

In attendance:

Wenjing Guan: Extension specialist at Purdue University I stationed in Southwest. The Indiana majority of the watermelons in Indiana are in this region. I work with melon growers. I also work with a smaller scale.

Petrus Langenhoven: I'm a clinical assistant professor at Purdue University in West Lafayette. Currently I'm finishing off an AFRI Grant on soil health related questions in vegetable production. A fun project that I've been doing this year is actually trying out a whole bunch of Scotch bonnet varieties.

Annette Wszelaki: University of Tennessee. I'm the commercial vegetable specialist here and also the Food Safety lady. A couple of newer projects that we've been working on this year are an alley cropping project and a solarization project in high tunnels with Rachel Rudolph there in Kentucky.

Lewis Jett: I'm the commercial horticulture extension specialist at West Virginia University and work with specialty crops up to tree fruits, I think small fruits and vegetables, herbs and cut flowers.

Alexis Sheffield: Coming from a county agent position. I'm now a extension specialist in the Horticulture department, working specifically with Ccd, I have a I have a love and passion for cut flowers. But I also have a big interest in, you know, soil, health and season extension. And so I'll be doing a lot of the publication stuff here like getting stuff together. So if you all have publications that you're wanting to get done, you can shoot me an email, and we'll try and get them. Thank big shout out to Annette, who recently reviewed a publication for me. So so we'll be. I'll be handling that and just kind of whatever else is thrown my way. I've only been here since July one, so, still figuring it all out.

Melanie Stock: I am a soil scientist, and I'm also the urban and small farm specialist at in at Utah State. And so that position brought me into studying cut flowers. So my programs really revolve around soil science and cut flower production. We've had a just a huge surge of it. Here in Utah, and it's a tough place to grow. So it seems like there's just been an opportunity to study anything and everything. But lately we've been working a lot on water management and trying to figure out coefficients and that sort of thing to really dial in on resource use.

Srijana ThapaMagar: I'm the state specialist of horticulture and local foods here at Kentucky State University. I joined here. At the end of January this year. So I'm quite new. So currently, I'm working on some ethnic vegetables, mostly Asian, African and Hispanic vegetables. And if any of you are interested in that field please let me know I would love to collaborate on ethnic vegetable, because I think there's not a lot of study done on that area, so would love to explore more on that side. So ethnic vegetables. Yeah.

Brett Wolff: CCD Specialist at UK. Working on filling Christy's position and getting Alexis up to speed. I've transitioned more and into a lot more of like kind of our team management and organizational work as we've had more people involved.

Margarita Velandia: I'm a professor in the Department of Agricultural and Research Economics at ut. I work closely with Annette. and so I'm also working with her on the alley Cropping Project, the Soil Solarization Project plant science. And we just recently got funded one on mechanization and automation in nursery production.

Rachel Painter: I am a farm management specialist, and I am based in Lower Middle Tennessee. But I cover the State, and I work very closely with Annette and Margarita, both as well as our entire plant science and AgEcon Department. I am in the AgEcon department. And I'm more field based, I guess, than a lot of our specialists. So I typically focus on helping our farmers with their financials and understanding how they can make more profitable decisions. I did change roles. If you were familiar with working with me in the past. I was with the center for profitable agriculture as of January one. I'm now in the Ag Econ department. With the center of farm management. So just a similar role. But a little bit of a switch there, so excited to work more closely on their financials than maybe.

Shawn Wright: Extension Specialist. I'm based in Eastern Kentucky, though I have statewide responsibilities, do primarily small fruits, ginseng herbs. Hops. Basically, if it's green, I work with it.

Daniel Becker: Vegetable and Small Fruit Extension Associate University of Kentucky. I work in a similar capacity to Sean Wright, but I'm over in the western end of the State I facilitate the dissemination of information publications from the University of Kentucky to Western growers and I work with Western growers about both vegetables and small fruits and some tree fruits I also manage the Satellite Research farm over at Uk. Rec. In Princeton. And I guess a small front project I've been doing here is management of fall planted Brussels sprouts high tunnel production for over wintering and spring harvests.

Timothy Woods: Extension marketing specialist here at Uk in the Ag economics department. 29 years now this year here at UK.

Timothy Coolong, UGA: Thanks, Tim. Tim Coolong University of Georgia.

Matt Kleinhenz, OSU: Horticulture and crop science. Ohio State University, based on Worcester.

Lesley Oliver: I'm the associate director for research here at the Martingaton College of Agriculture, food, and Environment, and I serve as the research based administrative advisor for the Sarah. There is actually an extension advisor as well. He came to the meeting last year. But was unable to join today. SERA is. S is for South, because the multi-state that's part of the experiment stations, multi-state project structure if you will, and

they're different kinds of projects. Some are strictly research based, and then others are coordinating committees, and then an era. An era is an extension of research activity. And so it is not a full fledged research project the way other projects, you may have had interaction with it. Just have an S or an C or W in front of these are specifically geared toward intentional integration of research and extension. It provides a way to document that integration of research and extension across the system, and it looks like obviously both research and extension folks, although we do have extension folks who are involved in regular research projects as well. So these are 5 year projects. We are just getting ready. We're ending the 5th year of the current project. October one starts the start of the next 5 years, and we did, I'm happy to say, get final approval of the research renewal project, thanks to the team that worked on that renewal. So we're getting ready to start another 5 years. We will, after the conclusion of this meeting, need to submit a progress report through summarizing everyone's activities. Anything related to a potential impact that we can talk about is very much appreciated. That's what the Experiment station directors, extension directors really like to look for in the reports for these these projects. Evidences of collaboration, your publications that you've written together your grants. There's a lot of of collaborative grant activity across this group. Those are the things that we like to document and report out to the system. This project was reviewed very well. People were very appreciative of the past. Christy has already been mentioned here. She did a great job along with Brett in

The group considered the objectives within the proposal.

Wolff provided update on forthcoming launch of new CCD site as a platform for sharing multi-state specialty crop work

Price Reports

- Wolff who operates the Kentucky Price Report system suggested contacting state of Vermont to assess feasibility and replicating their model of funding for price reporters at farmers markets.
- Velandia who operates the Tennessee Price Report System seconded this idea.
- Kleinhenz voiced interest in replicating this system in ohio.
- Wolff suggested the notion of a farmers market price reporting 'starter pack' for new states and communities interested in participating.
- Woods and Velandia commented on the research value of these data.

Webinars & Cut Flower education

- Jett asked if the CCD could coordinate multi-state webinars.
- Wolff confirmed that CCD has and would still be able to do coordinate these. Sheffield commented that CCD can support with planning and marketing these opportunities.
- Sheffield, Stock, and Jett mentioned ongoing collaboration around floriculture education via webinar and in-person.

- Stock confirmed abundant collaboration with other project partners and the value of sharing perspectives when supporting nascent cut flower industries.
- Woods suggested ethnic food markets and production or additional cut flower education as examples.

State Report outs

- Indiana
 - project the past 4 years is the last year of implementation, and it was really around questions about soil health and how that impacts vegetable production. And we were trying to look at the impact of carbon, the addition of carbon, the use of different fertilizer sources conventional versus organic and the incorporation of summer cover cropping in this research. The crop of choice was peppers bell papers and paper papers, and we looked at 3 different varieties, hoping that we would see maybe a difference between how varieties react to these treatments. But other factors came into play. Like climate and disease pressure. And that really, made that effort a little bit non and void. So we are in our last year of doing this. And then we plan to roll out an extension program next year. That will take all this information out to growers here in Indiana.
 - Another project that I'm working on is a cellulose mulch fiber. It's a a colleague of ours in mechanical engineering that developed this fiber or this mulch from bamboo fiber. And this was the 1st year that we actually use it in the field, and it looks like it has a good potential for production. So we actually did the last harvest Petrus Langenhoven: yesterday. And now it's time to get the numbers together and see how it compares with plastic mulch, and those I think it will be a great alternative for organic producers and producers just on a scale down on plastic use on the farm. The the mulch deteriorates well over the season, and that gives us hope that you will actually be able to tow it in, and it will disappear on the ground by the next year.
 - Then I do this high tunnel variety evaluation every year. It's just a service that I do to our growers here in Indiana. Since, like many of you know, we don't have a lot of funding around for variety trials. And Indiana is not really known for vegetable production. So seed companies don't even do a lot of variety trials in our state. So it's a little bit hard for growth to to depend on data coming out of the State. But at least we have something for West Central Indiana, and it's always well received at the the small farm conference that's going on.
 - Other projects ranging from imaging plants, looking at growth habits of different varieties, and imaging those and the use of robotics to be able to scan and determine when, in what stage of growth plans are and what the disease pressure is, and so on.

- Freight farm containers supporting CSA
 - Laura Engel in the entomology department. She still has several high tunnel projects going on looking at incorporating other plant species to encourage predators and beneficial insects to be around the plants and looking at the impact of economically important insects inside the tunnel.
 - big jump in terms of number of farmers growing strawberries. Especially on the bearing. I started to do a strawberry plastic culture research. Probably the 5 6 years ago. My beginning joined Purdue. Review, peer review publications. And in 2022 I launched a podcast. Strawberry chat. The the goal is really, I find that there's a lot of knowledge gaps, and I'm trying to incorporate in.
 - I'm working with Liz Maynard doing project on irrigation, and I think we are at a stage. Have output when we're doing the irrigation work. Right now the information is on the website
 - I collaborate with irrigation specialists in Michigan, and we are looking for some extension publication targeted for larger scale vegetable growers, and that one is a little still have have a way to go, but for the small farmers we are close to have some product already.
 - A new project I recently started is working with our nematologist, Lee John, at Purdue. We saw a Luna nematode is is a huge problem, one of the bigger problems for the melon growers I'm working with for the larger scale. Production is always years of a big problem. We we haven't really done much research. Renal nematode can also be a problem on small farms.
 - We also identified some organic growers, high tunnel growers. Their soil is naturally suppressed with nematode. So I'm working with the nematologist that we are approaching the carbon from different angles. And this is a project recently funded by org, brand and the sear brand. Yeah.
- West Virginia
 - We have a medicinal plant project and high tunnels, and you know I'm a food crop guy. But it's really interesting to look at some of these medicinal plants, and we're not just talking about culinary herbs. There's a wide spectrum of these plants and what I my approach, was to try to reach a different audience for high tunnel production, I mean, or people that are interested in pharmacy or health Science, and bringing in some of our classes to show how to grow some of these medicinal plants. And then, you know, also show that there's been replicated peer review research on these plans, and then partner with the certified herbalists from our West Virginia Herb Association to talk about how thethe herbs are harvested and processed
 - Took some of my unrestricted grant money to buy flower seeds. And then we grew the plugs, and then we distributed to some interested in so just to prove the concept that we can do it and maybe not get any data. So we did that this year. And the reason I did that was because at the Small Farms Conference that we have in West Virginia this year. The Cut Flower session was probably

the one of the most highly attended sessions in in the conference, and I think it's really cool, because cut cut flowers. I tell folks cut flyers sort of defy the conventional thinking that that folks in rural areas don't want nice things, and they sure as heck do, I mean, they want they want flowers, and you don't have to live in a big city to sell flowers. So we have some very interested

- We did a cultivar trial with with cantaloupes. This year we also did a trellising study on cantaloupes. This was the second year with that those of you who are attending the horticulture science meetings in Hawaii next week.
 - There there is a strong market niche for heritage crops, so we have a heritage tomato prowl that we do every year. And so we're actually just comparing heritage varieties with hybrids side by side. So we're just comparing production and and presenting that data to growers as an option as well.
 - My colleague and extent extension entomologist. He and I are are involved in a SERA project on using insect exclusion nets on high tunnels which had some very interesting results from that. I mean, there was some discussion about beneficial insects, but we're also looking at excluding insects excluding some insects from the tunnel. So we had some interesting results with certain types of crops in high tunnels for that.
 - We are completing this year a high tunnel production manual for West Virginia. So it's gonna be almost a hundred pages. And so that is been an ongoing project. It's been funded through a cooperative agreement with the Nrcs. That we're completing them this year. So
 - We're doing things like the Elderberry Project, which is, which is a long-term project. We just wrapped up an asparagus
- Kentucky
 - CCD Will be have celebrating our 25th anniversary next year. Yeah. So if you've not already been contacted by one of us for an impact statement of some kind, we will be reaching out. So be aware. So just a heads up on that. We're just kind of looking to tell our story a little bit better in in that 25th year.
 - If you are looking to do a collaborative something, and or just wanting a publication to get to get published and get a number on it. We can do that, and you can send that to me with, you know, kind of some people you would like to have review that, and we'll can't. We'll handle that review process and then send that back to you. And when it's ready we'll work on the formatting and getting those things together. I know Brett worked on one. That was a multi-state garlic publication, Brett, if you want to comment any on that. But that one just was published here recently.
 - Rachel Painter led the development of a multi-state garlic publication that we published through the Ccd involving Delaware, NCState. UT.
 - Multi organizational publication on heirloom beans with WVU and a couple of others. And so it's just an opportunity, for if you have something that's multi-state, or you'd like to look at publishing something multi-state through the Ccd. We now kind of have a process and protocols set up for that, and we've

done some of them that have just our publication number. We've done some of them that we've actually run through and had a publication number from each of the institutions involved. So we have that opportunity as well.

- CCD newsletter features multi-state
- SARE-funded cut-flower trip collaborating with North Carolina
- Mechanical Control field day trip collaborating with Indiana.
 - CCD will plan a field day for fall 2025
- Hort Culture podcast has international reach. Will collaborate with SERA folks in the coming year.
- Still in the process of recovering from the 2022 flood.
- I did get a specially crop block, Grant to put in some ribies and currants here the ribies didn't establish as well, or carrents and gooseberries. The currants didn't establish as well as the gooseberries. We're really focused on small crop diversification here in Eastern Kentucky things that will help out our growers and things the pawpaws we have partnered with. The folks at Kentucky State have 11 varieties over 60 trees planted out here. The big issue we're running into with those is the granulated ambrosia beetle, which is an imported pest pawpaw, seem to be particularly susceptible to those and seem to be killing off a few of my trees as well. So even though they're traditional native Appalachian species, that doesn't mean that they're continue going to continue to do well here, with all the invasive pests between weeds and insects and diseases and things that we've got going on.
- I do a lot of work with the plastic culture strawberry growers. We do now have neo pestolodiopsis, a rot and leaf disease that has come into the State on plug plants they've been dealing with it in the southeast for a while. It seems to be a particularly devastating disease.
- I was involved with that project at Piketon back when my days at Osu, with the ethnic vegetables and things. So there is some data out there.
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- Tennessee
 - You already received a report from UT. Some of the key highlights
 - alley cropping system. We just completed a survey of vegetable growers in Tennessee to assess their willingness to use and willingness to use allocropping and some more interesting information.
 - Soil solarization project we have with Rachel Rodolph. I want to highlight that because it's a cross collaboration between states. And indeed
 - This project was featured on SSARE's regional podcast and youtube channel.
 - I just completed a survey of Kentucky vegetable growers specifically targeting high tunnel growers. Very interesting information about soil

born diseases. They face weeds, plant parasite nematode.
information about the challenges they are facing

- farmers market price report you already heard enough about the challenges. We have very good information. A publication is going to come out which looks at the price trends between 2018 to 2023 looking at top crops in the market that are popular.

- Ohio

- most of the work that my team and I do specific to the center would be around grower decision making in one area or another. It might be about what crops to grow when this, when to try to establish them? What equipment? Do I use? What inputs do I use? What approaches do I use? How do I? Alexis was talking about starting a farm? So there may be a question about, do I do? I start this farm as an organic farm? Do I start it as, what? What are these macro and some even micro level decisions. So the very the the specific updates I'll share with you are all about decision making in some way. The projects range in their maturity, in other words, just starting speculative to to a little bit much more mature on the mature side. We've been working quite a long time in the area of ventilation, high tunnel ventilation management and not only helping people developing resources to help people make those decisions
- developing a tool system that allows them to implement that decision remotely from their handheld device. So this would be remote control side, remote control motors which can be attached to side walls, fence, and the like. So we operate on the premise that growers often know what to do.
- Strawberry growers have come to us and asked if that sidewall control system would be able to pull cloth for for frost protection, and there's no reason to suspect that it could. So that's a very exciting new development the online tools that help with ventilation status have been in place for a couple of years. As far as other decisions, so can we can we turn what would often be perennial or biennial crops into annual ones? Can we offer them at different times. We're also asking the question, can we grow vegetables on the flat, no raised with permanently sown permanently permanent ground cover and row middles.
- I am working with a newly formed 501(c)(3), that's based here in Ohio, based closely western Ohio. They're actually a group of sheep producers, sheep and wool producers. They formed 501(c)(3). Called Great Lakes. Natural Fibers.
 - We are confident that there are horticultural applications for natural fibers that have gone untested. I think we heard Petrus refer to the to the cellulose, the bamboo cellulose. The same thing would be true here of in this case, wool and I know probably people are hearing a lot about wool pellets, and certainly that's an application. But we're expanding the description of or expanding the potential options quite

widely when it comes to wool and other natural fibers that are available in the in the supply chain, particularly for horticultural applications beginning in the greenhouse so and extending into the field.

Thapamagar, Kleinhenz, Guan, and CCD team all expressed interest in collaboration around Asian vegetable production and marketing.

- Utah
 - We've been working on season extension. And right now we're finishing up with delphinium and larkspur. These are 2 crops that have a shortage in Utah. They're a rare blue flower. Delphinium's a perennial, and so it takes a while to get income from it. And so we worked on, using season extension and different planting dates and cultivars to to develop that. And it it's worked out really. Well. So we're finishing up that way. My student who runs that trial also works in. Ipm, so part, a lot of what we're also doing is trying to focus on pest management with cut flowers.
 - we're doing research on irrigation rates for cut flowers. We're looking pretty in depth at dahlias right now. That's our top cut flower in the State. Using both a dinner plate variety and a decorative one through just through engagement with farmers. They're they're over irrigating pretty significantly. One even was when we sat down and did the calculations. She was putting 7 inches of water on per week. So there's a lot of room to be able to show some water savings. Once we start to develop information as to how much water these flowers really need, and Utah is a great place to test that, because we don't really get much rain.
 - Coming up here in the next year to have some of these resources coming out. We're in our second season of 3 with the Dahlia irrigation study. And I I'm excited because it's really a sensor. It's a water balance. So getting more back to sensors and soil science for for me. Last year we started a trial with annual cut flowers that might be drought, tolerant because of the drought that happens so frequently in the State, and not really having a toolbox of being able to share with growers what to do to either get across on and off early, or something that's gonna last through the season. And so that was just a little extension.
 - Our sheep specialists came to me the other year, and said. Is there any way you can use wool as a mulch or or can you use wool in any way? We don't have a market for it. Our sheep producers are really struggling. The last wool pool broke down, and so that's where we came up with this idea to use it as a mulch. So we're finishing our second season. Of using it just in the field last year 5 of the 6 cut flower crops that we trialed yielded better with the wool and restricted irrigation. And so I was thinking it was going to be a quick case of moderating soil, temperature and water. But then we did some soil testing this spring, and it was amazing to see the change in the nutrient status

particularly for nitrogen, which we have a hard time keeping in our. It just stays so low out here. There wasn't also an increase in salinity.

- Western SARE funded us for a cut flower production guidebook. And so we've been working on that not a lot of outputs to show yet, because we're developing them. One thing I've been trying to do is have it be farmer driven. So there's a cut flower farmer who had 11 acres of cut flowers, and so she's really helped with drafting, for some of these crops that I haven't been able to test yet, but just coming up with basic information. And then I have another flower farmer who used to be an editor.
- Our farmers are are gaining some confidence in Grant writing. It's really exciting. I've got one right now, and we're working on a Western Sarah Farmer rancher where she wants to test weed management and look at different options.

The group briefly discussed some of the challenges and opportunities associated with using wool mulch. Tennessee's biodegradable mulch website also was mentioned.

- Kentucky
 - Working with Wenjing and Rachel Rudolph here pilot watermelon sensory study. Considers lycopene content and suitability of varieties for this climate. emphasizing some of the wellness dimensions connected with some of our different produce items. And this lycopene and watermelon is just sort of one one area.
 - We continue to do a ton of Csa work and then in the cut flower space Margarita, not Margarita Savannah that works with me in in the center, doing some kind of neat things and best practices for cut flower workshops. It says kind of cut flowers as an experience.

The group discussed cut flower growth and opportunities, horticulture therapy, the economics of happiness and several other topics. They then moved to potential areas for additional collaboration.

Farmers Market Price Reports

- Tennessee will continue to collaborate University of Kentucky and University of Tennessee,
 - evaluate a more sustainable model down the road for maintaining this information over time.
 - Reach out to those who are interested in the future.
 - Expand the research side of this exploration
 - Coordinate Tennessee and KY reporting formats for average reports

Conventional vs. Organic system analysis

- Focus on soil health, cover crops etc.

- Tennessee had a very small internal grant on trying to assess the growers perceptions of soil, health specifically vegetable growers.
- Potential for future collaboration
- Economics of soil health in vegetable production with emphasis on cover crops.

Mulching

- Potential for bringing together biodegradable mulch, cellulose mulch, landscape fabric, wool mulch, and other alternative strategies for some evaluation and extension.
- Could be paired with mechanical weed control in a research or field day context.
- Evaluating challenges and opportunities at variable scales.

Asian and other ethnic food markets

- Economic feasibility of competing with florida scale production systems, Value proposition of local?
- Exploring appeal of these niche products to broader consumer base.
- Sprite Melons

Cut Flower Pricing

- Wide variety of flower types but often sold retail as bouquets. This makes price collection hard.
- Pricing strategy research and extension is needed. TN, KY, & UT all interested and likely others too.
- Rooted is a company that does some price data aggregation of their vendors.

The group agreed to select a new president after the meeting. See submitted state reports below.

SERA 45 Guidelines for State Reports

Name: Petrus Langenhoven

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/midsize/low tunnel/greenhouse production
 - b) organic production systems
 - c) small-scale production systems
 - d) biodegradable mulches
 - Two-year plasticulture strawberry production (Steve Meyers and Wenjing Guan)
 - High-tunnel pest management (Laura Ingwell, Wenjing Guan and other Co-PIs)
 - Improve irrigation management in vegetable and melon production (Wenjing Guan and Liz Maynard)
 - Watermelon fertility management with control-released fertilizers and foliar fertilizers (Wenjing Guan)
 - Seedless watermelon cultivar evaluation (Wenjing Guan)
 - Seeded watermelon cultivar evaluation (Wenjing Guan)
 - Personal-sized watermelon cultivar evaluation (Wenjing Guan)
 - Cantaloupe and specialty melon cultivar evaluation (Wenjing Guan)
 - Watermelon production in caterpillar tunnels (Wenjing Guan)
 - North Central IPM Center. “Great Lakes Urban Ag IPM Working Group”. L. Ingwell Co-PI, M. Rivera (OSU) 2023.
 - Optimizing pest management in high tunnels to increase the resiliency of local food systems – with L. Ingwell, PI, W. Guan, I. Kaplan, and A. Torres (plus other institutions). USDA NIFA SCRI. 2021-2025
 - Utilizing integrated pest and pollinator management strategies to improve sustainable plant production in community gardens – with L. Ingwell and B. Harpur, PI J. Noseworthy at Indiana Wesleyan University. NIFA REEU. 2021-2025
 - Two-spotted spider mite management in high tunnel cucumber production – with L. Ingwell, PI, W. Guan, P. Langenhoven, and L. Maynard. USDA-NCSARE. 2021-2024.
 - Enhance strawberry production in the north-central region. The project explores diverse production systems in growing strawberries at small-scale, diversified farms (plasticulture production, in-soil high tunnel production and substrate production on an elevated system). Funding source: NC-SARE Research & Education Grant. PI: Wenjing Guan, Laura Ingwell, Dan Egel, Brad Bergefurd and Richard Barnes. 2022-2024.

- Suppressive soil and biological control of plant parasitic nematode led by Lei Zhang. Wenjing is a co-PI. This project is supported by ORG and NC-SARE
- Strawberry production in high tunnels led by Wenjing Guan. This project is supported by NC-SARE
- Taking the next step as a small and medium-sized farm: Understanding the integration of production, food safety, and profitability, AFRI grant – Petrus Langenhoven, Maria Marshall, Betty Feng, Nathan Shoaf. Renee Wiatt. 2021-2024.
- Sweet Pepper variety evaluation in high tunnels – Petrus Langenhoven, Chris Adair
- Education and Outreach Activities to Improve Food Safety for Small Farms – Amanda Deering, Petrus Langenhoven, Tari Gary, and Scott Monroe. 2023-2025.

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):

- in-person trainings
 - webinars
 - print publications
 - video
 - field days
 - demonstrations
 - social media promotion of events/use of Facebook live
- Podcast Strawberry Chat <https://podcasters.spotify.com/pod/show/strawberrychat>. *Strawberry Chat is a virtual discussion about strawberry production at small and diversified farms in Indiana and neighboring states. We invite guests to discuss activities that happen at the time of the year and cover different production systems.*
 - Technical trial reports:
 - 2023 Standard-size Seedless Watermelon Cultivar Evaluation in Indiana
 - 2023 Personal-size Seedless Watermelon Cultivar Evaluation in Indiana
 - 2023 Seeded Watermelon Cultivar Evaluation in Indiana
 - 2023 Cantaloupe Cultivar Evaluation in Indiana
 - 2023 Colored Sweet Bell and Tapered Pepper Cultivar Evaluation for High Tunnel Production in West-Central Indiana
 - Flowering of Spring-Planted Greens
 - Watermelon and melon cultivar evaluation reports, conducted at Southwest Purdue Ag Center since 2018, are available at <https://ag.purdue.edu/department/arge/swpap/variety-trial-files-swpap.html>
 - High tunnel sweet pepper cultivar evaluation reports, conducted at the Purdue Student Farm since 2018, are available at <https://docs.lib.purdue.edu/mwvtr/>
 - Purdue Fruit and Vegetable Field Day, July 18, 2024
 - Small Farm Education Field Day, July 25, 2024
 - Midwest Mechanical Weed Control Field Day, September 2024
 - Irrigation workshop for larger-scale vegetable growers at the 2014 Indiana Hort Conference, a collaboration between Purdue University and Michigan State University.
 - Irrigation workshop for small-scale vegetable growers at Southwest Purdue Ag Center in

- Sep 2024, a collaboration between Purdue University, NRCS and Urban Soil Health
- Vegetable Crops Hotline Newsletter - <https://vegcropshotline.org/>
 - Colored Sweet Bell and Tapered Pepper Cultivar Evaluation for High Tunnel Production in West-Central Indiana, 2023, Petrus Langenhoven and Dennis Gustavo Toc Mo
 - 2023 Cantaloupe Cultivar Evaluation in Indiana, Wenjing Guan and Dennis Nowaskie
 - 2023 Personal-sized Seedless Watermelon Cultivar Evaluation in Indiana, Wenjing Guan and Dennis Nowaskie
 - 2023 Seeded Watermelon Cultivar Evaluation in Indiana, Wenjing Guan and Dennis Nowaskie
 - 2023 Standard-sized Seedless Watermelon Cultivar Evaluation in Indiana, Wenjing Guan and Dennis Nowaskie
 - Strawberry Production in an Elevated Bench Growing System inside a High Tunnel in Southern Indiana, Wenjing Guan, Dean Haseman, Laura Ingwell, Samantha Willden, and Dan Egel
 - Unveiling Root-knot Nematodes and the Role of Suppressive Soils in Vegetable Production. September 27, 2024 - From Issue: 745. By: Wenjing Guan
 - Fruiting Vegetable Responses to Drought Stress. June 28, 2024 - From Issue: 739. By: Wenjing Guan
 - High Temperature Affects Fruit Set of Vegetable Crops. June 28, 2024 - From Issue: 739. By: Liz Maynard and Wenjing Guan
 - Selecting Your Ideal Cucumber Cultivar for High Tunnel Production. April 17, 2024 - From Issue: 734. By: Leslie Alejandra Aviles Lopez and Laura Ingwell
 - Comparison of Microenvironment between Caterpillar Tunnels and Permanent High Tunnels. March 14, 2024 - From Issue: 732. By: Wenjing Guan and Samantha Willden
 - Selecting Vegetable Varieties for Your Farm. February 22, 2024 - From Issue: 731. By: Petrus Langenhoven
 - Insect Spotlight: The Spined Stilt Bug. August 6, 2024 - From Issue: 742. By: Tucker Cade LaRue and Laura Ingwell
 - Insect Spotlight: Long-legged flies. September 5, 2024 - From Issue: 744. By: Laura Ingwell
 - Insect Spotlight: Lasioglossum Sweat Bees. August 23, 2024 - From Issue: 743. By: Robert Grosdidier and Laura Ingwell
 - Insect Spotlight: The Spined Stilt Bug. August 6, 2024 - From Issue: 742. By: Tucker Cade LaRue and Laura Ingwell
 - Insect Spotlight: The Minute Pirate Bug – A Key Predator. July 24, 2024 - From Issue: 741. By: Scarleth Chinchilla and Laura Ingwell
 - Insect Spotlight: Spiders – An Overview Of Their Role In Agricultural Systems. July 11, 2024 - From Issue: 740. By: Cristhian Ochoa and Laura Ingwell
 - Insect Spotlight: Cabbage White Butterfly (*Pieris rapae*). June 28, 2024 - From Issue: 739. By: Sydney Territo and Laura Ingwell
 - Insect Spotlight: Blow Flies. June 14, 2024 - From Issue: 738. By: Robert Grosdidier and Laura Ingwell
 - Insect Spotlight: Syrphid Flies. May 30, 2024 - From Issue: 737. By: Allison Zablah and Laura Ingwell

- Insect Spotlight: Flea Beetles. May 15, 2024 - From Issue: 736. By: Milena Agila, Julia Wooby and Laura Ingwell
 - Planning for Fall and Winter Production in High Tunnels. May 15, 2024 - From Issue: 736. By: Liz Maynard
 - Insect Spotlight: Cucumber Beetles. May 2, 2024 - From Issue: 735. By: Leslie Alejandra Aviles Lopez and Laura Ingwell
 - Insect Spotlight: Lacewing (Chrysoperla carnea). April 17, 2024 - From Issue: 734. By: Cristhian Ochoa and Laura Ingwell
 - Insect Traps as a Monitoring Tool. February 21, 2024 - From Issue: 731
 - Planning for Successful Vegetable Transplant Production. February 23, 2024 - From Issue: 731. By: Liz Maynard
 - Effects of Irrigation and fertigation on Seedless Watermelon in Southern Indiana. HortTechnology, 34(5), 604-612. Luna, E., Guan, W., Camberato, J. J., & Dong, Y. (2024)
 - Controlling Verticillium Wilt: Indiana Peppermint Growers Top Management Practices. Purdue Extension, HO-337-W. Eugene, G., C. Rosales, A. Torres, and P. Langenhoven. (2023).
 - Vegetable Seedling Performance in Commercial Organic Growing Media. HortTechnology, 34(1), 80-91. Maynard, E.T., Guan. W., Langenhoven P. & Hoagland L. (2024).
3. Please **list** current activities in your state related to **reporting specialty crop prices** and development of **decision aids** regarding:
- a) farmers markets
 - b) produce auctions
 - c) farm to school/institution
 - d) retail
 - e) community supported agriculture
 - f) direct-to-buyer
 - g) sampling standards
 - h) merchandising education
 - i) market performance metrics
 - j) other

N/A

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

N/A

Name: Shawn Wright

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/midsize/low tunnel/greenhouse production
 - b) organic production systems
 - c) small-scale production systems
 - a. I received a specialty crop block grant to evaluate Ribes (currants and gooseberries) as farm diversification crops particularly for growers in Appalachia. The planting was established in May of 2024.
 - d) biodegradable mulches

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
 - a. March 9th, I conducted an apple grafting and pruning workshop for approximately 40 growers from the Buffalo Trace region of Kentucky. There are many new growers moving to Kentucky that have limited experience in fruit production. Extension Agents and growers learned the art and science of apple grafting and pruning and had the opportunity to graft their own seedlings.
 - b. March 30th I lead a section of the Southeast Kentucky Bee School for fruit and vegetable growers that needed to learn more about honeybees to increase the efficiency of their farms.
 - b) Webinars
 - a. On March 1, I lead a webinar on plasticulture strawberry production for the Mid-America Strawberry Growers Association, a nonprofit group based out of Missouri. There were approximately 35 growers from the central region of the US that were looking to increase the efficiency of their plasticulture strawberry production systems.
 - b. March 27th I lead a blueberry production webinar for growers in south-central Kentucky focused on the applicability of blueberry production for the region. There were approximately 15 individuals with various levels of experience in fruit production.
 - c. April 5th I lead a field walk focused on bramble production for the Morehead State University horticulturist and several UK ANR Agents that had limited experience in bramble production. Morehead State University is planning on

using bramble production as part of their income-generating stream to fund the program.

- d. April 17th, I taught fruit production to approximately 45 growers in Perry County. This project has been occurring for several years in conjunction with the County Agent, NRCS and the Perry County Soil and Water Conservation District which includes the distribution of free seeds and trees.
 - c) print publications
 - a. Heavily involved with the Midwest Fruit Production Guide but that is a Midwest publication and doesn't really fall in the southern region
 - d) video
 - e) field days
 - f) demonstrations
 - a. Pole Bean production
 - b. Blueberry Production
 - c. Pawpaw production
 - g) social media promotion of events/use of Facebook live
 - a. NOT SURE WHAT TO PUT IN HERE AS IT SEEMS IS I AM FOREVER PROMOTING SOME EVENT ON MY FACEBOOK PAGE
3. Please **list** current activities in your state related to **reporting specialty crop prices** and development of **decision aids** regarding:
- a) farmers markets
 - b) produce auctions
 - c) farm to school/institution
 - d) retail
 - e) community supported agriculture
 - f) direct-to-buyer
 - g) sampling standards
 - h) merchandising education
 - i) market performance metrics
 - j) other

SERA 45 Guidelines for State Reports

Name: Annette Wszelaki, Maragrita Velandia, and Rachel Painter

University: 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/midsize/low tunnel/greenhouse production
- b) organic production systems
- c) small-scale production systems
- d) biodegradable mulches

- *Exploring The Feasibility of End of Production Regimens to Improve Leafy Green Nutritional Content, Appearance, And Post-Harvest Longevity – 1) Develop baseline budgets for economic analysis.*
- *Alley Cropping Agroforestry as a Climate Change Resiliency Strategy for Vegetable Production in the Southeastern US – 1) Conducted survey of TN fruit and vegetable growers to assess willingness to adopt alley cropping. 2) Current field trials are being conducted, and yield data has been collected.*
- *Evaluation of Soil Solarization as a Sustainable Management Method in Upper Southeast High Tunnels for Pests, Pathogens, and Weeds – 1) Conducted a survey of Kentucky vegetable growers to evaluate production challenges they face in high tunnels, strategies they use to overcome those challenges and use and willingness to use soil solarization in high tunnels. 2) Field trials are being conducted, and disease, insect, weed, and yield data has been collected.*
- *Multi-state Squash Hunger: Delicata Squash Variety Trial- 1) Trials were conducted in Crossville, TN and Waynesville, NC and disease and yield data taken. 2) Storage evaluations are ongoing.*
- *Effects of Biostimulants on Yield and Postharvest Quality of Two Popular Southeastern Strawberry Varieties in an Organic Production System- 1) Two biostimulants were applied to Sweet Charlie and Chandler strawberries. Wildlife decimated the plot before yield and quality could be assessed.*

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
 - 1) **Painter, R.**, A. Smith, D. Lockwood, and M. Richmond. "Farm and Ferment: Cultivating Connections for Crop Inputs in Tennessee Beverages." Farm and Ferment Meeting, January 8, 2024.
 - 2) **Wszelaki, A.**, "Beyond Tomatoes and Lettuce: Crop Rotations to Maximize Profit and Minimize Soil Issues." Mid-Atlantic Fruit and Vegetable Convention. January 29, 2024.
 - 3) **Velandia, M.** "Produce for Profit: How to Make Decisions with Budgeting Tools." Pick TN Conference, February 15, 2024.
 - 4) **Velandia, M.** "Labor Considerations for Tennessee Farmers: Strategies for Securing and Managing Agricultural Labor." Pick TN Conference, February 15, 2024
 - 5) **Painter, R.** and D. Lockwood. "Hops Production and Marketing." Pick TN Conference, February 16, 2024.
 - 6) **Painter, R.**, C. Scott, A. Rihn, E. Bell, and N. Bumgarner. "Cut Flower Production and Marketing." Pick TN Conference, February 16, 2024.
 - 7) Emery, B. and **A. Wszelaki.** "2-for-1: Maximizing Yield and Quality while Improving Produce Safety." Pick TN Conference, February 17, 2024
 - 8) **Painter, R.** "Cut Flower Production and Marketing." TEAM Conference Knox County Extension, February 20, 2024.
 - 9) **Wszelaki, A.**, "Integrated Disease Management Strategies." Bledsoe Co. Fruit and Vegetable Growers Meeting. February 28, 2024.
 - 10) **Painter, R.** "Specialty Crop Considerations for Beginning Farmers." Cul2vate Farming Fundamentals. February 29, 2024.
 - 11) **Wszelaki, A.**, and B. Emery. "Are there GAPs in Your Food Safety Program?" Freshpoint GAP Training. March 26, 2024.
 - 12) **Wszelaki, A.**, "Making the Most of Your Tunnels." Lincoln and Franklin Cos. Fruit and Vegetable Growers Meeting. April 8, 2024.
 - 13) Emery, B., and **A. Wszelaki.** "Harvest Sanitation Workshop." Lawrence Co. Vegetable Growers Meeting. April 8, 2024.
 - 14) **Wszelaki, A.**, "Tomato and Pepper Foliar Disease Management." Lawrence Co. Vegetable Growers Meeting. April 8, 2024.
 - 15) **Painter, R.**, L. Marton, D. Marton, and **A. Wszelaki.** "Garlic Production Workshops".
 - a. Jamestown, TN- July 26, 2024.
 - b. Blountville, TN- August 23, 2024.
 - c. Cordova, TN- September 24, 2024.
 - 16) **Painter, R.**, and E. Bell. "Economic Considerations for Cut Flower Producers."
 - a. Knoxville, TN – August 6, 2024.
 - b. Jackson, TN – August 13, 2024.

b) webinars

- 1) **Velandia, M.** “Things to Consider When Setting Prices for Direct-to-Consumer Outlets.” 2024 Farmers Market Vendor Bootcamp Webinar Series. March 28, 2024.
- 2) Emery, B., and **A. Wszelaki.** “Production Water Workshop.” January 23, 2024.
- 3) Emery, B., and **A. Wszelaki.** “Postharvest Handling and Sanitation Workshop.” January 25, 2024.
- 4) **Wszelaki, A.** “Organic Agriculture in Tennessee.” February 8, 2024.
- 5) Critzer, F., J. Buchanan, M. Danyluk, L. Dunn, C. Gunter, A. Hamilton, T. Langford, R. Read, B. Ruiz Llacsahuanga, C. Rock, L. Strawn, and **A. Wszelaki.** “Bridging the GAPS: Approaches for Treating Preharvest Agricultural Water On-Farm”
 - a. April 11, 2024
 - b. May 29, 2024
- 6) Bumgarner, N., D. Lockwood, M. Richmond, and **A. Wszelaki.** “Variety Trial Updates. Hort Hot Topics Extension Agent Training. October 24, 2024.

c) print publications

- 1) **Velandia, M., M. Bedwell, H. Lambert, B. Bergeron, L. Sammons, S. Rickman, E. Lamb, L. Powell, A. Rihn, and H.H. Shanto.** “Price Trends at Tennessee Farmers Markets 2018-2023.” UT Extension Publication.
- 2) McKim, K., A. Fulcher, A. L. Rihn, L. Warner, A.V. LeBude, **M. Velandia, N. R. Bumgarner, and S. M. Schexnayder.** 2024. “The Role of Automation in Addressing the Nursery Industry Labor Shortage Part II: Advances in Automation within Task”. UT Extension Publication.
- 3) Emery, B., and **A. Wszelaki.** 2024. “Produce Safety Alphabet Soup- What Do All Those Acronyms Mean?” UT Extension Publication.
- 4) Emery, B., and **A. Wszelaki.** 2024. “Do You Know How to Wash Your Hands?” UT Extension Publication.
- 5) Penicks, A.K., D. Hensley, **A. Wszelaki,** and M.R. Hajimorad. 2024. “Tomato Yellow Leaf Curl Virus: An Emerging Virus of Tomatoes in Tennessee”. UT Extension Publication.
- 6) Bruch Leffew, M., **R. Painter,** B. Emery, and **A. Wszelaki.** 2024. “Regulatory Considerations for Marketing Sprouts, Microgreens and Baby Greens in Tennessee”. UT Extension Publication.
- 7) **Painter, R., A. Wszelaki,** D. Washburn, and N. Bruce. 2024. “Garlic and Elephant Garlic”. Center for Crop Diversification Crop Profile.

d) video

- 1) The “Let’s Talk About Labor” podcast is a collaboration between the University of Tennessee and GAP Connections and aims to help you connect with farmers in Tennessee and other surrounding states, specifically to hear about their experiences using various US temporary foreign visa programs to address their labor needs.

e) field days

- 1) Steak and Potatoes Field Day at the Plateau and Research Education Center
Crossville, TN. August 22, 2024.
 - a. Presentation at the field day by **Annette Wszelaki** on Soil Solarization in High Tunnels.
 - b. Presentation at the field day by Rachel Painter on Building a Farm Business.
 - 2) Fall Gardeners Festival, Crossville, TN- presentation at field day by **Annette Wszelaki** on Organic Gardening. August 27, 2024.
- f) Demonstrations
- 1) Hazelnuts in Tennessee: Orchards, Silvopastures, and Alley Crops – Malone, T., D. Butler, and **A. Wszelaki**. Jonesborough, TN. September 10, 2024.
- g) social media promotion of events/use of Facebook live
- 1) Facebook @UTProduce
 - 2) Instagram @ut_produce
 - 3) Facebook @UTCenterofFarmManagement
3. Please **list** current activities in your state related to **reporting specialty crop prices** and development of **decision aids** regarding:
- a) farmers markets
Tennessee Farmers Markets Price Reports
<https://www.uky.edu/ccd/pricereports/tnfm>
 - b) produce auctions
 - c) farm to school/institution
 - d) retail
 - e) community supported agriculture
 - f) direct-to-buyer
 - g) sampling standards
 - h) merchandising education
 - i) market performance metrics
 - j) other
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

Grants:

- Butler, David; **Wszelaki, Annette; Velandia, Margarita**; Shekoofa, Avat; Trejo-Pech, Carlos. "Alley cropping agroforestry as a climate change resiliency strategy for vegetable production in the southeastern US." Southern Region SARE Program – University of Georgia. Planned Performance Period: 04/2023-03/2026.
- Rudolph, Rachel; Haramoto, Erin; Gauthier, Nicole; Larson, Jonathan; **Wszelaki, Annette**; Hansen, Zach; **Velandia, Margarita**. "Evaluation of Soil Solarization as a Sustainable Management Method in Upper Southeast High Tunnels for Pests, Pathogens, and Weeds." Southern Region SARE Program – University of Georgia. Planned Performance Period: 04/2023-03/2026.
- Roches, Amy; Chadwell, Jane; **Velandia, Margarita**; Wolaver, Ty; and Wright, Hannah. "Labor Considerations for Tennessee Farmers: Strategies to Securing and Retaining Quality Farm Labor." Southern Extension Risk Management Education. Planned Performance Period: 04/2023-09/2024.
- Walters, Kellie; Sams, Carl; **Velandia, Margarita**; Rihn, Alicia; and Trejo-Pech, Carlos. "Exploring The Feasibility of End of Production Regimens to Improve Leafy Green Nutritional Content, Appearance, And Post-Harvest Longevity," USDA - NIFA. Planned Performance Period: 06/2023-05/2028.
- LeBude, A.V., Fulcher, A., **Velandia, M.**, Warner, L., Bumgarner, N., Marble, C., Adesso, K., Altland, J., Chen, L., Gan, H., Kantor, G., Mahmoud, M.S., Nackley, L., Palma, M., Ribera, L., Rihn, A. L., Ruth, T., Schexnayder, S., and Zhu, H. 2024. "Labor, Efficiency, Automation, and Production. LEAP Nursery Crops Toward Sustainability." USDA-NIFA, Planned Performance Period: 10/2024 – 09/2029. Total requested: \$9,825,677.00. Role: Co-Principal Investigation.
- Zhong, Q., Critzer, F., **Wszelaki, A.**, Strawn, L., Wang, L., Murphy, C., Burns, S., Dunn, L., Pires, A., Reyes-Jurado, F., Rideout, S., Rihn, A., and Yu, E. 2024. "Washable essential oil emulsion coatings to extend the shelf life and enhance the safety of organic fruits and vegetables". USDA OREI, Planned Performance Period: 9/2024 – 09/2028.
- **Painter, R.**, D. Lockwood, D. Hughes, and A. Rihn. "Grape Production and Marketing: Site Selection, Preparation, Budgeting, and Marketing of Wine Grapes in the Southeastern U.S." Southern Region Small Fruit Consortium. Planned Performance Period: 3/01/2024 – 2/28/2025.
- Bumgarner, N., A. Rihn, **R. Painter**, and C. Scott. "Equipping Cut Flower Growers to Expand Their Markets in Tennessee." Tennessee Department of Agriculture, Specialty Crop Block Grant. Planned Performance Period: 12/01/2023-8/01/2026.