

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.

Issue #4 May 6, 2010



## 2010 Strawberry Twilight Meeting

Wednesday May 19th

6:00 – 8:00PM

Wye Research and Education Center  
211 Farm Lane  
Queenstown MD

**Please join us for an evening in the strawberry field.**

- **Hear University and USDA fruit specialists discuss strawberry production systems.**
- **Interact with specialists to discuss concerns you may have in your strawberry operation.**
- **Hear the details of a new MDA specialty crop grant that will begin this summer at WREC producing out-of-season blueberry, bramble, and strawberries.**

**What you will see:**

- **Strawberry production in High Tunnels (4 varieties and several USDA advanced selections)**
- **Plant-based bio-fumigation trial used in the annual plasticulture system**
- **Early and late planted Chandlers managed in the Fall with and without floating row covers**

Desserts will be available following the meeting. No pre-registration required, however, if you need special assistance in order to attend the program, please call Debby Dant 410-827-8056 X115, no later than May 12, 2010.

**\*\*\*IMPORTANT NOTE\*\*\***

**THIS YEAR'S TWILIGHT WILL BE HELD IN THE STRAWBERRY FIELD (RATHER THAN IN THE FARM SHOP). PLEASE FOLLOW POSTED SIGNS, WHICH WILL DIRECT YOU TO THE PROPER FIELD AND PARKING AREA.**



## Spring Observations from WyeREC

By Michael Newell  
Horticultural Crop Program Manager

### High Tunnels

Harvest of short-day varieties is near completion in the tunnels. Aphids, two-spotted mites and gray mold were all kept in check with a few well-timed spray applications. Decisions about how to manage the tunnel after strawberry harvest will have to be made. To make the best use of high tunnels, growers will have to decide how best to utilize them to benefit their own operation. It has been shown that most all vegetable crops will perform well in tunnels. The real economic benefit of high tunnel use is to be able to produce a local product before it could be grown outside without a tunnel. Can you sell a high tunnel tomato for more than a field grown tomato if they are available at the same time? In a trial last year at WyeREC, we compared high tunnel and field grown tomatoes. We were not able to plant the tunnel as early as we had hoped (April 16) and we followed with the outside planting 2 weeks later. We did not get any advancement in early ripening in the tunnel. The real benefit came with the protection from the excessive rainfall we had in 2009. Overall the yields were the same; however the marketable fruit from the tunnel was at least 30% greater. This was achieved without any fungicide sprays in the tunnel and a regular fungicide program on the outside tomato.

I am not promoting the rotation of tomato with strawberries. I am still a firm believer in not planting strawberries after any of the *solanaceous* crops. We are still learning how to manage multiple-crops within a high tunnel system given the challenges of crop rotations and lack of high tunnel mobility. Economically, the grower will have to decide how to best utilize these tools and how they may work in their own operation.

## Annual Strawberries

Our field grown Chandlers began ripening on May 3. This timing complemented our high tunnel production as if we planned it that way. Well we actually did plan it that way. The Sweet Charlies in the tunnel began producing about 3 weeks prior to the Chandlers in the field. The 2010 season is about 2 weeks ahead of the 2009 season. Berry size and flavors have been outstanding. A somewhat drier spring season allowed for better water management, a fertility program using a ratio of 2 parts potassium to 1 part nitrogen for the spring applications may also have contributed to good flavors. Regular leaf analysis to manage fertility levels kept us from possibly over applying nitrogen which can lead to soft, low-flavored fruit.

The early-season heat wave back in April hit us harder than I first realized. We lost unopened flower buds. I did not use over-head irrigation to cool the plants and I paid the price. I instead used the alternate approach of keeping the plants fully hydrated by running the drip longer each morning and relying on the plants own transpiration cooling mechanisms. Although it appears that opened flowers came through fine (big berries now), the third and fourth flowers on each truss were lost. I may be looking at our lowest yields on record here at WyeREC!

## Casual Observations from Southern Maryland

By Ben Beale  
Extension Educator & CED, Agriculture  
St. Mary's County

- ✓ Farmers are busy preparing land for planting and laying plastic.
- ✓ Some folks are planting out cucurbit crops.
- ✓ High tunnel tomatoes have fruit 2-3 inches now.
- ✓ Cool, wet weather as of late is creating some problems with seedling disease and seed corn maggots.
- ✓ Sweet corn fields are progressing as well with earliest corn 15-20 inches in height.

## Supplemental Label for Belay

By Joanne Whalen  
Extension IPM Specialist  
jwhalen@udel.edu

Belay (clothianidin) – A supplemental label was recently approved by EPA. Crops included on the supplemental label include number of vegetable crops (brassicas, cucurbits, fruiting vegetables, and leafy vegetables) as well as peaches. In addition to the label on the pesticide container, you must also have a copy of the supplemental label in your possession to use Belay on these new crop additions:

<http://www.cdms.net/LDat/Id836008.pdf>



## Asparagus Beetle Damage Greater this Season

By Gerald Brust  
IPM Vegetable Specialist, UME

I have seen and gotten calls about greater amounts of common asparagus beetle feeding damage to asparagus this spring than normal. As the name implies the common asparagus beetle, *Crioceris asparagi*, is the asparagus pest most frequently seen in the field and causes most of the damage (fig. 1). Adult beetles are ¼-inch long with oval-shaped bodies and are bluish-black with six cream colored spots on their backs. Adult spotted asparagus beetles are reddish-orange with twelve black spots. The larvae of both species are slug-like with visible heads and legs. Common asparagus beetle larvae are light gray with a black head, while spotted asparagus beetle larvae are orange.



Fig. 1 Common asparagus beetle adult

Common asparagus beetle adults overwinter in sheltered locations such as under loose tree bark or in the hollow stems of old asparagus plants. Adults appear as the asparagus spears are emerging. The beetles lay numerous dark brown, flat, oval-shaped eggs on end in rows on the spears or ferns (fig. 2). The eggs hatch within a week. The larvae move to the ferns to start feeding. They feed for about two weeks and then drop to the ground to pupate. About a week later, adults emerge to start another generation, feeding on the ferns for the remainder of the growing season.

Feeding on the spears by adults can cause browning and scarring (fig. 2) and may cause spears to twist into a shepherd's crook form (fig. 3). When the ferns appear the common asparagus beetle larvae and adults will feed heavily on them, which can weaken the plant and reduce the plant's ability to provide nutrients for the following season. Numerous eggs of the common asparagus beetle laid on the spears can make the asparagus unmarketable.

Start scouting after asparagus plants emerge and continue throughout the season. The best time to check for asparagus beetles is in the afternoon when they are most active. If 10% of plants have adult asparagus beetles or  $\geq 20\%$  of spears have eggs management is needed.

The following chemicals can be used to control beetles and larvae: carbaryl, malathion, and permethrin (all have a 1-day PHI). Sanitation practices, such as elimination of plant residue in and around the asparagus field will decrease the number of overwintering sites available to adults. The parasitic wasp *Tetrastichus asparagi* parasitizes asparagus beetle eggs and can sometimes provide up to 70% control. Lady beetle larvae and other predators may also be active, and will consume both eggs and larvae.

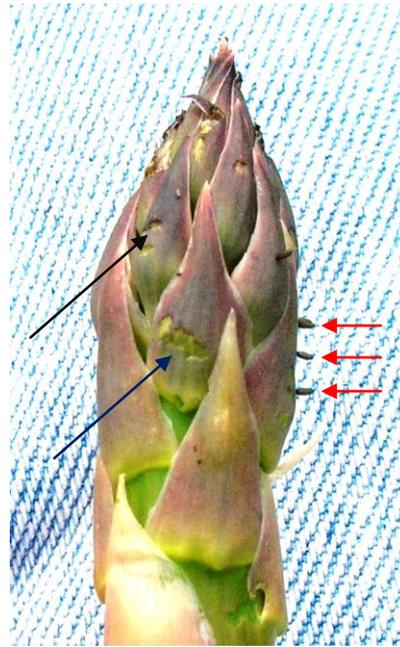


Fig. 2 Asparagus beetle eggs (red arrows) and beetle feeding damage (black arrows) on spear tip



Fig. 3 Asparagus beetle damage to spear, "Shepherd's crook"

# Seedcorn Maggot Damage in Early Planted Cucurbit Fields

By Gerald Brust

IPM Vegetable Specialist, UME

There have been several reports throughout Maryland of early planted watermelon and cantaloupe fields with seedcorn maggot (SCM) damage. The damage to transplants is often thought to be just damping-off or some other soil disease, but growers need to split the stems of the plants to see if they contain any seedcorn maggots (fig 2). Stems can often contain 12-45 maggots. The stem often looks whole above ground level, but below ground the stem and roots are often shredded (fig. 1). The seedcorn maggot is an early season pest of many different crops. Most of these crops are direct seeded, but transplants are also attacked. It is more of a problem during damp, cool periods and in fields with manure or decaying residue. This year has been perfect for the fly to cause damage as we had a very early warm up proceeded with a cool down. This caused growers to start earlier and it also caused more of the pest population to become active early.

The seedcorn maggot is a pale, yellowish-white maggot found burrowing into seeds or transplants. Full grown maggots are legless, about 1/4 inch long, cylindrical, narrow and tapered. Maggots lack heads and legs, but have small black mouth hooks in front (fig. 3).

The seedcorn maggot spends the winter as a larva inside a puparium in the soil. When mature, maggots pupate and emerge in April and May, mate, and lay eggs on moist soil high in organic matter, or near decaying vegetation or at the base of transplants. The adult, which resembles a small house fly, is a gray to brown fly about 1/5 inch long that can be seen flying over freshly worked soil or where manure has been spread.

Seedcorn maggot eggs hatch a few days after being laid and small, white maggots begin to feed on and burrow into plants or seeds. The maggots usually feed for 2 to 3 weeks before pupating in the soil. Adults emerge from the pupal case in about 7 to 14 days, mate, and begin a new cycle. The entire life cycle is as quick as 21 days, resulting in 3 or more generations each year.

There are no rescue treatments for infested plants. Fumigation and soil insecticides do not do a very good job of reducing SCM infestations since the maggots attack the seedling just below soil level. Even the use of systemic insecticides does not completely control the maggot infestation if the weather is cool and

damp. The best control is a warmed soil. My research has shown that when temperatures reach 71° F at a 4 inch depth under BLACK PLASTIC, flies will stop laying eggs and larvae do not survive well. Row covers over the newly set transplants will also work to keep flies from laying eggs in the transplants

Fig. 1 Transplant damaged by seedcorn maggot



Fig. 2 Maggots inside split stem of transplant



Fig. 3 SCM showing black mouthparts (white arrow)



# Timber Rot, White Mold: Sclerotinia Rot in Spring Greenhouses & High Tunnels

By Kate Everts  
Extension Vegetable Plant Pathologist, UME

The fungus *Sclerotinia sclerotiorum* along with other *Sclerotinia* spp. cause disease on hundreds of plant species including most vegetables. Diseases caused by *Sclerotinia*, such as timber rot or *Sclerotinia* rot are becoming very serious problems in vegetables grown in greenhouses and high tunnels. The diseases overwinter in the soil as large resistant sclerotia, which multiply during years of susceptible crop production. However, even when a high tunnel is moved between seasons, the disease can be severe because the fungus overwinters both in and around the greenhouses and tunnels. The **primary** source of inoculum may originate inside as well as outside these structures. In the spring when the soil is moist, the fungal fruiting bodies emerge and spores (ascospores) are released. These ascospores will be released continually throughout the spring and are carried throughout the house if originating inside the structure. If the ascospores originate outside the house, they are carried on wind through the doors, vents or raised sides of nearby structures. Ascospores are usually carried or dispersed less than 330 feet. Therefore it is especially important to use sanitation within 330 feet of a greenhouse or high tunnel. No plants, leaf clippings, potting mix, or soil from the greenhouse or high tunnel should be discarded within this area.

Inside the greenhouse or high tunnels, improve air flow in and around the plants by increasing in-row spacing and trellising plants to reduce disease incidence. Conversely, the proliferation of leaves near the soil will increase disease. The biocontrol Contans has been effective in managing *Sclerotinia* diseases in the field. The active ingredient of Contans, *Coniothyrium minitans*, parasitizes the overwintering (or surviving) sclerotia. If Contans is sprayed on the area around the high tunnel and watered into the soil, it may help reduce ascospore formation in future years. Contans must be sprayed long before disease development occurs (2 months) to be effective within a crop year. Because the product is living, handle it carefully prior to use. Contans would be a good choice to try in fields or areas around greenhouses and high tunnels that are used repeatedly for a susceptible crop. See the Contans label for additional information.

Other fungicide products labeled for *Sclerotinia* in the greenhouse are Botran and Terraclor. Maximizing fungicide coverage to plants during application is important. Apply fungicides prior to disease development for greatest efficacy. Keep in mind that the fungus becomes established on senescing tissue first and then colonizes the plant. See the Botran and Terraclor labels for information on individual vegetable crops.

The black sclerotia on the small tomato fruit will overwinter and result in ascospore formation in future years. The fruit should be either buried or discarded more than 330 feet from the high tunnel.



Image courtesy of B. Beale



Image courtesy of R. D. Myers



Dear Grower Participant:

Thank you for participating in the Hyattsville Produce Safety Stakeholders' Discussion Series meeting. More than 200 growers, university extension agents, Food and Drug Administration and U.S. Department of Agriculture officials, and Maryland State officials participated throughout the day. Your involvement, especially in the break-out sessions, was key to the success of the event. In the evaluation sheets, participants responded very positively, and also gave us good feedback on how to improve upcoming meetings. Thank you for that.

As we mentioned at the meeting, it is important for you to stay involved in the FDA rule-making process. To assist you in that, we developed a document that provides information on how to contribute additional comments to the FDA. You can find a copy of this document in your program folder, as well as attached to this email.

To stay up to date on developments, please visit the Produce Safety Project Website at:

[www.producesafetyproject.org](http://www.producesafetyproject.org)

In addition, remember that copies of the papers presented at the meeting, as well as shorter summaries, are available on our website. Finally, we will also be posting audio recordings of the plenary sessions on the site.

Thank you, again, for participating in this important meeting. Please don't hesitate to contact us at:

[cch48@georgetown.edu](mailto:cch48@georgetown.edu) or 202-687-2976 with any additional questions.

Sincerely,

Jim O'Hara  
Director  
Produce Safety Project

Erin Bongard  
Deputy Director

**Thanks for partnering with University of Maryland Extension, and supporting our programs.**

### ***Vegetable & Fruit Headline News***

A bi-weekly publication for the commercial vegetable and fruit industry available electronically in 2010 from March through September on the following dates: March 18; April 1 & 15; May 6 & 20; June 3 & 17; July 8 & 22; August 5 & 19; September 2 & 16.

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#### **Submit Articles to:**

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**Article submission deadlines for 2010:** March 17 & 31; April 14; May 5 & 19; June 2 & 16; July 7 & 21; August 4 & 18; September 1 & 15.