

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.

Volume 4 Issue 4 May 23, 2013

Spring Observations from WyeREC

By Michael Newell
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May 21, 2013

Tree Fruit

Peach fruit thinning is well under way. Overall it is a good fruit set. No issues with late season frost. As worker activity increases in the orchards, we need to be reminded of the Worker Protection Safety (WPS) standards with regards to Restricted Entry Interval (REI) for the various products used and that the REI may be different for the various crops we grow. Check the product label annually for changes.

Several FireBlight strikes are seen in the Asian Pear variety block. All strikes are being removed and burned.

Strawberries

Plasticulture

Virus infected Chandler plants continue to produce, but yields appear to be lower than average for our site. Gray mold symptoms have been low. Bacterial leaf spot activity has decreased with the drier, warmer weather. Plan to order your Fall plug plants in early June.

Perennial-matted row system

Varieties still in bloom will benefit from Gray mold sprays. Always rotate to different chemistries to avoid resistance problems.

**Plan to attend the 2013 Annual Strawberry
Twilight Meeting on Wednesday, May 29th from
6:00 to 8:00 P.M.**

2013 Strawberry Twilight Meeting

Wednesday May 29th
6:00 – 8:00 PM

Wye Research and Education Center
211 Farm Lane
Queenstown MD



The 2013 Strawberry Twilight Meeting at the Wye Research and Education Center will be held Wednesday, May 29, 2013 from 6:00-8:00 PM, rain or shine, at the Farm Operations Complex, 211 Farm Lane, Queenstown, MD. Directional signs will be posted.

We hope you can join us for an informative evening. Pre-registration is not necessary. Refreshments will be served.

For additional program information, contact Mike Newell at 410-827-7388 or mnewell@umd.edu.

If you need special assistance to attend this program, please contact Debby Dant at 410-827-8056 or ddant@umd.edu.

Vegetable Crop Insects

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



Melons

Be sure to scout all melons for aphids, cucumber beetles, and spider mites. We are seeing high levels of lady beetles in some fields that are helping to keep aphid populations in check. The first cucumber beetles are starting to be found in the earliest planted cantaloupe fields. As soon as we get a few consecutive days of warm, sunny weather, populations can explode so be sure to scout carefully since damage occurs quickly. Since beetles can continue to re-infest fields as well as hide under the plastic, multiple applications are often needed to achieve control.

Peppers

Be sure to sample any early planted fields for thrips and corn borers. We are finding the first corn borers in light traps; however, the populations remain low. 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. For the most recent trap catches, you can check our website at: <http://agdev.anr.udel.edu/trap/trap.php> or call the Crop Pest Hotline (in state: 800-345-7544; out of state: 302-831-8851).

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 $\frac{1}{3}$. In addition, bean leaf damage is showing up in early planted fields so be sure to watch for adult beetles. 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.

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. Watch for small corn borer larvae in the whorls of the earliest planted fields, especially fields that were planted under plastic. A treatment should be applied if 15% of the plants are infested. Low levels of corn earworms can also be found in light traps. You can call the Crop Pest Hotline for the most recent trap catches (in state: 800-345-7544; out of state: 302-831-8851) or check our website at: <http://agdev.anr.udel.edu/trap/trap.php>

Fusarium Wilt of Watermelon in the Southern US in 2013

By Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
keverts@umd.edu

I have been receiving reports of severe watermelon Fusarium wilt from states south of us. A small part of the increase has been due to infected transplants. However, most cannot be traced to transplants. Severe wilt has occurred in fields that have not had watermelon in them for 5, 7, or even 10 years. In one field, a cultivar that was resistant to race 1 of *Fusarium oxysporum* f. sp. *niveum*, had severe wilt.

There are several reasons why this may be occurring. For many years growers applied MeBr or other fumigants, there were good genetics in most diploid (seeded) cultivars, and race 1 was likely the predominant race. It is still a little early, and cold to see high Fusarium wilt incidence here on Delmarva. That could change rapidly in the next few weeks. Be on the lookout for symptoms – and remember that other pathogens such as Pythium can cause similar symptoms. Get a diagnosis if you are unsure of the cause. Fusarium wilt must be managed with multiple tactics. The following are recommendations to minimize the disease:

- Use resistant watermelon cultivars (even if they only have resistance to race 1). Also, use resistant pollenizers.
- Rotate fields at least 5 years between watermelon crops.
- Fumigate if economically feasible.
- Fertilizer can impact wilt: lime to maintain a pH of 7.0, and use nitrate instead of ammonium nitrogen.
- Avoid diseased transplants.
- Consider planting a hairy vetch or crimson clover cover crop in the fall before your watermelon crop and incorporating it as a green manure in the spring. Both cover crop species have suppressed Fusarium wilt in our trials.

Heirloom Tomatoes & Fusarium Wilt

By Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
keverts@umd.edu

As the production of heirloom tomato cultivars increase, it is important to remember that they often lack the disease resistance genes of more “modern” cultivars. We recently tested a few heirlooms in the greenhouse with a local isolate of *Fusarium oxysporum* f. sp. *lycopersici*. While the “modern” Florida 47 and Plum Dandy were resistant, Mortgage lifter, Old Brooks, and Tommy Toe were highly susceptible. Our isolate was race 1 or 2 *Fusarium oxysporum* f. sp. *lycopersici*.



Reaction of resistant and susceptible tomato cultivars to *Fusarium oxysporum* f. sp. *lycopersici*.

Supplemental Label for Fontelis Fungicide

By Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
keverts@umd.edu

The fungicide Fontelis has just received a supplemental label for several new uses, including for field, fruit and vegetable crops. A few of the new vegetable uses on the label are the following:

- In-furrow of band applications for seedling diseases of tomatoes and snap bean
 - Foliar applications for garlic rust, purple blotch and white rot on bulb vegetables such as onion
 - Foliar applications for leaf spots and powdery mildew on brassica leafy vegetables.
 - Foliar applications for leaf spots and blights of fruiting vegetables (tomato, pepper, eggplant, etc.)
 - Directed spray for basal stem rot (*Sclerotinia rolfsii*) of fruiting vegetables
 - Foliar applications of Septoria and powdery mildew on leafy vegetables
 - Foliar applications for leaf spots and anthracnose on edible podded and succulent shelled legumes
- See label for specific guidelines and additional uses.

Welcome to the University of Maryland Potato Disease Advisory

By Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
keverts@umd.edu

Potato Disease Advisory

May 20, 2013

Late blight forecasts are being generated for seven locations across the state based on the programs Blightcast/Simcast.

A preventative late blight fungicide application such as mancozeb or chlorothalonil, is recommended once 18 Disease Severity Values (DSVs) accumulate from 50% crop emergence.

The 50% emergence date was estimated to be on May 1 at locations in Dorchester County, Clinton, Owings, Severn, and White Marsh. The 50% emergence date was estimated to be May 5 in Germantown, and May 10 in Oakland. Once the first fungicide is applied, subsequent late blight sprays should be applied when 7 additional DSV's have accumulated. The forecasts also are based on the assumption that a susceptible cultivar is being grown.

All locations except Oakland have reached or exceeded the threshold of 18 DSV's. If the potatoes have not been sprayed, a protectant should be applied as soon as possible. Scout your fields regularly for

symptoms as weather is forecasted to remain favorable for late blight development. However, currently there is no late blight reported north of Florida. For updates on where late blight is occurring in the USA, go to: www.usablight.org. Any suspicious samples can be sent to the UM Plant Diagnostic Clinic or dropped off at your local Extension office.

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. **See the 2013 Commercial Vegetable Production Recommendations, Maryland:** <http://extension.umd.edu/mdvegetables/2013-commercial-vegetable-production-recommendations>

Late Blight Disease Severity Values (DSV)

Date	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25	Spray Recommendation
Dorchester	16	21	24	25	26	27	28	28	Preventative Recommended
Germantown	18	23	27	28	29	29	30	30	Preventative Recommended
Oakland	7	10	14	14	14	15	18	18	Preventative Recommended on May 24
Clinton	18	22	26	27	28	28	29	29	Preventative Recommended
Owings	14	18	22	23	25	26	27	27	Preventative Recommended
Severn	18	22	26	27	28	28	29	29	Preventative Recommended
White Marsh	12	14	18	20	22	23	25	25	Preventative Recommended
	Below Threshold								
	Equal To or Above Threshold								

Lettuce Drop

By Kate Everts, Vegetable Pathologist,
University of Delaware and University of Maryland;
keverts@umd.edu

Cool moist weather is conducive to the development of lettuce drop caused by *Sclerotinia sclerotiorum* and *S. minor*. The disease produces wet rot or watery decay at the base of plants. Small black irregular sclerotia are often present on the affected tissue (those of *S. sclerotiorum* are larger and more obvious than those of *S. minor*). Some cover crops can increase the incidence of *S. minor*.

Effective management of drop depends on whether it is caused by *S. sclerotinia* or *S. minor*. The biofungicide Contans has worked well on *S. sclerotiorum* when applied in to soil in advance, but is not effective on *S. minor*. The following fungicides also are effective: Cannonball, iprodione, Endura, or Quadris. These fungicides can be applied following transplant or at thinning.

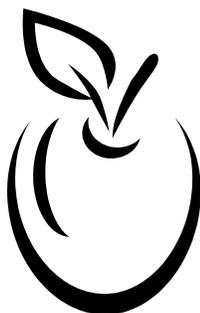


Lettuce drop (*Sclerotinia sclerotiorum*) on plant (A) and close up of sclerotia (B).

Tree Fruit Disease Update

By Dr. Kari Peter
Penn State Fruit Research and
Extension Center

<http://extension.psu.edu/plants/tree-fruit>



May 23, 2013

Weather conditions are optimal for bacterial spot on stone fruit. Fire blight infection conditions forecasted through May 26. Bacterial spot and cherry leaf spot infection periods are also now posted:

My Dad works in construction and has always been hyper vigilant about the weather. He has no less than four weather apps on his phone. This is in addition to his work's weather station being linked to his phone, as well. It took time, but my family has come to appreciate having someone who is more in tuned to Mother Nature than Mother Nature herself, especially when it comes to avoiding travel headaches during the winter months.

Since jumping into the world of tree fruit, the acorn hasn't fallen far from the tree and I find myself viewing the weather with the same level of vigilance...and enthusiasm. While I was driving into work this week, I had one thought in my mind as I peered through the dense fog: this is awesome disease weather. When combining the high humidity with the very warm temperatures, the low hum in the orchards is not coming from the sprayers, but the party the pathogens are having in the trees.

Fire Blight

Fire blight symptoms are starting to pop up in the region, particularly in the western half of Pennsylvania. We're past the most susceptible period for fire blight infection, but severe storms that have the possibility of producing hail are forecasted for today. If your orchard is affected by hail, be sure to apply streptomycin within 24 hours to prevent new infections. This instance is the exception to the rule for post-bloom streptomycin sprays. If fire blight strikes are present, do not spray streptomycin since it will be ineffective as streptomycin will not be curative during an active infection. Infected limbs should be removed as soon as symptoms appear and before extensive necrosis. Prune blighted strikes 8 inches below the margin of the visible infection.

Between cuts, pruning tools should be disinfected using a bleach solution to minimize transferring the bacteria to uninfected parts of the tree. All infected plant material needs to be removed from the orchard. If the number of strikes is too numerous and can't be removed quickly after they've appeared, remove the strikes where the main stem is threaten. Otherwise, it's best to wait since the bacteria will not be an issue once the tree stops growing.

Bacterial Spot

We've had great bacterial spot weather this week. Bacterial spot is a serious disease of peach, nectarine, apricot, plum and almond. The bacterial cells overwinter in cankers at leaf scars. Disease is favored by warm temperatures 70 to 85°F and light rains or heavy dew (conditions similar for fire blight infection). Windy weather helps disease development and spread.

Infections occur only when leaves are wet. Not to be confused with nitrogen deficiency or spray injury, bacterial spot infection first manifests as small angular, grayish, water-soaked lesions located along the midrib, leaf tip, or leaf margin. As the lesions become larger, they will turn brown to black, with the center of the lesion eventually dropping out resembling a shot-hole appearance. Infected leaves will turn yellow and drop prematurely. Fruit symptoms are first visible about 3 to 5 weeks after petal fall as small water-soaked, brownish lesions. During periods of high humidity, these lesions may exude gum.

Control of the disease is most effective before symptoms appear. Growers are encouraged to use oxytetracycline (Mycoshield, Fire Line) to reduce infections of bacterial leaf spot. Oxytetracycline suppresses the bacteria, but does not kill it, so disease cannot be completely eliminated to prevent leaf defoliation and fruit infection. During dormancy, copper applications are also effective for controlling bacterial spot. Use of resistant peach cultivars is the best line of defense for dealing with bacterial leaf spot; however, plums, apricots and nectarines are not as common.

The [latest infection periods](#) are posted for apple scab (AS), fire blight (FB), cedar apple rust (CAR), and powdery mildew (PM). In addition, we are also posting infection periods for bacterial spot (BS) and cherry leaf spot (CLS).

Note: When controlling for disease, weather and tree growth conditions need to be monitored at a local level within one's own orchard.

Additional resources

Guidance and recommendations:

For those in Pennsylvania, see [The Pennsylvania 2012-2013 Tree Fruit Production Guide](#).

For the folks in Maryland, see the [2013 Spray Bulletin for Commercial Tree Fruit Growers](#).

Before chemical products are applied, be sure to be in compliance by obtaining the current usage regulations and examining the product label. Product information can be easily obtained from [CDMS](#).

Spotted Winged Drosophila (SWD)

Submitted By Bryan Butler*

Senior Agent, Carroll County & Mid-Maryland Tree Fruit Agent, UME

SWD Life Cycle

SWD progresses through 4 life stages: egg, larva, pupa, and adult. The time required to complete each life stage is dependent on temperature with warmer temperatures speeding up development until they become too high. For example, in one study, an increase in temperature (from 59 to 77 degrees F) decreased the time required to complete all 4 stages from 23 days to 10 days.

SWD primarily overwinter as adults in protected locations, and females may become active a few days earlier in the year than males. Adult SWD may be found flying even during the winter on abnormally warm days, but generally they are expected to emerge in the northeast in May. In 2012, the first year with overwintered SWD in PA, which had an abnormally warm and early spring, the first SWD in field-grown berry crops were caught in mid-June. Detections in traps in PA became more routine in early to mid July.

Adults live for 2 to 9 weeks, except for overwintering individuals which live longer, allowing them to survive from late fall into early summer. Females begin laying eggs in fruit as it starts to turn color. An individual female may lay between 100 and 600 eggs during her lifetime depending on the host crop and the temperature. Depending on the temperature, eggs may hatch in as little as 2 hours to as much as 3 days. Larvae (maggots) feed in the fruit for 3 to 13 days, and pupation lasts for 3 to 15 days either inside the fruit, or on the ground. Females emerging from pupation begin laying eggs an average of 2 days after emergence.

Thus, multiple generations per year occur with 8-9 generations per year expected for the mid-Atlantic region, and the proportion of fruit affected can increase rapidly during the season. As with all fruit flies, SWD can continue to breed in dropped fruit residues after harvest

has been completed, though they seem to prefer fruit on the bushes. Other species of fruit flies are more commonly found in overripe dropped fruit on the ground and also multiply in fruit initially damaged by SWD.

Host Plants and Feeding Preferences

SWD was originally called the "cherry vinegar fruit fly" because it has been problematic on cherries in its native region and can now be found in cherry orchards in the east, though typically not until the end of the harvest season. In the northeastern U.S., raspberries and blackberries have been preferred crops for SWD with fall-harvested cultivars at most risk because of late-season populations increases of SWD. On fall raspberries, SWD may be found feeding on juice on raspberry receptacles even after the fruit has been harvested (Fig 1).



Fig 1.

Day-neutral strawberries harvested in the fall have also been severely injured in some cases. Other crops in the northeast which suffered significant losses have included summer raspberries, cherries, and mid-to-late season cultivars of blueberries. Peaches, nectarines, and hardy kiwi have also been affected. To date, SWD has not been problematic on short-day strawberries in the Northeast because of the early season harvest dates. With grapes, the main effect of SWD has been that oviposition wounds serve as entry points for fungi that cause fruit rots or encourage feeding by other insects, though SWD appears not to multiply on grapes. Wild plants that can be hosts include wild raspberries, blackberries, blueberries, elderberries, pokeberry, and even dogwood, viburnum, and bush honeysuckle. SWD has also been found on tomatoes, though primarily when the fruit is already cracked or injured, and has been found in large numbers on cull muskmelons and cantaloupes discarded in the field.

Site-Specific Effects

The extent to which a particular crop is affected by SWD appears to vary widely with availability of alternate host plants throughout the growing season. This places diversified fruit farms with multiple crops particularly at risk, especially those that grow attractive crops that mature throughout the season. Which other host plants

are in the area, SWD host preferences, size of plantings, pesticide applications, and the relative timing of fruit ripening among hosts in the area will affect SWD incidence on a particular crop. For example, allowing discarded crops such as muskmelons to lay in the field was found to have devastating consequences for fall berry crops.

Conversely, small isolated plantings of berry crops in open areas, such as those surrounded by agronomic crops, have remained either free or only minimally affected by SWD, indicating that rearranging farm crop layout may be helpful.

In Pennsylvania, high populations of SWD were found in cherry orchards and wild blackberries well into the fall, indicating that farms with these plants in the vicinity should be closely monitored the following spring. Wooded settings and nearby unturned compost piles also may serve as overwintering sites, and thus nearby fields may be at greater risk.

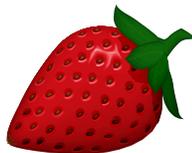
Fruit variety grown also affects SWD preferences. Generally, darker-colored fruit is preferred over light-colored fruit, and a thicker/tougher skin may dissuade SWD from choosing certain varieties. Sugar or volatile levels of individual varieties could play a role as well, though little data exists in this area.

Monitoring each susceptible crop on a farm is strongly recommended, as a complete picture on which sites are most at risk is probably farm-specific. See the fact sheet "Monitoring for Spotted Wing Drosophila" for additional information on this topic.

*Prepared by K. Demchak, D. Biddinger, and B. Butler.
Photos: D. Biddinger.

Strawberry Notes: Crop Progress and Virus Situation Update

By Gordon Johnson,
DE Extension Vegetable & Fruit Specialist;
gjohn@udel.edu



We have a very late crop of strawberries this year. Plasticulture strawberries are finally in full production but reports are that the crop is lower yielding this year. We had some heavy wind storms that shredded row covers earlier this year leaving plants unprotected until recovered. Wild honey bee activity is down due to winter bee kills so only pollination from rented hives has been effective. Cold windy and rainy weather has also kept bees from flying during some of the bloom period, also reducing berry size in some cases.

Another factor has been virus infected plants that growers received this past year. These plants originated from tips grown by a nursery in Nova Scotia. Several growers on Delmarva received virus infected plants from this source. Strawberry Mild Yellow Edge Virus (SMYEV) and Strawberry Mottle Virus (SMoV) were identified in

these plants. Symptoms included poor growth in some plants with older leaves turning red in color, leaf edges on new leaves showing a distinct yellowing, and some leaf margins becoming necrotic.

According to Chuck Johnson, Extension Plant Pathologist for Virginia Tech, "There is no cure for plant virus infection. Once infected, plants are infected for life, and every cell in an infected plant will eventually contain virus. There are no "silver bullets" or miracle cures, despite what some may claim. Infected plants can't be cured, although growers could see some improvement in their appearance and growth during the spring. Those involved in strawberry plant production in Nova Scotia are aggressively working to correct their virus situation.

Although many growers consider carrying strawberry plants over from one season to another, 2013 looks to be a very poor year for this. If possible, all strawberry plants should be destroyed after this season's harvest is completed, to avoid potential carry-over of SMYEV and SMoV. Leaving potentially infected plants in the field this summer risks virus spread into next years' crop. Fields in matted-row production should be monitored for potential virus incidence as well. Southern Region strawberry research and extension personnel met with national experts and Canadian representatives in late March to plan methods to avoid a repeat of this coming fall."

We had frost in some areas on Monday and Tuesday and temperatures in the 80s expected later in the week. Because our strawberry crop is so late, strawberries are still blooming. These blooms have the potential to produce ripe berries in 4 weeks. To keep plants blooming and fruit setting during hotter periods where temperatures are in the mid-80s or above, cooling is advised. Run the drip irrigation very early in the morning and again in the afternoon to keep plants well watered and bed temperatures down. Evaporative cooling using mist or sprinklers can work but increases the risk of Botrytis, which may outweigh its usefulness. Shadecloth may be an option in smaller plantings and straw much over exposed black plastic can help keep beds cooler.

A New Issue of the Ag Marketing Newsletter May 2013 is Now Available

View the newsletter at:

https://www.extension.umd.edu/sites/default/files/docs/newsletters/AgMarketingNewsletter_May2013_0.pdf

TOPICS IN THIS ISSUE INCLUDE:

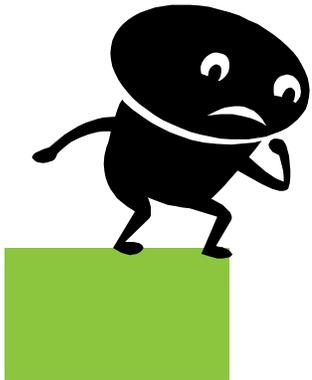
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- **Did You Know: The Menu that Started a Revolution**
- **Excel Worksheet Helps Determine Retail Prices for Farm-Raised Meat Cuts**
- **Useful On-Line Marketing Resources**
- **Processing and Selling Value-Added Food Products in Maryland**

The Ag Marketing Newsletter is published periodically by the University of Maryland Extension Agricultural Marketing Program and it is written and edited by Ginger S. Myers, Marketing Specialist and Director of the Maryland Rural Enterprise Development Center. Comments and suggestions regarding the newsletter are always welcome. References to commercial products or trade names are made with the understanding that no discrimination is intended and no endorsement by University of Maryland Extension is implied. To avoid missing any notifications, please keep us informed of changes to your e-mail address so we can update our list. To subscribe: email to listserv@listserv.umd.edu — in the body of the message, type subscribe AGMARKETING name-of-subscriber (example: subscribe AGMARKETING John Doe)

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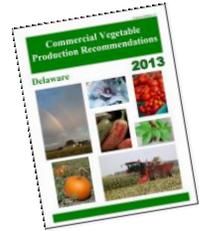
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See the Attachments!

- 1) **Section 24c Gowan Malation 8 Flowable for SWD on Cane Berries**
- 2) **Section 24c Gowan Malation 8 Flowable for SWD on Blueberry**

Commercial 2013 Vegetable Production Recommendations Maryland EB 236



On-Line at:

http://mdvegetables.umd.edu/files/EB-236_2013RecGuide.pdf

Also available in a new very interactive format at the Delaware Extension site at:

<http://extension.udel.edu/ag/vegetable-fruit-resources/commercial-vegetable-production-recommendations/>

Vegetable & Fruit Headline News

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2013 from April through September on the following dates: March 21; April 18; May 9 & 23; June 6 & 20; July 11 & 25; August 15; September 12.

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Article submission deadlines for 2013: March 20;
April 17; May 8 & 22; June 5 & 19; July 10 & 24; August 14;
September 11.

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GOWAN MALATHION 8 FLOWABLE

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EPA Reg. No. 10163-21

SLN No. MD-130004

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ACTIVE INGREDIENT:

	% By Wt.
Malathion (O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate):	79.5%
INERT INGREDIENTS	<u>20.5%</u>
	TOTAL 100.0%

Contains Petroleum Distillates
Contains 8 lbs. Malathion per gallon

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- This labeling must be in the possession of the user at the time of pesticide application.

DIRECTIONS FOR USE

CROP	REI	RATE (PTS/ACRE)	PEST	RESTRICTIONS
BLACKBERRIES (1), BOYSENBERRIES (1), DEWBERRIES (1), LOGANBERRIES (1), RASPBERRIES (1)	12 hours	Up to 2	Spotted Wing Drosophila	The maximum application rate is 2.0 pints of product per acre; the maximum number of applications per year is 4; and the minimum retreatment interval is 7 days. Do not exceed a total maximum use rate of malathion from all sources of 8 lbs. ai per acre per year. Do not apply within 1 (one) day of harvest.

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FIFRA §24(c) SPECIAL LOCAL NEED REGISTRATION

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF MARYLAND
FOR CONTROL OF SPOTTED WING DROSOPHILA IN BLUEBERRIES

GOWAN MALATHION 8 FLOWABLE

AGRICULTURAL INSECTICIDE

EPA Reg. No. 10163-21

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Malathion (O,O-dimethyl phosphorodithioate of diethyl mercaptosuccinate):	79.5%
INERT INGREDIENTS	20.5%
	TOTAL 100.0%

Contains Petroleum Distillates
Contains 8 lbs. Malathion per gallon

KEEP OUT OF REACH OF CHILDREN
CAUTION

- It is a violation of Federal law to use this product in a manner inconsistent with its labeling.
- Follow all applicable directions, restrictions, Worker Protection Standard (WPS) requirements, and precautions on the EPA registered label for Gowan Malathion 8 Flowable (EPA Reg. No. 10163-21).
- This labeling must be in the possession of the user at the time of pesticide application.

DIRECTIONS FOR USE

CROP	REI	RATE (PTS/ACRE)	PEST	RESTRICTIONS
BLUEBERRIES	12 hours	Up to 2.5	Spotted Wing Drosophila	The maximum number of applications per year is 2; and the minimum retreatment interval is 7 days. Do not exceed a total maximum use rate of malathion from all sources of 5 lbs ai per acre per year. Do not apply within 1 (one) day of harvest.

IMPORTANT: This product is sold subject to the Conditions of Sale and Warranty and Liability Limitations set forth on the container label.

24(c) REGISTRANT: Gowan Company
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