

Kentucky Fruit Facts

August-September 2013/ (8-9/2013)

Fruit Facts can be found on the web at: <http://www.uky.edu/hort/documents-list-fruit-facts>

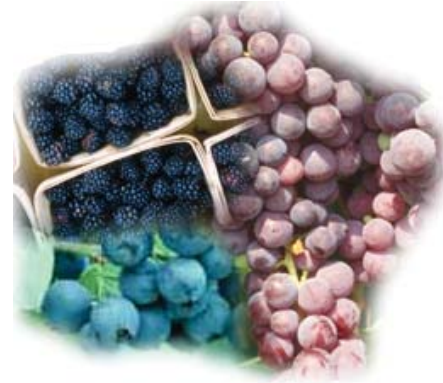
John Strang, Extension Fruit Specialist, Editor
Karen Shahan, Administrative Assistant

Fruit Crop News

By John Strang, UK Extension Horticulturist

This has been an interesting summer and a very different one from the 2012 season. We started off harvesting strawberries several weeks later than normal, but fruit harvest mysteriously shifted to just about our normal harvest dates as the season progressed despite the cooler summer temperatures. Irrigation has not been at the top of any growers list for a while and nitrogen has leached readily from our soils. It has been difficult to keep pesticide sprays on the crops and weeds have been prolific and healthy.

Fruit crop yields have generally been very good however the strawberry season was a mixed one. Some growers had excellent harvests, while some of our plasticulture growers that sold through the farm-to-school program missed their market as schools were out for the summer when the bulk of their crop



ripened. June bearing raspberry, blueberry and blackberry crops were excellent, but the Spotted wing drosophila moved in toward the latter part of the harvest season and caught many growers and consumers by surprise. Please see Ric Bessin's articles below on this pest. We have had tree breaking bumper crops of peaches and apples and the market has been good. Fruit sugar content and red color have also been very good thanks to cool night temperatures.

This is a busy time of season and there are many jobs to be done. Plasticulture strawberries should be set in the field the first to second week of September. Apple growers should not let up on their spray program as this is the time that the third codling moth generation lays eggs, oriental fruit moth is still active, and sooty blotch, fly speck and the summer rots sneak in. This is also the best time to kill woody perennial weeds like blackberries with glyphosate because it is transported down to the root system. However, it is also a period when our fruit crops can be severely damaged when contacted by glyphosate spray drift.

Inside This Issue:

- 1 - Fruit Crop News
- 2 - Upcoming Meetings
- 2 - Welcome Daniel Becker
- 3 - The Third Thursday Thing - Pawpaws
- 3 - Spotted Wing Drosophila Update
- 4 - Consumption of Spotted Wing Drosophila Infested Fruit
- 4 - Some Principles of Fungicide Resistance II: Increased Crop Disease Pressure Increases Risk
- 5 - Brown Marmorated Stink Bug Update
- 5 - A Look into Local Foods: The 2013 Kentucky Food Consumer Survey
- 7 - New/Updated Publications

The three month National Weather Service extended weather outlook for Kentucky is for normal temperatures and above normal rainfall across the state.

Upcoming Meetings

Sept. 19, Pawpaw Production, Third Thursday Thing, Kentucky State University Research Farm, 1525 Mills Lane, Frankfort, KY. 10:00 a.m.-3:00 p.m. See program below. Contact Marion Simon

Oct. 5, Kentucky Beginning Farmer Conference, Ky Center for Sustainability (KSU Research Farm), 1525 Mills Lane, Frankfort, KY. 7:30 a.m.-4:00 p.m.. Cost \$15.00. Register at: www.communityfarmalliance.org. Contact Sarah.lovett@uky.edu,

Oct. 6, KVS/UK Field Day, U.K. Horticulture Research Farm, Lexington, KY. Registration 9:00 - 9:45 a.m.; program starts at 10:00 a.m. Contact Alicia McGuire, KVS Executive director at kvsdirector@gmail.com

Nov. 19-21 2013 Small, Limited-Resource/Minority Farmers Conference, Capital Plaza Hotel, 405 Wilkinson Blvd., Frankfort, KY 40601. Includes trips to the KSU Center for Sustainability of Farms and Families and grower farm tours. The \$50 registration cost covers lodging if received before Oct. 15, 2013. For more program information contact Louie Rivers Phone: 502-597-6327; Email: louie.rivers@kysu.edu

Jan. 6-7, Kentucky Fruit and Vegetable Conference and Trade Show, Embassy Suites Hotel, Lexington, KY. Contact John Strang 859-257-5685; email: jstrang@uky.edu

Jan. 8-10, Illinois Specialty Crop, Agritourism, and Organics Conference, Crowne Plaza Hotel and Conference Center, Springfield, IL.

Jan. 22-24, Kentucky Landscape Industries Winter (Education) Conference, Kentucky International Convention Center, Louisville, KY. Contact Betsie Taylor, KNLA Executive Director 502-320-3733; email, mail.knla@gmail.com; url, <http://www.knla.org>

Jan. 23-24, Kentucky Landscape Industries Expo, Kentucky International Convention Center, Louisville, KY. Contact Betsie Taylor, KNLA Executive Director 502-320-3733; email, mail.knla@gmail.com; url, <http://www.knla.org>

Jan. 30-Feb 1, 2014 Tennessee Horticultural Expo, Nashville Airport Marriott, 600 Marriott Dr., Nashville, TN 37214.



Welcome Daniel Becker

Daniel Becker is the new Fruit and Vegetable Extension Associate based at the University of Kentucky Research and Education Center in Princeton, KY. Prior to his present employment he was a student at Southern Illinois University Carbondale, where he received his master's degree in Plant, Soil, and Agriculture Systems for his thesis on "Effective Establishment and Management of Drip-Line Cover Crops in Two Illinois Norton Vineyards". As a graduate at SIUC, Daniel in cooperation with his major professor and other students was instrumental in the management and data collection of a cumulative seven acres of public and private research vineyards. During this time he also managed a four acre, vinifera vineyard for which he won the Shawnee Hills Wine Trail Association, Ted Wickman Vineyard of the Year award. Daniel also has experience in peach and apple production techniques focusing on pruning and harvest management. He has a wide interest in fruit and vegetable culture with the hopes of learning more about the Kentucky horticulture industry. Daniel began working in Kentucky in late July and has been doing his best to get out and meet Kentucky growers and County Extension Agents. He can be reached at the station at phone: 270-365-7541 X 262; email: daniel.becker@uky.edu

The Third Thursday Thing – Pawpaws

Kentucky State University Research Farm
1525 Mills Lane, Frankfort, KY
Contact Dr. Marion Simon Phone 502-597-6437;
Email: marion.simon@kysu.edu

All times are Eastern Time

- 10:00 am Welcome
- 10:10 am Pawpaw Orchard Care and Maintenance - Jeremy Lowe
- 10:45 am Pawpaw Processing and Value Added Products - Sheri Crabtree
- 11:20 am New Pawpaw Varieties Around the Corner - Dr. Kirk Pomper
- 12:00 pm Lunch
- 1:00 pm Pawpaw Grower Roundtable
- 1:40 pm Pawpaw Orchard Tours
- Kirk Pomper and Jeremy Lowe
- 2:20 pm Pawpaw Fruit Tasting and Cultivar Evaluation - Sheri Crabtree
- 3:00 pm Adjourn

Spotted Wing Drosophila Update

By Dr. Ric Bessin, U.K. Extension Entomologist

Problems with spotted wing drosophila (SWD) continue in commercial and backyard small fruit plantings. Blackberries were particularly hard hit by this new invasive insect with some commercial growers reporting near 100 per cent infestations. The same has been true for non-commercial plantings. While the blackberry season is about over, fall raspberry harvest is underway and is threatened by SWD as well.

I visited one commercial planting with blueberries, blackberries, and raspberries where we had been using traps since the early summer. The grower indicated that the day we told him he had SWD, he began spraying his susceptible crops with SWD materials on a weekly basis and has been getting satisfactory SWD control. I think the keys to his success were:

- Monitoring for SWD with traps.
- Using recommended SWD insecticides when SWA was detected.
- Getting thorough spray coverage inside the canopy, in this case the grower used an air blast sprayer.

- Reapplying sprays to susceptible crops on a 5 to 7 day interval during the harvest period (shorter interval after heavy rains).
- Observing pre-harvest intervals carefully.

It is notable that the grower did not wait until he found infested fruit before he began SWD insecticide sprays. Had the grower waited to begin spraying the results may have been different. My recommendation for strawberry, blueberry, blackberry, and raspberry growers next year to use traps to monitor for the first instance of the adults and be prepared to spray as soon as SWD is detected.



Figure 1. Spotted wing drosophila adults on a cracked cherry tomato (Photo: Dr. Kenneth Yeargan).

There have been a number of questions about SWD infesting grapes. Grapes are not as susceptible to SWD as cane berries, but some thin skinned types can become infested. Cracked or otherwise damaged berries are susceptible as well. However, wine grapes will be crushed, the juice filtered, and wild microbes killed. So, wine grapes are not as likely to suffer losses from SWD. With table grapes this may be different, particularly with the thinnest-skinned types.

Home gardeners are less likely to spray regularly and don't have the same options available. I do recommend that the backyard crops be harvested carefully and soft berries disposed of. If the stem end of the berry looks watery, it is likely infested with SWD. Sound fruit with a dry stem end should be refrigerated immediately as this will arrest the development of eggs and any small larvae that may be present inside the fruit. While washing the berries is a good practice for other reasons, it will not rid the berries of eggs or the larvae inside.

Consumption of Spotted Wing *Drosophila* Infested Fruit

By Dr. Ric Bessin, U.K. Extension Entomologist

I have received several phone calls from extension agents regarding homeowners inquiring about spotted wing *Drosophila* (SWD) infesting their small-fruit crops (Figure 2) and the safety of eating the infested fruit. First let me state that I'm not a fan of eating insects, dead or alive. From what I've read, while *Drosophila* larvae don't directly attack humans, ingesting the larvae has been reported to cause intestinal discomfort and even diarrhea. *Drosophila* damaged and infested produce is also more likely to contain other microbe contaminants as well. To make an informed decision, I think it would be good to sample the fruit for presence of SWD larvae.



Fig 2. Spotted wing *Drosophila* on grape.

Floatation Method

To sample fruit for SWD it is important to sample only sound, undamaged fruit. Damaged, overripe or rotting fruit are likely to contain other types of flies besides SWD. You will need to have about a dozen to two dozen fruit that appear undamaged. Place the fruit into a sealable plastic bag and crush the fruit. Into the bag add 2 cups of a sugar-water solution (2 cups water plus ¼ cup sugar). Seal the bag and mix the contents thoroughly then let the contents settle. SWD larvae will appear light colored and ¼ inch or less in length. The body tapers a bit at both ends.

Small fruit suitable for eating should be immediately refrigerated, as the fruit may contain SWD eggs under the skin of the berries. Placing the berries in a cooler or refrigerator will arrest the development of the eggs and any larvae. This will also help to maintain the quality of the fruit and reduce deterioration if small larvae are present.

Some Principles of Fungicide Resistance II: Increased Crop Disease Pressure Increases Risk

By Dr. Paul Vincelli,
U.K. Extension Plant Pathologist

This is the second in a series of articles on fungicide resistance.

The title summarizes the present article perfectly: higher disease pressure means higher risk of fungicide resistance. Figures 3-4 help in understanding why this is so. Field 1 (represented by Figure 3) has approximately twice the spore numbers as Field 2. Clearly, Field 1 has higher disease pressure. You can also see that Field 1 has two resistant spores, rather than one.

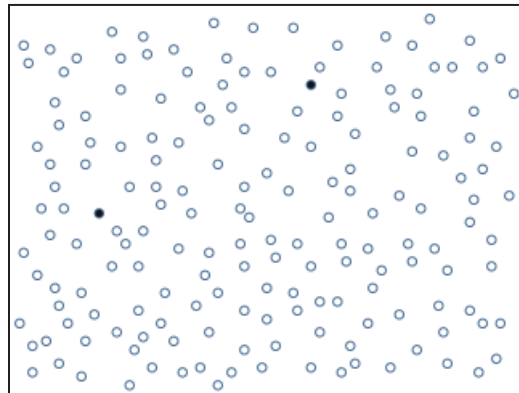


Figure 3. Initial step in fungicide resistance development: Occurrence of mutant spores with resistance to the fungicide (filled circles). Note that there are two resistant spores in this imaginary crop field.

If you count them up, you will find that the percentage of spores with resistance is slightly over 1% in both fields. That is to say, the mutation rate is the same in both fields, which is what we expect to find in nature. However, because of the higher disease pressure, Field 1 has approximately twice the

overall spore population as Field 2. Thus, no matter what the mutation rate is, twice as many resistant spores will show up in Field 1 than in Field 2, because the overall spore population is twice as high.

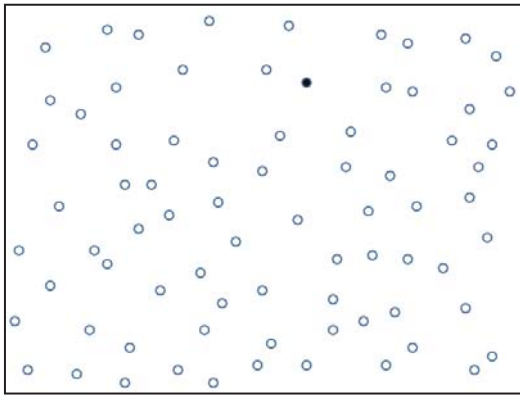


Figure 4. Imagine that this a second crop field, where the population of infectious spores is about half that of Figure 1. Only one mutant spore with resistance has occurred, instead of the two mutants that emerged in Field 1. See text for explanation.

So does this really matter? After all, resistant spores emerged in both fields. The answer is, “Yes, it matters”, because resistance development is a matter of risk. Not all mutant spores that show up in a field will go on to cause disease. Some fall to the ground and never have a chance to infect a plant. Others may land on a plant but not be exposed to enough wetness to infect. Still others may infect but fall victim to plant defenses. So the higher number of resistant spores in Field 1 does definitely represent a higher risk for the producer, especially when one considers that billions of fungal spores can easily present in an acre of crop.

So, what does this mean for a producer? It means that, the more we depend on at-risk fungicides¹ for disease control, the more pressure we are putting on the fungus to develop fungicide resistance. If it is possible to use others practices to reduce disease pressure, we reduce the overall risk of resistance. Anything that reduces disease pressure reduces the size of the spore population. And as Figures 3-4 show, reducing the spore population reduces the chance that a resistant mutant will occur in our fields.

This guideline applies to **all** practices that contribute to disease control: Sanitation, crop

rotation, varieties with partial resistance, etc., etc. Anything we do to reduce disease pressure, reduces the risk.

Bottom line: The best way to protect the utility of fungicides is by not over-relying on them.

¹The phrase “at-risk fungicide” means that the fungicide has a moderate to high risk of resistance development.

Brown Marmorated Stink Bug Update

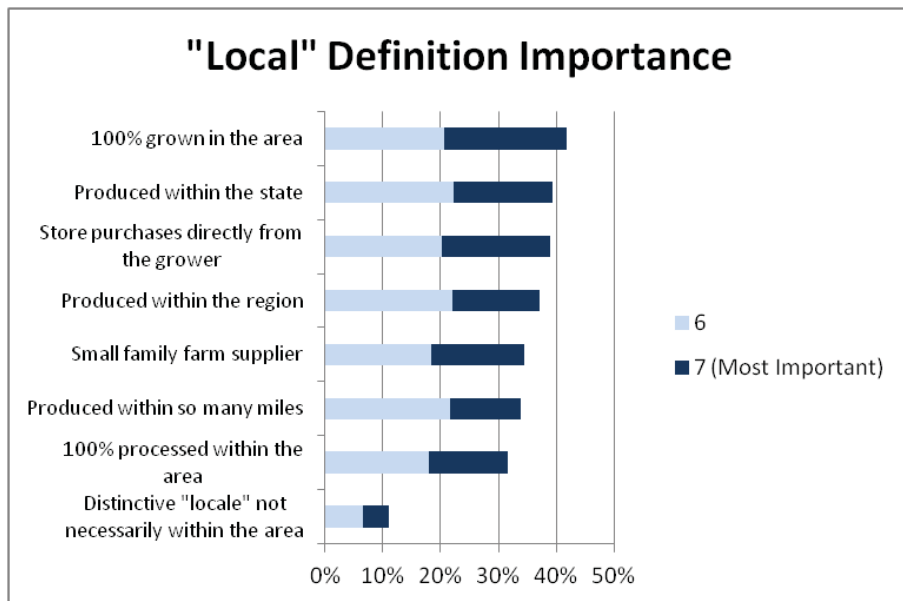
By Dr. Ric Bessin, U.K. Extension Entomologist

Brown marmorated stink bug (BMSB) will soon be moving indoors as the fall weather changes. In Lexington where it has been seen since 2010, they have been seen on the sides of buildings this past week and will be moving indoors soon. While BMSB has been found in many counties (more than 25), it has been at low levels in most of those areas. The areas where we have seen it at higher levels has been in the counties around Ashland, Louisville, Lexington, and Cincinnati. This past summer in my own yard, BMSB was seen on cherries, apples, pears, green beans, blackberries, and raspberries.

A Look into Local Foods: The 2013 Kentucky Food Consumer Survey

By Dr. Kevin Heidemann and Dr. Tim Woods, Extension Agricultural Economists

The 2013 Kentucky Food Consumer Survey, conducted by the Agricultural Economics Department of the University of Kentucky, collected full responses from 1,220 participants. Many of the questions asked in the survey focused on the awareness and frequency of purchases of local foods by consumers in Kentucky. All participants in this survey were the primary food shopper for their household and the vast majority of them were also the primary household cook. This article will focus on how Kentucky consumers define “local” foods, where they buy local food, their familiarity with the Kentucky Proud program, and their frequency of purchase of Kentucky Proud products.



Different possible definitions of “local” food were provided to participants and they were asked to indicate how important those definitions were on a 7 point scale, ranging from less important to most important. The figure above shows what percent of participants voted for each definition as being in the top two slots of the importance scale. The definition with the highest number of votes under most important was “100% grown in the area”, which is open to interpretation. However, the definition with the highest overall average rating (4.91 out of 7) was “produced within the state”. It should be noted that opinions were highly variable on this question, which makes it clear that we all have our own individual definitions of local food. However, participants indicated that they believe it is most important that food comes from within the state to meet the definition of local food.

These Kentucky consumers also indicated that the majority of them (78%) purchase 61-100% of their monthly groceries from their primary food store. Therefore, the majority of them purchase most of their foods, including local foods, from their primary food store. Conversely, the majority of participants (59%) have only shopped at a farmers market up to 2 times within the past 12 months; and about 35% of participants have not shopped at farmers markets at all in the past year. Even though farmers markets have been growing and becoming more popular in Kentucky, a large percentage of surveyed consumers only shop at a farmers market once or twice a year, if they even do at all.

The Kentucky Proud program, a promotional program of the Kentucky Department of Agriculture, is a state branding effort that has helped

boost awareness of products that are produced or processed within the state of Kentucky. In order to measure awareness of this state branding effort, participants were asked to indicate how familiar they were with the Kentucky Proud brand. About 25% of participants were very familiar, about 30% of participants indicated that they were somewhat familiar, and about 23% were vaguely familiar. However, 23% of participants said they were not at all familiar with the Kentucky Proud brand. This shows that there is potential for increasing consumer awareness and familiarity with this state branding effort. In a later article, I will try to determine how answers to this question vary by participant characteristics such as age group, residence (urban vs. rural), and more.

Participants were also asked to indicate the change in frequency of their Kentucky Proud product purchases compared to 2 years ago. Overall, about 11% of participants indicated their Kentucky Proud product purchase frequency has decreased over the past 2 years, 60% buy about the same, and 29% indicated they purchase Kentucky Proud products somewhat to significantly more frequently. The majority of participants are buying about the same amount of Kentucky Proud products, which displays



brand loyalty among a large number of these consumers. Furthermore, 29% of consumers are buying somewhat to significantly more, which shows there is continuous potential for growth of this state brand. The segment of participants who are buying less Kentucky Proud products may also offer opportunities for growth. Increasing the variety of Kentucky Proud products offered in primary grocery stores, coupled with promotional efforts, could increase the purchase frequency of all these participant segments.

In conclusion, Kentucky consumers need local food products to be available in their primary food stores because that is where they buy the majority of their food products. They also believe it is most important that “local” foods come from within the state of Kentucky. Since Kentucky Proud products must be grown and/or processed in Kentucky, they likely meet the unique definition of local foods for most consumers. There is a lot of room for growth in farmers market visits and purchases because many farmers market patrons may only visit a few times a year. Furthermore, many consumers may not even visit farmers markets once in an entire year. Advertisements, special events, entertainment, or other types of promotions could increase consumer awareness and interest in Kentucky farmers markets. In order to increase consumer purchasing frequency of Kentucky Proud products, it could be beneficial to revamp promotional efforts of the Kentucky Proud brand because some consumers are still unfamiliar with it. Increasing the availability and variety of Kentucky Proud products offered in primary food stores such as Kroger and Walmart may also increase Kentucky Proud product purchase frequency, especially for those brand loyal consumers who keep buying about the same amount of Kentucky Proud products.

New/Updated Publications

Midwest Blueberry Production Guide, ID-210,
Edited by Nicole Ward Gauthier and Cheryl Kaiser
<http://www2.ca.uky.edu/agc/pubs/ID/ID210/ID210.pdf>

Blueberry Root Rot, PPFS-FR-S-19,
By Nicole Ward Gauthier
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-S-19.pdf

Anthraco-nose of Brambles, PPFS-FR-S-17,
By Nicole Ward Gauthier
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-S-17.pdf

Effectiveness of Fungicides for Management of Grape Diseases,
By Nicole Ward Gauthier
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-S-18.pdf

Effectiveness of Fungicides for Management of Strawberry Diseases, PPFS-FR-S-15,
By Nicole Ward Gauthier
http://www2.ca.uky.edu/agcollege/plantpathology/ext_files/PPFShtml/PPFS-FR-S-15.pdf

Receiving Fruit Facts Electronically on the Internet

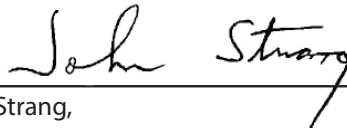
By subscribing to the email notification service you will receive an email announcement when each new issue is posted on the web with a link.

To subscribe, send an email message:

TO: listserv@lsv.uky.edu
SUBJECT: Fruit Facts
MESSAGE: subscribe KY-FRUITFACTS
Followed by a blank line

OR to unsubscribe, the lines:
signoff KY-FRUITFACTS
Followed by a blank line

You should receive confirmation by return email. If you have a problem, or if you wish to communicate with a person about "fruitfacts", the owner's address (the TO: line of the message) is: owner-ky-fruit-facts@lsv.uky.edu



John G. Strang,
Extension Fruit & Vegetable Specialist