The 2017 Mid-Atlantic Fruit and Vegetable Convention (MAFVC) is held each year to provide the latest updates and important information to fruit and vegetable growers from Maryland, New Jersey, Pennsylvania, Virginia and surrounding states. The conference will be held at the Hershey Lodge and Convention Center in Hershey, PA. on January 31 - February 2, 2017.

The program will consist of six or more concurrent educational sessions offered during the three days. Sessions on tree fruits, small fruits, wine grapes, organic and general vegetables, pesticide safety, and many other topics are scheduled. The full program is provided at the end of this newsletter.

As usual, there will be an extensive trade show, including displays of horticultural equipment, marketing merchandise, packaging, seed companies, fruit nurseries, as well as pesticides and other supplies and services for commercial growers. Pesticide applicator credits will be available for Maryland, Pennsylvania, and New Jersey growers that attend the sessions.

The program is jointly sponsored by Maryland State Horticultural Society, University of Maryland Extension, State Horticultural Association of Pennsylvania, Pennsylvania Vegetable Growers Association, Pennsylvania State University Cooperative Extension, New Jersey State Horticultural Society, Rutgers Cooperative Extension, Virginia Horticultural Society, and Virginia Cooperative Extension.

Maryland growers are reminded to pre-register (attached registration form or online) through the Maryland State Horticultural Society. Pesticide credits will be available at the meeting.

And just a reminder, updates on the latest UMD and Extension research for the commercial fruit and vegetable industry are presented in monthly issues of the Vegetable and Fruit Headline News from UME. If you would like to view archives or the latest edition, please go to:

VEGETABLE & FRUIT HEADLINE NEWS ARCHIVE: http://go.umd.edu/5ic
SPECIAL RESEARCH EDITION (OCT. 21, 2016): http://go.umd.edu/vfn_2016researchedition

This and other information is distributed though my fruit email list. If you are not currently receiving my emails, please email sbarnes6@umd.edu to be added to the list.

I look forward to seeing you in Hershey!
University of Maryland and University of Maryland Extension Team to Offer Combined FDA-Approved FSMA Trainings

Justine Beaulieu, Faculty Assistant, University of Maryland, College of Agriculture and Natural Resources - Plant Science and Landscape Architecture

Rohan Tikekar, an assistant professor in the Department of Nutrition and Food Science at the University of Maryland, along with a team of other university and university extension collaborators, was recently awarded a United States Department of Agriculture (USDA) - National Institute of Food and Agriculture (NIFA) Food Safety Outreach Program grant to offer FDA-approved FSMA trainings throughout the state. The trainings combine curricula from the two Food Safety Modernization Act (FSMA) rules that will impact farmers and processors the most, the Produce Safety and Preventive Controls rules.

The goal is to consolidate training and minimize costs for those growers who are also processing and need to get these certifications. Other collaborators include Justine Beaulieu, a Faculty Assistant and Good Agricultural Practices (GAP) Educator in the Department of Plant Sciences and Landscape Architecture; David Martin, a University of Maryland Extension (UME) Senior Agent in Baltimore County; Ginger Myers, a UME Agent Associate in Western MD; and Shauna Henley, a UME Agent also in Baltimore County.

Tikekar is a Lead Trainer for the FDA’s Food Preventive Controls Alliance (FPCA) Preventive Controls training and will be leading that part of the course, while Beaulieu and Martin are Produce Safety Alliance (PSA)-certified trainers and will be helping to teach the Produce Safety rule course. Each training will be four days long (one day for produce safety and three for preventive controls). Attendees will earn their certifications while gaining a comprehensive understanding of how to conduct risk analyses in growing and processing.

The team will hold the trainings in three locations throughout the state:

- **February 8-11, 2017**: UME-Baltimore County office, Cockeysville, MD
- **February 22-25, 2017**: Wye Research and Education Center, Queenstown, MD
- **March 8-11, 2017**: Western Maryland Research and Education Center, Keedysville MD

**The cost will be:**
- $20  Produce Safety Training ONLY
- $40 Preventive Controls (PC) Rule Training ONLY
- $50  Combined Training (Produce Safety & PC Rule Training)

To register, use the link: https://goo.gl/forms/zgkLbSjZmdBHlCtj2 or use QR code below.

**Contact:**
- Rohan V. Tikekar (301-405-4509, rtikekar@umd.edu)
- Justine Beaulieu (301-405-7543, jbeauli1@umd.edu)

---

Optimizing Carrier Water Volume for Enhanced Spray Coverage in Raspberries

Maggie Lewis1, Bryan Butler2, and Kelly Hamby3

1 Department of Entomology, University of Maryland. 2 Carroll County Extension and Department of Plant Sciences and Landscape Architecture, University of Maryland

Spray coverage may be an important factor for effectively managing spotted wing drosophila (SWD). Many of the insecticides used to manage SWD primarily target the adults and require direct contact. However, most of SWD’s host plants, including raspberries, blackberries, and blueberries, have dense foliage, which can block pesticide sprays from penetrating the entire plant. A recent study in blackberries reported higher rates of larval infestation in the center of the plant, suggesting that there are higher rates of SWD egg-laying in the inner canopy. Failure to spray this region of the bush with insecticides may create a refuge for SWD. In this study, our primary objective was to improve spray coverage in fall-fruited red raspberries, particularly in the inner canopy, by optimizing the carrier water volume. We hypothesized that using a higher volume would improve spray coverage.

**Methods:** Spray trials were conducted at WMREC (Keedysville, MD) on two dates: 8/31/16 and 9/21/16. Fall-fruited red raspberries were sprayed at two carrier water volumes, 50 and 100 gallons per acre (GPA), using a Durand Wayland 100 Sprayer, which had a 24-inch fan and the bottom 3 nozzles turned on. Vision Pink Foam Marker Dye (Garrco Products Inc.) was added to the tank mix, and white spray cards were deployed in the inner and outer canopy of the raspberry plant at three heights: High (1.5 ft. above ground), Medium (3.0 ft. above ground), and Low (4.0 ft. above ground). Once the residues dried, the

---

Continued on page 3
Optimizing Carrier Water Volume for Enhanced Spray Coverage in Raspberries  Continued from page 2

spray cards were scanned, and the percentage of the card dye pink (percent coverage) was calculated using ImageJ software.

On 8/31 the sprayer was configured primarily for tree fruit, resulting in sparse coverage in the lower canopy (Fig. 1). On 9/21, we lowered the sprayer to its lowest height setting and adjusted the angle of the nozzles by turning the two lowest sets of nozzles downward, which increased the amount of spray hitting the raspberry foliage.

Results: Percent coverage varied significantly in response to both spray volume and the card’s location. On 8/31, coverage was very poor in the bo high” canopy ranged from 7.19 - 94.77% at 100 GPA. The main factor contributing to this variability was the amount of foliage covering the spray cards; even at 100 GPA, dense foliage limited pesticide spread throughout the canopy.

There were no significant differences in coverage between 50 and 100 GPA in the inner canopy on either trial date, regardless of height. However, a higher spray volume did improve coverage in the outer canopy. On 8/31, differences in percent coverage between 50 and 100 GPA varied depending on spray card height. There were no differences in coverage in the lower canopy, but percent coverage was higher at 100 GPA in both the middle and high canopy (Fig. 1b). On 9/21, percent coverage in the outer canopy was significantly higher at 100 GPA across all heights (Fig. 2).

Increasing the carrier water volume improved coverage in the outer canopy, but did not have any significant effects in the inner canopy, which suggests that optimizing the carrier water volume alone may not be enough to ensure adequate spray coverage. Further study is needed to determine the best system for growers to optimize spray coverage, and this study will be continued in 2017.

Acknowledgements: Thanks to Galen Dively and Douglas Price for helping apply spray treatments at Keedysville, to Adrienne Beerman, Shulamit Shroder, Jessica Van Horn, and Claire Weber for helping prepare and process spray cards, and to our cooperating growers for allowing us to use their sites. Vision Pink Foam Marker Dye samples were provided by GarrCo Products Inc. (Converse, IN). Funding was provided by the Maryland State Horticultural Society.

Figure 1. Average percent coverage of spray cards from the 8/31/2016 spray trail at Keedysville in the inner (A) and outer (B) canopy at three heights.

Figure 2. Average spray coverage in six locations of the raspberry canopy when treatments were applied using (A) 50 GPA and (B) 100 GPA on 9/21/16.

Calendar Of Events

Dec. 4-6, 2016: Great Lakes Fruit and Vegetable Expo, North American Raspberry & Blackberry Association (NARBA) and North American Strawberry Growers Association (NASGA). The Amway Grand Plaza Hotel, Grand Rapids, Michigan.

NARBA and NASGA will come together to hold their conferences in association with the Great Lakes Fruit and Vegetable Expo., glexpo.com/attend-register/register

Jan. 5-8, 2017: Southeast Regional Fruit and Vegetable Conference, seregionalconference.com/


Jan. 16-17, 2017: Ohio Produce Growers and Marketing Association (OPGMA), opgma.org/OPGMA-Annual-Congress


Jan. 27, 2017 (8:45 AM - 3:30 PM): Central Maryland Vegetable Growers Meeting, Friendly Farm Inn, Foreston Road, Upperco, MD. Registration or more info. call (410) 887-8090 or visit web page: http://extension.umd.edu/baltimore-county/agriculture/upcoming-agricultural-meetings

Jan. 31-Feb. 2, 2017: 2017 Mid-Atlantic Fruit and Vegetable Convention, Hershey, PA mafvc.org (registration and program included in this newsletter)


Feb. 8-11, 2017 (8:30 AM - 5:30 PM): Hybrid Training Workshop (FSMA—Produce Safety & Preventive Controls, Baltimore County Extension Office, Cockeysville, MD. More Information go to: go.umd.edu/FSMAPreventivecontrolworkshop

Feb. 9, 2017 (8 AM - 4 PM): Southern Maryland Vegetable & Fruit Production Meeting, Location: TBA (Bowie Elks Lodge, Rt. 450, Gambrills, MD.) For more information: R. David Myers (410) 222-3906 or email myersrd@umd.edu.
Do Mulching Practices Affect Spotted Wing Drosophila Survival in Blueberries?

Christopher Taylor1, Bryan Butler2 and Kelly Hamby1
1Department of Entomology, University of Maryland
2Carroll County Extension and Department of Plant Science and Landscape Architecture, University of Maryland

Spotted wing drosophila (SWD) has become a major pest of small fruit crops, especially blueberries, blackberries, and raspberries in the U.S. We are investigating whether the crop environment can be manipulated to make it less favorable for SWD development by comparing different mulching practices in blueberries. To determine if mulches affect SWD survival both above and below the mulch surface we used two mulching treatments, woven black weed fabric over woodchips and bare woodchip mulch. We measured SWD survival in fruit, survival of SWD pupae, and the temperature SWD experienced above and below both mulches for two one week periods during the growing season at 2 sites, WMREC and WyeREC research farms.

Research suggests that SWD do not continue development at temperatures greater than 87.6°F, so we recorded how many times the data loggers took a measurement above that temperature. For both sites and both mulches, loggers recorded more temperature events warmer than 87.6°F above the mulch than below. However, at WyeREC, below the mulch had much fewer warm events than when compared to WMREC (Fig. 1).

SWD survival was assessed by placing infested fruit and pupae in the field either above or below the mulch. For larvae in fruit: at WMREC, no SWD made it to adulthood either above or below the mulch for both mulch types during both deployments. At WyeREC, no SWD made it to adulthood in either mulch type when left above the mulch. There was an average of ~5% survival below the weed fabric mulch, and an average of ~35% survival below the woodchip mulch. For comparison, ≥66.0% survived when fruit were held in the lab instead of deployed. For pupae: at WMREC, survival both above and below the mulch for both mulch types was consistently low (less than 10% for all treatment combinations) (Fig. 2). At WyeREC, the lowest survival occurred above the weed fabric mulch (~5%), while the highest survival occurred below the woodchip mulch (~65%) (Fig. 2). When pupae are held in the laboratory as a control, ≥87.5% survive.

SWD survival was impacted by mulch type and their location within the mulch. At WMREC, survival was consistently very low both in fruit and as pupae, and temperature readings suggest that it got hotter than they could handle across both mulch types and both locations within the mulch. At WyeREC, it was much cooler below the mulches than above them, and survival of SWD was better below the mulch than above the mulch for both mulch types. However, survival was better below the woodchips than below the weed fabric. This suggests that other factors such as mulch structure or humidity might also impact survival.

Acknowledgements: We would like to thank our funding sources, the USDA-NIFA OREI Grant #2015-07403 and the MAES Competitive Grants Program. We also thank Margaret Lewis, Shulamit Shroder, Adrienne Beerman, and Aditi Dubey for their assistance with setting up various aspects of the studies.

Bob Rouse Recipient of the 2016 Harry G. Black Distinguished Service Award

Congratulations to Bob Rouse who received the Harry G. Black Distinguished Service Award at the Mid-Atlantic Fruit and Vegetable Convention in Hershey, PA, on Tuesday, February 2, 2016. Wade Butler, President of the Maryland State Horticultural Society, presented the award to Bob during the Fruit and Vegetable Growers Banquet for his many contributions to the industry. Bob has worked in agriculture for 48 years, approximately 30 of which was serving as an Extension agent and specialist with University of Maryland Extension (formerly Maryland Cooperative Extension), and receiving Emeritus status in 2002. He began his own consulting business in 2003, “Bob Rouse Agriculturalist, LLC.”

Harry G. Black Distinguished Service Award

The Harry G. Black Distinguished Service Award is given, when deemed appropriate by the Executive Board, to a person who is a member of the Maryland State Horticultural Society making a significant contribution in the state of Maryland this year and in years past. The Award and Nominations Committee, consisting of three members appointed by the President, shall recommend to the Executive Board such an award.

Although primarily intended to be given to a fruit grower or those involved in fruit production, it may be given to a person in an allied industry such as processing, a state employee, a county agent, university personnel, or to any other person making a special contribution to the fruit industry. The committee will annually review the list of nominees, if any, to determine its recommendation to the Executive Board.

Previous recipients are:
Lloyd Balderston III, 1976
Dr. Castillo Graham, 1976
Professor A. F. Veiheller, 1976
S. Herman Todd, 1977
William C. Main, 1978
Theodore Stegmaier, 1978
M. N. “Nick” Pope, 1979
Dr. L. O. Weaver, 1980
Dr. Ben L. Rogers, 1981
Dr. Arthur Thompson, 1982
Harry G. Black, 1985
George H. Butler, Jr., 1986
William M. Allenberg, 1996
Evan B. Milburn, 1997
John H. Rinehart, 1999
Dr. Paul W. Steiner, 2000
I. Bruce Barr, 2005
Henry R. Passi, 2008
Allan Baugher, 2011
Robert E. Black, 2014
Bob Rouse, 2016

Arthur H. Thompson Travel Fellowship

The purpose of the Thompson Travel Fellowship is to expose young people, working in the Maryland fruit industry, to ideas on fruit production in other areas of the world. In order to do this, the Maryland State Horticultural Society has established a fellowship of up to $1,000. This fellowship can be awarded annually to young people working in the fruit industry to promote leadership within the Society.

Recipient: The recipient will be a fruit grower or someone else associated with fruit production in Maryland, to be given to young persons aged 18 to 30, to encourage travel outside the state of Maryland. The recipient would be expected to make a short presentation to the membership at the annual meeting concerning the information learned in the travel.

Application and Procedure:
To apply, a brief explanation of the proposed trip should be submitted in writing. The application letter should include the name, age, and potential trip being considered by the applicant. Applications should be submitted by January 20, 2017 to be considered for use during the subsequent year.

Applications for the award should be submitted to:
Lynn Moore, Secretary, c/o MSHS, Nominating and Awards Committee, 2415 Woodbine Road, Woodbine, MD 21797, (410) 489-7034.

The Awards and Nominating Committee will consider the nominations and will make its recommendation to the Executive Committee, which will make the final decision. The Thompson Fellowship will be presented at the Awards Banquet held during the Mid-Atlantic Fruit and Vegetable Convention in Hershey, PA.
William “Bill” Joseph Marose (61) of Columbia, MD passed away on March 23, 2016. He was son of Theodore and Eve (Ramberg) Marose and is survived by his wife Betty Hughes Marose; son, William Andrew Marose; brother, James Andrew Marose; and stepmother, Anne Marie Marose.

Bill graduated from Sayville High School (1972), earned his B.S. in Entomology and Applied Ecology from the University of Delaware (1976), and his M.S. in Education at Temple University and University of Maryland.

Bill taught high school science at several schools and owned and operated a consulting business that assisted farmers with pest management decision-making.

To view his obituary you can go to: www.kalasfuneralhomes.com/book-of-memories/2519235/Marose-William/obituary.php

---

Second Year (2016) Strawberry Plasticulture Variety Performance Trial

Michael Newell (mnewell@umd.edu), University of Maryland, Agricultural Experiment Station Wye Research and Education Center, Queenstown MD 21658.

**Funding and support for this project was provided by the North American Strawberry Growers Association, Rutgers University, Maryland State Horticulture Society, University of Maryland Extension and the Maryland Agricultural Experiment Station.**

**Objective:** Observe, evaluate, and report the yield performance of the second year of fruit production (carry-over bed) of eleven named varieties and five advanced selections from the Rutgers University breeding program.

**Methods and materials:** This plot was established in the Fall of 2014 using standard annual plasticulture procedures. Plot set-up and complete 2015 harvest data can be found in the 2016 annual strawberry twilight meeting proceedings which can be found on the WyeREC website at this address. http://agresearch.umd.edu/sites/default/files/_docs/locations/wye/2016%20Strawberry%20Twilight%20Booklet.pdf

Data presented here for the 2016 season includes plot yield (10 plants), culled fruit weight, fruit number, and fruit size by harvest date (averages only, not statistically analyzed). Statistically analyzed data includes 2016 total per plant marketable yield, fruit number, culled fruit weight, average fruit size and flower mortality after the April freeze.

**Varieties evaluated:** Flavorfest, Scarlet, Camarosa, Chandler, Benicia, Allstar, AC Wendy, San Andrews, Jewel, Albion and Chandler planted in Fall 2015. The five Rutgers University selections labeled R2, R4, R5, R7 and R9 are ID’s that I assigned to these selections. If you talk to Rutgers personnel about this material, they will have no idea what these numbers refer to. Proprietary restrictions prevent me from listing the breeding numbers for these selections. If you have interest in these selections I can provide you with the breeding number for discussions with Rutgers personnel. Please contact me.

Radiance was not included in 2016. Radiance was found to be infected with crown Anthracnose during the 2015 harvest season and was removed from the field. We decided to plant Chandler plugs in the same hole as the Radiance plants in the Fall 2015. In the data tables, you will see Chandler(15) and Chandler(14) listed. Chandler(15) plugs were planted in 2015 and Chandler(14) plugs were planted in Fall 2014 and are the 2nd year plants. Chandler(15) is not included in the two-year harvest total (Table 7), nor will you see Radiance in that table.

**Plant renovation procedures used:** After harvest in 2015, leaves were clipped off with a motorized string trimmer leaving the crown intact. Loose plant debris was removed from the plastic using a leaf blower. Minimal irrigation was used until September 1st when we did the crown thinning. Plants were thinned to 3 crowns per plant by breaking off branch crowns by hand. After crown thinning the plot was sprayed with fungicides for prevention of leaf diseases. Plots were fertigated beginning on September 1st with MAP + Urea for 20N+0P+0K plant food. Second fertigation was on September 18th with Urea + Solubor for 20N+OP+0K+2B. The final Fall fertigation was on October 2nd with Potassium nitrate for 13N-0P-33K. All runners (and there were a lot!) were removed on December 7, 2015 as a sanitation procedure.

**Spring 2016 fertilization:** Spring 2016 fertigation consisted of Calcium nitrate applied March 25 for 15N-0P-0K-34Ca. The 2nd fertigation was on April 15th with potassium nitrate for 15N-0P-50K and the final fertigation was on April 27 with Calcium nitrate for 15N-0P-0K-34Ca.
Floating row cover (FRC) management: A challenging Winter for temperature management in strawberry plasticulture using FRC's. With a mild Fall/early Winter, we did not deploy our 1.2oz FRC for over-wintering until January 4th. An unusually warm February necessitated FRC removal on March 1st and was redeployed on March 18th, 19th and 20th. However, a low temperature of 22F on March 2nd was cold enough, and even with buds tight, at the top of the crowns, the first couple of flowers of the earliest blooming varieties were black-eyed when they opened a couple of weeks later. With more strawberry flowering beginning on some varieties more frequent FRC deployment was needed. FRC was deployed on March 29th, April 4th, 5th and 6th. April 8th through April 10th, April 12th, 13th and 14th. Because bloom was in progress and daytime temperatures were warm, we decided to remove and redeploy the FRC’s daily as opposed to leaving the FRC on for multiple days when that was practical. Leaving FRC’s on during bloom for multiple days is a risky endeavor. Flowers are difficult to pollinate, higher humidity under the FRC’s increase the likelihood of increased diseases. However each time the decision is made to deploy or remove FRC’s, it cost money and serious decisions have to be made about FRC management and its impact on the crop.

The FRC was mostly successful in limiting blossom damage due to sub-freezing temperatures with the exception of the freeze on April 5th and 6th. We recorded a low of 21F air temperatures at canopy level. Under the FRC the temperature was 28F enough to cause blossom damage. Open Flowers were counted 2 days after this freeze event (Table 8). Open flowers ranged from 0 to 10 per plant and most all opened flowers were damaged.

**Harvest:** Harvest in 2016 began on May 4th, eight days earlier than in 2015. Plots were harvested 2x/week. Fruit was sorted for marketable size (<10 gram berry size were not marketable) and free from deformities. All fruit were counted and average fruit size was determined. Final harvest was on June 10th. I included seasonal average harvest information (Tables 4, 5, 6 and 8) and by harvest date (Table 1), which gives a better picture of how the harvest was spread out during the 30 day harvest period and how fruit size varies from beginning to end. I know that many growers will carry the harvest was spread out during the 30 day harvest season (June 10th), Albion was not the last to go.umd.edu/2016StrawberryReport

<table>
<thead>
<tr>
<th>Variety</th>
<th>2016 Harvest Marketable Lbs. Per Plant</th>
<th>2015+2016 Harvest Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLAVORFEST</td>
<td>1.53 a</td>
<td>2.71 a</td>
</tr>
<tr>
<td>BENICIA</td>
<td>1.21 ab</td>
<td>2.36 ab</td>
</tr>
<tr>
<td>R</td>
<td>5</td>
<td>2.13 bc</td>
</tr>
<tr>
<td>ALLSTAR</td>
<td>5</td>
<td>1.88 bcd</td>
</tr>
<tr>
<td>SAN ANDREUS</td>
<td>1.07 bcd</td>
<td>1.83 bcd</td>
</tr>
<tr>
<td>AC WENDY</td>
<td>0.96 bcd</td>
<td>1.97 bcd</td>
</tr>
<tr>
<td>R 7</td>
<td>0.96 bcd</td>
<td>2.02 bcd</td>
</tr>
<tr>
<td>R 4</td>
<td>0.99 bcd</td>
<td>1.95 bcd</td>
</tr>
<tr>
<td>CHANDLER (14)</td>
<td>0.77 cdef</td>
<td>2.07 bcd</td>
</tr>
<tr>
<td>SCARLET</td>
<td>0.83 cdef</td>
<td>1.78 cdef</td>
</tr>
<tr>
<td>R 2</td>
<td>0.76 cdef</td>
<td>1.67 cde</td>
</tr>
<tr>
<td>JEWELL</td>
<td>0.73 def</td>
<td>1.58 cdef</td>
</tr>
<tr>
<td>CHANDLER (15)</td>
<td>0.66 ef</td>
<td>1.44 efg</td>
</tr>
<tr>
<td>CAMAROSA</td>
<td>0.66 ef</td>
<td>1.41 fg</td>
</tr>
<tr>
<td>R 9</td>
<td>0.71 ef</td>
<td>1.15 g</td>
</tr>
<tr>
<td>ALBION</td>
<td>0.57 f</td>
<td></td>
</tr>
</tbody>
</table>

Averages with similar letters within each column are not significantly different at the 5% level (tukey test)

**Highlights and lowlights:**

**Flavorfest**, continues to be a high yielder for our location. It was the last to flower in 2016 and it may have been part of the reason the 2016 yield was 1.5 lbs. per plant (no freeze damaged flowers). It’s overall seasonal fruit size was not the largest numerically, but statistically if was not different then the larger fruited varieties. It also had the largest sized fruit during the early and mid-season (Table 1).

**Albion**, a day-neutral, cannot be counted on to produce much as a Spring bearer only. Its real value still seems to be in extending the Spring-harvest season. However at the end of our harvest season (June 10th), Albion was not showing any flowers. Higher nitrogen fertility is mentioned by others to be key to continued production. We did not keep the plots for Summer production of the day-neutrals.

**Scarlet**, the recent release from Rutgers University, had impressed me in the previous 3 years for yield and fruit size. It did fair as well as Chandler(14) for yield and better in size this year. Freeze damage to early flowers contributed to lower yields in 2016.

**Jewel**, had amazing flavors in 2015 with average yields and fruit size. In general most flavors were off in 2016 because of cloudy, rainy weather during May. In 2016 Jewel had a serious skin cracking problem which brought the marketable yields down by over six ounces per plant! **San Andreas**, a day-neutral California variety, has not impressed me the several times we have grown it here at Wye. In 2016 there was a high level of fruit Anthracnose. **Benicia**, a short-day California variety had good yields in 2015 and 2016. Although I did not note any problems in 2015 with off-coloring of the fruit, in 2016 many had a “blotchy” coloring. I did not call the fruit because of this, but it may be a concern. Maybe the prolonged cloudy weather in 2016 was the cause. **R 5**, an unreleased selection from the Rutgers breeding program out-yielded Scarlet in 2016. It is a little earlier than Scarlet and had a higher Brix level in 2015 than Scarlet. I hope that Rutgers is looking at this selection as their next release.

All data tables mentioned in this article can be accessed by going to: go.umd.edu/2016StrawberryReport
MSHS Funds Research—Due Dollars At Work
Lynn Moore, MSHS Secretary

Each year the Maryland State Horticultural Society funds research projects designed to improve the profitability of fruit producers, and support family farming in Maryland. Grants are awarded to projects that are relevant to the industry and will benefit Maryland growers. These grants are frequently used as seed money to attract other monies to fund the research projects.

These six projects were funded in 2016.

- Improving Diagnosis and Control of Black Root Rot in Mid-Atlantic Perennial Strawberries. Year 2. Dr. Cassandra Swett, University of Maryland.
- WMREC Tree Fruit Projects: Participation in the NC 140 project; Rootstock research on G11, G30, G41, G202, G214, G222, G935, G969, Bud9, M9 (Nakb337), all grafted to various varieties; Re-establishing Dr. Thompson’s variety block on G11 trellised and G969 free standing trees, B. Butler, WMREC.
- Continuation of Monitoring for Fungicide Resistance in Maryland for Small Fruit and Stone Fruit Orchards. Year 3. Dr. Guido Schnabel, Professor and Extension Specialist, Clemson University.
- Optimizing Water Carrier Volume for Improved Spray Coverage and Management of Spotted Wing Drosophila in fall bearing red raspberries. Kelly Ann Hamby, University of Maryland.
- Developing Strategies for Fall Floating Row Cover Deployment and their Effect on Spring Yields in the Plasticulture Strawberries. M. Newell, WyeREC.
- Mitigating Fire Blight in high density apple orchards using various rates of Apogee compared to Actigard. Dr. Kari Peter, Penn State University, FREC

Each scientist is happy to discuss their project with any grower. Project results are presented to the Maryland State Horticultural Society and are available on request. Frequently projects are presented at the twilight tours put on by the University of Maryland, and/or the winter meetings at WMREC and WyeREC and/or the Mid Atlantic Fruit and Vegetable Conference held at Hershey, PA.

Watermelon—Sulfur Trials
Jerry Brust, University of Maryland Extension, IPM Vegetable Specialist

I have been conducting trials that examine whether or not adding extra sulfur to watermelon increases yields or fruit quality. This is going to be a quick summary of the results for the three years of trials I have conducted so far.

Seeded watermelon was used in 2 years of the study with seedless watermelon used in one year of the study. The set-up is pretty straightforward: soil samples were taken to see what nutrients were needed. Based on this we added the recommended amount of sulfur (we used different soil testing labs and used multiple samples with similar results and recs). The average amount of sulfur to add was between 15 and 25 lbs./a for the 3 trials. Once sulfur and the other nutrients were added the treatments were: 0, 10, 20, 30 and 40 lbs per acre of extra sulfur being added to the plots. Petiole samples were taken and notes on first flowering, first female flowers, % fruit set, etc. were noted. To save time and because this year’s results were equivalent to the first 2 years of the trial I’ll only show this season’s results. Crimson Sweet was the cultivar used for 2016.

Yields of watermelon were significantly greater in the 20 and 30 extra pounds of sulfur compared with the control (fig 1). Over the 3-years of trials there was no significant difference between 20 and 30 lbs. and very little difference between 30 and 40 lbs. So an average addition of 20-30 lbs. is a good starting place. Usually there was no difference in the percent sugar content of the watermelons among any of the sulfur treatments, although for 2016 the 30 lbs. of extra S was significantly greater than the control (fig 2). Thirty and forty pounds of added sulfur increased levels of sulfur in tissue tests taken during the season to adequate levels. Treatments with 10 lbs. or less of added sulfur resulted in deficient levels in the tissue tests.

There were no other differences in any of the other measurements between treatments. After two trial years I quit using the 40 lbs. of sulfur treatment because that level of sulfur never was much different from the 30 lbs. treatment. I will need to do this study at additional locations for a number of years to be more confident of these results.

The reason I am talking about it now is because of what else I did this past year that I should have started 4 years ago. This year I randomly took petiole samples from watermelon fields. The one thing most of them had in common was a deficiency in sulfur (fig 3). There may have been other deficiencies such as with phosphorous or manganese or nitrogen, etc. but only sulfur was consistently found to be deficient in 52% of the samples with an additional 23% being on the low end of “low”. This was not a big survey (27 fields total; 65% from the western shore, 35% from the eastern shore) and it was done during a strange
UME Demonstration Wines Receive Medals from American Wine Society

Wines from the University of Maryland Extension, Viticulture & Enology Research program were entered in the 2016 National American Wine Society Amateur (non-commercial) Wine Competition that took place on November 1-3, 2016 in Costa Mesa, California. Here are the results:

<table>
<thead>
<tr>
<th>Year</th>
<th>Name of Wine</th>
<th>Research Center</th>
<th>Medal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>Chardonnay</td>
<td>WMREC/CMREC</td>
<td>Silver</td>
</tr>
<tr>
<td>2013</td>
<td>Barbera, Cab Sauv</td>
<td>WMREC</td>
<td>Silver</td>
</tr>
<tr>
<td>2014</td>
<td>Vermentino</td>
<td>WREC</td>
<td>Bronze</td>
</tr>
<tr>
<td>2014</td>
<td>Petit Verdot, Cab Sauv, Cab Franc</td>
<td>WMREC/CMREC</td>
<td>Bronze</td>
</tr>
<tr>
<td>NV</td>
<td>Cab Sauvignon, Chambourcin, Cab Franc</td>
<td>WMREC</td>
<td>Bronze</td>
</tr>
</tbody>
</table>

University of Maryland locations:
- WMREC: Western Maryland Research & Education Center, Keedysville, MD
- WREC: Wye Research & Education Center, Queenstown, MD
- LESREC: Lower Eastern Shore Research & Education Center, Salisbury MD
- CMREC: Central Maryland Research & Education Center, Upper Marlboro, MD

Other locations:
- AREC: Alson H. Smith Jr. Agricultural Research & Education Center, Winchester, VA (Virginia Tech)
  www.arec.vaes.vt.edu/alson-h-smith/
- GRV: Golden Run Vineyard, Hans & Jenny Schmidt, Sudlersville, MD

All data tables mentioned in this article can be accessed by going to: http://go.umd.edu/Watermelon-SulfurTrials
Consider Renewing Your MSHS Dues

If you are not planning to attend the Mid-Atlantic Fruit and Vegetable Convention this year, please consider renewing your Maryland State Horticultural Society (MSHS) membership for 2017. Dues that are collected are used to support educational programs, and much needed research for many of the production problems that commercial growers face.

As funds continued to be cut at our land grant universities, the local horticultural societies have been able to fund research projects. These funds are then used for matching grants. Because they are grower-funded, they are very effective levers for obtaining additional funds. Like it or not, research these days requires outside funding, and we need to step it up if we’re going to get meaningful results when we need them. Membership dues for 2017 is $50.

There are two ways to renew your membership dues:

By Mail: Fill out line 2 on the Mid-Atlantic Fruit and Vegetable Convention Registration form (INSERT) and mail completed form and payment (payable to MSHS) to: MSHS, C/O Susan Barnes, 18330 Keedysville Road, Keedysville, MD 21756

Online (credit card* payment): mafvconventionmshs.eventbrite.com

*There is an additional processing fee from Eventbrite to pay by credit card

2016 Summer Tour Highlights

Maryland State Horticultural Society 2016 Summer Tour visited two well managed family farms in Maryland. 108 members and friends attended the event. The tour showcased grower innovations in horticultural production and marketing at Catoctin Mountain Orchard in Thurmont, MD (Frederick County) and at Larriland Farm in Woodbine, MD (Howard County).

One of the highlights showcased during the tour was "Integrated Pest Management for the Brown Marmorated Stink Bug (BMSB) in Orchard Crops", that was led by Dr. Tracy Leskey of USDA-ARS (Appalachian Fruit Laboratory in Kearneysville, WV.) Dr. Leskey, Brent Short, and Dr. Rob Morrison explained their “Attract-and-Kill” research program to minimize pesticide usage while controlling BMSB. This strategy gave excellent control in both orchards during 2015. At Catoctin Mountain Orchard, the project used relatively small trees, while at Larriland the trees in the study were much taller. The effectiveness at both locations demonstrated the opportunities presented by this strategy, even in older orchards where it is difficult to get perfect spray coverage.

Morning Tour at Catoctin Mountain Orchard
(catoctinmountainorchard.com)

Bob Black, his sister Patricia Black, and Bob’s family hosted us at Catoctin Mountain Orchard. Harry Black, Bob and Pat’s father, was one of the pioneers in Maryland adopting size-controlling rootstocks for higher quality. Recognizing that it continues to be difficult to control tree vigor in a pedestrian orchard on M.9, Catoctin Mountain is rapidly transitioning to tall-spindle plantings on Bud.9 rootstock. The family adapted a system to different soil types, new varieties such as HoneyCrisp, and early Pink Lady (Cripps Maslin).

Afternoon Tour at Larriland Farm
(pickyourown.com)

Larriland Farm is a direct-market, multi-crop farm where the Moore family grows and markets a wide variety of horticultural crops. The tour route included blueberry and raspberry plantings. In addition to fruit crops, they also grow a sizable acreage of vegetable crops including tomatoes and pumpkins. In order to market and sell these crops successfully, Larriland combines a rustic on-farm market with a sophisticated management program to handle the throngs of customers who visit the farm during the growing and harvesting seasons.

To view pictures of the tour or would like to obtain copies of the handouts you can go to mdhortsociety.org.
The Western Maryland Regional Fruit Meeting has been scheduled to take place on Thursday, February 16, 2017 at the Western Maryland Research and Education Center in Keedysville, Maryland.

Information on cultural practices and pest management updates are presented by university and industry experts. Also, pesticide credits will be offered.

Registration information will be posted in mid December at: extension.umd.edu/smallfruit

Asian Pear: A Potential Alternative Fruit Crop for Growers in the Mid-Atlantic Region

J Christopher S. Walsh, Julia M. Harshman, Anna E. Wallis and Amy Barton Williams - Department of Plant Science and Landscape Architecture, 2102 Plant Sciences Building, University of Maryland, College Park, MD 20742; Michael J. Newell - Wye Research and Education Center, Maryland Agricultural Experiment Station, 124 Wye Narrows Drive, Queenstown, MD 21658; George R. (G.R.) Welsh - Western Maryland Research and Education Center, Maryland Agricultural Experiment Station, 18330 Keedysville Road, Keedysville, MD 21756

In 30 years of research (1985–2014), we identified Asian pear cultivars with adequate precocity, productivity, fruit quality, and tree survival required for sustainable production in the Mid-Atlantic Region of the United States.

Although Asian pear trees grow vigorously following planting, they are quite precocious. Despite being propagated on a full-sized rootstock, it was not unusual to see significant flowering on trees in the second leaf, followed afterward by full production. This precocity followed by sustained, annual production, resulted in smaller tree size than would be expected from trees on a vigorous rootstock (see Figure 1).

Field tolerance to fire blight is complex and frequently varies with year and location. It is primarily determined by cultivar susceptibility and rootstock selection, which affects tree vigor. Management programs and environmental conditions—primarily temperature and humidity—are also important.

In our trials, it was reassuring that tree survival and loss data following an outbreak of blossom blight at Wye REC in 2012, corroborated the ratings of trauma blight measured following a severe hail storm at Keedysville (WMREC) in the mid-1990s.

Although Asian pear research has been promising, plantings of this crop in the Mid-Atlantic region have been limited. We attribute this to 1) commercial growers are unfamiliar with the asian pears and thus reluctant to plant them and 2) when growers planted Asian pears, they frequently chose poorly adapted cultivars that produced small, poor quality fruit.

We responded to these challenges by organizing a set of replicated planting sets in 10 research locations.

The planting at Wye REC detailed above was repeated at nine additional eastern U.S. locations from Alabama to Massachusetts in 2010. Cooperators in that project completed their data collection in 2015 and are currently summarizing their research findings.

Asian pears should be well suited to growers interested in planting this crop in Mid-Atlantic orchards. Due to its field tolerance to fire blight, large fruit size, and good consumer acceptance, Olympic (syn. ‘Dan Bae’ or ‘A Ri Rang’) released in Korea in 1969, has been the most promising cultivar, and it is recommended for Mid-Atlantic producers.

But like any fruit variety, ‘Olympic’ also has problems. The most notable is internal breakdown in late-harvested fruits. As a crop that is harvested tree-ripe, growers wait until optimum ripeness on the tree before harvest. Excessively hot dry summer weather in the past few years have correlated with internal breakdown in ‘Olympic’ pear fruit. To avoid this, growers have been cautioned to harvest ‘Olympic’ Asian pears earlier. Since the original release of Olympic, breeding programs in Japan, Korea, and New Zealand have produced many additional pear hybrids which should be investigated in the future to expand direct-market opportunities.

While asian pears may not yet be suited to wholesale production in the eastern United States, they have certainly demonstrated good potential as an alternate crop for direct-market producers involved in the sale of tree-ripe fruit.

This is the summary of an article published in the November 2016 edition of HortScience. For a copy of the complete article, contact Dr. Walsh at cswalsh@umd.edu.
PRE-CONVENTION WORKSHOPS

Monday, January 30, 2017

FSMA Grower Certification Training  (9 AM - 5:15PM)

Fee: $150 for non-PA growers - limited registration (includes lunch)
This training is for fruit and vegetable growers and others interested in learning about: produce safety, the Food Safety Modernization Act (FSMA) Produce Safety Rule, Good Agricultural Practices (GAPs), and co-management of natural resources and food safety. This PSA course is one way to satisfy the grower training requirement of the FSMA Produce Safety Rule as outlined in Section 112.22(c).

Participants in the course will learn about: Microorganisms relevant to produce safety and where they may be found on the farm; How to identify microbial risks, practices that reduce risks, and how to implement produce safety practices on the farm; Requirements in the FSMA Produce Safety Rule and how to meet them.

After attending the entire course, participants will be eligible to receive a certificate from the Association of Food and Drug Officials (AFDO) that verifies they have completed the training course. The Pennsylvania Food Safety Resource Center is providing funds to cover AFDO certification fees and course material costs for this workshop. Instructors: Jeffrey Stoltzfus, Lee Stivers, and others from the Penn State FSMA Extension Team

Greenhouse Vegetable Production Workshop  (9 AM-4 PM)

Fee - $60 includes lunch - limited registration
We will cover greenhouse production of tomatoes, bell peppers and cucumbers from A- Z. This is the ideal place for someone new to greenhouse production or seeking to refine their operation. Topics include: Overview of Greenhouse Production Systems; Pruning and Trellising; Pollination; Plant Nutrition; Greenhouse Vegetable Diseases; Greenhouse Vegetable Insects and Mites; Best Varieties for Greenhouse Production; Harvest and Post Harvest Handling; Economics of Greenhouse Production.(bring your numbers as this is an open discussion). Instructors: Steven Bogash, VP ISP Technologies and PSU Extension Ret.; Dr. Timothy Elkner, Horticulture Educator, PSU Plant Pathology; Thomas Ford, Horticulture Educator, PSU Extension; and Dr. Beth Gugino, Plant Pathologist, PSU Plant Pathology.

Hops Production Workshop  (9 AM-3:30PM)

Fee - $90 includes lunch
The demand for local hops is creating a renewed interest in growing hops. This workshop features some of the most knowledgeable hops researchers and educators on the East Coast. This one day session on hops production is designed to educate hops growers and prospective hops growers on pest management, nutrient management, economic implications, malting barley as a companion enterprise, new research, and why hops are used in beer production. The schedule is as follows:
9:00 a.m. Integrated Pest Management & Scouting Your Hop Yard - Erin Lizotte, Michigan State Univ.
9:45 a.m. Penn State Hops Yard Establishment and Logistics - Tanner Del Valle, Penn State Univ.
10:45 a.m. Nutrient Management in Hops Yards - Brad Bergefurd, Ohio State Univ.
11:30 a.m. Economic Realities and Risks of Growing Hops, a New Jersey Perspective - William Bamka, Rutgers Univ.
1:00 p.m. Malting Barley as a Companion Enterprise for Hops Growers - William Bamka, Rutgers Univ.
1:45 p.m. Hops Research Review from Across the Globe - Jon Bonfiglio, Penn State Univ.
2:15 p.m. The How’s and Why of Using Hops in Beer - Dr. Ryan Elias, Penn State Univ.

Recall Readiness Workshop—What To Do When FDA Calls  (8:30 AM—11:30 AM)

Fee - $20 - limited registration
There are painful recalls and then there are very painful recalls. More often than not, the difference is attributed to preparation. While many companies have plans that address the product-related components of a recall, most are sorely unprepared for the onslaught of unwanted attention from the media,
customer and regulators. During this session, we will review the recall response process and then dive deep into what it takes to communicate during a recall. Under the Food Safety Modernization Act (FSMA), the U.S. Food & Drug Administration requires four specific recall plan components in order to comply with the Preventive Controls for Human Food (PCHF) rule – and three of them have to do with how and to whom the company communicates. Whether you must comply with the PCHF rule or not, these are elements that shouldn’t be left out of any recall plan!

Instructor - Amy Philpott, Vice President, Crisis Services and Reputation Management at Watson Green LLC, Co-developer to the International Food Information Council’s 2015 Food Safety: A Communicator’s Guide to Improving Understanding.

**Vegetable Grafting Workshop (1 PM-4 PM)**

**Fee - $30**  Instructor - Dr. Matthew Kleinhenz, Ohio State Univ.
This half day workshop will explain and demonstrate grafting techniques for vegetable plants focusing on tomatoes and peppers. Participants will have the opportunity to practice their grafting techniques in the workshop.

**Hands-on Apple Tree Grafting Workshop (1:30 PM - 3:00 PM)**

**Fee - $65 – limited registration**
Have some antique varieties you would like to grow on a size-controlling rootstock? Find a scion mutation in your orchard you want to evaluate? Join us for this workshop. Our guest speakers Jerry Frecon, Taylor Mackintosh, and Shaun Callahan are well versed in the science of grafting and maintenance of variety plantings. Knives, rootstocks, and scion wood will be provided. Participants will also receive a grafting knife to take home! Topics include: Practical benefits of learning how to topwork or bench graft trees; Establishing and Maintaining a Test Planting for Assessing the Potential for New Varieties on your Farm Bark Grafting and Bench Grafting.

**Cider Symposium (9 AM - 3:00 PM) CANCELLED**

**Workshop Location:** Spring Gate in the Village S948 Linglestown Rd. Harrisburg, PA 17112

What’s behind a quality cider? This full day workshop will provide information and up to date research on sensory analysis, tannins, cider apple varieties, and help to hone your own senses to make you a better quality control check point at your own cidery. Participants will hear from researchers, educators and professionals in the cider production and marketing fields. This workshop is a must for those opening a cider business or looking to perfect their cider production or marketing skills. Speakers include Adam Redding from Good Intent Cider in Bellefonte, Edwin Winzeler from Ploughman Cider in Wenksville, and Carla Snyder from Penn State Extension. For further details visit www.mafvc.org or call 717-334-6271 extension 321. Workshop participants are invited to a networking reception and tour following the close of this program at Spring Gate Vineyard.

**Farm Market Tour (time to be announced)**

**Fee - $60**
This all-day bus tour will leave and return to the Hershey Lodge and Convention Center. Stops will be in York County, PA. For more details go to: http://www.mafvc.org/index.php?id=Schedule

**CONVENTION PROGRAM (as of November 21, 2016)**

Please note, speakers, topics, credits, times and rooms in this program are subject to change. Check for updates on the website at www.mafvc.org. The printed program at the convention will take precedence over any pre-convention programs.

**Tuesday Morning, January 31, 2017**

**Fall Ornamentals - Trinidad Room**

9:00  Update on PVGA Funded Pumpkin Variety Trial - Elsa Sanchez, Penn State University
9:45  Fall Agritainment at Ackerman Farms - John & Eve Ackerman, Ackerman Farms

**Broccoli - Magnolia Room ABC**

9:00  Broccoli Varieties - to be announced
9:45  Expanding Eastern Broccoli Production with Adapted Varieties and Expanded Market Channels - Dr. Thomas Bjorkman, Cornell University

**Changing Climate - Wild Rose Room**

9:00  *Managing Weeds in a Warmer World – Dr. Steve Young, Cornell University
9:45  *Managing Vegetable Diseases in a Changing Climate – Dr. Beth Gugino and Dr. Shelby Fleischer, Penn State University

**Organic Vegetables - Empire Room AB**

9:00  Organic Herb Production - Tony Ricci, Green Heron Farm
9:45  Rotational No-Till and Insectary Strips for Organic Cucumber Production – Dr. Gladis Zinati, Rodale Institute

**Snap Beans - Empire Room CD**

9:00  *Snap Bean Weed Control Update - Dwight Lingenfelter, Penn State University
9:45  *Improving the Management of White Mold in Snap Beans – Dr. Sarah Pethybridge, Cornell University

**Asparagus - Cocoa Terrace/Cocoa 1**

9:00  Creating New Asparagus Varieties - Scott Walker, Walker Bros Asparagus Farms
9:45  Growing and Marketing Asparagus - Carl Cantaluppi, North Carolina Ext. Retired
**Market Trends - Crystal Room**

9:00  Direct Marketing - Is There a Silver Bullet Model for Farmers Markets CSA’s & Home Delivery - Heather Manzo, Penn State University

9:45  On the Ground Evolution of Farmers Markets, CSA’s & Other Adventures in Direct Marketing - Art King, Harvest Valley Farms

**Pome Fruit - Nigerian Room**

9:00  Invocation – Ed Weaver, Weavers Orchard

9:05  President’s Address – Tad Kuntz, State Horticultural Assn. of PA

9:15  Update on Interstate Cooperation in Fruit Programs – Dr. Carolee Bull, Penn State University

9:45  *George Goodling Lecture - Getting the Most from ReTain - Dr. Phil Schwaller, Michigan State

**Keynote - Nigerian and Trinidad Rooms**

10:45  Produce Industry Legislative Update - Robert Guenther, United Fresh Produce Association

11:00  Keynote – to be announced

**Tuesday Afternoon, January 31, 2017**

**Vine Crops - Trinidad Room**, sponsored by the American Vegetable Grower magazine

1:30  Pumpkin Production at Ackerman Farms - John & Eve Ackerman, Ackerman Farms

2:00  *Silicon Nutrition for Powdery Mildew Disease Suppression – Dr. Joseph Heckman, Rutgers University

2:30  Overview of Melon, Squash & Cucumber Varieties - Sheldon Sutton, Rupp Seeds

3:15  *Pumpkin Diseases – Dr. Margaret McGrath, Cornell Cooperative Extension

**Crucifers - Magnolia Room ABC**

1:30  Cabbage Production – Dr. Christopher Gunter, North Carolina State University

2:00  *Diseases of Cole Crops - What To Lookout for in 2017 – Dr. Beth Gugino, Penn State University

2:30  *Insect Pests of Cole Crops – Dr. Thomas Kuhar, Virginia Tech

3:15  Raising Broccoli Profitably in the Mid-Atlantic – Dr. Thomas Bjorkman, Cornell University

4:00  Miscellaneous Cole Crops – Dr. Lewis Jett, West Virginia Univ.

**Winter Storage Crops - Wild Rose Room**

1:30  Onions – Dr. Michael Orzolek, Penn State Univ. Emeritus

2:00  Sweet Potato Production – Dr. Luis Duque, Penn State Univ.

2:30  Growing Root Crops – Dr. Lewis Jett, West Virginia Univ.

3:15  Production of Winter Squash - Gordon Johnson, Univ. of Delaware

4:00  Potatoes – Dr. Matthew Kleinhenz, Ohio Ag Research & Development Center

**Organic Vegetable Production - Empire Room AB**

1:30  Organic Snap Bean Production - Jennifer Glenister, New Morning Farm

Continued on page 15
10:15 Grafting Tomatoes to Reduce Yellow Shoulder - William Lantz, University of Maryland Extension
11:00 High Tunnel Strawberry Plusses and Minuses - Kathleen Demchak, Penn State Univ.
11:30 PVGA Annual Meeting – Crystal Room - all members urged to attend

General Vegetables - Crystal Room
9:00 *Common Soil Diseases of Vegetables – Dr. Beth Gugino, Penn State Univ.
9:30 Summer Squash Production – Dr. William Lamont Jr., Penn State Univ.
10:15 Long Term Affects of Dry Manure Compost Application – Dr. Matthew Kleinhenz, Ohio Ag Research & Development Center
11:00 Post Harvest Sanitizers – Dr. Luke LaBorde, Penn State Univ.
11:30 PVGA Annual Meeting – Crystal Room - all members urged to attend

Greenhouse Ornaments - Empire Room AB
9:00 *Spring Diseases – Dr. Margery Daughtrey, Cornell Univ.
9:30 *Aphids and Bio-Control - Carol Glenister, IPM Laboratories
10:15 Best of the PSU Flower Trials - Sinclair Adam, Penn State Extension
11:00 LED Colors Matter to Flowering - Qingwu (William) Meng, Michigan State Univ.
11:30 Fertilization of Perennials and Mums - Krystal Snyder, JR Peters Co.

Cover Crops - Empire Room CD
9:00 Getting More From Your Cover Crop with Species Mixtures – Dr. Charles White, Penn State Univ.
9:30 *Cover Crops for Pollinators - Erin Treanore, Penn State Univ.
10:15 The Vegetable Grower’s Challenge to Maintain Soil Health Can be Aided by Precision Cover Cropping – Dr. Thomas Bjorkman, Cornell Univ.
11:00 *Impact of Cover Crops on Diseases of Vegetable Crops – Dr. Kathrynne Everts, Univ. of Maryland
11:30 PVGA Annual Meeting – Crystal Room - all members urged to attend

Onions - Wild Rose Room
9:00 Harvest and Post-Harvest Handling of Onions - Jeffrey Stoltzfus, Penn State Extension
9:30 *Insect Pests of Onion: Managing the Old and the New – Dr. Shelby Fleischer, Penn State Univ.
10:15 *Foliar Disease Management of Onion – Dr. Beth Gugino, Penn State Univ.
11:00 **Core Credit - To be announced
11:30 PVGA Annual Meeting – Crystal Room - all members urged to attend

Marketing 101 - Trinidad Room
9:00 Adding Prepared Foods to Your Market - Caleb Torrice, Tabora Farm and Orchard

9:30 Finding the Right POS System - Jennifer Brodsky, Kitchen Table Consultants
10:15 Events on the Farm - Caleb Torrice, Tabora Farm and Orchard
11:00 Working With Your Tourism Bureau - Kellie Hinkle, Virginia Economic Development
11:30 How to Compete with Box Stores - Jennifer Brodsky, Kitchen Table Consultants

Wine Grapes - Cocoa Terrace
9:00 Strategies for Integrated Weed Control in New and Established Vineyards – Lee Stivers, Penn State Extension
9:30 Wine Grape Varieties of Promise for the Mid-Atlantic Region – Dr. Joseph Fiola, Univ. of Maryland Extension
10:20 The Top Things I have Learned about Being a Vineyard Manager – Jeffery Zick, Nimble Hill Vineyards
11:00 *Controlling Grape Root Borer with Pheromones - Martin Keen, Landey Vineyards
11:30 Red Leaves in Vineyard Abiotic and Biotic Stresses – Dr. Hemant Gohil, Rutgers Univ.

Pome Fruit - Nigerian Room - sponsored by the American Fruit Grower magazine
9:00 **Pesticide Storage Security: Be Ready for the Unexpected - William Riden, Penn State Univ.
9:30 *Precision Crop Load Adjustment of Honeycrisp and Other High Value Cultivars - Dr. Phillip Schwaller, Michigan State Univ.
10:30 Early Training of Tall Spindle Apple Trees - grower panel - Dr. Robert Crassweller (moderator) Chris Baugher, PA, John Saunders, VA, Washington White, MD

Spanish - Cocoa 1
9:00 Actividad de apertura (Welcome and Ice-breaker)
9:15 Rindiendo cuentas para su bienestar (Being accountable to your well-being—financial literacy) - Miguel Saviroff, Penn State Extension
9:45 *Insectos benéficos que aumentan rendimientos - amigos de la horticultura (Beneficial insects that increase yields - friends of horticulture) - Beth Sastre, VCE-Loudon Extension; Dr. Margarita López-Uribre, Penn State Extension
10:30 *Identificacion, diagnóstico y manejo de enfermedades en plantas (Basic plant disease ID, diagnosis and management ) - Dr. Laura Ramos Sepulveda, Penn State Univ.
11:15 Sueños de mis hijos—Cómo puede ayudar Penn State (Dreams for my Children—Possible Penn State Role) - Melanie Miller-Foster, Penn State Extension

Wednesday Afternoon, February 1, 2017

Sweet Corn - Magnolia Room ABC
1:30 *Sweet Corn Weed Control - New Herbicides, No-till Issues and Other Considerations - Dwight Lingenfelter, Penn State Univ.
2:00 No-till With Floating Cover – To be announced
2:30 Transplanting Into Clear Plastic – To be announced
3:15 Double Cropping Practices Behind Early Season Sweet Corn - To be announced
4:00 Transplanting Into Plastic With Floating Row Covers and Tunnels - To be announced

**General Vegetables - Wild Rose Room**

1:30 Tips For Successful Drip Irrigation - William Wolfram, Toro Ag
2:00 Traceability in a Global Market - Robert Frost, LinkFresh
2:30 Biodegradable Mulch Applications and Results - Dan Martens, Novamont
3:15 *Using a Red Clover Mulch to Improve Insect Management, Yield and Environmental Quality in Peppers and Cucumbers - Cerruti Hooks, Univ. of Maryland
4:00 New Heating Technology for High Tunnels - Tim Ransford, Anglesea LLC.

**Greenhouse Ornamentals - Empire Room AB**

1:30 Growing Leafy Greens Using LEDs - Qingwu (William) Meng, Michigan State Univ.
2:00 Proven New Perennials - Sinclair Adam, Penn State Extension
2:30 *Assessing the Quality of Bio-Control Agents - Carol Glenister, IPM Laboratories
3:15 *Downy Mildew – Dr. Margery Daughtrey, Cornell Univ.
4:00 e-GRO - A Comprehensive Online Resource For the Greenhouse Industry - Lee Stivers, Penn State Extension

**Small Fruits - Empire Room CD**

1:30 *Improving our Understanding of Black Root Rot in Strawberry - Annie Montes, Univ. of Maryland
2:00 *Fungicide Resistance Management for Strawberry Fruit Rots – Dr. Johanna Del Castillo, Univ. of Maryland
2:30 *Black Shadow on Blueberries - What Is It and Why Does It Matter - Timothy Waller, Rutgers Univ.
3:15 *Towards an IPM-Based Management Strategy for Spotted Wing Drosophila in Blueberries - Cesar Rodriguez-Soana, Rutgers Coop. Extension
4:00 *Managing Insecticide Resistance when Treating for SWD and Other Pests - Dean Polk, Rutgers Univ.

**Agritourism and Direct Marketing - Crystal Room**

1:30 Hosting Birthday Parties - John Hill, Hill Ridge Farms
2:30 Cautionary Tales for your Agritainment Business - Brian Schilling, Rutgers Cooperative Extension
3:15 Learning From Our Experiences –grower panel
   - Innovative Approaches to Expand Local Markets - Rose Robson, Robson’s Farm
   - Expanding Your Reach Into Diverse Ethnic Communities - Steven Specca, Specca Farms
   - Pay the Farm Mortgage by Charging Admission - Kurt Alstede, Alstede Farm, LLC.
4:10 Resources to Help Grow Your Agritainment and Direct Marketing Operation - Gillian Armstrong, Rutgers Univ. and William Hlubik, Rutgers Coop. Ext.

**Wine Grapes - Cocoa Terrace**

1:30 Crop Load Management Strategies for Mid-Atlantic Vineyards – Maria Smith, Penn State Univ.
2:00 Intergrating Soil and Tissue Analysis into Vineyard Nutrient Management – Dr. Gary Pavlis, Rutgers Univ.
2:40 To be announced – Dr. Dan Ward, Rutgers Univ.
3:10 *Key Factors for Successful Disease Control for Mid-Atlantic Vineyards - Bryan Hed, Penn State Univ.
3:50 *Update on Spotted Lanternfly Research in Grapes - Dr. Michael Saunders, Penn State Univ.

**Stone Fruit - Trinidad Room**

1:30 National Peach Council Update
Kay Rentzel, National Peach Council
1:45 Peach Orchard Irrigation During a Dry Season
Dr. Hemant Gohil, Rutgers Univ.
2:15 *How the MyIPM Smartphone App. Can Be of Use to the Grower - Dr. Guido Schnabel, Clemson Univ.
3:00 Peach Scab: Biology & Control
Dr. Norm Lalancette, Rutgers NJAES
3:30 *Pollination Services: Lessons from Wild Bees Margarita López-Uribe, Penn State Extension

**Tree Fruit - Nigerian Room**

1:30 **Protecting Yourself from Lyme Disease - Ron Hamlin
2:00 *Fighting Fire Blight: An Update on Blossom and Shoot Blight Management - Dr. Kari Peter, Penn State Univ.
3:00 Addressing the Workforce Gap in the Fruit & Vegetable Industry - Scott Sheely, Penna. Dept. of Agriculture
3:30 Building For the Future – Young Growers Alliance - Mike Basedow, Penn State Extension; Ben Lerew, Young Growers Alliance

**Spanish - Cocoa 1**

1:30 Lavado correcto de frutas y hortalizas después de la cosecha (Safely washing fresh fruits and vegetables after harvest) - Lee Stivers, Penn State Extension
2:15 **Como llegar sanos y sanas a nuestro hogar al final del día (How to arrive safely to our homes at the end of day) - Maria Gorgo-Gourouvitch, Penn State Extension

**Wednesday Evening, February 1, 2017**

**MSHS Business Meeting**

4:30 Meeting Room: Cocoa Suite 6
All Maryland State Horticultural Society members are encouraged to attend.

**Social**

5:00 Apple Growers Reception - Cocoa Suites - tentative
7:00 Ice Cream Social – Great Lobby - for all Convention attendees, sponsored by Pennsylvania Vegetable Growers Association
8:30 Musical Jam Session – Main Lobby – bring your instrument and join in
### Thursday Morning, February 2, 2017

#### Tomatoes - Magnolia Room ABC - sponsored by the *American Vegetable Grower* magazine
- 9:00 *Tomato Disease Update – Dr. Beth Gugino, Penn State Univ.*
- 9:30 **Impact of Water Quality on Pesticides – John Esslinger, Penn State Extension**
- 11:00 *Dealing with Apple Summer Diseases in the Mid-Atlantic Region – Dr. Keith Yoder, Virginia Tech Univ.*
- 11:30 *How to Keep Your Brambles Disease Free – Dr. Mahfuzur Rahman, West Virginia Extension*
- 11:30 *Broad Mites in Primocane-Fruiting Blackberries - Another New Pest?! - Kathleen Demchak, Penn State Univ.*

#### High Tunnels - Crystal Room
- 9:00 *Managing Aphids, Whiteflies and Spider Mites in High Tunnels with Biologicals - Ronald Valentín, Bioline*
- 10:15 *Best Uses of Biologicals for Insect and Mite Management in Greenhouses and High Tunnels - Matthew Krause, BioWorks*
- 11:00 *Methods of Application of Biologicals for Insect and Mite Management - Doug Barrow, Biobest*
- 11:30 *Best Uses of Biologicals for Disease Management in Greenhouses and High Tunnels - Matthew Krause, BioWorks*

#### Potatoes - Empire Room AB
- 9:00 Update on Potato USA - Bryan Bender, Benders Potatoes
- 9:30 Observations from 2016 Growing Season - Robert Leiby, PA Coop Potato Growers
- 10:15 *Update on Dickeya Situation –Dr. Steven Johnson, Univ. of Maine Cooperative Extension*
- 11:00 *What's New in Potato Disease Management for 2017 – Dr. Beth Gugino, Penn State Univ.*
- 11:30 *Update on Insect Management in Potatoes – Dr. Thomas Kuhar, Virginia Tech*

#### Cut Flowers - Empire Room CD
- 9:00 *Thrips Management in Cut Flowers - Thomas Ford, Penn State Extension*
- 9:30 *Nutrient Management and Fertigation Programs for Cut Flowers – Krystal Snyder, JR Peters Co.*
- 10:15 *Selling Specialty Cut Flowers to Area Florists - Dave Delbo, Dave's Flowers*
- 11:00 *Perennials as Specialty Cut Flowers - Sinclair Adam, Penn State Extension*
- 11:30 Maximizing Profit in Direct Marketing with Cut Flowers - Jenny Carleo, Rutgers Cooperative Extension

#### Small Fruit - Wild Rose Room
- 9:00 *How You, Too, Can Harvest Strawberries for Six Months a Year - Brad Bergefurd, Ohio State Extension*
- 9:30 *Gooseberries, Currants, and White Pine Blister Rust: A Modern-Day Understanding - Steve McKay, Cornell Univ. (retired)*
- 10:15 *Plasticulture and Matted-Row Strawberry Variety Trial Update - Dr. Timothy Elkner, Penn State Extension and Kathleen Demchak, Penn State Univ.*
- 11:00 *How to Keep Your Brambles Disease Free – Dr. Mahfuzur Rahman, West Virginia Extension*
- 11:30 *Broad Mites in Primocane-Fruiting Blackberries - Another New Pest?! - Kathleen Demchak, Penn State Univ.*

### Thursday Afternoon, February 2, 2017

#### Tomatoes - Magnolia Room ABC
- 1:30 Penn State Tomato Breeding Program – Dr. Majid Foolad, Penn State Univ.*
- 2:00 *Growing List of Viruses Impacting Tomatoes – Dr. Margaret McGrath, Cornell Extension*
- 2:30 *Biostimulants in Tomato Production – Steve Bogash, Isptech*
- 3:15 *Stink Bugs and Aphids - What's New For Controlling These Pests –Dr. Thomas Kuhar, Virginia Tech*

#### Specialty Vegetables - Crystal Room
- 1:30 Growing Rhubarb Best Practices - Nathan Nourse, Nourse Farms
- 2:00 *The New Snack Peppers - Debra Deis, Seedway*
- 2:30 *New Eggplant Cultivars – Dr. Michael Orzolek, Penn State Univ. Emeritus*
- 3:15 **Pesticide Safety Challenge - John Esslinger, Penn State Extension*

#### Potatoes - Empire Room AB
- 1:30 Nutrition Program for Potatoes – Dr. Steven Johnson, Univ. of Maine Extension
- 2:00 New Ideas on Branding and Marketing PA Potatoes - Lela Reichart, Serman Masser Inc.
- 2:30 What’s New from Cornell’s Potato Breeding Program – Dr. Walter DeLong, Cornell Univ.*
- 3:15 Colored Potatoes and Colon Cancer - Venkata Charepalli, Penn State Extension

#### CSAs - Cocoa Terrace/Cocoa 1
- 9:00 Managing Excess or Shortage of Produce in a CSA Marketing Operation - Michelle Infante-Casella, Rutgers Co-op Extension
- 9:30 Incorporating Value Added Products for CSA Marketing - Stephen Komar, Rutgers Cooperative Extension
- 10:00 Product Contact Surface Sanitation for Retail Marketing - Meredith Melendez, Rutgers Cooperative Extension
- 10:30 Pros and Cons of Operating a CSA and My Experiences - Robert Muth, Muth Family Farm
- 11:00 Growing CSA: How to Improve Member Outcomes in CSA Programs - Simon Huntley, Small Farm Central
- 11:30 Different Models for CSA Operations and Farmer Experiences - grower panel - Robert Muth, Muth Family Farm, Samantha Jany, Brown Dog Produce and Julie Pierre, Our Yards Farm

#### Tree Fruit - Nigerian Room - sponsored by the *American Fruit Grower* magazine
- 9:00 *Dealing with Apple Summer Diseases in the Mid-Atlantic Region – Dr. Keith Yoder, Virginia Tech Univ.*
- 9:30 *Management of Important Pre-harvest & Postharvest Rots of Peach - Dr. Guido Schnabel, Clemson Univ.*
### Social Media and Advertising Marketing Strategies - Cocoa Terrace/Cocoa 1
1:30 Cultivating Customers: Setting up Systems to Drive Farm Sales
Using Internet Marketing - Simon Huntley, Small Farm Central
2:15 Using Social Media on the Farm - Kelly Jackson, Emily’s Produce
2:45 Ecommerce and Online Sales - George Latella, St. Joseph’s Univ.
3:30 Tricks of the Trade - Shannon Dill, Univ. of Maryland Extension

### Tree Fruit - Nigerian Room
1:30 *IPM without Lorsban
Dr. Dave Biddinger, Penn State Univ.
2:15 Crop Insurance Issues
TBA
2:45 Update on NC-140 Rootstock Trials
Dr. Robert Crassweller, Dr. James Schupp, Dr. Richard Marini, Penn State Univ.

### Leafy Greens - Empire Room CD
1:30 Seed to Sale: All-Season Plasticulture Lettuce Production –
grower panel - David King, Harvest Valley Farms and Michael Brownback, Spiral Path Farm
2:30 Mud, Water, Tubs and Sanitizers: Safe Washing of Leafy Greens
- Lee Stivers, Penn State Extension
3:15 Spinach Production - Michael Brownback, Spiral Path Farm

### Small Fruit - Wild Rose Room
1:30 Discussion Time: Do High Tunnel Raspberries Pay? –Dr. David Conner, Univ. of Vermont
2:00 **Changes In Worker Protection Standards – James Harvey, Penn State Univ.
2:30 Low Tunnels For Strawberry Production – To Be Announced

---

* before a topic indicates the topic is expected to qualify for a category pesticide applicator license update credit.
** before a topic indicates the topic is expected to qualify for a core pesticide applicator license update credit.
Maryland State Horticultural Society (MSHS) Annual Meeting - Jan. 31 - Feb. 2, 2017
At the Mid-Atlantic Fruit and Vegetable Convention - Hershey Lodge Convention Center, Hershey PA

JOIN MSHS TO QUALIFY FOR THE CONVENTION MEMBER RATE

If you would like to pay by credit card* go to:
*There is an additional processing fee from Eventbrite to pay by credit card

STEP 2 — MAILING PREFERENCE (Please check preference)
☐ Add my name to the e-mail list (receive program information from MSHS/UME)
☐ I do not have e-mail and wish to receive program information from MSHS/UME via U.S. Mail.

STEP 3 — SPECIAL OFFER WITH MAFVC REGISTRATION
☐ FREE 1 year subscription to Country Folks Grower

STEP 4 — ATTENDEE REGISTRATION (MUST BE POSTMARKED ON OR BEFORE JANUARY 20, 2017)

Please CIRCLE the following membership & conference options that apply for each person attending

<table>
<thead>
<tr>
<th>1. FIRST PERSON from family, farm or company (includes Membership &amp; Advance Registration)</th>
<th>2017 MSHS MEMBER</th>
<th>NON MEMBER</th>
<th>GROWERS DINNER 1/31/17</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MSHS 2017 DUES</strong></td>
<td><strong>ADVANCED REGISTRATION</strong></td>
<td><strong>WALK IN OR AFTER 1/20/17</strong></td>
<td><strong>1 DAY</strong></td>
<td><strong>3 DAY</strong></td>
</tr>
<tr>
<td>$115</td>
<td>Membership &amp; Advanced Reg.</td>
<td>$130</td>
<td>Membership &amp; Walk-in Reg.</td>
<td>$110</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. ADDITIONAL PERSON</th>
<th>3. ADDITIONAL PERSON</th>
<th>4. ADDITIONAL PERSON</th>
<th>5. ADDITIONAL PERSON</th>
<th>6. ADDITIONAL PERSON</th>
<th>7. ADDITIONAL PERSON</th>
<th>8. ADDITIONAL PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
<tr>
<td>$50</td>
<td>Optional</td>
<td>—</td>
<td>$60</td>
<td>$80</td>
<td>$110</td>
<td>$150</td>
</tr>
</tbody>
</table>

Please make your check payable to: MARYLAND STATE HORTICULTURAL SOCIETY (MSHS)
(You may use one check to pay for convention registration and 2017 Membership Dues)

Mail registration and payment to: Maryland State Horticultural Society (MSHS)
c/o Susan Barnes, 18330 Keedysville Road, Keedysville, MD 21756
For more information please call Robert Black at 240-409-7491 or e-mail hbgala@aol.com
Thank you for registering in advance!

PAYMENT METHOD
☐ CHECK #________
☐ CASH

TOTAL ENCLOSED $ ________