Cooperative Extension Service
University of Kentucky College of Agriculture, Food and Environment
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http://www.uky.edu/hort/documents-list-fruit-facts

Kentucky Fruit Facts

John Strang, Extension Fruit Specialist, Editor
Denise Stephens, Newsletter Designer

Fruit Crop News

John Strang, U.K. Extension Horticulturist and Matt Dixon, U.K. Ag Meteorologist

It has been a beautiful fall, apple harvest has peaked and sales have been brisk because of the outstanding weather and a short crop. The cool nights have enhanced color on high coloring varieties and sugar levels are excellent because of the dry fall. Unfortunately the pumpkin crop is also short, wet soils delayed planting, rain affected pollination and fruit set and downy mildew has been very difficult to control. Pumpkin plants that lose their leaves early due to disease produce lighter fruit with thin walls that don't hold up well after harvest.

This winters El Nino is predicted to be the strongest in the past 50 years. It has strengthened in the last several months and should reach its peak from December through February. During an El Nino the Polar Jet Stream typically moves further north and the Pacific Jet Stream remains across the southern U.S. This keeps temperatures in the Midwest region warmer and reduces the chances of extremely cold weather. This would be a welcome change from the last two winters!

Inside this Issue:

Upcoming Meetings

(All meetings are Eastern time unless specified.)

Nov. 7 Kentucky Nut Growers Association Fall Meeting, Henderson County Extension Office, 3341 Zion Rd., Henderson, KY 42420. Contact Danny Ganno 270-860-8362

Nov 17-19 Kentucky Small, Limited Resource, Minority Farmers Conference 2015, Capital Plaza Hotel, Kentucky State University and KSU Harold Benson Research and Demonstration Farm, Frankfort, KY. This conference will provide you an opportunity to participate in tours: listen to successes achieved by others; and learn about the "Third Thursday thing" on Agribility and NRCS. The sponsors have committed to cover the lodging costs for those individuals who reside outside of Franklin County, and to cover the costs for all attendees for the tours. Also, meals will be provided for all attendees. A registration fee of $50.00 per person will be charged and must be paid by October 15, 2015. Registration received after October 15, 2015 will result in the individual paying for lodging at a cost of $89.00 per night. For more information call 502-597-6327 or email: louie.rivers@kysu.edu

Jan. 4-5, 2016 Kentucky Fruit and Vegetable Conference, Embassy Suites Hotel, Lexington, KY. Contact John Strang 859-257-5685; email: jstrang@uky.edu

Jan. 6-8, 2016 Illinois Specialty Crops, Agritourism, and Organics Conference, Crown Plaza Hotel and Conference Center, Springfield, IL

The Rotten Truth about Bitter Rot

By Kimberly Leonberger, U.K. Extension Associate, and Dr. Nicole Ward Gauthier, U.K. Extension Plant Pathologist

This year's wet season set orchards up for late season fruit rots (summer rots). While fruit rots have a variety of causes, the most common fungal fruit rot of apple

in Kentucky is bitter rot. This disease results in rotten, inedible fruit. Fungicides are available for management; however, sanitation is critical for disease prevention. Ongoing research at the University of Kentucky is providing new insights and understanding of the pathogens that cause bitter rot.

Bitter Rot Facts

- Symptoms include small, slightly sunken lesions that eventually develop a bull's-eye pattern (Figure 1). Cutting into infected fruit reveals an internal rot with a V-shaped pattern (Figure 2).
- Symptoms may not appear immediately after infection and may take several months to become visible.
- Initial infection begins as early as bloom and may continue through harvest.
- The pathogen overwinters in fallen fruit, dried fruit (mummies), and in crevices in bark and dead wood.
- Caused by multiple species of the fungus *Colletotrichum*.

Figure 1. Sunken lesions with bull's-eye appearance are symptoms of bitter rot on apple. (Photo: Nicole Ward Gauthier, UK)

Figure 2. Internal V-shaped rot in apple caused by bitter rot. (Photo: Nicole Ward Gauthier, UK)

Management Options

- Remove and discard diseased fruit immediately.
- At the end of the season, remove fruit from the ground, as well as cankers and dead wood that could harbor fungi.
- Plant cultivars that are less susceptible to bitter rot, including Rome Beauty, Winesap, and Red or Yellow Delicious.
- Homeowners can apply fungicides that contain captan or mancozeb beginning soon after petal fall and continuing every 10 to 14 days until harvest. Always follow label directions when utilizing fungicides.

Research Update

- Five species of *Colletotrichum* have been documented as causal agents of bitter rot in Kentucky.
- More than one species has been documented within the same orchard and within a single tree.
- Aggressiveness and fungicide sensitivity varies across species.
- Continued research is needed to provide growers with more targeted management recommendations.
- Samples of bitter rot are needed to continue with this research. Please contact Dr. Nicole Ward Gauthier (nicole.ward@uky.edu) for more information.

Additional Information

- Apple Fruit Diseases Appearing at Harvest (PPFS-FR-T-02)
- Fruit, Orchard, and Vineyard Sanitation (PPFS-GEN-05)
- Simplified Backyard Apple Spray Guides (PPFS-FR-T-18)
- Effectiveness of Fungicides for Management of Apple Diseases (PPFS-FR-T-15)
- Midwest Commercial Tree Fruit Spray Guide (ID-92)
- Characterization of Colletotrichum species causing bitter rot of apples in Kentucky orchards (M.S. Thesis by Misbakhul Munir)

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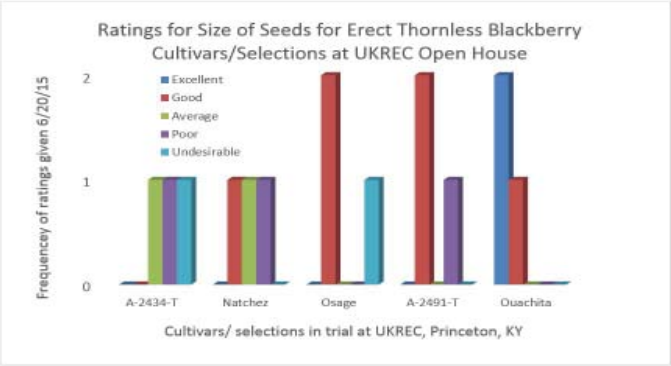
Tasting Fruit from UKREC Erect Thornless Blackberry Cultivar Trial

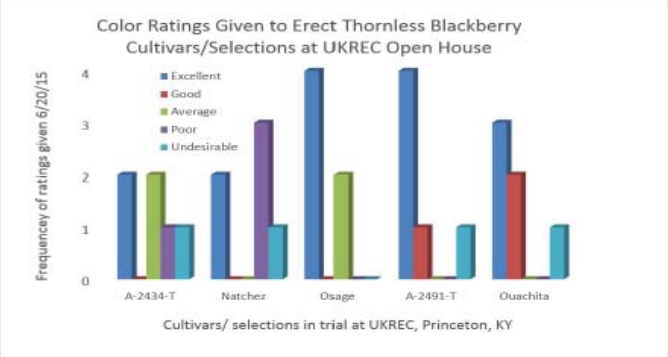
By Dwight Wolfe, Research Specialist, UK Research and Education Center, Princeton, KY

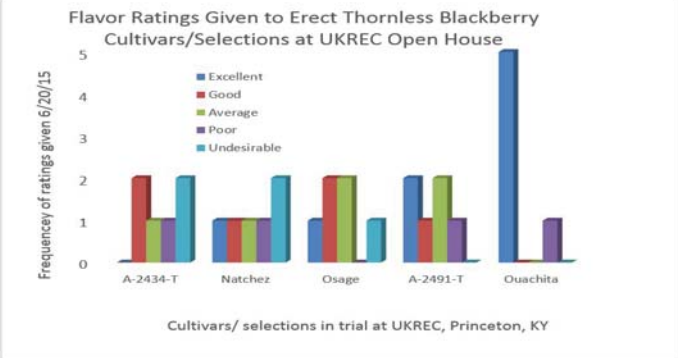
Three thornless erect blackberry named cultivars and two selections from John Clark's breeding program at the University of Arkansas are being evaluated at the University of Kentucky Research and Education Center, Princeton, KY. This is the second harvest season for this planting, which was established in the spring of 2013. Five volunteers attending the Fruit Program for the UKREC Horticulture Open House on June 25, 2015, agreed to rate the fruit (1 to 5 scale with 1 being excellent) with regards to flavor, color, seed size, number of seeds, and overall taste. These berries were harvested June 24, 2015 and refrigerated overnight for our Fruit Program the next day. The number of taste testers was too small, and taste preferences too variable to determine statistically

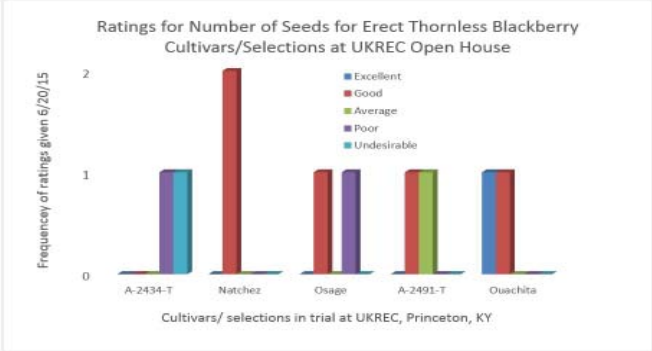
significant differences, but trends shown in the charts below may be of interest to our readers. Ouachita received the most excellent ratings for flavor. It shared excellent rating with regards to seed size with A-2491-T and Osage, and with regards to overall rating with A-2491-T. Osage and A-2491-T shared excellent ratings with regards to color and Natchez received the highest rating with regard to the number of seeds.

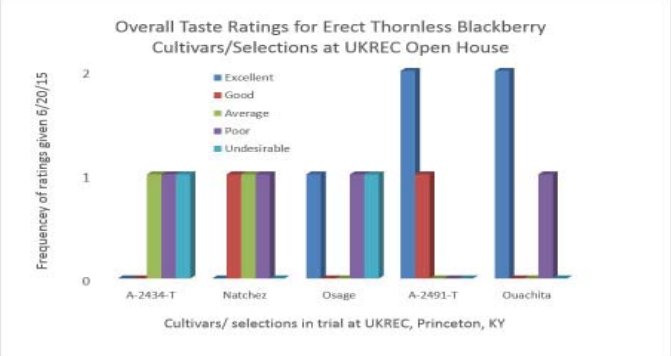
These results contrast with our 2014 taste rankings where Osage and A-2491-T were rated the best, follow by Ouachita, A-2434-T, and lastly, Natchez. However, Osage, Ouachita, A-2491-T, and A-2434-T were not statistically different from one another, and all rated from very good to excellent. It should be noted that the 2015 winter freeze on the mornings of Feb 19 and Feb 20 injured some canes as evidenced by lack of leaves on some cultivars/selections and/or their canes. This lack of leaves and sub lethal injury to the canes may very well have affected flavor this season.











Food Safety for Produce Growers

By Dr. Paul P. Vijayakumar, U.K. Food Systems Innovation Center and Brett Wolff, U.K. Center for Crop Diversification

We all know that food safety makes sense, but all the acronyms get a little confusing. There are two main standards you should know about: FSMA (Food Safety Modernization Act) and GAP (Good Agricultural Practices).

The Food Safety Modernization Act (FSMA) was signed into law on January 4, 2011 by President Obama. It is the most sweeping reform of the United States' food safety laws in over 70 years. There are seven primary rules included within FSMA.

One of the seven is the FSMA Produce Safety Rule, which is the first mandatory requirement for facilities involved in growing, harvesting, packaging, and holding fresh produce. Unlike other standards before, FSMA is a law—a government-enforced regulation. The FSMA Produce Safety Rule is scheduled for introduction on October 31, 2015. Some farms will be exempt based on their size (see table below), but if you think you are immune to food safety concerns, read on.

Average Annual Produce Sales over last 3 years	Does FSMA Apply to you?*
<$25,000	No
$25,000-250,000	Yes, must comply by 2019
$250,000-500,000	Yes, must comply by 2018
>$500,000	Yes, must comply by 2017

** This basic overview is not legal advice about complying with FSMA. Depending on other variables, this regulation still may or may not apply to your operation. It is your responsibility to verify whether FSMA applies to you.*

GAP and **GHP** (Good Handling Practices) are not governmental regulations, but rather standards of agricultural production and handling that minimize microbial food safety risks. GAP is based on guidelines from the US Food and Drug Administration (FDA) and is considered "voluntary." This means that you are not legally required to comply with GAP, but the companies or organizations you sell to or through may require that you be GAP certified.

Even if you are exempt from FSMA and you don't sell to someone who requires GAP, if you sell your produce, for legal reasons you should still conduct risk assessments and have a food safety program in place.

The first major step in complying with FSMA, GAP, and generally minimizing microbial food safety risk is having a food safety plan or manual. Food Science and Safety specialists from the University of Kentucky's Food System Innovation Center are partnering with the Department of Horticulture, the Food Connection, Agricultural Economics and the Kentucky Department of Agriculture to create trainings that help growers develop their own Food Safety Plan. This is part of a broader collaborative effort to train producers and extension personnel on all the necessary steps to make food safer. In the coming months, more details about trainings will become available. Until then, you can find more information about FSMA from fda.gov and more information about GAP at ams.usda.gov and kagr.com.

The Reality of GAP Certification – the UK Experience

By Lee Meyer and Mark Williams, U.K. Extension Ag Economist and U.K. Horticulture Faculty and Organic Program Manager respectively

Many farmers have heard of GAP – Good Agricultural Practices, but few have any experience with the program. The purpose of this short article is to help farmers (and those who work with farmers) understand more about the GAP system in particular and food safety practices and audits in general. We'll share the recent practical experience of UK's Horticulture Farm's GAP audit and certification.

Why should a farmer even care about GAP? One answer is that it incorporates principles of food safety. GAP is a set of practices for farmers to use which to reduce the risk of food borne disease. There are two levels of GAP "certification" for farmers. One is certification that training has occurred and the other more rigorous level is a third party GAP audit. A third party GAP audit can be done by the USDA or by an auditor licensed by the USDA Ag Marketing Service.

Market access is what drives most farms to get a third party GAP audit. Wholesalers, distributors and retailers want to provide safe food and limit their liabilities. One of their liability limiting strategies is to require the producers they buy from to verify that they use good practices. So, farmers who want access to these markets will need to get a third party GAP audit even though there is no current regulatory requirement for them to do so. (This will change for medium and larger operations when the new Food Safety Modernization Act regulations are released later this year.)

The UK Horticulture farm has about 30 acres of certified organic land in its total acreage. Because UK Dining Services did not have a local supplier of some produce products, it approached the Sustainable Ag program and offered to buy some products until local farms could fill the gap. But, since UK Dining and its procurement partners require GAP third party audit certification that meant that we would need to get a third party GAP audit.

Dr. Williams, Horticulture Dept. faculty member and organic program manager, made arrangements with the USDA and an audit was scheduled for June 5. A key element of a successful audit is good preparation. Because this part of the farm is certified organic, good records covering water, chemical and fertilizer use (yes, organic farms do use chemicals and fertilizers) and field histories are maintained.

The GAP audit has seven total sections, but only the relevant ones are evaluated. Since in our situation there is no wholesale distribution center, we could skip

section 6. The audit investigated our practices such as: water sources, animal access to fields, worker sanitation, storage cleanliness and temperatures, traceability. There is a straight-forward Audit Verification Checklist: http://www.ams.usda.gov/AMSv1.0/getfile?dDocName=STELPRDC5091326 which was used by the auditor.

The audit was not an unpleasant experience. The USDA auditor spent from 9:00 am to 2:00 pm on the farm. She explained that while this was an audit, it would also be a "conversation" about the practicalities of the practices being assessed. As a result, the audit was a useful learning experience. At the end, she gave us a draft response, indicating that we had probably passed – which was confirmed two days later. We learned that an audit is not even close to a visit to the dentist office.

The Kentucky Department of Agriculture has extensive GAP materials (see http://www.kyagr.com/marketing/GAP.html) and helps administer a cost share program to partially offset the cost of an audit, and will conduct mock audits to help managers prepare. Our audit cost about $2,000 (the cost of the auditor's time and travel expenses), but for Kentucky farmers, it would be reduced by the KDA/Ky Horticulture Council cost share program.

If you want to learn more about GAP audits and the Food Safety Modernization act regulations, help is on the way. A session is planned for the January, 2016 Fruit and Vegetable Conference, and written materials and training sessions for farmers and agents are being designed.

EPA Proposes Stronger Standards for People Applying Riskiest Pesticides

Source: US Environmental Protection Agency

Posted on August 11, 2015

On August 5, 2015 EPA issued a proposal to revise the Certification of Pesticide Applicators rule. The proposed revisions will be available on http://www.regulations.gov, under docket ID # EPA-HQ-OPP-2011-0183.
Stricter standards for those applying restricted use pesticides will help keep our communities safe, protect the environment and reduce risk to those applying pesticides. Pesticide use will be safer with more consistency in the knowledge and competency of pesticide applicators across the nation. To view the details of the proposal, follow this link: http://www2.epa.gov/pesticide-worker-safety/epa-proposes-stronger-standards-people-applying-riskiest-pesticides

EPA's proposal

- •Enhances applicator competency standards to ensure that restricted use pesticides are used safely.
- •Establishes a first time-ever nation-wide minimum age of 18 for certified applicators and persons working under their direct supervision.
- •Requires all applicators to renew certifications every 3 years.
- •Requires additional specialized certifications for people using high-risk application methods (fumigation and aerial).
- •Requires first time annual safety training and increased oversight for persons working under the direct supervision of a certified applicator. Training includes reducing take home pesticide exposure to protect families.
- •Promotes interstate recognition of applicator licenses to reduce the administrative burden for businesses that operate in multiple states.
- •Provides expanded options for establishing certification programs in Indian Country that acknowledge tribal sovereignty.
- •Clarifies and streamlines requirements for States, Tribes, and Federal agencies to administer their own certification programs.

Quick Facts on Restricted Use Pesticides & Certified Applicators

- •Restricted use pesticides equal ~5% of the total pesticide products registered by EPA. • There are 1 million certified applicators nationwide.
- •The proposed rule could prevent up to 800 acute illnesses/year.
- •Estimated $80.5 million in benefits, $47.2 million in costs.

EPA's Office of Pesticide Programs is proposing new standards for worker protection.

FRUIT HUMOR

What do you call a fruit rough around the edges?

A Bad Apple!

Receiving Fruit Facts on the Internet

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Cooperative Extension Service
University of Kentucky
Horticulture Department
N-318 Ag. Science Ctr. No.
Lexington KY 40546-0091