

9-2018

LU Horticulture Notes September 2018

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Recommended Citation

Eaton, Touria, "LU Horticulture Notes September 2018" (2018). *LU Horticulture Notes*. 2.
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**Issue: September
2018**

**Dr. Touria Eaton, State
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LU Horticulture Program (LUHP) Updates

By Dr. Touria Eaton

On September 5, 2018, Dr. Touria Eaton, Joyce Rainwater and Richard Rickman, members of the LUHP, participated in a meeting with members of the Food and Drug Administration (FDA), Missouri Department of Agriculture (MDA), Mississippi Department of Agriculture and Commerce (MDAC), Kentucky Department of Agriculture (KDA) and University of Missouri Extension (MUE). They discussed the Food Safety Modernization Act (FSMA) Produce Safety Rule (PSR) in Missouri, Mississippi and Kentucky. Part of the meeting dealt with efforts to advance PSR regulations in Missouri. Eaton discussed the LUHP's inventory of farmers needing to comply with the rule. She also outlined the outreach efforts to Missouri farmers to help them know of and comply with the rule.

Missouri is now advancing the FSMA PSR among farmers in the state. Mississippi and Kentucky are starting to advance the FSMA PSR in their states.

Eligibility for Exemptions from the Food Safety Modernization Act (FSMA) Product Safety Rule (PSR)

*By Joyce Rainwater, Program Coordinator, and
Dr. Touria Eaton*

Produce Safety Rule (PSR) compliance dates for produce farmers are as follows:

- January 26, 2018: farms whose annual income from produce sales is more than \$500,000 (three-year average).
- January 28, 2019: farms whose annual income from produce sales is between \$250,000 and \$500,000 (three-year average).
- January 27, 2020: farms whose annual income from produce sales is between \$25,000 and \$250,000 ((three-year average).

Some farmers are exempt from the rule. Also, some produce is not covered by the rule. This means that such produce sales are not affected by the FSMA PSR. Farmers are exempt from the rule if they make less than \$25,000 in annual produce sales; grow produce for personal consumption; sell locally grown produce for processing only; and/or grow produce that is rarely consumed raw. (continued on page 3)

Explore Your Roots

By Dr. Touria Eaton

Before the summer is over, take some time to examine the roots of your crops. They may tell you some important information.

A vegetable crop starts out with one primary root. It develops lateral (side) and finer roots as the vegetable continues to grow. Under good soil conditions, the lateral roots grow into the soil at about a 30-degree angle from the main root. If you inspect the roots of your plants and you find that the lateral roots are making a 90-degree angle, there must have been some barrier preventing the lateral roots from developing normally. This barrier is most likely the result of soil compaction (compression that reduces the space for water and air).

The lateral roots of the plant are responsible for 90 percent of water and nutrient uptake after the seedling stage is complete. Thus, it is critical to keep roots healthy. Roots are constantly growing, dying and being replaced. In fact, the finest lateral roots only live about two weeks. The constant growth and death of these roots changes the condition of the soil near the root system. It creates a better environment for the growth of roots and other living organisms, such as beneficial bacteria.

Studies have shown that plants only need 10 percent of their root surface at any point in time. So, why does the plant commit that many resources to roots? The answer is that the extensive root system allows the plant to take nutrients and water from other areas within the soil profile. This means that after a location has been depleted of nutrients, the root system can access them somewhere else.

Irrigation and fertigation (the injection of fertilizers, etc.) can help to support plants with a reduced root system. However, as the root matures, the root surface becomes less porous. This makes the actively growing root tips crucial for the efficient uptake of water and nutrients. Actively growing root tips have as many as 2,500 root hairs per square cm. These root hairs increase the absorptive surface of the root by 1.5 to 20 times that of the original root.

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Small Farmer Success: Demilune Farm

By Nancy Smith, Area Educator – Horticulture

In 2010, Beth Walter, a successful hospital administrator in Flint, Michigan, left her home and her job to realize a dream. She purchased 40 acres in Ripley County, Missouri. Walter began a sustainable homestead from scratch: Demilune Farm. She began by building structures and buying livestock.

Walter's goal is to live simply on the land and to raise animals with love and care. She emphasizes eggs and dairy products as a way of sharing her farm's bounty with a growing band of local consumers. The love and care Walter puts into her farm and animals seem to add to the value of the eggs, dairy products and produce that customers purchase at her farm store.

Over time, the store has become a gathering place for local people who value good health, sustainability and friendship. Most customers spend more than a few minutes at the store. They engage in fellowship and conversation as they enjoy Walter's home-baked goodies and coffee or tea. Other local farmers display or sell their products in the store. These include soaps, braided rugs, crocheted items and sustainably raised meats and produce. In addition, Walter offers goat and cow's milk, cream, butter, buttermilk, fresh eggs and select produce items. Some lucky customers also find homemade goat cheese ready to take home. Demilune Farm is building a warm and caring community of like-minded farmers and customers.



Walter's farm store is open daily.

The Lincoln University Horticulture Program (LUHP) has been able to help connect Walter with many helpful United States Department of Agriculture

(USDA) programs. Because she is always eager to improve her farm, Walter values the opportunities that are presented. She has made many improvements through LUHP efforts. In 2017, she ordered 200 blueberry plants through our Blueberry Project. Walter has planted them in a fenced-in area, with a new water line and hydrant. This ensures that the blueberry plants get enough water to thrive. The same year, Walter also received cost-share funds to build a petting zoo area, with a self-closing gate. The petting zoo is an agritourism project that will allow local youngsters to get close to the friendliest of Walker's small livestock.



Walter's granddaughter helping on the farm.

In 2018, Walter was granted funds to build a large high tunnel through the USDA – Environmental Quality Incentives Program (EQIP). This will allow her to extend her growing season. She has already chosen the site. After the tunnel is completed, Walter will gain several months in the spring and fall to grow a variety of crops during the off-season. This will allow her to increase the farm's profits. She will also be able to provide fresh produce to the community for a much longer time period. In addition, Missouri Grown USA, part of the Missouri Department of Agriculture (MDA), has enabled her to buy attractive labels at a greatly reduced cost.

Walter has gradually increased her herds of healthy animals. Demilune Farm now has five milk cows, a bull, two calves and 42 goats. Two hair sheep have been added recently, which are raised largely for meat. In addition, Walter has 100 laying hens, some roosters and three guineas, which patrol the farm for pesky bugs. Little by little, Walter is realizing her dream, while enriching lives in Ripley County.

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Facebook Marketing Tips for Small Farmers

By Mike Crowden, Area Educator - Horticulture

As farmers' market seasons wind down, it's vital that growers continue to use Facebook to promote their farms and fall produce offerings. Below are some tips to continue connecting with your fans.

Post regularly and consistently: Post on Facebook at least once each day to keep current and potential customers engaged. However, do not post multiple times in a flurry as Facebook algorithms (mathematical operations) work out who is selling a product. They will then reduce your online "reach" to your audience. You can schedule posts to allow for better time and work management. Promptly and politely reply to comments on your posts or photos. Treat them like calls on a customer service hotline.

Keep it real: Set yourself apart from other accounts by sharing mistakes or humorous happenings on your farm. Also post pictures of farm pets and animals as well as pictures and descriptions of your produce. Post pictures of your daily habits on the farm, even during the off-season. Doing so will connect your audience to the farm experience. Potential customers will follow you if they believe in your story.

Spark conversation: Pose questions to help engage clients. Ask for your customers' opinions. This builds a sense of community amongst your followers.

Post during golden times: The night before a public holiday and the second night of a holiday period offer HUGE social media engagement opportunities. Use them. People have more time to scroll through their newsfeeds and are more likely to engage.

Always thank your followers: Your audience should be managed like a donor. Thank them often and in multiple ways. This mutual gratitude and respect furthers and deepens your engagement. And engagement breeds engagement, in terms of Facebook algorithms and in more general, concrete ways.

Have your customers promote you: Ask your customers to "tag" your farm in any posts in which your products are featured. Then, share that post and give your customer a chance to feel special. Champion your customers. This helps create new customers based on positive word-of-mouth.

Eligibility for Exemptions from the FSMA PSR (continued from page 1)

The following is a list of the produce that is considered rarely consumed raw: asparagus, black beans, great northern beans, kidney beans, lima beans, navy beans, pinto beans, garden (roots and tops) beets, sugar beets, cashews, sour cherries, chickpeas, cocoa beans, coffee beans, collards, sweet corn, cranberries, dates, dill (seeds and weed), eggplants, figs, ginger, hazelnuts, horseradish, lentils, okra, peanuts, pecans, peppermint, potatoes, pumpkins, mature southern field peas (such as black-eyed peas, cowpeas, crowder peas, purple hull peas, sea island peas, silver peas and speckled peas), winter squash, sweet potatoes and water chestnuts. This is an exhaustive list. If other produce is grown, it is considered "covered produce" and is subject to the rule.

Growing and selling produce that will receive a commercial processing step counts as an exemption because the processing reduces microorganisms that pose a public health risk. An example of a grower that qualifies for this exemption is a tomato grower selling to a cannery rather than selling tomatoes wholesale. For a grower to be considered for this exemption, he/she must have a letter from the processor or other proof that the produce sold goes through a "kill" step.

Growing produce only for personal or family consumption does not fall under the rule because it does not affect public health.

Other farmers qualified for exemptions include growers making less than \$500,000 of produce sales annually, where more than 50 percent of the produce sales are sold to qualified end users. Qualified end users are the consumer of the food and/or a restaurant or retail food establishment located in Missouri or within 275 miles of your farm.

This being said, it is always important and is in everyone's best interest for all farmers to follow food safety practices.

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Pests to Monitor: Downy Mildew and Powdery Mildew in Cucurbits

By Dr. Touria Eaton

Cucurbit downy mildew (CDM) is a disease that affects cucumber, cantaloupe, pumpkin, watermelon and squash at this time of year. It is caused by the fungus *Pseudoperonospora cubensis*. Infestations usually start with cucumber and cantaloupe by mid-August. The disease extends to pumpkins and squash by the end of August. The foliage (leaves) declines rapidly on infested crops. If crops are mature, a decline in foliage is not a major concern except that the fruit can be exposed to sunscald (caused by sunlight and heat or cold). However, rapid decline of the foliage in young crops is a major concern. It is recommended that fungicides be applied to extend the life of the foliage.

The heavy dews and cooler temperatures of September favor the spread of CDW. As the number of cucumber plants declines due to harvest, the pathogen (disease-causing agent) moves on to other cucurbits, such as pumpkins. Presidio®, Previcur® Flex, RANMAN®, Tanos® and Curzate® are good for controlling CDM. Protectants such as Bravo® and copper may be used to prevent the disease. CDM does not directly affect the fruit as does powdery mildew. However, CDM will take down the plant and leave it with poor handles (stem ends).

Powdery mildew (PM) is a disease caused by a fungus of the order Erysiphales. This fungus poses a risk to handles as well as to foliage in pumpkins. If pumpkins are still a couple of weeks from harvest or if they will be used for pick-your-own, a late-season fungicide application may delay the collapse of the pumpkin handles. Pumpkin handles are nothing more than a modified stem. When the vine starts to collapse due to the infestation, the plant continues to try to grow. This will pull moisture back out of the stem, leaving the plant with a poor handle. To control powdery mildew, spray the plants with sulfur when the temperature is cool. Use a soluble product designed for sprays, such as Microthiol®.

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Explore Your Roots (continued from page 1)

Roots are responsive to the environment. Stresses like excess water or drought conditions can slow the development of new fine roots. When the conditions become favorable, a healthy plant responds with growth of new fine roots within 24 hours of improvement in the weather conditions. For example, the root systems of most plants slow or stall in growth during the hot dry weather. But once the rain comes, the plants respond quickly with regrowth or fast growth of new fine roots.

The largest root system is reached during the reproductive and fruiting or heading stages. This occurs during harvesttime for most vegetable crops. That makes late summer and fall a great time to look at roots. A walk with a shovel and a quick shake of the root ball can give you some insight into how the crop has responded to soil conditions.

Look at the color of the roots and at the overall root ball. A healthy root system should range from white to cream in color. The effect of compaction will show up as areas with few roots, flat roots or even thickened, almost nubby root ends. See if the overall structure of the roots looks like it has penetrated the soil evenly or if there are areas with fewer roots. A good root system is consistent and well-developed through the soil profile. A larger root system picks up maximum soil nutrients and water. This increases the crop yield and quality.

Upcoming Events and Deadlines

- October 17 and 18: High Tunnel Workshop
Location: Missouri State University
State Fruit Experiment Station Mountain Grove
9740 Red Spring Road
Mountain Grove, MO 65711
- November 8: Bootheel Growers Meeting
(location TBD)
- December 7: Product Safety Alliance (PSA)
FSMA Grower Training, Fairgrounds Building,
Kennett, Missouri