Welcome to 2018 and another issue of OFN!

OFN into the Future

By: Melanie Lewis Ivey and Rachel Medina

In the third edition of OFN we asked our readers to provide feedback on the content covered in the articles and for suggestions for future OFN articles. We would like to say thank-you to all of our readers for being loyal to OFN and to everyone who completed the survey. We were pleasantly surprised to find that our readers were very satisfied with the newsletter and that most of them found that the newsletter and article lengths were “just right”. Readers also found that the content was easy to understand and relevant to the fruit production and integrated pest management (IPM) practices that they were using. It was also very exciting to learn that half of the growers who responded to the survey reported that they will change or have changed a production or IPM practice based on information that they learned from reading the newsletter. One grower indicated that they had become “more productive as far as the type of chemicals and intervals that they used” and another grower increased the amount of scouting they did based on gaining “more knowledge of what to look for”. Some of the IPM topics that were suggested for future articles included information on scab resistant apple varieties, weed control in strawberries and apple orchards, increasing grower interest in paw paw production and information on pests that are coming back to haunt us! As to whether or not growers wanted us to continue publishing the newsletter in 2018? The answer was unequivocally YES! We thank you very much for that!

How would you rate our content relevance to your fruit production and IPM practices?

- Extremely relevant
- Very relevant
- Somewhat relevant
- Slightly relevant
- Not at all relevant

Percent Respondants

0% 20% 40% 60%
Changes to OFN in 2018

Based on grower feedback from the survey we will increase the number of newsletters that we publish in 2018. Our hope is that we will be able to get important and time sensitive information to you more quickly. For current OFN subscribers we will continue to email the newsletter to you. We will continue to provide a limited number of color copies to local businesses for growers to pick up. For growers who currently have copies mailed to their home there will be a small charge to recover printing and postage fees (see below). We are looking forward to another successful year for the OFN!!

OFN Subscription Options

Digital Copies

Ohio Fruit News is available free as a digital file. You can have the newsletter delivered to you by email and/or you can read or download it on the Fruit pathology website (https://u.osu.edu/fruitpathology/fruit-news-2/). To subscribe to a digital copy please contact Rachel Medina (medina.72@osu.edu).

Printed Copies

Yearly printed subscriptions to OFN are now available. Pricing for individual subscriptions ($25/year) or business subscriptions (price varies based on quantity) are available. For more information on a print subscription or to subscribe to OFN complete the subscription form found on our website. The subscription sheet can be accessed at: https://u.osu.edu/fruitpathology/files/2017/04/OFN-Subscription-form-16xw7vr.pdf. For additional information, please contact Rachel Medina.

Regional Grower Events

2018 Ohio Grape and Wine Conference
- February 19-20
- Dublin, OH; Link Here

2018 Annual Fruit Growers Meeting
- February 27-28
- Hyde Park, NY; Link Here

Wine and Grape School
- March 1
- Lake County Extension; Contact Tom DeHaas for more information 440-350-2269

Small Farm Conference
- March 9 – 10 and April 7
- Location TBD in March; Massillon, OH in April; Link here

Winter Injury Assessment and Pruning of Grapevines
- March 9 and 15th
- Wooster, Ohio; Link Here

March in Prune Out
- March 31
- Sage’s Apples, Chardon, OH; Link Here

4th Annual Ohio Hop Growers Conference, Trade Show, and Field Day:
- March 23 – 24
- Piketon, OH; Call 740-289-2071 ext.132 to register

OPGMA Summer Tour
- June 6
- Witten’s Farm Market; Link Here

Great Lakes Expo 2018
- December 4-6
- Grand Rapids, MI; Link Here
Moving Beyond ‘Redhaven’ in the Peach Realm

By: Diane Miller

Consumers know their favorite apples and peaches by name. That is both a marketing positive and a marketing challenge. Consumers have product loyalty based on satisfactory experiences. However, consumers have shown themselves willing to learn and grow. Consumers have moved beyond the beauty of ‘Red Delicious’ apples to the superior texture of ‘Honeycrisp’. Both ‘Red Delicious’ and ‘Honeycrisp’ are relatively early season apples, so eager consumers kick start the on farm market apple season with a favorite. And now that growers are aware of the high value that consumers put on apple texture there is the opportunity to have a texture line of apples. The Midwest Apple Improvement Association is working to create and identify such a seasonal array of crisp apples. Certainly EverCrisp is an exceptionally crisp apple which fits into the end of the farm market season, as well as wholesale, marketing profile.

So apple variety development is moving forward, and ensuring that consumers are supportive of new offerings. But what about peaches? Apparently peaches are still stuck in the ‘Redhaven’ paradigm. Basically the paradigm is that there are lots of very good peach varieties but consumers ask for Redhaven. Even if the consumer can’t describe the characteristics of Redhaven, or identify Redhaven by physical appearance, Redhaven is what they ask for. So what is a grower to do? How does a marketer handle that? What is the ‘essence’ of Redhaven that consumers are seeking? What is it about Redhaven that is memorable? Is it just the name? Is it just a feedback loop such that consumers ask for Redhaven and so growers market peaches as Redhaven? It is interesting to contemplate how we got into the Redhaven paradigm and what is a forward-moving-way-through.

At the recent Ohio Produce Growers and Marketers Association meeting at Kalahari Resort, a group of five Ohio peach growers reported on the peach varieties that they grow and market. There was a wide array of varieties being grown. There were many selections from the Paul Friday FlaminFury series (http://www.flaminfury.com/www.flaminfury.com/home.html). There were selections from the Jim Friday Stellar series (https://www.fruitacresfarm.com/stellar-peaches). There were selections from Rutgers marketed through Adams County Nursery (http://digital.graphcompubs.com/publication/?i=408937#{“issue_id”:408937,”page”:20}). There were many other varieties released from various programs or individuals. Bill Shane at Michigan State University is breeding peaches (http://www.goodfruit.com/breeding-peaches/) in the lineage of MSU’s Stanley Johnson who created the Haven series and new varieties are forthcoming.

The issue is not whether there are some great peaches being grown in Ohio; the issue is how to effectively market those great peaches. One solution is to call them all “Redhaven”. Another solution is to call them all “Ohio Tree Ripened Fresh Peaches”. Another solution is to call them by name and describe their traits. It seems though that the most important thing is to provide the consumer with what they are seeking in their Redhaven remembrance – a beautiful, fresh, juicy, flavorful, melting flesh, freestone peach. That is the on farm market advantage. If those characteristics are met, consumers are delighted. (Even if they don’t remember that actual Redhaven is only partly freestone.) I hope in 2018 Ohio growers and marketers delight customers with an array of peaches.
2017 Project Review: Improved monitoring network for new invasive insect pests in Ohio
By: Celeste Welty, Jim Jasinski, and Elizabeth Long

Thanks to a grant from the Ohio Vegetable and Small Fruit Research and Development Program (OVSFRDP) that partially supported this project in 2017, we were able to learn more about the status of two pests that are causing increased problems in Ohio’s fruit crops: the spotted wing Drosophila (SWD) and the brown marmorated stink bug (BMSB).

The spotted wing Drosophila, *Drosophila suzukii*, is a small fly (Figure 1) that lays its eggs in ripening or ripe berries. The eggs quickly hatch into tiny larvae that feed in the fruit (Figure 2), which promptly ruins the berries. After the spotted wing Drosophila was first detected in Ohio in September 2011, we began recruiting and training a network of cooperators who are monitoring the occurrence of this new pest. This pest is now present on most berry farms in Ohio, but it varies a lot in when it first appears each year. It is very important to determine the time that it becomes active so that appropriate management measures can be taken in a timely manner. We recommend a bait trap to monitor the adult flies, and a salt water test to monitor the presence of SWD larvae in ripe fruit. One purpose of this project was to use these monitoring tools in various parts of Ohio to determine whether or not this pest is present, and if it is present, to determine the time that it becomes active.
Our trapping network for spotted wing drosophila in 2017 included 40 sites in 19 of Ohio’s 88 counties. Traps were serviced by 13 county-based Extension Educators, two research technicians, and one research farm manager. The trap style used in 2017 was commercially available from Scentry Inc.: a 24-ounce plastic jar with small holes on two sides (Figure 3), baited with a commercial lure that is hung from the inside lid, with dilute (25%) apple cider vinegar in the bottom of the jar as a drowning and preservation fluid. The spotted wing Drosophila is not the only species attracted to these traps; other species of Drosophila as well as a variety of small flies, wasps, beetles, and moths are found in the traps. The traps need to be emptied once per week, and the lure replaced every four weeks. As soon as the traps are emptied, the contents need to be examined as soon as possible to determine whether any true SWD are present, which is most easily done with the help of a 30x microscope or other magnifier. Traps were deployed in late May or early June and serviced until early October at most sites. First detection of SWD varied among farms: first detection was in late May at 4 sites, early June at 3 sites, mid-June at 2 sites, late June at 6 sites, early July at 4 sites, and August at one site. SWD was never detected at one site. Details about locations of traps and dates of first catch and peak catch can be found in our full report, which is posted on-line: http://u.osu.edu/pestmanagement/files/2018/01/OVSFRDP_FinalReport_invasives2017-1gv4aqj.pdf. The report also includes details about monitoring SWD larvae by salt water tests (Figure 4) and the SWD population trends over time relative to insecticide programs at three farms.
The brown marmorated stink bug is another new invasive pest that was addressed in this project that was funded by OVSFRDP. BMSB is a pest that injures plants by feeding with its long proboscis, which it inserts into fruit, seeds, stems, or leaves to feed on sap. Injury is caused by both the adults and nymphs (Figure 5). The broad range of hosts includes raspberries, blackberries, peaches, apples, sweet corn, peppers, and tomatoes, as well as ornamental landscape trees. BMSB was first reported in Ohio in 2008, and early ‘hot spots’ were reported in Columbus, Youngstown, and Cincinnati. We started a monitoring program at farms around Ohio in 2011, although the lures that were available for the first few years were not very effective. A highly effective pheromone lure for this pest is now commercially available from several manufacturers. In 2017, our monitoring project used lures made by Trécé Inc. with a new style of trap that is being adopted as the standard used in a multi-State project. The new trap is a clear double-sided sticky panel, made by Trécé Inc., clipped on a 5-foot wood stake (Figure 6). Another change in 2017 was that traps at most sites were set up along a treeline adjacent to a crop field rather than being placed at the edge of a crop field. Treelines are an optimal habitat for this stink bug species. Adjacent crop fields included sweet corn, mixed vegetables, raspberries, grapes, peaches, apples, and soybeans. Three traps were set up at each of 25 sites in 21 counties, and serviced by 14 Extension Educators, two research farm managers, and two research technicians. Most traps were set up in mid-May and serviced until late September. The highest catches of stink bugs were on traps in Butler, Wayne, Greene, Franklin, and Warren Counties. Compared to the previous few years, BMSB was found more consistently and in more counties in 2017, although at quite low densities (< 0.4 bug per trap per week) at 7 sites. Details about the number of stink bugs caught and the average number of stink bugs per trap per week can be found in our full report that is posted on-line: http://u.osu.edu/pestmanagement/files/2018/01/OVSFRDP_FinalReport_invasives2017-1qv4qqj.pdf.

Upcoming Webinars About Spotted Wing Drosophila on Fruit Crops
By: Celeste Welty

In February, there will be two webinars presented about recent studies on spotted wing Drosophila. These will likely be similar to two that were offered last winter, which were very informative.

On Friday, 2/23/2018, from 12 to 1 PM there will be a webinar on ‘Good bugs vs bad: using biological controls in SWD management’. The program is being coordinated by North Carolina State University. To sign up to attend, go to this website: https://ncsu.zoom.us/webinar/register/WN_DIM6fWNATK6N-6YKZ2NrCA

On Tuesday, 2/27/2018, from 3:00 to 4:30 PM there will be a webinar on ‘Management of spotted wing drosophila using organically approved strategies: An update’. The program is being coordinated by eOrganic. To find more details and to sign up to attend, go to this website: http://articles.extension.org/pages/74612/management-of-spotted-wing-drosophila-using-organically-approved-strategies:-an-update
Strawberry and Hop Highlights
By: Brad Bergefurd

• **Hop Industry Development** – Brewmasters for the oldest brewery in Ohio, the Portsmouth Brewing Company, *(Scioto County)*, asked in 2011 if farmers in Scioto County grew hops, for they were seeking a local supplier. There were none. Seeing this agriculture opportunity for my Scioto County farms, as a project PI and co-PI, I acquired $211,000 in USDA grant funding partnering with faculty in the Departments of Entomology and Plant Pathology to develop a hops education and research program, *“Hop Production to Enhance Economic Opportunities for Ohio Farmers & Brewers,”* to conduct replicated field research and educational programming. Working with 14 County Ag/NR Educators, I have taught over 1,000 landowners at EERA-based programs and authored 5 technical reports and fact sheets on the potential of growing hops as a specialty crop for Ohio’s $13.2 billion craft brewing industry. Since 2012, over 200 Ohio breweries have begun using Ohio grown hops. I worked with the USDA Cooperative Development Center to form a hop growers association (Ohio Hop Growers Guild OHGG.org) and as of fall 2017, 72 Ohio farmers report having planted 300 acres of hops, up from 4 acres in 2011, with an estimated farm gate value of $10 million. With this new local hop supply, breweries now can produce a high-value seasonal Fresh-hopped Harvest Ale which requires local fresh hops brewed within 24 hours of harvest, not possible with west coast sourcing. These fresh hops demand a price premium 4x dried hop market value to the farmer. Ohio brewers are producing an estimated 30,000 barrels of fresh-hop ale with an estimated retail value of $36 million.

• **Plasticulture Strawberry Industry Development** – Managers of the Bainbridge Produce Auction *(Highland County)* had inquired how they could provide more season-long strawberries for their produce buyers. In an effort to increase strawberry supply and availability. As project PI, I acquired over $130,000 in grant funding to conduct research to introduce and develop a traditional southern U.S. growing system, plasticulture strawberry production, Ohio. The program has resulted in extending the Ohio harvest season from a traditional 3-week harvest and marketing season to a 3-month harvest window and more than doubling yields per acre compared to traditional matted row production, with growers reporting retail sales exceeding $70,000 per acre. This new system required new plant types so a propagation protocol and curriculum was developed and taught to assist with the development of a new plug plant propagation industry where over 1 million plug plants are now grown and produced in Ohio for this growing industry. I have taught on plasticulture strawberry production throughout Ohio for county-based Extension programs and at 26 national programs, workshops and conferences, and authored 18 technical reports and fact sheets. Plasticulture strawberry production has now been adopted throughout Ohio, the Midwest and Canada.
2017 Fruit Disease Diagnosis  
By: Melanie Lewis Ivey, Sally Miller and Rachel Medina

The Ohio State University Fruit and Vegetable Pathology Laboratories in Wooster, Ohio provide a free disease diagnostic service to commercial fruit and vegetable growers in Ohio. The Ohio Vegetable & Small Fruit Research & Development Program has supported vegetable disease diagnosis for nine years and this was the first year that they also supported fruit disease diagnosis. Funds from OVSFRDP help support the Fruit and Vegetable Pathology Laboratories efforts to assist growers in diagnosing vegetable and fruit diseases, particularly in the case of unusual or difficult-to-diagnose cases, and diseases that have explosive potential and require early detection on a regional scale. Management recommendations are also provided.

In 2017, the estimated cost of providing this service to growers, considering labor and supplies, is $60 per sample. We diagnosed 448 fruit and vegetable samples. Therefore, the value of this service in 2017 to Ohio fruit and vegetable growers is $26,880. This represents a 7:1 return on grower’s investment in this project. This article will focus on the fruit samples that were diagnosed in 2017. If you have an interest in the vegetable samples, a summary can be found by clicking here or you can request a copy of the summary by contacting Rachel Medina (330-263-3846).

During the 2017 growing season we received 78 fruit samples from 21 counties. Nearly 50% of the samples were from Wayne county (46.1%), followed by Tuscarawas (6.4%), Knox and Ross (5% each), Ashtabula and Stark (3.8% each), and Athens and Cuyahoga (2.6% each) counties. We received a wide range of fruit including apples, grapes, peaches and plums, brambles, strawberries, cherries and blueberries. We even received a few tropical fruit and hop samples! Overall small fruit samples represented 42% of all the fruit samples received in 2017. Blackberry downy mildew and Hop stunt viroid disease were observed for the first time in Ohio. Some of the diseases that were diagnosed are listed below.

County map of Ohio showing the county (colored green) with the number of fruit samples that were submitted to The Ohio State University Fruit and Vegetable Pathology Laboratories in Wooster, Ohio in 2017.

Banana with anthracnose (orange spores) submitted to the diagnostic laboratory
Examples of Diseases Diagnosed in 2017

**Apple**
- Apple scab
- Fruit rots (Bitter rot, Black rot, White rot and Brown rot)
- Sudden Apple Decline (SAD)
- Phytophthora root rot

**Black Raspberry**
- Anthracnose
- Phytophthora root rot

**Cherry**
- Cherry leaf spot

**Grape**
- Black rot
- Crown gall
- Diaporthe dieback
- Downy mildew

**Strawberry**
- Anthracnose crown rot
- Black root rot
- Phytophthora root rot

**Peach**
- Bacterial canker
- Twig blight
- Peach leaf curl
- Peach scab
- Phytophthora root rot

For information on how to collect and send samples to the lab [click here](#) and view page 2 of our previous newsletter for information or you can request a copy of the information by contacting Rachel Medina (330-263-3846).

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**How Can Ohio Growers Get a 2018 Fruit Spray Guide?**

The ‘Midwest Fruit Pest Management Guide 2018’ for commercial growers is now available. The guide is 180 pages and costs $15. This is the 29th year that the guide has been produced by a group of fruit Extension Specialists from 13 States in the Midwestern United States. This is the third year that tree fruit and small fruit are together in a single guide rather than being produced as two separate guides. The guide is published at Purdue University. While the guide is not available from OSU estores this year, they will be available for sale at various OSU extension workshops and trainings across the state or they can be ordered directly from Purdue University ([https://mdc.itap.purdue.edu/item.asp?ItemNumber=ID-465](https://mdc.itap.purdue.edu/item.asp?ItemNumber=ID-465)).

The product code is ID-465 and the cost is $15.00, plus $5.85 shipping and handling. The guide can be ordered in larger quantities as needed. The guide can be ordered by contacting: Purdue Extension, The Education Store, 301 S. 2nd Street, Lafayette, IN 47901; Customer Service phone: 765-494-6794, 8 a.m. - 4:30 p.m.; e-mail: edustore@purdue.edu. As another option, the guide can be downloaded as a PDF for no cost via the Purdue website listed above.
Pike County Nutritional Sciences Field Day, The Story of the Strawberry
By: Brad Bergefurd

According to the Robert Wood Johnson Foundation County Health Rankings, Pike County ranks 88 out of 88 counties. The rankings are based on obesity rates, health behaviors, healthy food access and other socio-ecological determinants of health. Pike County also ranks low in terms of students who complete post-secondary education training. Many of Pike County’s health problems mirror those of the larger Appalachian region and are attributed to socio-ecological determinants such as lack of healthy food access, food preparation skills, lack of awareness of nutrition science, traditional preferences for high calorie foods, food insecurity and poverty.

Program Objectives & Target Audience: OSU Extension in Pike County and OSU South Centers developed and coordinated the Nutritional Sciences Field Day: The Story of the Strawberry to address some of the aforementioned challenges. The program was offered at OSU South Centers on May 25 to local high school agriculture and vocational, family and consumer science, and other science classes. The program objectives were to provide experiences and opportunities to increase awareness and interest in health science, food science, biotech, and ag science, basic and applied nutrition science and physiology and finally food production, local food resources. The students learned about opportunities from industry and academic leaders in various food and health sectors such as dieticians, biotech engineers, OSU faculty, and food processing. Students also participated in various hands on activities and discussion related to nutrition. During the event, presentations and concurrent sessions were taught by Extension faculty, based on their interest and expertise. Several team members also guided small groups, who were each pre-assigned a strawberry variety on their nametags, to their various sessions on a rotation. These guides often talked to the students to gauge what they had learned or if they had questions. The guides also helped students understand how different session topics fit together, such as genetics and nutrient composition, and flavor of strawberries.

Concurrent Session topics included:

- **Nutrient and sugar analysis of strawberries** - Gary Gao led this activity and students had an opportunity to analyze fructose composition of various strawberry varieties and forms (ripe vs unripe) using a hand-held refractometer.

- **Strawberry DNA** - Dan Remley led hands on Strawberry DNA Extraction and genetics discussion. The curriculum used was from the University of Washington [http://www.gs.washington.edu/outreach/dhillon_dnaprocedure.pdf](http://www.gs.washington.edu/outreach/dhillon_dnaprocedure.pdf)

- **Healthy and Local Food Demonstrations** - Tammy Jones discussed the role of nutrients in prevention heart disease, cancers, and chronic disease, and recommendations for fruits and vegetables using instructional resources from Choose MyPlate.gov. Students helped prepare a strawberry salad for lunch. Brad Bergefurd then discussed local foods and had students sample local vs non-local strawberries and complete a taste-sensory form that he had developed.

- **Vocational Panel** – Jeff Fisher discussed careers in agriculture. Chelsea Peckny, from the College of Pharmacy, discussed health science careers, and Matt Papic, from Food Science, discussed various Careers in food processing.

During lunch, students learned about strawberry picking robots from engineers working with Brad Bergefurd on the Strawberry Field Night. In the afternoon students were able to tour OSU South Centers and learn about various agriculture and nutrition research projects such as HPLC, fruit and vegetables, soil lab, and aquaculture. Each student received a strawberry plant propagated by Tom Harkin.
- **Impact of the Program:** Around 60 students and teachers from 3 Pike County Schools attended the program. Before they had left, each student was asked to complete a program evaluation rating their awareness and interest on various topics before versus after program (results attached). Students were also asked what they had learned. Following the field day, students were more aware of the role that genetics play in play in fruit quality and nutrition, the daily recommendations for fruits and vegetables, and the nutritional benefits of small fruits. Students were also more interested in careers in agriculture, health and food sciences, and also more interested in buying local fruit. When asked what they had learned, several remarked that they had learned much about research, strawberry properties, nutrition, and careers.

- **Evaluation Results:** We used a retrospective pre-post evaluation instrument to assess awareness of various food science topics. We also used informal qualitative feedback from teachers.

- **Originality and Creativity:** Pike County Nutritional Sciences Field Day is original in that it uses a multidisciplinary approach to address important issues of the county and region- health, wellness, and the vocational opportunities related agriculture, food science, and health. The program is also original in that it uses a strawberry theme to connect the various topics together including genetics, nutrition, taste, and economic opportunities.

- **Summary:** The Pike County Nutritional Sciences Field Day- The Story of the Strawberry was offered to local high school students to increase awareness and interest in health science, food science, biotech, and ag science, basic and applied nutrition science and physiology and finally food production, local food resources.
Controlling weeds is a major challenge in apple orchards. Competition from weeds can have a substantial impact on tree growth, yield and fruit quality. The critical weed-free period when weeds have the largest impact is from bud break until terminal bud set for fruit-bearing trees, i.e., spring until early July. Fall and spring herbicide programs help keep weeds down during this critical period. Fall preemergence herbicides are applied in late fall after trees have started dormancy, targeting germinating winter annuals and giving early season control of summer annuals. The spring preemergence herbicides can be applied early in the year to control summer annuals. Burn-down herbicides should be included when germinated weeds are present.

We conducted an herbicide evaluation trial in an established apple orchard during 2015 and 2016 to evaluate sequential and tank-mix applications of Zeus Prime XC and Alion. Zeus provides both preemergence and postemergence weed control but can only be applied to trees that have been established for two growing seasons. Alion is a preemergence herbicide that should not be applied to trees less than four years old. In November 2015, we applied fall herbicide treatments to designated plots with a backpack sprayer. Spring treatments were applied in May 2016 with the same equipment and setting. Weed control of each treatment was evaluated.

### Table 1: Treatment List

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<th>No.</th>
<th>Fall Treatment on 11/04/2015</th>
<th>Spring Treatment on 5/27/2016</th>
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<tr>
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<td>Control</td>
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<td>2</td>
<td>Zeus Prime XC 7.5 oz/a</td>
<td>Zeus Prime XC 7.5 oz/a</td>
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<td>Roundup Powermax 32 oz/a</td>
<td>Roundup Powermax 32 oz/a</td>
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<td>AMS 2.5 % w/v</td>
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<td>Zeus Prime XC 7.5 oz/a</td>
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Sequential applications in fall and spring, and fall tank-mix applications of Zeus and Alion provided season-long weed control in 2016. The highest weed control was observed in plots with fall applied Alion and Zeus. After spring treatments, weeds, except for horseweed (marestail), were well controlled. Horseweed was a problem especially in treatment 5 (spring applied Zeus and Alion without a fall application). The main reason was that horseweed had germinated at the time of the spring application and survived the Roundup treatment. Neither Zeus Prime XC nor Alion controlled germinated horseweed.

In conclusion, fall-applied Zeus Prime XC with Alion provided year-long control of weeds in the apple orchard. Spring-applied Zeus Prime XC with Alion failed to control germinated horseweed. The importance of fall herbicide application is often ignored by growers. Our trial showed that fall application helps prevent weeds (especially herbicide-resistant weeds) from germinating in the spring and gives a long window to apply spring herbicides.
# Treatment 2: Weed Control Evaluation in June July and October, 2016

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<tr>
<td>Spring Zeus + Alion</td>
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<td>66 a</td>
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Note: numbers within a column followed by different letter differ significantly based on statistical analysis.
What is OVSFRDP and Who Are We?
By: Melanie Lewis Ivey and Rachel Medina

Did you notice that OFN is partially supported by the Ohio Vegetable and Small Fruit Research and Development Program (OVSFRDP)? This program is funded by members of the Ohio Produce & Marketers Association, otherwise known as OPGMA. Small fruit and vegetable growers, distributors, suppliers, retailers and marketers contribute to this program through membership dues. In addition to supporting OFN, 13 applied research projects were supported by the OVSFRDP in 2017. Projects such as a fruit and vegetable diagnostics sample processing, vegetable disease management field trials and insect pest scouting were conducted. The projects and final reports can be found at the following website: http://www.opgma.org/ovsfdp-supported-research/. Members are also encouraged to let OVSFRDP know what types of applied research they would like to see be conducted to improve small fruit and vegetable production in Ohio. If you are interested in more information, please contact Valerie Graham at ohiopgma@gmail.com or 740-828-3400.

This newsletter is put together by educators and researchers in the field of fruit production and integrated pest management. Each newsletter author and coordinator brings a different background and experiences to the table to form collaborations with the focus on improving crop development, management, and sustainability. Each researcher has their own passions and areas of focus so we asked each of them to write a small piece on themselves for you to get to know us better!

Celeste Welty is an Extension Entomologist and Associate Professor of Entomology at Ohio State’s main campus in Columbus. She is a native of Pennsylvania, and has a Ph.D. degree in entomology from Cornell University, as well as a M.S. in entomology from University of Maine, and a B.S. in biology from SUNY/Syracuse. She has been at Ohio State for 30 years, with responsibility for extension and research, as well as teaching college courses in pest management and in pesticide science. She works on pests of vegetable and fruit crops, as grown on commercial farms and in home gardens. Her extension work focuses on assisting farmers, crop consultants, gardeners, and extension educators in the adoption of Integrated Pest Management (IPM) programs, particularly pest monitoring activities that provide timely information on population development of key pests. Her research effort is devoted to developing multi-tactic pest management programs, with interest in cultural control tactics and in compatibility between chemical and biological controls. Her recent projects have focused on pests of squash, melons, sweet corn, peppers, cabbage, apples, and hops.

Melanie Lewis Ivey is an Extension Plant Pathologist, Extension Fresh Produce Safety Specialist, and Assistant Professor of Plant Pathology at Ohio State University-Wooster Campus. She is a native of Ontario, Canada and has a Ph.D. degree in plant pathology from Ohio State University, a MSc. degree from The University of Western Ontario in plant sciences, and a BSc. degree in microbiology from The University of Guelph. She has extension, teaching and research responsibilities in plant pathology and fresh produce safety. She works on diseases of commercial and home grown fruit crops and hops. Lewis Ivey conducts applied research that focuses on the development of management practices to mitigate plant disease and food safety risks of fruit crops. Lewis Ivey uses novel strategies to identify gaps in knowledge between stakeholders and educators for the development of stakeholder targeted extension outreach activities and materials.

Elizabeth Long is an Assistant Professor of Entomology at Ohio State’s Ohio Agricultural Research & Development Center (OSU-OARDC) in Wooster, OH. She joined Ohio State in January 2016 with research, teaching, and extension efforts focused on the integrated pest management of insects in muck vegetable and grape production systems. Dr. Long’s research program focuses on understanding the ecological interactions between plants, insects, and their environment, with emphasis on how these interactions scale up to influence pest management strategies. Dr. Long is a native of North Carolina and earned her bachelor’s degree in Biological Sciences at North Carolina State University in Raleigh, NC. From there she moved to the Midwest for her graduate training, where she received her PhD in Entomology in the Plant, Insect & Microbial Sciences program at the University of Missouri. She has worked in a variety of cropping systems, including wheat in Missouri, where she researched interactions between insect communities and plant disease spread, and corn and soybeans at Purdue University in Indiana, where she conducted research to improve understanding of the various pathways that pollinators are exposed to pesticides in agricultural landscapes. Her recent projects have
**Diane Miller** is the State Extension Specialist for tree fruit. Actively involved in new apple variety selection for the Midwest Apple Improvement Association. Interested in long term breeding goals of spring frost resistance and multi-gene disease resistances.

**Jim Jasinski** is an Extension educator and Associate Professor in the Department of Extension located in Champaign County. Jim is also the Integrated Pest Management Program Coordinator for Ohio. Most of his activities and programs include IPM on cucurbits, sweet corn, tomato, and pepper, and does a significant amount of insect monitoring for both native and invasive pests.

**Brad Bergefurd** is an Extension Educator, Agriculture/Natural Resources and Horticulture Specialist with Ohio State University Extension, with county and statewide responsibilities for outreach and research to the commercial agriculture, specialty crop, fruit and vegetable industries, urban agriculture, consumer horticulture and community gardening. Bergefurd conducts field research, authors publications, and teaches on plasticulture strawberry, vegetable crops and hops production, orchard paw paw production, produce auction development, pumpkin production, Aquaponics production, high tunnel production, and market & season extension techniques. Bergefurd is located at OSU Extension Scioto County in Portsmouth and at the OSU Piketon Research & Extension Center in Piketon and has been with the Ohio Agricultural Research and Development Center (OARDC) and OSU Extension for 28 years. Bergefurd’s responsibilities include: Co-Leader of the OSU Vegetable Crops Team; Ohio Produce Growers and Marketers Association Educational Advisor; Ohio Hops Guild Academia Director; North Central SARE Research & Education Technical Funding Committee and Co-leader of an agriculture development project in Senegal, Africa.

**Gary Gao** is an Adjunct Associate Professor for both the Ohio State University South Centers and with the Department of Horticulture and Crop Science. He received a Ph.D. and a M.S. in viticulture from Ohio State. He conducts research projects and extension programs on blueberries, blackberries, raspberries, wine grapes, and other specialty crops. Gao maintains a close tie with the commercial fruit industry in Ohio. Gao leads the extension and outreach component of research projects by developing fact sheets, bulletins, videos, and presentations. He also conducts field research projects at OSU South Centers in Piketon and on commercial fruit farms. Gao’s research interests also include sustainable fruit production, improvement of fruit quality, improvement of production efficiency, whole plant physiology, plant secondary metabolism (i.e. antioxidant production), and production of other bioactive compounds.

**Rachel Medina** is the Research Associate for Dr. Melanie Lewis Ivey in the fruit pathology laboratory. She received her Bachelors of Science in Biology from Bridgewater State University (BSU) in Massachusetts. During her stay at BSU, Rachel worked in a lab focusing on understanding nematology biology. This lead her to the Ohio State University - Wooster campus to work on the effects of crop rotation on soybean cyst nematode populations as a Masters project. She graduated from OSU in 2017 and has been with the Ivey laboratory since that time. She is eager to continue a career in extension and has a passion for Ohio growers and solving the struggles that they face each season.

**Contact information on authors is located at the end of each edition of OFN**

**Please never hesitate to contact us; We are here help you!**
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Grower Resources:

NEW: Midwest Fruit Pest Management Guide 2018

OSU Fruit Pathology Resources
OSU Fruit and Vegetable Pest Management
OSU Fruit and Vegetable Diagnostic Laboratory
OSU Bramble: Production Management and Marketing Guide (Bulletin 782)

NEW: 2018 Grape Spray Guide

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