

SERA 45 Crop Diversification Opportunities to Enhance the Viability of Small Farms Annual Meeting

**Southwest Purdue Agricultural Center, Vincennes, IN
Friday, September 29th, 2017
9 a.m. to 3 p.m. EDT**

Participants in attendance: Christy Cassady (University of Kentucky), Wenjing Guan (Purdue University), Petrus Langenhoven (Purdue University), Lesley Oliver (AA-University of Kentucky), John Strang (University of Kentucky), Margarita Velandia (Vice-Chair, University of Tennessee), Brett Wolff (University of Kentucky), Tim Woods (University of Kentucky), Annette Wszelaki (University of Tennessee)

Online participants: Bronwyn Aly (University of Illinois), Brad Bergefurd (The Ohio State University), Liz Maynard (Purdue University)

Agenda

- Brett Wolff (Kentucky) facilitated the meeting.
 - Online and on-site participants discussed crop diversification activities going on in their states. Written state reports were shared with the entire group by email prior to the meeting, and copies were provided for all participants who attended the meeting in person. Participants from Illinois, Indiana, Iowa, Kentucky and Tennessee provided written reports. Because of the large number of participants from Kentucky, individuals provided separate reports rather than a single state report.
- A. The discussion of specialty crop activities included a discussion of specialty crop funding being utilized by the participants. The group discussed opportunities for collaboration for crops/activities that are difficult to find funding for, but which have the potential for significant impact for growers in the region. These include:**
1. A trial of radishes about to be conducted in 2018 by the Southeast Vegetable Extension Workers Conference participants. These include all types of radishes for spring production. Annette Wszelaki (Tennessee) indicated that SERA 45 participants who are interested would have an opportunity to get involved. These trials will involve both high tunnel and field production.
 2. Chickpea is another crop Tennessee will be conducting research on; other SERA 45 participants can get involved if interested.
 3. Watermelon and pumpkins were discussed as additional crops with potential for replication to be built in across states.
 4. A list of people to contact at the universities involved for coordinating variety trials was discussed. These include Liz Maynard, Petrus Langenhoven, Wenjing Guan (Purdue); Bronwyn Aly, Nathan Johanning, Elizabeth Wahle (Illinois); John Strang (Kentucky); Brad Bergefurd (Ohio State).
 5. The group discussed the possibility of multistate specialty crop block grant funding. The group would need to include multiple crops in a multistate proposal.

Cucumbers were mentioned as having great potential for being included in such a proposal.

6. Participants interested in participating in radish variety trials were encouraged to contact Annette Wszelaki. Those interested in participating in pumpkin trials can also contact Annette, who will ask the seed company if they will provide additional seed for other states to participate.
7. Margarita Velandia (Tennessee) recommended identifying crops that require minimum labor.
8. Other crops that were discussed for collaboration included sweet corn and Asian vegetables. Wenjing Guan (Purdue) recommended Asian vegetables as they would offer fall crops, suppress weeds, and help with soil compaction.
9. Brad Bergefurd (Ohio State) has been working with John Strang (Kentucky) and Lewis Jett (West Virginia) on a tri-state strawberry growers co-op to enable growers to buy supplies at lower costs. They are trying to get growers more educated about the benefits of a co-op. A tri-state hops co-op also has potential.
10. Liz Maynard (Purdue) is finishing a project on winter vegetable crop scheduling in high tunnels. Irrigation and fertigation for any crops, especially tomatoes in high tunnels, are areas where practices could be improved. Variety trials for sweet corn and pumpkin for small-scale production were also mentioned as research possibilities. Liz encouraged participants to provide reports on any type of vegetables, plus fruit, for their Variety Trial Report. Educational activities available in Indiana include the Indiana Hort Congress, a bi-state meeting with Illinois the first week of January, and an Urban Ag Certificate program being run out of Indianapolis by Emily Toner.

B. The group discussed key needs throughout the region (Objective 1 – developing research-based production information about crops and systems that have potential to be profitable for small farms). These include:

1. Better coordination in planning variety trials across the region.
2. More work in fertigation and irrigation in high tunnels, for both organic and conventional production. Planting date guidelines for high and low tunnels, although these will vary across the region. Planting recommendations/schedules are needed for fall crops based on temperatures and solar radiation; it would be helpful for those in other locations who have data on temperatures inside and outside of their structures to share that data so it can be compiled, to improve understanding of environments in these structures.
3. Research on compost applications in high tunnels and their effect on soils.
4. Recommendations for spraying in high tunnels.
5. Organic options. It would help to compile results for which organic options work. Matt Kleinhenz (Ohio State) is currently leading a project on biostimulants and biofertilizers.
6. A Protek netting project being conducted at UK (Mark Williams) and Iowa State (Ajay Nair) on acorn squash and melons was mentioned as offering a good organic solution, although cost is a problem.

C. The group discussed additional multistate project priority areas, including:

1. Cover crop research in high tunnels. Tennessee has grower cooperators, but it's difficult to get some to respond. It would be good to include another state in a similar project.
2. There is a need for more production of fall crops in the field, such as kale, spinach and turnips.
3. There might be more market opportunities for small greens for processing. For example, there is a vegetable smoothie company that has developed a ready to go product in Indiana.
4. The potential of co-ops, given the question of how Amazon will affect small growers.
5. Biodegradable mulch – Annette Wszelaki and Margarita Velandia (Tennessee) have a project with Washington State. It will take some regional coordination to get the project moving. Annette and Margarita took a tour to Spain and Italy, where the environmental benefits of the mulch are a priority. Attitudes there are vastly different than in the U.S., where the main focus is economics. There is a need to show U.S. growers the benefits of the mulch. Tennessee has started conversations with NRCS seeking cost-share opportunities for biodegradable mulch. Several of the mulches hold up well throughout the season; two manufacturers are doing a very good job. Converters take raw material and make it into mulch; in the U.S., converters are located in MN and FL. The products are not currently allowed in organic production, which requires that the mulch must be 100% biobased and 90% broken down in two years. Liz Maynard (Purdue) suggested that SERA 45 participants could do coordinated trials around the area, as well as coordinated educational programs, using demonstrations and educational outreach to explain problems with mulch. This work might be suitable for funding through regional IPM grants. Annette indicated that the project is at a point to do coordinated activities. Tennessee has two years of data, and some fact sheets are available from UT and Washington State. The group could also do trainings for extension agents who work with vegetable growers. If anyone is interested in doing trials with biodegradable mulch, Tennessee can get product from the companies they have been working with, and those companies would like to get other states involved. The companies have been willing to help growers when they're laying the mulch for the first time. SERA 45 participants who are interested should contact Annette Wszelaki (Tennessee), who will coordinate communicating with the companies. Demonstrations on farms would be helpful, as would biodegradable mulch field days. A grower in Spain who had used biodegradable mulch for 17 years told the Tennessee participants that he had seen no difference in productivity and no soil health issues.

D. The group discussed Objective 3, expanding the activities of the Center for Crop Diversification (CCD) to include price reports (farmers markets, produce auctions, farm to school, retail) from the participating states.

1. Brett Wolff (Kentucky) discussed two new publications available through UK's CCD, which compile price reporting data for 18 crops from Kentucky farmers market price reports from 2014-2016, and from two Kentucky produce auctions over the same time period (price and quantity averages). The CCD will do these each year, and will add one year each year. These publications offer great potential benefit to help growers determine if early crops really pay off, to help see product availability gaps, etc. Illinois publishes annual price averages from farmers markets.
2. Margarita Velandia (Tennessee) said her reports indicate that collectively since 2013, there have been no changes in prices. Differences are seen by location. Data from Tennessee farmers markets indicate there is collusion among vendors when prices are set. Tennessee is testing an app for reporters to facilitate collection of prices. The app does not require the user to be connected to the Internet, which helps in areas with no cell phone service. Tennessee is still struggling to keep consistent reporters for farmers market prices. Some reporters take a photo of their report and send it to Margarita for Tennessee and to Brett for Kentucky farmers market price reports. Tennessee compiles data for annual impact reports, and consolidates information for agents to incorporate in impact statements. Price reports show differences between counties, and between counties and average retail prices. Tennessee prices have shown no difference between organic and conventional prices, due to competition between local versus organic products.
3. Tim Woods (Kentucky) pointed out that much higher prices are seen early in the season, but growers see those higher prices and can very quickly saturate that market. A lot of local sourcing of early season crops is going to very local markets, which do not need as much product. A problem with some Kentucky auctions is a lack of consistency in separating No. 1 and No. 2 grade tomatoes.

E. The group discussed Objective 2, coordinating research and extension activities among participants.

1. Tim Woods (Kentucky) discussed Marketing for All training modules being developed by UK that are business related, and include recordkeeping basics. This was in response to a request by the Kentucky Department of Agriculture for a training that would be a preamble to the MarketReady Producer Training Program offered by UK.
2. Margarita Velandia (Tennessee) shared information about materials developed with the Center for Profitable Agriculture (CPA) in Tennessee for workshops on pricing and recordkeeping. Tennessee has a followup survey online to measure impact from the trainings. The workshops were developed for basic 101 Recordkeeping, and covered options from from paper-based records to Excel spreadsheets, to Veggie Compass. The workshops covered SSAWG tools, grower-shared techniques, and the AgSquared online tool. Tennessee

has also offered Farmers Market Boot Camps, then a followup that matched some growers who participated in the Boot Camps with area farm management specialists, who traditionally work with large commodity growers. The idea was to introduce them and motivate both grower and management specialists to work with each other.

3. Tim Woods mentioned an upcoming visit from the CPA's Rob Holland to Kentucky, and asked for suggestions for potential areas of collaboration. Margarita's suggestions included how to be more efficient, and compare notes regarding resources the CPA already has such as recordkeeping materials, producer videos, etc. Annette Wszelaki pointed out CPA's Growing Digital Advanced Online Marketing Strategy for Direct Markets all-day workshops, including e-commerce, social media, video content creation and marketing. Another workshop was offered on Tennessee Farmers Market Training Tips to Make Your Market Thrive. These are topics that offer great opportunities for webinars.
4. Annette Wszelaki suggested doubling up on agent trainings. Tennessee has offered a new agent boot camp, which covered diagnostics, laying mulch, sprinkler calibration, etc. Kentucky agents could be included in future trainings. There is also an opportunity for online training on pricing – using information from Kentucky and Tennessee on prices. The CPA has an old publication on pricing that could be updated collaboratively. Margarita brought up the need to determine how to maintain data, and how to add more markets over time. There is also the issue of price reporters not staying from year to year. There is a need for a regional publication on how to use the pricing data.
5. Petrus Langenhoven (Purdue) pointed out that Ariana Torres (Purdue) has been collecting farmers market prices since January. She wants to get a website up and running to analyze pricing data.
6. Tim Woods (Kentucky) pointed out that UK will be starting CSA Boot Camps. Annette indicated that Tennessee had a Specialty Crop Block Grant a few years ago, and developed a six-part workshop series for CSAs on business structures, marketing, etc., and took it around the state. Tennessee has fact sheets on recordkeeping for CSAs.
7. The group discussed the fact that volumes are not currently being tracked in farmers market price reports. It would help to have app to do a low, medium and high presence of each product for price reports.
8. The group discussed other collaborative possibilities, and how to accomplish tasks beyond just meeting annually; Lesley Oliver (AA-Kentucky) suggested additional communication between annual meetings to keep interaction going among the members of the group, possibly every other month or quarterly. This would allow the group to touch base and deal with a single topic at that time. Conference calls would give additional people who have signed onto the project but are unable to attend annual meetings a chance to participate.
9. The group talked about the problem with various departments of agriculture handling Specialty Crop Block Grants differently. It was suggested that participants need to have conversations with their state departments of

agriculture individually before deciding where to submit grant proposals. The group decided that pulling together state level Specialty Crop Block Grant projects funded throughout the group in recent years would be helpful.

10. Christy Cassady (Kentucky) would like to share the CCD's High Tunnel Overview profile that's 5 years old with the group as a basis for developing a new regional publication. John Strang (Kentucky) suggested having a new high tunnel publication address both conventional and organic production. Petrus Langenhoven (Purdue) suggested also including soilless production.
11. Tim Woods (Kentucky) suggested sharing periodic updates of activities with the group. This could be shared in the recommended quarterly conference calls. Annette Wszelaki brought up the idea of taking the group's state reports and combining them to highlight similar work being done in multiple states.
12. The group reiterated that a quarterly phone call might get more focused attention from participants. Margarita Velandia agreed to be responsible for the pricing publication that was previously discussed. Annette Wszelaki agreed to take care of coordinating work with the biodegradable mulch, radishes, and pumpkins.

F. Brett Wolff (Kentucky) facilitated a recap of big picture topics: biodegradable mulch, radishes, pumpkins (including downy mildew resistance, powdery mildew resistance, viruses), fertigation/irrigation in high tunnels, grafting for high tunnels, conventional and organic production in high tunnels.

1. Brett agreed to take the lead on summarizing the group's Specialty Crop Block Grant projects for the last five years, and to organize thematic activities in state reports. Annette suggested doing the latter in Excel, putting topics in by categories (cover crops, high tunnels, variety trials, extension activities, webinars, publications, field days, websites, etc.) That would allow participants to look for certain key words.
2. Tim Woods suggested that the group needs to share information on upcoming field days. Petrus Langenhoven suggested sharing information, including field days, from Purdue's Veggie Crops hotline in the CCD newsletter. Brett and Christy agreed to add all SERA 45 participants to the CCD newsletter mailing list. John Strang (Kentucky) suggested putting information about regional newsletters on the SERA 45 web page. Christy Cassady (Kentucky) indicated she had put together information about facilities and contacts for the nine universities involved in SERA 45 project, and would take responsibility for posting that information on the project web page. Margarita Velandia suggested that participants send links to new resources to Christy.

Election of officers

Chair: Margarita Velandia, University of Tennessee

Vice-chair: Krista Jacobsen, University of Kentucky

2018 Annual Meeting

The University of Tennessee will host the 2018 annual meeting

The meeting concluded with a tour of the Southwest Purdue Agricultural Center, led by Dan Egel, Plant Pathologist, and a tour of Mouzin Brothers Farms. Eight participants took part in the tour.

SERA 45 State Report - Illinois

Name: Bronwyn Aly & Nathan Johannng

University: University of Illinois

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including (but not limited to):

a) protected agriculture — high/ low tunnel/greenhouse production

b) organic production systems

Central IL variety trials on grain and oilseed in partnership with Cornell, University of Wisconsin, and others.

USDA funded four year regional project to breed corn for organic farms. Martin Bohn in the Department of Crop Science at University of Illinois is the lead on the grant.

University of Illinois Extension Educator, Bill Davidson (central Illinois) helped to start a non-profit organization called Regenerate Illinois that is focused on agroecology and regenerative agriculture and the idea that agriculture can regenerate the health of the soil, landscapes, and rural communities. There are a variety of projects associated with this group. Chinese chestnut variety trials, Kernza perennial intermediate wheatgrass, and a pilot project in the Mackinaw Watershed to show that agriculture and conservation can be mutually beneficial. For the pilot project, land will be purchased adjacent to existing preserves and then recruit farmers to manage fully diversified farms that integrate livestock through intensive multi-species rotational grazing into a farm that uses perennial crops to maximize soil cover. Annual cropping would be reduced to alleys between trees, shrubs, and other perennial plants. We are going to attempt to replicate work being done by the Forever Green Initiative out of the University of Minnesota and we are trialing some of the crops that they have developed.

c) small-scale production systems

Colored bell pepper and sweet pepper variety trials in southern IL

Ornamental corn variety trial in southern IL

Testing regional performance of cover crops

Asparagus variety trial in southern IL

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):

a) in-person trainings

Illinois Specialty Crops, Agritourism, and Organics Conference

<http://www.specialtygrowers.org/iscaoc-conference.html>

Gateway Small Fruit and Vegetable Conference

Southern Illinois & Southwestern Illinois Commercial Tree Fruit Schools

Stateline (IL-WI) Fruit and Vegetable Conference

Beginning Farmer Training

Produce Safety Alliance Grower Trainings

b) webinars

Small Farms Winter Webinar Series – find webinar tab on local foods page

c) print publications

Illinois Fruit and Vegetable Newsletter

<http://ipm.illinois.edu/ifvn/contents.php>

d) video

Local Foods Team You Tube Channel

<https://www.youtube.com/channel/UCBvG-jopax3tPSCBXb6AgIQ>

e) field days

Pumpkin Field Day

Cover Crop Field Days

Southern Illinois Summer Twilight Series

Summer Hort Field Day – Illinois Horticulture Society

Southern Illinois Fruit & Vegetable Field Day

Series of “farm crawls” in northern Illinois during the fall

f) demonstrations

High Tunnel Workshops

3. Please **list** current activities in your state related to **reporting specialty crop prices** from:

a) farmers markets

Illinois Farmers Market Price report

<http://web.extension.illinois.edu/smallfarm/farmersmarket.html>

b) produce auctions

c) farm to school

d) retail

e) other

4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:

Not applicable

- a) consumer preferences
- b) comparison of marketing channels
- c) other

SERA 45 State Report - Indiana

Name: Ariana Torres

University: Purdue University

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including **(but not limited to)**:

a) protected agriculture — high/ low tunnel/greenhouse production

High tunnels:

- Cultural methods of growing staked tomatoes (Egel)
- Season extension of strawberries in high tunnels (Guan)
- Early season seedless cucumber production (Guan)
- Winter vegetable crop scheduling (Guan)
- Specialty cantaloupe and galia melon variety evaluation, soil and soilless production techniques, grown vertically (Langenhoven)
- Using grafting technology to enhance early season cucumber production in high tunnel (Guan)
- Effects of leaf mold and grafting on yield and fruit quality of high tunnel grown tomatoes (Guan)
- Succession planting of leafy vegetables in high tunnel in Southwest Indiana
- Tomato varieties for high tunnels (Maynard)
- Irrigation scheduling in high tunnels (Maynard)
- Producer perceptions of and practices in high tunnels (Maynard)
dx.doi.org/10.5304/jafscd.2017.073.012
- Specialty cantaloupe and galia melon variety evaluation, soil and soilless production techniques, grown vertically (Langenhoven)
- Evaluation of summer squash for local market consumption (Langenhoven)

Hydroponics:

- Performance and quality of leafy vegetables in response to supplemental lighting and nutrient solution (Langenhoven & Nemali)
- High tunnel projects listed above are in both organic and conventional production systems (Maynard)

b) organic production systems

- Watermelon variety trial in certified organic plot (Egel)
- Vegetable variety evaluations (sweet corn, pumpkins). Past reports available at docs.lib.purdue.edu/fvtrials/ (Maynard)
- Carrot and tomato breeding for organic production (Hoagland)

c) small-scale production systems

- Vegetable variety performance in field trials (Maynard)
- Evaluation of wine and table grape cultivars (Bordelon)
- Small fruit crop and cultivar evaluation, especially primocane fruiting blackberries (Bordelon)
- Management of spotted wing Drosophila in red raspberries (Bordelon)
- Fresh produce food safety:
Movement and persistence of human pathogenic bacteria in plants, internalization of human pathogens in plants, prevalence of human bacterial pathogens associated with commercial cantaloupe seed, efficacy of postharvest sanitizers for the reduction of human bacterial pathogens on fresh fruits and vegetables. (Deering)

d) Marketing:

- Enterprise budgets for melon growers (Ariana)
- Enterprise budgets for cucumber growers (Ariana)
- Baseline assessment of use of drying technologies in Indiana (Ariana)
- Buyers' assessment of preferences and requirements for organic grains (Ariana)
- Collecting farmers markets prices in Indiana
<https://www.purdue.edu/hla/sites/hortbusiness/price-reports/> (Ariana)

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):

a) in-person trainings

- Hydroponic Lettuce workshops I and II
- Indiana Hort Congress <http://www.inhortcongress.org>
- Indiana Small Farm Conference ag.purdue.edu/extension/smallfarms
- Illiana Vegetable Growers Symposium tinyurl.com/ivgs2016
- Michiana Fruit and Vegetable Growers Meeting
- Starlight Vegetable Meeting
- Southwest Indiana Melon and Vegetable Growers Meeting
- Urban Ag Certificate Program (Toner)
- On-Farm Food Safety for Direct Marketers (Monroe)

- Hoosier Harvest Market <http://www.hoosierharvestmarket.com> (Ballard)
- Area V Small Farms Clinic (Thompson)
- Southwest Indiana Melon and Vegetable Growers' Technical Meeting (Guan and Egel)

County-level Events:

- Improving Farmers' Market Displays (Ballard)
- Local Foods in Indiana (Ballard)
- Local Food Workshop (Huffmeyer)
- Blackberry Production (Miller)
- Farm to School - Porter County (Ploehn)
- Organic Certification (Schmitz, Turner)
- Local Farmer Network (Sprouse)
- Growing Heirloom tomatoes (Thompson)
- Vegetable disease - campus garden initiative (Thompson)
- Indy Food Council - Diversity Networking Event (Toner)

b) webinars

- Small Farm Webinar Series, Winter 2016 (Ballard)
- Garden 2 Consumer Series, Spring 2016 (Witkowski)
- Horticulture Business Marketing and Green Industry, Winter 2017 & spring 2017 (Ariana)

c) print publications

- Purdue Extension bulletins are available at The-Education-Store.com

New/Recently Updated:

- Good Agricultural Practices for Fruit and Vegetable Farms (GP-1-W)
- Midwest Fruit Pest Management Guide 2016 (ID-465)
- Midwest Vegetable Production Guide for Commercial Growers 2016 (ID-56)
- Vegetable Diseases: Tomato Disease Management in Greenhouses (BP-197-W)
- Midwest Vegetable Trial Report (annual reports) (16-18)
- Techniques for Tomato Grafting (HO-260-W)
- The economic contribution of the Indiana green industry
https://mdc.itap.purdue.edu/item.asp?Item_Number=HO-256-W
- Characteristics of Indiana vegetable farmers
https://mdc.itap.purdue.edu/item.asp?Item_Number=HO-271-W
- Characteristics of Indiana vegetable operations
<https://www.extension.purdue.edu/extmedia/HO/HO-270-W.pdf>
- Food Safety for Fruit and Vegetable Farms: BARDOT - A New, Fast Method for Identifying Microbes. edustore.purdue.edu/item.asp?Item_Number=GP-3-W
- On-farm Food Safety for Produce Growers: Microbial Water Quality Testing.

edustore.purdue.edu/item.asp?Item_Number=GP-2-W

- Midwest Vegetable Production Guide for Commercial Growers 2017 (ID-56).
www.btny.purdue.edu/Pubs/ID/ID-56/

d) video

- Beginning Farmer and Rancher Tours
<https://www.youtube.com/playlist?list=PLtXSf1tu3Jd-rrTbDIb1L1SEUQx8Xy039>
- Organic Thinking: Our Relationship with Weeds
<https://www.youtube.com/playlist?list=PLtXSf1tu3Jd9JJeTWhkrfXrSLzVk7fjEI>
- Local Foods
https://www.youtube.com/watch?v=tEA5TQWjV1Q&list=PLtXSf1tu3Jd9bBX3l7zsl2_OVQta9bfN9
- FoodLink
<https://www.youtube.com/playlist?list=PLtXSf1tu3Jd82ZjlNoQTjNpEBjmNVW7NG>
- Purdue Extension Entomology Fruit and Vegetable Pest Management Videos
<https://www.youtube.com/playlist?list=PL8B4B288C9754C06D>;
<https://www.youtube.com/playlist?list=PLgavttJPLt2QYkIVwkDYxE4SIUcgs8geH>
- Pinney Purdue Vegetable and High Tunnel Field Day, Aug. 15, 2017
purdueag.exposure.co/sweet-corn-lovers-have-a-field-day-at-pinney-purdue-ag-center
- Full Hand Farm Beginning Farmer Tour, Sept. 27, 2017

e) field days/tours

- Meigs High Tunnel Cantaloupe production field day (Langenhoven, Ingwell)
- Beginning Farmer Program - Perkins Good Earth Farm Tour (O'Donnell)
- Beginning Urban Farmer Tour – BFRPD (Toner)
- Carroll County Ag Tour (Brown)
- ECI Local Farmer Network - Soil Health, Cover Crops, and Equipment for Small-scale Vegetable farms; Farm Gathering (O'Donnell)
- Farm to School Producer Meeting (Campbell)
- FFA student tour of Hydroponic Farm (Ulery)
- Hemp Field Day (Schmitz)
- Indiana Horticulture Society Summer Field Day (Bordelon)
- IndyGrown Urban Farm Network & Tour (Toner)
- Purdue Wine Grape Team Workshop (Bordelon, Butzke, Blume)
- Southwest Purdue Ag Center Field Day (Clingerman)
- Vegetable and High Tunnel Twilight Meetings at Pinney Purdue (Maynard)
- High tunnel tours (Guan and Egel)

f) Demonstrations

- Tomato grafting workshop (Guan)

g) web sites

- FOODLink <https://extension.purdue.edu/foodlink/>
- Food Safety for Fruit and Vegetable Farms
<https://ag.purdue.edu/hla/foodsafety/Pages/default.aspx>
- Horticulture Business

h) Market development support

- Plymouth Farmers Market (Yoder)
- Training to farmers markets managers (Ariana)
- Hoosier Harvest Market <http://www.hoosierharvestmarket.com> (Ballard)

3. Please **list** current activities in your state related to **reporting specialty crop prices** from:

- Farmers markets prices are being collected in 8 markets (Lafayette, West Lafayette, Bloomington, Plymouth, Culver, Warrick, Kokomo, Corydon) by Ariana Torres and her lab
- Prices trends and analyses are being developed in extension articles
- Prices can be found <https://www.purdue.edu/hla/sites/hortbusiness/price-reports/>
- Extension publications regarding pricing in farmers markets are
 1. The top 5 things to consider before pricing your products
https://www.purdue.edu/hla/sites/hortbusiness/wp-content/uploads/sites/10/2017/09/2.VCH_The-Top-5-Things-to-Consider-Before-Pricing-Your-Products.pdf
 2. Is my farm profitable? The drivers of farm profitability
https://www.purdue.edu/hla/sites/hortbusiness/wp-content/uploads/sites/10/2017/09/6.VCH_The-Drivers-of-Farm-Profitability.pdf
 3. What you need to know about selling in farmers markets: Farmers markets and their benefits
https://www.purdue.edu/hla/sites/hortbusiness/wp-content/uploads/sites/10/2017/09/7.VCH_FarmersMarkets-and-Their-Benefits.pdf
 4. What you need to know about selling in farmers markets: Let's talk about prices
https://www.purdue.edu/hla/sites/hortbusiness/wp-content/uploads/sites/10/2017/09/8.VCH_Pricing-at-Farmers-Market.pdf
 5. Building enterprise budgets for Indiana specialty crop growers
https://www.purdue.edu/hla/sites/hortbusiness/wp-content/uploads/sites/10/2017/09/9.VCH_MelonEntBudget.pdf

4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:

- a) consumer preferences
- b) comparison of marketing channels
- c) other

- Hoosier Harvest Market <http://www.hoosierharvestmarket.com>

SERA 45 State Report - Iowa

Name: Dr. Ajay Nair

University: Iowa State University

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including (but not limited to):

a) **protected agriculture** — high/ low tunnel/greenhouse production
Several projects are ongoing that demonstrate the use and applicability of high tunnels for season extension and enhancement of fruit quality. High tunnel studies under this project include:

- Tomato grafting rootstock study (Nair)
- Season extension study for high tunnel peach production (Cochran)
- Tomato cultivar study in high tunnel (Nair)
- Impact of shade material and cultivar on high tunnel colored pepper production (Lang and Nair)
- Diversifying production systems within high tunnels (Nair)
- Fall season extension study using row covers within high tunnels (Nair and Lang)

b) **organic production systems** - Methods to enhance organic system soil fertility and plant protection continued at the ISU Neely-Kinyon Farm Long-Term Agroecological Research (LTAR) experiment. In the first 16 years of the LTAR, organic corn and soybean yields have been equivalent to their conventional counterparts, with yields for organic alfalfa and oats equal to county averages. Soil quality continues to increase with the use of compost and cover crops. Organic no-till was applied to vegetable and field crops to examine production and soil quality effects. Lysimeter data continues to show that the concentration of leached N has been consistently lower under vegetables grown with a cover crop and in no-till. Soil quality comparisons show greater soil carbon sequestration with cover crops and compost.

An organic transition project was conducted in collaboration with University of Kentucky which investigated the effect of Protek net on winter squash and melon production. Protek nets are 3-4 times expensive than typical row covers but have extended shelf life and reduce temperature stress under low tunnels.

c) small-scale production systems

- Integration of poultry in vegetable cropping systems (Nair and Bilenky)
- Hops production for the Midwest: Cultivar selection and nutrient management (Cochran)
- Apple rootstock evaluation (Cochran)
- Northern grapes project: cultivar evaluation (Cochran)
- Midwest Food Safety Hub: Implementing safe production practices in specialty crop production (Shaw)

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):

a) in-person trainings

Iowa Fruit and Vegetable Growers Conference
Practical Farmers of Iowa Conference
Horticulture In-Service Training
High tunnel crop production workshops
Cover crop workshops
Mitigating heat in high tunnels workshop
Iowa Organic Conference
Frost protection for apple orchards

b) webinars

Integrated pest management (offered through Zoom)
Vegetable production webinar series
Nutrient management in vegetable production
High tunnel for food crops (offered once a month)

c) print publications

Suggested soil micronutrient levels and sampling procedures for vegetable crops. HORT3063. Iowa State University
(<https://store.extension.iastate.edu/Product/Micronutrient-Publication-for-Vegetable-Growers>)
Commercial Asparagus production. HORT3059. Iowa State University.
(<https://store.extension.iastate.edu/Product/Recommended-Tomato-Varieties-for-Commercial-Production-in-Iowa>)
Commercial melon production. HORT 3058. Iowa State University.
(<https://store.extension.iastate.edu/Product/Commercial-Asparagus-Production>)
Commercial production of Pak Choi. HORT 3057. Iowa State University.
(<https://store.extension.iastate.edu/Product/Commercial-Production-of-Pak-Choi>)
Crop rotations, composting and cover crops for organic vegetable production. HORT 3052. Iowa State University.

(<https://store.extension.iastate.edu/Product/Crop-Rotations-Composting-and-Cover-Crops-for-Organic-Vegetable-Production>)

Commercial potato production guide. HORT3044. Iowa State University.

(<https://store.extension.iastate.edu/Product/Commercial-Potato-Production-Guide>)

d) video

<http://www.extension.iastate.edu/vegetablelab/>

<http://extension.agron.iastate.edu/organicag/>

e) field days

- Fruit and Vegetable Field Day – 175 participants (growers, extension staff, industry leaders) in 2017.
- Organic Field Day - covered topics ranging from organic crop rotations to no-till vegetable production, reaching over 65 people.
- Cover crop field day
- Conservation Tillage Field Day - showcased functionality and use of roller crimper and strip tillage equipment in sustainable vegetable production systems.
- High tunnel tomato production Field Day
- 50 year celebration of Horticulture Research Station – 300 people attended the event

f) Demonstrations

- Equipment Demonstration Field Day
- Sprayer calibration for tree fruits

3. Please **list** current activities in your state related to **reporting specialty crop prices** from:

- a) farmers markets
- b) produce auctions
 - Visit to Cedar Valley Produce auction for on-campus staff, field specialists, and graduate students
- c) farm to school
- d) retail
- e) other – Marketmaker workshops (<https://foodmarketmaker.com/>)

4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:

- a) consumer preferences
- b) comparison of marketing channels
- c) other

SERA 45 State Report – Kentucky (CCD)

Name: Christy Cassady & Brett Wolff

University: University of Kentucky Center for Crop Diversification

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including (but not limited to):
 - a) protected agriculture — high/ low tunnel/greenhouse production
 - b) organic production systems
 - c) small-scale production systems

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):
 - a) in-person trainings
 - b) webinars
 - c) print publications
 - d) video
 - e) field days
 - f) demonstrations
 - a) In-person trainings – Thirty-five people attended a “What to Think About Before You Plant” workshop for growers and Extension personnel at the Kentucky Fruit and Vegetable Conference in January of 2017. The workshop featured a panel of growers and produce buyers and a presentation by Tim Woods about a new CCD publication, *What to Think About Before You Plant* (http://www.uky.edu/ccd/sites/www.uky.edu.ccd/files/Before_You_Plant_Draft.pdf).
 - b) Webinars - An agent in-service training based on *What to Think About Before You Plant* was offered via webinar during March of 2017, with 23 Extension agents participating. Two additional webinars for growers on the same topic, one for small-scale markets and one for larger markets, were also offered in March; 25 participated in the small-scale webinar and 13 in the large-scale webinar. Webinar recordings are available on the CCD website at

<http://www.uky.edu/ccd/marketing/general-resources/byr>

- c) Print publications – CCD crop, marketing and system profiles are being updated. A publication numbering system has been approved by Extension administration at UK. New profiles were developed on lavender, maple syrup, weed management, irrigation systems, and the Food Safety Modernization Act in 2016. In 2017, new profiles have been developed on walnuts, pecans, Malabar spinach, and vegetable transplant production. The following profiles were updated in 2016; several are still under review:

Asparagus	Ginseng	Hydroponic lettuce	Raspberry
Beekeeping/honey	Goldenseal	Organic apples	Serviceberry
Catnip	Gourmet mushrooms	Organic asparagus	Stevia
Cherry	Greenhouse cut flowers	Organic brambles	Truffles
Chinese chestnuts	Greenhouse tomato	Organic lettuce	KY MarketMaker
Coneflower	High tunnel greens	Organic sweet corn	Marketing Crops to Schools and Institutions
Currant/Gooseberry	High tunnel tomatoes	Organic tomatoes	
Edamame	Hispanic vegetables	Persimmon	
Garlic	Hops	Plum	

The following profiles have been updated thus far in 2017; several are still under review:

Baby corn	Field nursery	Potatoes	Root crops
Baby vegetables	Garden mums	Pot-in-Pot nursery	Specialty melons
Cabbage	Heirloom vegetables	Propagation nursery	Starting a Nursery Business
Container nursery	Leafy greens	Regional Food Hubs	Tomatillo
CSA	Okra	Rhubarb	Woody cuts
Cucumber	Onions	Risk management	
Eggplant	Peas	Romaine lettuce	

The CCD's monthly newsletter subscription list now exceeds 1,500.

- d) Video – None
- e) Field Days – The CCD gave a presentation and distributed publications and information about our resources at the Kentucky State University Third Thursday Thing 20th Anniversary Field Day in Frankfort (July 2017).

Other – Crop production budgets for blackberries have been updated and reviewed in 2017, and are currently in the hands of UK Agricultural Communications. Budgets for 18 vegetable and melon crops have been updated and reviewed in

2017, and are currently being formatted. Versions have been developed for large-scale and small-scale production.

CCD publications and general information were disseminated at the following conferences/meetings in late 2016-2017:

Kentucky Fruit and Vegetable Conference (Lexington)
Kentucky State University Small Farm Conference (Frankfort)
Kentucky Women in Agriculture Conference (Bowling Green)
Illinois Specialty Crop, Agritourism and Organic Conference (Springfield, IL)
Indiana Hort Congress (Indianapolis, IN)
Indiana Small Farm Conference (Danville, IN)
Ohio Ecological Food and Farm Association Conference (Dayton, OH)
Ohio Produce Growers and Marketers Association Conference (Sandusky, OH)
Organic Association of Kentucky Conference (Shepherdsville)
Pick TN Conference (Franklin, TN)
Southern Sustainable Agriculture Working Group Conference (Lexington)
West Virginia Small Farm Conference (Charleston, WV)

CCD personnel will be participating in meetings and conference trade shows at the following sites in late 2017 and 2018:

Kentucky Fruit and Vegetable Conference (Lexington)
Illinois Specialty Crop, Agritourism and Organic Conference (Springfield, IL)
Indiana Hort Congress (Indianapolis, IN)
Southern Sustainable Agriculture Working Group Conference (Chattanooga, TN)
PickTN Conference (Chattanooga, TN)
Ohio Ecological Food and Farm Association Conference (Dayton, OH)
West Virginia Small Farm Conference (Charleston, WV)
Indiana Small Farm Conference (Danville, IN)
Organic Association of Kentucky Conference (Shepherdsville, KY)
UK Robinson Center Field Day (Quicksand, KY)
Kentucky Women in Agriculture Conference (Lexington)
Kentucky State University Small Farm Conference (Frankfort)

- g) We received funding for a 2017-18 project we call Marketing for All, which focuses on marketing techniques for direct marketers and beginning wholesale/restaurant vendors. It is an adaptable, and novel style of curriculum and will be piloted in fall 2017.

3. Please **list** current activities in your state related to **reporting specialty crop prices** from:

- a) farmers markets
- b) produce auctions
- c) farm to school

- d) retail
 - e) other
- a) Prices are reported weekly from a selection of farmers markets across Kentucky. Reports are posted on the CCD website from April through October. A new publication, 3-Year Average Weekly Prices at Kentucky Farmers Markets: 2014-2016, was developed in the spring of 2017. It is available on the CCD website at http://www.uky.edu/ccd/sites/www.uky.edu.ccd/files/KYFM3yravg_Wolff_Bechu_Woods_Butler.pdf.
 - b) Prices from Bath County, Casey County, Fairview, Hart County and Lincoln County produce auctions are posted on the CCD website as they are received. A new publication, 3-Year Average Prices & Quantities at Kentucky Produce Auctions: 2014-2016, was developed during the summer of 2017 and is available on the CCD website at http://www.uky.edu/ccd/sites/www.uky.edu.ccd/files/KYPA3yravgWolff_Bechu_Woods_Butler.pdf.
 - c) The Center has contracted with a price reporter in Louisville to collect retail prices during 2017.
 - d) For the first time, the center offered 3-year average prices at farmers markets and produce auctions including data from the 2014-2016 seasons. This is our first time offering average prices of any sort. Illinois offers annual summaries each year, which inspired us.
 - e) We have collected some preliminary data on grocery store prices as a pilot this year. We are able to compare prices for one grocery store near a farmers market we also report. We plan to expand this next year.
4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:
- a) consumer preferences
 - b) comparison of marketing channels
 - c) other
 - a) Consumer preferences – *Community Supported Agriculture – New Models for Changing Markets*, by Tim Woods, Matthew Ernst and Debra Tropp, was published by the U.S. Department of Agriculture, Agricultural Marketing Service, in April 2017. Available at <https://www.ams.usda.gov/sites/default/files/media/CSANewModelsforChangingMarketsb.pdf>.

Tim has done some work on local food vitality indices and can perhaps talk about them.

SERA 45 State Report – Kentucky (John Strang)

Name: John Strang

University: University of Kentucky

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including (but not limited to):
 - a) protected agriculture — high/ low tunnel/greenhouse production
 - b) organic production systems
 - Use of floating row covers and ProtekNet mesh row covers to exclude cucumber beetles from muskmelon (Bessin & Williams)
 - c) small-scale production systems
 - Haskap cultivar and selection evaluation
 - Thornless erect blackberry variety evaluation (Wolfe - UKREC)
 - Hazelnut cultivar evaluation (Wright -RCARS)
 - Bacterial spot bell pepper cultivar evaluation
 - Green bean cultivar evaluation
 - Broccoli cultivar evaluation (Becker - UKREC)
 - Powdery mildew resistant pumpkin cultivar and fungicide evaluation
 - Uba tuba pepper *C. baccatum* selection program to find earlier maturing higher yielding selections and to evaluate preservation techniques

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):
 - a) in-person trainings
 - Kentucky Fruit and Vegetable Conference, January 9-10, 2017
 - b) webinars - None
 - c) print publications
 - 2016 Annual Fruit and Vegetable Research Report (PR-721)
<http://www2.ca.uky.edu/agcomm/pubs/PR/PR721/PR721.pdf>
 - An IPM Scouting Guide for Common Problems of Strawberry in Kentucky (ID-238) <http://www2.ca.uky.edu/agcomm/pubs/ID/ID238/ID238.pdf>
 - d) video - None
 - e) field days
 - Fruit Grower Orchard Meeting, Evans Orchard and Cider Mill, Georgetown, KY, March 8, 2017
 - Fruit Grower Orchard Meeting, UK Horticultural Research Farm, Lexington, KY, May 2, 2017
 - f) demonstrations

-Danville Senior Citizens Center thornless erect blackberry program

3. Please **list** current activities in your state related to **reporting specialty crop prices** from:

- a) farmers markets
- b) produce auctions
- c) farm to school
- d) retail
- e) other

-Average Kentucky wholesale and retail fruit prices collected as a basis for the Kentucky NAP program fruit prices

4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:

None

SERA 45 State Report - Tennessee

Name: Margarita Velandia and Annette Wszelaki

University: The University of Tennessee

Please provide a synopsis of current activities in your state that are directly related to the objectives of the SERA 45 project; if you are not aware of any activities related to an objective, please indicate that.

1. Please **list** current activities in your state involving **research-based production information** about specialty crops and systems that have potential to be profitable for small farms, including (but not limited to):
 - a) protected agriculture — high/ low tunnel/greenhouse production
 - b) organic production systems
 - c) small-scale production systems

Production:

- *Performance and Adoptability of Biodegradable Plastic Mulch for Sustainable Specialty Crop Production*
- *Cover Crops Under Cover: Evaluating Costs, Benefits, and Ecosystem Services of Cover Crops in Year-Round High Tunnel Production*
- *Systems Thermal protection Strategies in High Tunnels to Further Extend the Growing Season*
- *On-farm Fresh-market Tomato, Pepper and Pumpkin Variety Trials*
- *UT-NCSU Southeast Regional Pumpkin Trial*

2. Please **list** current **educational and extension activities** in your state focused on the **production and marketing of specialty crops**. Please include links and/or copies as appropriate. Examples might include (but are not limited to):
 - a) in-person trainings

Farmers Markets Bootcamps 2017 - Enhancing Tennessee Small-scale Fruit and Vegetable Farms' Ability to Manage Marketing and Financial Risks.

Education materials available at

<https://ag.tennessee.edu/cpa/Pages/Farmers-Markets.aspx>

2017 Farmers' Market Vendor Meeting:

"Recordkeeping Tools for Small Fruit & Vegetables"

"Making the Most of your Vegetable Crops"

- b) webinars
- c) print publications

Evaluating Financial and Economic Factors Contributing to the Sustainability of Beginning Farms: Evidence from Five Farms in Tennessee and Virginia

<https://ag.tennessee.edu/arec/Documents/publications/W388SustainabilityofBeginningFarms.pdf>

Biodegradable Mulch Information Resources

<https://ag.tennessee.edu/biodegradablenmulch/Pages/factsheets.aspx>

UT Food Safety Posters (available by request... lots available!)

UT Organic and Sustainable Crop Production Program Factsheets

<http://organics.tennessee.edu/publications.htm>

How to Use and Monitor Chlorine (Sodium/Calcium Hypochlorite) in Fruit and Vegetable Washwater and on Equipment and Food Contact Surfaces

<https://extension.tennessee.edu/publications/Documents/SP798-A.pdf>

Using Peroxyacetic Acid (PAA) in Fruit and Vegetable Washing and Packing

<https://extension.tennessee.edu/publications/Documents/SP798-B.pdf>

Using Sanitizers on Organic Fruit and Vegetable Farms – Merging National Organic Program Guidelines with Good Agricultural Practices

<https://extension.tennessee.edu/publications/Documents/SP798-C.pdf>

Cornell, University of Minnesota and UT Farm Food Safety Decision Tree

<http://www.gaps.cornell.edu/tree.html>

d) video

Tennessee organic grower Jonny Buchanan shares how he manages marketing and financial risks on his farm in Knoxville, TN.

<https://www.youtube.com/watch?v=4jhNNRs2cZE&feature=youtu.be>

Tennessee vegetable grower Larry Heidkamp shares how he manages marketing and financial risks on his farm in Columbia, TN.

<https://www.youtube.com/watch?v=UBqRVBtrjak&feature=youtu.be>

Tennessee fruit and vegetable grower Mike Katrutsa shares how he manages marketing and financial risks on his farm in Camden, TN.

<https://www.youtube.com/watch?v=mHCkVA-BfGQ&feature=youtu.be>

Annette Wszelaki – Making the Most of Your Vegetable Crops for Market

<https://youtu.be/zEUovJPx7PU>

Dave Lockwood – Challenges and Opportunities in the Production and Marketing of Fruit and Nut Crops

<https://youtu.be/7jr4I-70Z4Y>

Margarita Velandia & Hal Pepper – Recordkeeping Tools for Small Fruit and Vegetable Farms

https://youtu.be/oW1c6B_5ifY

Margarita Velandia – Using Your Records to Develop Enterprise Budgets
<https://youtu.be/LSWjnhTenGg>

- e) field days
 - 1) Tennessee Tomato, Pepper and Biodegradable Mulch Field Day
August 9, 2017, Dayton, TN
<https://ag.tennessee.edu/biodegradablemulch/Documents/August9-2017-TNFieldDayHandout.pdf>
 - 2) UT Organic Crops Field Tour, October 26, 2017
Pre-register at: <https://tiny.utk.edu/organictour17> (this field tour is held every 18-months, alternating between April and October)
 - 3) UT Steak and Potatoes Field Day, August 1, 2017
(yearly, first Tuesday in August)
 - f) demonstrations
 - g) websites
<http://vegetables.tennessee.edu/>
<http://organics.tennessee.edu/>
 - h) social media
Facebook
UT Organic and Sustainable Crop Production
Twitter
[@UT_Organics](https://twitter.com/UT_Organics)
3. Please **list** current activities in your state related to **reporting specialty crop prices** from:
- a) farmers markets
 - Report prices at Tennessee Farmers Markets – Tennessee Farmers Markets Price Reports <http://www.uky.edu/ccd/pricereports/TNFM>
 - We are in the testing stage of an app we developed to facilitate price reporting.
4. Please **list** current **market research activities** in your state that could benefit small farms. Examples may include:
- a) consumer preferences
 - b) comparison of marketing channels
 - c) other
“The Use of Internet, Mobile Websites and Apps among Specialty Crop Farmers.” Assessing farmers’ interest in using a new mobile app (the Farm Spotter) designed to help producers connect with restaurants and wholesalers and facilitate transaction between these parties.