irrigation or rain), or in aerosols. Once it lands on a plant it enters (infects) through wounds or stomates.

In commercial fields, 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 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.

Low humidity in watermelon fields prevents the development of both foliar and fruit symptoms. In fact infested seed can be produced from completely symptomless plants. Simply put, infected plants can appear symptomless. This is one reason why, during seed production, infections cannot be completely eliminated based on symptoms.

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

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