2025

NORTHERN NUT
GROWERS ASSOCIATION &
CHESTNUT GROWERS OF AMERICA

Joint Annual Conference

AUGUST 3rd - 6th
LANSING, MICHIGAN

PROGRAM

MICHIGAN STATE UNIVERSITY | Extension

NNGA

Chestnut Growers of America

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Michigan Nut & Fruit Growers Association

Nash Nurseries and Orchard

Treeborn Products

Michigan State University Extension

Planning Committee

Roger Blackwell, Co-chair

Jon Nash, Co-Chair

Jerry Henkin, Program Chair

Others

In alphabetical order

Rita Blythe
Samantha Bosco
Elodie Eid
Joe Hietter
Jeff Jensen
John Kelsey
Erin Lizotte
Davina Logan
Jim McKenna
Debbie Milks
Amy Miller
Greg Miller
Shawn Mehlenbacher
Bill Nash
Abby Nash
MJ Oviatt
Sara Tyler
Jerry Van Sambeek

SUNDAY, 3 August 2025

CONFERENCE SCHEDULE

Sunday's activities include the annual NNGA Board meeting in the morning at the DoubleTree by Hilton Lansing and then all other activities at the Nash Nurseries and Orchard in Owosso. Nash Nurseries has a large tent set up in their events area (4975 W Grand Rd,48867). Activities begin with the first of two-wagon field tours starting at 1:00 from the events area. Bill Nash will welcome us at 3:00 after which we each decide whether to go on the wagon field tour, attend the CGA Board meeting, or visit the grounds, various exhibits, displays, and posters in the events area for the rest of the afternoon. Registration and setting up of posters, displays, and exhibits is between 3:15 - 6:00 pm. Sunday early evening, join us for the social with cash bar, the first poster/exhibit session, welcome reception/dinner, and the traditional Show and Tell program with lightening talks.

10:00 – 12:00	**Northern Nut Growers Association Board of Directors Meeting**, Michigan II, DoubleTree by Hilton
12:00 – 1:00	**Lunch on your own**
1:00 – 2:00	**Arranging Carpooling to Nash Nursery.** Attendees without vehicles should **check the list** at the Pre-Function Area outside Michigan II to see who has volunteered to provide rides and make a cell phone contact to arrange when and where to meet to travel to and from Nash Nurseries.
1:15 – 2:45	**Nash Nurseries and Orchard wagon tour #1** – Meet at the Event Area at Nash Nurseries. Wagon tours may be limited to 50 people so take the first tour if you can.
3:00 – 3:15	**Welcome** – Bill Nash, *Nash Nurseries: Past, Present, and Future*
3:15 – 4:45	**Nash Nurseries and Orchard wagon tour #2** – Meet at the Events Area at Nash Nurseries. Wagon tours may be limited to 50 people.
3:15 – 4:00	**Chestnut Growers of America Board of Directors Meeting**, Events Area at Nash Nurseries

SUNDAY, 3 August, *continued*

3:15 – 6:00 **Registration**, pick up your name tag and program packet in the Events Area at Nash Nurseries.

3:15 – 5:00 **Set up Posters, Exhibits, and Displays**, Events Area at Nash Nurseries. Auction items should be turned in at the registration table at the DoubleTree in Lansing on Monday morning.

3:15 – 6:00 **Open Session**, Events Area at Nash Nurseries. Free time to visit the grounds, posters, equipment displays, exhibits, and demonstrations.

5:00 – 6:00 **First Poster/Exhibit Session** concurrent with social at Nash Nurseries

5:00 – 6:00 **Welcome Social with Cash Bar** inside the large tent in the Events Area at Nash Nurseries

6:00 – 7:00 **Welcome BBQ Dinner** inside the large tent in Events Area at Nash Nurseries

7:00 – 8:20 **Show and Tell with Lightning Talks**
Jerry Henkin, Session Moderator, Nash Nurseries Events Area

- 7:05 Jim McKenna, NNGA/CGA Welcome
- 7:15 Sarah E. Francino and Joseph C. Scheerens, *The Efficacy of Under-tree Netting as a Cultural Practice for Harvesting and Marketing High-quality Pawpaw Fruit (NNGA research grant report)*
- 7:25 Dan Lefever, *The AdvancingEcoAgriculture.com paradigm*
- 7:35 Jeff Jensen, *Nuts in Iowa*
- 7:45 Ren Klug, *Untapped Potential: Black Walnut Sap Production Characteristics Compared to Sycamore and Sugar Maple*
- 8:05 Sarah Hastings, *The Two-Story Farm: Regional Visions of Nut Tree Agriculture United States, 1900–1940*

8:15 Yuzhen Lu, *Detection of On-ground Chestnuts Using Artificial Intelligence Towards Automated Picking*

8:25 **Announcements**, Update Schedule of Events and Housekeeping remarks

ABOUT NASH NURSERIES AND ORCHARD, OWOSSO, MI

Nash Nurseries is a historic, 200-acre family-owned nursery in Owosso, Michigan. Established in 1860, the property has evolved from traditional farming into a diverse horticultural enterprise under six generations of the Nash family. The nursery grows thousands of plant species, including ornamental trees, shrubs, perennials, fruit and nut trees, and specialty crops like chestnuts and pawpaws for landscaping and orchard projects across Michigan and the Great Lakes region. The farm's iconic 19th-century barns and property reflect its deep roots in Michigan agriculture while supporting innovative projects such as upcoming tissue culture propagation and advancement of sustainable agroforestry. Nash Nurseries is dedicated to "Making your space a more beautiful place."

MONDAY, 4 AUGUST 2025

Monday's activities feature the NNGA annual business meeting, a CAPS program, our first keynote presentation, the technical side of the conference, and the auction. Coffee, tea, and water are available all day for registered attendees. The day will start with short NNGA business meeting. The technical session will open with a keynote presentation followed by presentations throughout the day ending with two concurrent forums (panels or group discussions). The CAPS program will begin before the keynote presentation. A light lunch included with the full, student, and day registration. In the evening after dinner on your own, plan to participate in a second poster/exhibit session until the live auction begins. Proceeds from the auction go to support the NNGA or CGA research grants program.

7 AM – 5 PM **Coffee, tea, and water available all day,** Capital Ballroom

7:00 – TBD **Continental breakfast** available in the Pre-Function Area with full, student, day, or CAPS registration.

MONDAY, 4 August, *continued*

7:30 – 9:00	**Registration**, Pre-function Space, DoubleTree. Turn in **auction items** at the registration table.
7:30 – 9:00	**Set up posters, exhibits, and displays**, Pre-Function Space, DoubleTree
8:30 – 8:50	**NNGA Business Meeting** including annual committee reports, Board nominations, and Nominating Committee election, Capital Ballroom
8:50 – 9:00	**Welcome**, Roger Blackwell, CGA President, Capital Ballroom
9:00 – 5:00	**CAPS Program** – Meet in the Pre-Function Space outside the Capital Ballroom to arrange today's venues (see page 15-16), transportation, and lunch options. Anticipate returning to the DoubleTree lounge after the last stop to share stories of past activities and events.
9:00 – 9:45	**Keynote Presentation** – Dan Guyer, *Chestnut Programming at Michigan State University; A Land Grant Model at its Best!*
9:45 – 12:30	**Monday Morning Technical Sessions**, Roger Blackwell and Samantha Bosco, Moderators, Capital Ballroom
9:45 – 10:15	Guo-qing Song, *Revitalizing the Chestnut Industry: Leveraging Elite Genotypes, Micropropagation, and Precision Breeding*
10:15 – 10:35	Tanner Rankin, *Chestnut Curious: Understanding the Establishment and Management Practices of Chestnut Growers in the Eastern and Midwestern U.S.*
10:35 – 11:00	**Break**, coffee, tea, and water available in the back of Capital Ballroom.
11:00 – 11:25	Elspeth Hay, *Feed Us with Trees: Humans, Nuts, and the Future of Food*

11:25 – 11:50	Andrew Faust, *Creating Permaculture Legacy Landscapes*
11:50 – 12:10	Marc Friedman and Greg Bonito, *Persistence of Truffle Producing Fungi on Tree Nut Hosts*
12:10 – 12:30	Carolyn Pettit, *Eldering and Regenerative Agriculture*
12:30 – 1:30	**Lunch** included in full, student, and day registration
1:30 – 4:15	**Monday Early Afternoon Technical Session**, Melanie Jones, Moderator, Capital Ballroom
1:30 – 2:00	Kenneth Chance, *Appalachian Foothills Fruits and Nuts*
2:00 – 2:30	Kathleen Rhoades, *What DNA Sequencing Can Tell Us About American Persimmon Cultivars*
2:30 – 2:50	Ian McSweeney, *The Farmers Land Trust*
2:50 – 3:15	**Break**, coffee, tea, and water available in the back of Capital Ballroom.

——NOTE THE REMAINING SESSIONS ARE CONCURRENT——

3:15 – 4:15	**Monday Late Afternoon Concurrent Session A**, Greg Miller, Moderator, Capital Ballroom
3:15 – 3:45	Dylan Warner, *Chestnuts: Blight Resistance among Back Crossed Cultivars Grown in Tissue Culture, and Comparison of Mycelial and Spore Inoculations*
3:45 – 4:15	Nate Lawrence, *Temporal Effects of Chinese Chestnut Cultivation on Soil Health Parameters: A Chronosequence Analysis*

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3:10 – 4:15	**Monday Afternoon Concurrent Session B,** Alex Tanke, Moderator, Michigan Rooms (this session is not included with a virtual registration, but will be recorded and made available on the web later in the year)

MONDAY, 4 August, *continued*

3:15 – 3:45 Warren Chatwin, *Validating Hickory Species and Hybrid Classification with Low-coverage and Amplicon DNA Sequencing* (recorded presentation with live Q & A)

3:45 – 4:15 Adam D'Angelo, *Expanding the Project Pawpaw Research Orchard Network*

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4:15 – 5:15 **Concurrent Forums**, choose one of the following two panels or group discussions.

4:20 – 5:20 **BEGINNER NUT GROWER FORUM**, John Kelsey, Facilitator, Michigan II and III (Forum will begin by addresses the questions in the Kelsey abstract for *Starting Out with Trees)*

Panelists and Abstract Titles (if any):

Andrew Faust

Jerry Henkin

Douglas Spangler

4:20 – 5:20 **ISSUES FOR COMMERCIAL NUT GROWERS**, Roger Blackwell, Facilitator, Capital Ballroom

Panelists and Abstract Titles (if any):

Ron Tanner, *Build Your Export Sales with USDA Funding*

Roger Smith, *Prairie Grove Chestnut Growers*

Charles NovoGradac and Debbie Milks, *Growing Organic Chestnuts in Kansas*

Dan Lefever, *Growing Organic Chestnuts*

Melanie Jones, *United Chestnuts*

——End Monday afternoon concurrent sessions——

5:20 – 6:00 **Dinner on your own**

6:00 – 7:00 **Second Poster/Exhibit Session,** Pre-Function Space

6:30 – 7:00 **Auction Registration with cash bar**, Time to view auction items, obtain your number for the auction, and socialize, Capital Ballroom

7:00 – 9:00 **Auction,** Capital Ballroom

9:00 – 10:00 **Settle up** with cashiers and remove purchased items. Cash, check, or credit cards accepted.

TUESDAY, 5 AUGUST 2025

Tuesday features the second keynote presentation, morning and afternoon technical sessions followed by two concurrent forums (panel or group discussions), and the second day of the CAPS program. Coffee, tea, and water are available all day. Light lunch is included in the full, student, and day registration. In the evening, we will have the traditional social and banquet.

7 AM – 5 PM **Coffee, tea, and water available all day,** Capital Ballroom

7:00 – TBD **Continental breakfast** included in full, student, day, and CAPS registrations.

9:00 – 5:00 **CAPS Program** – Meet in the Pre-Function Area to arrange today's venues, transportation, and lunch options. Select from remaining venues (see pages 15-16). Anticipate participants will return to the DoubleTree lounge after the last stop to gather and share stories of past activities and events.

9:00 – 9:45 **Keynote Presentation** – Ron Revord, *Tree Nut Research Updates from the University of Missouri Center for Agroforestry*

9:45 – 12:25 **Tuesday Morning Technical Session**, Elodie Eid and Ray Rusmisel, Moderators, Capital Ballroom

9:45 – 10:10 MJ Oviatt, *Hazel – More Than a Nut: Creating Hedgerows with Hazel and Other Native Woody Species*

TUESDAY, 5 August, *continued*

10:10 – 10:35	Lee Reich, *Success with Hazelnuts* (recorded presentation with live Q & A)
10:35 – 10:50	**Break**, coffee, tea, and water in the back of the Capital Ballroom.
10:50 – 11:20	Younsuk Dong, *Improving Irrigation Management Using Sensor Technology*
11:20 – 11:55	Winston Beck, *Project Superhybrid: Propagation and Evaluation of Novel Juglans Genotypes*
11:55 – 12:25	Aziz Ebrahimi, *Conserving Threatened Butternut (*Juglans cinerea*) Trees Using Genomic and Phenomic Approaches*
12:25 – 1:25	**Lunch** included in full, student, and day registration, Michigan II
12:25 – 1:25	**Nut Processors and Cooperative Members Meet Up** over lunch, Keystone Tree Crops Cooperative, Capital III or IV (room subject to change)
1:25 – 4:20	**Tuesday Early Afternoon Technical Session,** Amy Miller, Moderator, Capital Ballroom
1:25 – 1:55	James R. McKenna, *Screening of Transgenic American OxO Chestnut in Indiana*
1:55 – 2:25	Maya Niesz Kutsch, *Update on Maximum Pollination Distance of Transgenic Chestnuts*
2:25 – 2:55	Carmen Medina-Mora, *Impacts of Pollination Biology on Chestnut Fruit Quality*
2:55 – 3:20	**Break**, coffee, tea, and water available in Capital Ballroom.

——NOTE THE REMAINING SESSIONS ARE CONCURRENT——

3:20 – 4:20	**Tuesday Late Afternoon Technical Session A**, Jim McKenna, Moderator, Capital Ballroom

3:20 – 3:50 Giorgia Bastianelli, *In vitro and Field Evaluation of Chemical and Biological Products for Chestnut Brown Rot Control (caused by* Gnomoniopsis smithogilvyi*) in Michigan* (presented by Erin Lizotte)

3:50 – 4:20 Magni Hussein, *Automated Chestnut Sorter for Damage, Pests, and Disease (recorded presentation with live Q and A and NNGA Research Grant report)*

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3:15 – 4:20 **Tuesday Afternoon Concurrent Session B**, Zach Elfers, Moderator, Michigan Room (this session is not included with a virtual registration, but will be recorded and made available on the web later in the year)

3:20 – 3:50 Levi Geyer and Alex Tanke, *Hickory Processing Developments*

3:50 – 4:20 Sara Tyler, *Black Walnut Oil Pressing with a Hydraulic Press (NNGA research grant report)*

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4:20 – 5:20 **Concurrent Forums** (Panels or Group Discussions)

4:20 – 5:30 **GROWING BETTER CHESTNUTS**, Greg Miller, Facilitator, Michigan III

Panelists and Abstract Titles (if any):

Amy Twohig, *Understanding the Role of Insect Vectors in the Oak Wilt Disease Cycle & Impacts to Chestnut Restoration*

Francesca Rotondo, *Chestnut Rots (live recorded comments and NNGA research grant report)*

Geoffrey M. Wiliams, *Red Oak Health in Michigan Public Lands: Epidemiology, Genetics, and Management*

Karan Chahal, *Oak Wilt in Chestnut: What We Know and Need to Know About an Underlooked Disease Issue*

TUESDAY, 5 August, *continued*

4:20 – 5:20 **FRUITS AND VALUE-ADDED PRODUCTS**, Kathy Dice, Moderator; Michigan I

Panelists and Abstract Titles (if any):

Adam D'Angelo, *The Project Pawpaw*

Kenneth Chance, *Appalachian Foothills Fruits and Nuts*

Kathleen Rhoades, *What DNA Sequencing Can Tell Us About American Persimmon Cultivars*

——End Tuesday afternoon concurrent sessions——

6:00 – 6:10 **Group Photo** – The social and cash bar will not open until after the group photo – listen to announcements during the week as to where to meet for the photo.

6:10 – 7:00 **Social with cash bar** after group photo – Pre-Function Area. Entertainment provided by The Deadly String Band.

We will have the Deadly String Band (DSB) playing Sunday evening at the Nash Nursery opening day and at the social for the banquet Tuesday night. The DBS is a Grateful Dead and Dead-adjacent cover band in the style of an old-time string band from East Lansing, Michigan, and a very talented act. Six members make up the band, one of whom is Greg Bonito, a MSU professor, who works on chestnut. They may have a special string arrangement of Torchinsky's "Nut Cracker" and other interesting tunes.

7:00 – 8:00 **Banquet,** Jim McKenna, MC

8:00 – 9:00 **Banquet Program,** Roger Blackwell and Jim McKenna

Crowning the 2025 NNGA Big Nut

Recognition of Major Sponsors and Donors

Recognition of Guests

1910 Birth of the NNGA

2025 Research Grant Recipients

Election of NNGA Officers and Directors

Presentation of NNGA Merit and Service Awards

NNGA Roll Call of States

WEDNESDAY, 6 AUGUST 2025

Wednesday's activity is an all-day chartered bus tour to three sites surrounding Lansing (see back cover). Participants are asked not to follow the buses in their own vehicles because **parking is not available**. A boxed lunch is included in the full, student, and Wednesday registration. The conference will adjourn when the buses return to the DoubleTree late on Wednesday afternoon.

7:30 – 8:00 **Load the chartered busses** outside the DoubleTree. Pick up your "continental" breakfast as you board.

8:00 – 9:00 **Travel** by chartered bus to Clarksville, MI

9:00 – 11:00 **Chestnut Growers Inc. (CGI) Processing & Shipping Facility** at the MSU Ag Bio Research Center – Clarksville.

We will tour the processing facility of Michigan's chestnut co-op that handles over a quarter million pounds of chestnuts annually. This includes cleaning, storage, sorting, processing, product storage, packaging, and shipping.

11:00 – 12:30 **Travel** by chartered bus to Paw Paw, MI

WEDNESDAY, 6 August, *continued*

12:30 – 2:30 **Beyer's Orchard** – Paw Paw, MI. Boxed **lunch** in the orchard.

One of Michigan's largest chestnut orchards. Orchard has over 65 acres of grafted chestnut trees harvesting 15 tons annually. The Beyer's began planting in 2012. As the orchard came online it has expanded to over 1,800 trees. The Beyer's are harvesting and supplying over 30,000 pounds of nuts to the CGI co-op.

2:30 – 3:30 **Travel** by chartered bus to Jackson, MI

3:30 – 5:30 **MSU Roger's Reserve** – Jackson, MI

This is a research facility dedicated to the advancing nut and unusual fruit production. The facility features the region's only mechanized fresh chestnut peeling/ processing line, capable of peeling 2,000 pounds of chestnuts per hour, as well as a processing kitchen for chestnut flour, chestnut chips, hazelnuts, and pawpaws.

5:30 – 7:00 **Adjournment and travel** back to the DoubleTree in Lansing. If you are staying at the DoubleTree Wednesday evening, watch for announcements where folks will congregate informally for supper and visiting in the lobby that evening.

MSU HORTICULTURE GARDENS

1066 Bogue Street

The gardens offer 14 acres of diverse gardens are a superb retreat and resource for gardeners, plant lovers and children of all ages! You can easily get a bit of exercise while walking the displays. You may get garden design ideas, or learn new annuals, perennials, shrubs and trees - or perhaps even a fruit or vegetable new to you. On the other hand, you may just want to relax in a beautiful and refreshing garden setting. Their purpose is to promote an understanding of plants and the role they play in our environment and daily lives and provide a place for education, enrichment and delight of all ages. Admission is free or $5 for a guided tour. For more information go to www.canr.msu.edu/hrt/our_gardens. For a map of the garden, go to www.canr.msu.edu/hrt/our_gardens/uploads/Garden%20Map.

IMPRESSION 5 SCIENCE CENTER

200 Museum Drive

Impression 5 Science Center is a dynamic, interactive space for families to play, create, and challenge their understanding of science. Their mission is to facilitate learners in scientific exploration through hands-on exhibits and participatory educational programming. Voted #1 Best Children's Museum in the United States in 2025 by Newsweek. For more information, visit impression5.org or call 517-485-8116. The center is housed in a historic wagon works factory on the Grand River. Located directly south of the Lansing Center and less than a 10 minute (0.3 mile) walk from the DoubleTree). Admission $12 ($10.50 seniors). Closed Mondays.

R. E. OLDS TRANSPORTATION MUSEUM

240 Museum Drive

Discover Lansing's rich transportation history – featuring Oldsmobile* and the REO Motor Car Company. The Museum has thousands of irreplaceable items in the archives along with over 60 vehicles that range from 1886 through 2003. For more information, visit reoldsmuseum.org or call 517-372-0529. Located approximately 0.3 miles south of the DoubleTree via Michigan Avenue and Museum Drive. Admission $10 ($7 seniors). Closed Mondays.

More Venues →

CAPS Venues, *continued*

STATE OF MICHIGAN CAPITAL TOUR & MUSEUM

100 N. Capital Avenue and 702 W. Kalamazoo St, respectively

The Capitol is not just a building; it stands as a National Historic Landmark and an architectural marvel rich in arts and history. Free guided tours of the Capital hourly. The Michigan History Museum's five floors with more than 25 permanent galleries provides a walk-through time beginning with Michigan's first people and ending in the mid-20th Century. For more information, go to capital.michigan.gov/visit and www.michigan.gov/mhc/museums/mhm. Museum admission is $8 ($6 seniors). Both locations are within walking distance of the DoubleTree.

POTTER PARK ZOO

1301 S. Pennsylvania Avenue

The Potter Park Zoo is a 20-acre zoo within an 80-acre park located in Lansing, Michigan, within Lansing's Potter Park. Its mission is to inspire people to conserve animals in the natural world. Potter Park Zoo is the oldest public zoo in Michigan and is currently home to over 160 species of animals. For more information, visit potterparkzoo.org. Located approximately 2.4 miles southeast of the DoubleTree. Admission $15 non-resident ($13 non-resident seniors).

LANSING BREWING COMPANY

518 E Shiawassee

The Lansing Brewing Company is a restaurant and brewery that serves as a living testament to the hard-working men and women who built this great city. It embraces the city's roots while heralding in a new beer-loving generation just in time for Lansing's rebirth. Relax on their beautiful patio and enjoy the best of Lansing's food and drink scene. Whether you're looking for a handcrafted meal or a locally brewed pint, you'll walk away satisfied. Located approximately 0.5 miles from the DoubleTree via Grand Ave and E. Shiawassee. For more information, visit lansingbrewingcompany.com or call 517-371-2600.

**Cecil Farris worked at the Oldsmobile manufacturing plant when not researching hybrid hazelnuts in his backyard in East Lansing (see historical article in Summer 2025* The Nutshell*).*

POSTER PRESENTATIONS

Posters, displays, and exhibits will be displayed at the Nash Nurseries on Sunday afternoon and then moved to the DoubleTree Pre-Function Area on Monday morning. Poster presenters will be asked to be near their poster during the first Poster/ Exhibit session Sunday from 5:00 to 6:00 pm and during the second session Monday evening preceding the auction from 6:00 to 7:00 pm. The following is the list of poster presenters when the conference program went to the printer.

OAK WILT IN CHESTNUT: WHAT WE KNOW AND NEED TO KNOW ABOUT AN UNDERLOOKED DISEASE ISSUE

Karan Chahal

HYBRID HAZELNUT SELECTION TRIAL IN MISSOURI

Aubrey Teckam

DIVERSIFIED PROCESSING OF CHESTNUTS AND ACORNS: PRELIMINARY FINDINGS

Amy Miller

UNDERSTANDING THE ROLE OF INSECT VECTORS IN THE OAK WILT DISEASE CYCLE & IMPACTS TO CHESTNUT RESTORATION

Amy Twohig

ORCHARD LEVEL ($500 OR MORE)

Charles Wilson (for scholarships and program)

Propagate, Harry Greene (gold vendor)

TFEC (for scholarships)

TREE LEVEL ($300 - $499)

Chestnut Charlie's Tree Crops (for scholarships)

SEEDLING LEVEL ($200 - $299)

BDi Machinery Sales (silver vendor)

Steuwe and Sons (silver vendor)

Treeborn Products (silver vendor)

NUT LEVEL ($100 - $199)

Keystone Tree Crops Cooperative (green vendor)

Jeff Jensen (for scholarships)

Roger Smith (for conference support)

Gordon Wilkinson (for scholarships)

This listing is expected to change during the conference. If you would like to donate and help defray the costs to host a conference or contribute to the scholarship fund, check with the staff at the registration desk. A revised listing will be published in the Fall issue of The Nutshell.

REGISTERED EXHIBITORS

Posters, exhibits, and displays will be set up at the Nash Nurseries on Sunday afternoon and then moved to the DoubleTree lobby on Monday morning. Exhibitors will be asked to be near their exhibit during the two Poster/Exhibit sessions. Tuesday morning after breakfast and before the session starts is another great opportunity to spend time viewing the posters and exhibits. The following is a list of the exhibitors when the conference program went to the printer.

Agroforestry Coalition (agroforestrycoalition.org)

AMB Rousset, Renaud Rousset (www.amb-rousset.com)

Bdi Machinery Sales Inc, Paul Licata (Exhibit only) (www.bdimachinery.com)

Black Squirrel Farms, Sara Tyler (www.blacksquirrelfarms.net)

Canopy Farm Management, Carolyn Rose (canopyfm.com)

Cushman Creek Supply, Richard Russell (269-569-4073)

Foggy Bottom Tree Farm, Don Knezick (www.foggybottom.farm)

Food Export Midwest/Northeast, Ron Tanner (www.foodexport.org)

GOAT - Gathering of Open Ag Technology, Dan TerAvest (www.our-sci.net)

Keystone Tree Crops Cooperative; Elodie Eid (keystonetreecrops.com)

Propagate, Harry Greene (www.propagateag.com)

Savanna Institute (www.savannainstitute.org)

Steuwe & Sons, Eric Steuwe (Exhibit only) (steuwe.com)

Treeborn Products, Jon Nash and Crew (www.treebornproducts.com)

Tree Pro, Thomas Mills (www.treepro.com)

GIORGIA BASTIANELLI

presented by Erin Lizotte

In vitro *and Field Evaluation of Chemical and Biological Products for Chestnut Brown Rot Control in Michigan*

Abstract: The chestnut brown rot (CBR) fungus, *Gnomoniopsis smithogilvyi*, is the main cause responsible for the decay of chestnuts and is threatening the sustainability of the chestnut market all over the world. The pathogen infects the flowers in the field, with symptoms affecting nut quality at harvest time and during storage. For this reason, orchard management and fungicide applications are crucial factors to prevent infection in the flowers and later in the kernels. Michigan is the leading producer of commercial chestnuts in the USA. After the first isolation of the pathogen in 2016, CBR was identified in 80% of Michigan orchards. This study aims to compare the efficacy of different fungicides and alternative fungicides in the inhibition of *G. smithogilvyi.* For the *in vitro* assay, 15 products belonging to different FRAC groups were tested for fungicide activity against mycelium radial growth and spore germination. In the EC_{50} evaluation, Inspire Super fungicide (Difenoconazole 8.4% + Cyprodinil 24.1%) had the highest fungicide activity, followed by Tilt (Propiconazole 41.8%) and Cevya (Mefentrifluconazole 34.93%). For the field trials, fungicide applications with 6 different products were conducted for two consecutive years (2023 and 2024), with 2 and 4 applications between blooming and harvest. Sysstem Zn (zinc phosphonate 8%) was the most effective treatment based on qPCR assay for the pathogen detection, followed by Inspire Super and Tilt. These results will help Michigan chestnut industry in preventing CBR contamination in pre-harvest and will encourage the rotation of fungicides.

Bio: Giorgia Bastianelli is currently a Postdoctoral Researcher at Michigan State University, in Timothy Miles Lab - Small Fruit and Hop Pathology Lab (www.canr.msu.edu/smallfruitnhoppathology). She started in April 2023 and her current interest involves fungal pathogens affecting chestnut orchards in Michigan, where she's trying to detect, identify and manage fungal species causing nut rots. She received her PhD in March 2023 at University of Tuscia (Viterbo, Italy) in Andrea

Vannini Lab, where she worked on chestnut brown rot caused by *Gnomoniopsis smithogilvyi* (syn. *castanea*) and mycotoxins detection on chestnuts. She is also part of the European Chestnut Network – Eurocastanea (www.eurogastanea.org) and cooperates with chestnut researchers from all over the world. Before that, she graduated in the master program "Biotechnology for the agriculture, the environment and the health" at University of Tuscia, participating in the COST action FP1406 - Pine pitch canker-strategies for management of *Gibberella circinate* in greenhouses and forests (PINESTRENGTH).

WINSTON BECK

Project Superhybrid: Propagation and Evaluation of Novel Juglans Genotypes

Abstract: The genus *Juglans* is known for providing edible nuts and interesting high-quality wood. As disease and climatic pressures shift, new trees for forestry use in Germany and the EU are being sought out. Project Superhybrid was funded with the goals of establishing a collection of fast-growing walnut trees, propagating these trees via grafting, tissue culture, and other methods, and testing the resulting trees under two different climatic conditions in Germany. Further, genetic characterization was to be carried out, which would facilitate the identification of hybrids, and also provide a genetic basis of identification of the trees in the project. This presentation will discuss the results of these experiments and provide outlook for further research.

Bio: Originally from Nebraska, Winston Beck relocated to Germany in 2016 and is a researcher and PhD Student at Humboldt-Universität zu Berlin focusing on hybrid walnut production. Since 2019, he has worked on two federally-funded projects to propagate, plant, and evaluate hybrid walnut trees across multiple locations in Germany. Winston holds a BS and MS in Horticultural Science from Iowa State University, and Humboldt-Universität zu Berlin, respectively. Before pursuing a Master's, Winston worked as the curatorial horticulturist at the Greater Des Moines Botanical Garden and completed an internship at the NC

State Mountain Crop Improvement Lab working on ploidy in Hydrangea. When Winston is not with his trees or in the lab, he enjoys hiking, cycling, reading, and going to the sauna.

ROGER BLACKWELL

Welcoming Address to the 2025 CGA/NNGA Conference

Bio: Roger has been involved with growing chestnut trees for over 35 years. He is President of Chestnut Growers Inc. of the Michigan chestnut grower co-operative, co-owner of New Era Chestnuts, LLC, and V.P., Business Development at Treeborn, Inc. Roger currently is President of Chestnut Growers of America, a non-profit organization which represents chestnut growers throughout the USA. He has a great deal of experience in chestnut production, processing, marketing, and sales. He is a dedicated supporter of the Michigan chestnut industry.

GREG BONITO

Persistence of Truffle Producing Fungi on Tree Nut Hosts

Abstract: See abstract for Marc Friedman.

KARAN CHAHAL

Oak Wilt in Chestnut: What We Know and Need to Know About an Underlooked Disease Issue

Abstract: Oak wilt in chestnut is not a new issue; it was officially documented in 1950 from Missouri. However, this disease concern remained overlooked until recently, when growing awareness and collaborative efforts brought it back into research and extension focus. Various chestnut cultivars and germplasm appear to be susceptible to oak wilt in ways similar to red oaks. Monitoring, early detection, and preventive management are critical to containing the disease's spread from infection centers. Further work is needed to compile preliminary observations to guide management strategies and future research efforts.

Bio: Dr. Karan Chahal is a postdoctoral research associate at Michigan State University. He holds a Ph.D. in Forest Pathology from MSU and a master's degree in Forest Entomology and Plant Pathology from the University of Tennessee, Knoxville. His research focuses on using applied and cutting-edge genomics tools to manage emerging native and non-native pathogens affecting forest, shade, and fruit trees.

KENNETH CHANCE

Appalachian Foothills Fruits and Nuts

Abstract: This presentation will focus on the founding of a non-profit to gather and preserve named cultivars of eastern North American Fruits and Nuts. This frees the endeavor of preservation from market forces, from academic forces of "publish or perish" and gives the endeavor longevity beyond the founders and proprietors. Discuss the current content of the collection and intentions for future additions to the collection. Initiatives of the orchard include (i) developing comprehensive naming conventions for the plants (to prevent naming confusion), (ii) serving as a source for germplasm (iii) cross-checking the identity of cultivars, and (iv) popularizing the fruits and nuts within their native geography. Longer term projects include (a) developing rare fruits like flavorful Aronia, Eastern Huckleberry (genus Gaylussacia), rust resistant Serviceberry and named Maypops and (b) developing a tasting dictionary, as for wines and coffee, for the various fruits (relying on sommeliers and professional tasters).

Bio: Kenneth Chance is the President of Appalachian Foothills Fruits and Nuts (AFFN), a 501.c.3 non-profit organization dedicated to science and education. The purpose of AFFN is to develop comprehensive collections of fruit and nut cultivars that are native to the Southeastern US. Target species collections are North American Pawpaw, North American Persimmon, Hybrid Persimmon, Elderberries, Aronia, and North American Currant. Species collections that are in a lesser stage of development are Pecan and thin shell Hickory. The orchard is in Zone 7a in eastern Tennessee in the village of Etowah. Ken comes to this activity as an Engineer and Business Manager and relies on established growers and other experts for advice and germplasm.

WARREN CHATWIN

Validating Hickory Species and Hybrid Classification with Low-coverage and Amplicon DNA Sequencing

Abstract: Until recently, genetic tools to validate species and hybrid identity for long-lived forest trees were too expensive or underdeveloped to deploy across private and public collections. In this research, USDA-ARS used low coverage (~1x) DNA sequencing and/or a custom amplicon sequencing panel to obtain genetic profiles of wild and curated *Carya* individuals. This goal of this research is to test the accuracy of a previously published software analysis pipeline designed to classify *Carya* species and hybrids on a wide variety of genetic variation from curated collections (including the Arnold Arboretum at Harvard University, Charles Spurgeon Carya Repository and submissions from NNGA members). Preliminary results show that adding more species-references for training the classification model improve accuracy, but are limited by sequencing depth. All classification models were challenged by the close genetic relationship between shagbark hickory (*Carya ovata*) and shellbark hickory (*Carya laciniosa*). Validation of this pipeline is ongoing.

Bio: Warren Chatwin is a geneticist and tree-nut enthusiast who is focused on incorporating genetics into nut tree breeding and conservation efforts. After working in tree genetics research for over a decade, he understands that careful planning is the key to success. His

research at the USDA-ARS Pecan Breeding & Genetics Program in College Station, Texas strives to shorten the pecan breeding cycle using genetic tools and to increase the variety of pecan and hickory germplasm its living collections. When he is not working, you'll often find him volunteering with his two sons in their Cub Scout pack or going for a bike ride around their rural Texas town.

ADAM D'ANGELO

Expanding the Project Pawpaw Research Orchard Network

Abstract: Adam has been working on Project Pawpaw for five years, laying the groundwork for a comprehensive breeding program and performing preliminary research on critical components of pawpaw plant physiology. A primary focus of Project Pawpaw in recent years has been the establishment of a network of research and breeding orchards across the country. He currently has a full-time job as the Breeding Operations Manager for the Savanna Institute, a nonprofit working to breed perennial fruit and nut crops for agroforestry systems. He is so excited to share this project with you and to have the opportunity to help make our food system more sustainable, attainable, and delicious!

Bio: Adam D'Angelo started Project Pawpaw with the mission of helping more people to enjoy delicious and local fruit. Adam has been a lifelong pawpaw enthusiast, planting his first seedlings at age 11 after seeing pawpaw trees growing while visiting his brother at Cornell University. He completed his undergraduate education at Rutgers University where he double majored in Plant Biology and Agriculture & Food Systems with a minor in Agroecology. Throughout college, he worked as an hourly research technician at the Rutgers Hazelnut Breeding Program under Dr. Tom Molnar. After graduating from Rutgers, he attended the University of Wisconsin - Madison where he earned his Master's degree in Plant Breeding & Plant Genetics. His research at UW-Madison was focused on breeding table beets for improved flavor and eating quality. Adam is excited to combine his training in using modern plant breeding tools to breed for consumer

quality traits with his experience and passion for perennial tree crop breeding!

KATHY DICE

Fruits and Value—Added Products Forum

Abstract (forum facilitator): In 1986, Kathy Dice and her husband Tom Wahl bought 56 acres of steep, rugged timberland in southeast Iowa. They added 31 acres of rolling farmland in 2001. Over time they established Red Fern Farm: a farm of fruit and nut producing trees, shrubs and vines. They grow high value tree crops and pay their son to run a small flock of sheep through the groves of trees to control vegetation and fertilize the perennials. For more information on their consulting services, visit www.redfernfarm.com or go on Facebook at RedFernFarm.Iowa.

Bio: Dice graduated from Iowa State University with honors and has worked for the Iowa Department of Natural Resources, the Natural Resources Conservation Service and Louisa County Conservation Board. She is a soil commissioner for her county and the winner of the 2015 Practical Farmers of Iowa Sustainable Agriculture Achievement Award with her husband, Tom Wahl.

YOUNSUK DONG

Improving Irrigation Management Using Sensor Technology

Abstract: Improving irrigation management using sensor technology allows for more precise and efficient water use in agriculture. Soil moisture sensors, weather stations, and SAP flow sensors provide real-time data that help growers determine when and how much to irrigate. This reduces water waste, prevents over- or under-watering, and supports healthier crop growth.

Bio: Younsuk Dong is an Assistant Professor and Extension Specialist in the Department of Biosystems and Agriculture Engineering at Michigan State University (MSU). He leads the MSU Irrigation Program, which focuses on improving agricultural irrigation water use efficiency and providing irrigation education and training to stakeholders.

AZIZ EBRAHIMI

*Conserving Threatened Butternut (*Juglans cinerea*) Trees Using Genomic and Phenomic Approaches*

Abstract: Since the late 1960s, *Ophiognomonia clavigignenti-juglandacearum* (ocj), the pathogen behind butternut canker disease, has devastated North American butternut (*Juglans cinerea*), functionally eradicating the species in many areas. With no cure or known resistance, the decline threatens forest biodiversity, ecosystem productivity, and food web stability. Adding complexity, butternut hybridizes with Japanese walnut (*Juglans ailantifolia*), introduced in the late 1800s, raising concerns about genome introgression and its impact on adaptation to stressors. Genome-wide association studies (GWAS) integrate common garden data with landscape genomics to evaluate butternut populations and hybrids. This approach assesses genetic diversity, admixture, and adaptive traits across planting sites and natural populations. Common garden experiments control for environmental variability, identifying genotype-by-environment interactions and marker-trait associations for disease resistance and growth traits. Landscape genomics captures genetic variation and local adaptation across ecological gradients. The goal is to identify genetic markers linked to disease resistance to guide breeding strategies. This work evaluates whether non-admixed butternuts can withstand ocj or if hybridization with Japanese walnut is necessary for survival. If successful, the project will develop improved germplasm and tools to restore and conserve butternut populations.

Bio: Aziz Ebrahimi is a USDA-NIFA postdoctoral fellow at the HTIRC. His research uses genomic and phenotypic data to improve forest health, particularly for disease-resistant breeding in hardwood trees like butternut and walnut. With a PhD in forest genetics and genomics, he has extensive expertise in genomics, GWAS, and high-throughput genotyping. He applies advanced bioinformatics and AI-driven imaging

toward conservation efforts. His work aims to integrate genomic tools for preserving biodiversity and enhancing forest resilience.

ANDREW FAUST

The Permaculture Land Trust Program

Abstract: I will present on the work Permaculture Land Trust is doing to answer several important questions and to train up a new wave of nut tree cultivators and to protect rare and valuable historic planting and groves. I plan to cover:

- Creating permaculture legacy landscapes
- Nut trees, protecting and training people to grow and distribute them
- Where to plant them, and
- What are the most resilient, diverse and integrated into wild ecologies ways to plant out the food forests of tomorrow.

We received a $50,000 grant from USDA-Beginning Farmers to train Agroforestry enthusiasts in how to start nurseries and to propagate plant stock with some of the top nursery people in the region teaching them, Buzz Ferver, Erik Schellenberg, and Zach Elfers are some of our lead instructors and advisors. Our program is training our participants in a more ecologically restorative approach to Agroforestry with an emphasis on a permaculture design process for the planting, superior genetics and the long-term protection of them for future generations to have an inheritance of greater Tree Crop abundance!

Bio: Andrew Faust has more than 30 years of work in environmental / ecological education with high school, college-age, and adult students. Founder and Director of Center for BioRegional Living permaculture designer, teacher, and activist. Faust is an advocate for social and environmental justice. He believes that permaculture can play a crucial role in addressing issues such as climate change, food insecurity, and social inequality by promoting sustainable and regenerative practices.

MAX FERGUSON

Timing of Insecticide Applications Before Harvest and Post-harvest Treatment to Reduce Damage from Larval Feeding in Chestnut

Abstract: Michigan's growing chestnut industry is the largest in North America. As commercial operations increase so does pressure from pests, both native and invasive. The native lesser chestnut weevil (*Curculio sayi*) larvae develop inside chestnut kernels, rendering them foul and unmarketable. Timing of insecticide applications before harvest and prompt post-harvest treatment is critical to reducing damage from larval feeding. Invasive Asian chestnut gall wasp (*Dryocosmus kuriphilus*) larvae feed on developing chestnut buds, causing galls and malformed branches to form, reducing tree production and vigor. Their associated parasitoid, *Torymus sinensis*, acts as an excellent biological control agent if unimpeded by insecticide applications during its flight period.

Bio: Max Ferguson completed a Bachelor's degree in Horticulture in 2020 and a Master's degree in Entomology in 2025 from Michigan State University. His master's project centered around pre- and post-harvest management of the lesser chestnut weevil (*Curculio sayi*) and continued monitoring of the invasive Asian chestnut gall wasp (*Drycosmus kuriphilus*) and its associated parasitoid, *Torymus sinensis*, in Michigan chestnut orchards.

SARAH E. FRANCINO AND JOSEPH C. SCHEERENS

The Efficacy of Under-tree Netting as a Cultural Practice for Harvesting and Marketing High-quality Pawpaw Fruit

Abstract: The North American pawpaw [*Asimina triloba* (L) Dunal] is an emerging native tree crop highly prized for its tropical fruit flavor.

Unfortunately, its widespread availability as a fresh fruit is hampered by a relatively short shelf-life that fails to be ameliorated through conventional means to control ripening and senescence. Moreover, if not expeditiously hand-harvested, fruit undergoing the ripening process will abscise after the climacteric stage begins, allowing the fruit to fall to the orchard floor, leading to bruised fruit and an even shorter shelf life. Through a series of experiments, we have determined efficiency of employing an under-tree netting system to catch detached fruit as they fall. We have also explored physiological differences in hand-harvested, net-captured, and dropped fruit; evaluated sensory quality differences in these fruits; and ascertained the effect of harvest technique on fruit storability. Gathering ripe fruit from tree nets improved both temporal and cost efficiency by 2.4 to 2.8 times over hand harvest while simultaneously reducing bruise-damage and potential microbial contamination in fruit gathered from the orchard floor. Net-captured fruit were generally softer than hand-harvested fruit at harvest and throughout storage. Ethylene evolution patterns and analyses of pectin -degrading enzymes suggested net captured fruit to be at a more advanced stage of ripeness than hand-harvested fruit and as such, net-captured fruit were overwhelmingly preferred by 120 members of a consumer sensory evaluation panel. In contrast, hand-harvested fruit fared better during long-term (35 days) storage than either net-captured or dropped fruit. Subsequently, commercial producers should consider their marketing plans when choosing a harvest method.

Bios: Sarah Francino completed her BS in Biology at Muskingum University before continuing to The Ohio State University for an MS degree in Environmental Science. She is now a PhD graduate student at The Ohio State University advised by Dr. Joseph Scheerens. In this capacity, she has been investigating pawpaw (*Asimina triloba*) harvesting, processing, and reproductive biology. She has run multiple workshops on many facets of pawpaw cultivation.

MARC FRIEDMAN AND GREG BONITO

Persistence of Truffle Producing Fungi on Tree Nut Hosts

Abstract: Some nut producing trees, such as chestnut and pecan trees, can host truffle producing ectomycorrhizal fungi of the *Tuber* genus. In

addition to providing nutrients to their tree symbionts, these fungi can provide added value to a nut tree orchard, as some of these truffles are valuable culinary delicacies. In 2016, researchers at Michigan State University set up a truffle orchard using four species of truffles, including two European species (*Tuber borchii* and *Tuber aestivum*) and two North American species (*Tuber canaliculatum* and *Tuber lyonii*). Truffle cultivation practices require the roots of seedling trees to be inoculated with truffle spores or mycelium, which can naturally occur in tree nut orchards, or intentionally in a greenhouse. Chestnut, pecan, pine, red oak, white oak, spruce, and Douglas fir were used as the host tree species for this orchard. Once these trees were inoculated and their root systems formed ectomycorrhizas, they were planted into orchard soils, limed to pH 7.0. In 2021, in order to determine the persistence of the truffles on each tree species, soil samples were taken from the 278 trees in the truffle orchard. MiSeq libraries using ITS1F and ITS4 primers were prepared from the extracted DNA, which were sequenced with Illumnia MiSeq to determine if the target *Tuber* species persisted in the orchard with their tree hosts. Although co-cropping tree nuts and truffles is a viable option, management practices will typically favor maximizing the yield of one crop or the other.

Bio: Marc Friedman is a PhD candidate at Michigan State University, in Dr. Gregory Bonito's lab. Marc's research focuses on the symbiotic relationships between fungi and trees, and how soil chemistry can influence the growth and persistence of these organisms.

LEVI GEYER AND ALEX TANKE

Hickory Processing Developments

Abstract: Bitternuts, hybrids, and shagbarks have many processing steps in order to efficiently make oil, milk, and kernel. Major breakthroughs in high quality, efficient, economical, and licensable processing have been made over the past year. These breakthroughs include pre-crack sorting, crushing, post crush sorting, agitation, automated cracking, post-harvest storage, husking, shelling, sediment settling, roasting, oil shelf stability, understory management, shell reduction, fatty acid profile breakdowns, oil impurity safety, oil processing protocols for various flavor profiles, press speed, and press

yield. Further developments are in line for testing over next year especially in harvesting technologies and post shelling optical sorting. Hickory oil is ready. Hickory milk is ready. Hickory kernels are very near.

Bio: Levi Geyer is the owner of Fancy Twig Farm, a small operation focused on hickory oil production and development. In 2024 he collected over 1000 gallons of wild yellowbud hickory nuts, which were pressed into 76 gallons of oil. He is exploring forest management strategies that promote nut production while also maintaining biodiversity and ecosystem function. In the future, he hopes to manage a farm that incorporates Chinese chestnuts, yellowbud hickories, hair sheep, and fodder trees in an intentional, low-input system. His work is driven by a commitment to sustainability and peace. He recognizes that perennial crops do not fix the root problem of the food and agricultural crisis. He hopes that his farm can empower people to strengthen their relationship with their food and with local ecosystems.

DANIEL GUYER

Chestnut Programming at Michigan State University; A Land Grant Model at its Best!

Abstract: Michigan State University (MSU) with its academic multi-disciplinary Chestnut Team has been involved over the past four decades with every aspect of building a chestnut industry in Michigan … from the fork to the farm… as Dr. Fulbright used to say in regards to basically starting a food and agriculture industry from scratch. Research and outreach at MSU have covered genetics to value-added products and all production needs and challenges between. An overview of the spectrum of studies with specific focus-in on a few of the most impactful and unique outcomes will be shared; including concepts to see the quality inside a commodity having a highly thick peel! The relationships between MSU and chestnut industry stakeholders have been the driving force, as well as backbone, of a majority of the programming and has been a model of the Land Grant system as historically founded.

Bio: Daniel (Dan) Guyer is a Professor Emeritus of Biosystems and Agricultural Engineering at Michigan State University where he was on

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PURCHASE YOUR COPY OF AN UPDATED NNGA ANNUAL REPORTS THUMB DRIVE

(1910 THROUGH 2025)

In 2020, the NNGA had all the *Annual Reports of the Northern Nut Growers Association* from 1910 to 2019 scanned and digitized. All reports were then combined into a single readable PDF that was copied to a thumb drive as a fund-raiser. Searching for the occurrences of a word or string of words in a single large PDF was slow even when transferred to one's own computer.

Thanks to advancements in AI, Optical Caracter Recognition (OCR) has improved dramatically in the last five years. The original scans have been enhanced and digitized again, to reveal better recognition of individual characters, resulting in more comprehensive searches. Current *Annual Reports* are now included in our quarterly *Nutshell* newsletter. These *Annual Reports* have also been incorporated into the new thumb drive up through the summer of 2025.

Updated thumb drives will be available at the 2025 conference for 100 dollars each.

faculty for 34 years after his graduate programming at Purdue University. His core academic focus has been in the domain of machine vision and optics for automated sensing applied in the agricultural realm, and more specifically with electronic evaluation of commodity internal defects and quality. He began working with chestnuts with Dr. Dennis Fulbright in 2000, primarily in postharvest handling and processing and helped in bringing the chestnut peeling line to Michigan. He has since been involved in harvesting as well as in general with several other chestnut needs, challenges and projects in an effort to advance the potential of a commercial chestnut industry. While "primarily retired" he continues in the administrative and support role as the Coordinator of the MSU Rogers Reserve and the related endowment and programming of the facility. He also remains as the MSU liaison to three chestnut/nut industry stakeholder groups…all so he can stay connected a bit, continue to learn, and most importantly, eat the best chestnuts year-round!

SARAH HASTINGS

The Two-Story Farm: Regional Visions of Nut Tree Agriculture United States, 1900–1940

Abstract: This paper examines how nut trees functioned as infrastructural elements within early twentieth-century regional planning efforts. In Michigan, NNGA members helped catalyze roadside planting schemes—most notably through the work of Senator Harvey Penney and NNGA president William Linton—that envisioned public highways as ecological corridors and civic test sites for perennial agriculture. In a separate but related effort, John Hershey's leadership of the Tennessee Valley Authority's tree crop program framed nut trees as instruments of land restoration and rural regeneration within a federally funded planning laboratory. Both initiatives used public space to embed long-term, decentralized models of land stewardship into the built environment. Yet these visions often conflicted with the technocratic priorities of emerging state agencies, which increasingly favored efficiency, centralization, and short-term productivity. By situating nut trees within the histories of infrastructure, ecological time, and rural reform, this paper recovers a planning ethos grounded in biodiversity, regional knowledge, and intergenerational care.

Bio: I am entering my second year as a PhD student in environmental history at Boston University. My research explores late 19th- and early 20th-century American histories of land use, focusing on tree crops, forest products, and the politics of agricultural planning. I am particularly interested in how perennial crops like nuts were framed as tools for regional reform and ecological infrastructure. My broader interests include the histories of paper, pulp, and packaging, and how rural landscapes were shaped by both industrial ambitions and conservationist ideals. Outside of academia, I manage an urban farm, a role that continually informs my approach to historical inquiry and ecological practice. Get in touch if you share interests, want to learn more, or have something to add.

ELSPETH HAY

Feed Us with Trees: Humans, Nuts, and the Future of Food

Abstract: How would you like to live in a world where we produce an abundance of food? Where biodiversity is increasing rather than disappearing? Where more carbon is being stored in the ground than is being pumped out of it? Where dead-zones and topsoil loss are memories, and where diet-related diseases are exceptions, not the norm? This world is not a fantasy: it is the future. All over the northern hemisphere, humans once tended nut trees like oaks, chestnuts, and hazelnuts to produce abundant food, and in doing so we created thriving ecosystems for countless other species. Join Elspeth Hay to learn why it's time to bring these nut trees back as staple crops, more about the work that's already begun, and how in tending our keystone nut trees, we can revitalize our world.

Bio: As a kid, Elspeth wondered: Why don't humans seem to belong in the natural world? Growing up in Maine with two birdwatcher parents, she was well-versed in the ways other species were perfectly adapted to the wild ecosystems of her home state. But the human communities Elspeth knew seemed to be destroying wild places at an ever-increasing rate simply to meet our most basic needs, including the need to eat. In her quest to understand why—and how and if we might change—Elspeth's spent the past 15+ years working as a journalist focused on food and the environment. She is the creator of the Local

Food Report, which has aired weekly on her local NPR station since 2008, and the author *of Feed Us with Trees: Nuts and the Future of Food*, forthcoming July 2025. Elspeth lives on Cape Cod, MA.

JERRY HENKIN

On the 1910 Origin of the NNGA

Abstract: The Northern Nut Growers Association was founded in 1910 by a group of amateur nut and fruit growers, nursery operators, and horticultural scientists. I will read the description of the first NNGA meeting held at what is now the New York Botanical Gardens in the Bronx, NY. It was written in 1926 by Dr. William Champion Deming, a physician from Connecticut, who was the President of the organization at that time. You will not be surprised to learn why this organization was needed – it will probably be the same reason why you are present at this year's conference!

Bio: I have been a member of the NNGA for over 35 years. I was first introduced to nut trees when a neighbor, with whom I gardened in Yonkers, NY, showed me a black walnut tree. I learned about the NNGA and attended my first meeting in Lancaster, Pennsylvania, where Tucker and Gladys Hill "adopted" me. I visited the homes and farms of other nut enthusiasts to learn firsthand. I planted a nut grove in Rockefeller State Park Preserve, and nut trees in colleges and public schools in the Bronx. I currently serve on the NNGA Nominations Committee, the 2025 Annual Conference Planning Committee, and the Board of Directors. For over 25 years, I was the NNGA Librarian until stepping down in 2024.

MAGNI HUSSEIN

Automated Chestnut Sorter for Damage, Pests, and Disease

Abstract: The global chestnut industry reached a market size of $3.7 billion in 2023. In the U.S., the introduction of resilient chestnut hybrids

has spurred growth, but production bottlenecks remain—particularly in postharvest inspection for defects that affect marketability. Common defects include chestnut weevil damage, blossom-end rot, and splits, all of which reduce product quality. Manual inspection is labor-intensive and increasingly impractical due to labor shortages and rising costs. Work will be presented on the development of an automated chestnut sorter designed to address these challenges using state-of-the-art technology. The project had two main objectives: (1) to evaluate the performance of deep learning-based detection algorithms for identifying chestnut weevil damage, blossom-end rot, and splits; and (2) to develop and integrate a vision-based defect detection system and sorting mechanism into an automated chestnut sorter capable of classifying and sorting chestnuts based on defect presence.

Bio: Magni Hussain, Ph.D., is an Assistant Research Professor in Electronics, Instrumentation and Control Systems in the Department of Agricultural and Biological Engineering at the Pennsylvania State University. He received the B.S. and M.S. degrees in electrical engineering in 2016 and 2019, respectively, and the Ph.D. degree in agricultural and biological engineering in 2023 from The Pennsylvania State University. His current research interests are in applying artificial intelligence, robotics, and advanced control systems to agricultural applications including specialty crop production, automated safety technology for agricultural equipment, and dairy cattle welfare. Dr. Hussain has contributed to research on machine vision systems and robotic solutions for tasks such as green fruit thinning and precision chemical thinning in apple orchards. His work also explores bio-inspired optimization algorithms, including the Lévy flight firefly algorithm, for adaptive signal processing and digital filtering.

MELANIE JONES

Issues for Commercial Nut Growers Panelist

Bio: Melanie is the visionary behind United Chestnuts and co-owner of EBB Farms alongside her husband, Brad. It's on this land that their chestnut journey first took root. With a background in business strategy and hands-on chestnut farming experience, Melanie recognized what was missing in the market—and set out to build it. Her leadership blends practical insight with bold, long-term thinking. She's

not just growing chestnuts; she's creating the infrastructure that growers across the country need to succeed. Through advocacy, education, and systems design, Melanie is building a future where chestnut farming is viable, visible, and scalable. Host of Branching Out: Growing Together, the chestnut community podcast, and contributor to the United Chestnuts YouTube channel.

JOHN KELSEY

Starting Out with Trees

Abstract (forum facilitator): Many of the questions a new grower might have will be discussed and hopefully answered, including:

1. What are the advantages of tree crops?
2. What's a tree thinking?
3. Why do fruit and nuts taste better than dirt and potatoes?
4. How can site issues impact fruit and nut species selection?
5. How do I decide on fruit and nut species?
6. How do I decide on fruit and nut cultivars?
7. How do I obtain the best plant material?
8. Can I just plant and come back for the harvest?
9. What about shelf life and storage?

Bio: John Kelsey is a longtime member of the Northern Nut Growers Association with a background in programming, math, and statistics. John is a retired automation engineer and amateur agro-scientist. The Kelseys have been growing various tree species and cultivars on their farm in West Virginia since the 1970s. The one-time side interest of growing fruit and nut trees has become a main interest. Besides the field work, John enjoys tinkering with nut processing equipment, woodworking, and keeping up on the science of tree growing. He collects his own crop and flowering data. John is determined that new growers should not have to endure the same failures that he has suffered through trial-and-error learning. He posts his (and other's)

experiences, good and bad, on his website. The website also has John's guides on making a rocking chair and growing veneer quality black walnut (on your first try).

KEYSTONE TREE CROPS COOPERATIVE

Nut Processors and Cooperative Lunch Meet Up

Abstract: Talking points include: Assessing needs amongst cooperatives and processors, exploring potential areas of collaboration, and sharing more about how KTCC can help regional nut processing through grant money from Pasa Sustainable Agriculture.

KAREN "REN" KLUG

Untapped Potential: Black Walnut Sap Production Characteristics Compared to Sycamore and Sugar Maple

Abstract: Missouri ranks 20th in the US for syrup production but 1st in the US for number of black walnut trees present. While many of these trees are destined for the lumber market, non-veneer quality and inaccessible black walnut trees may provide an opportunity in black walnut syrup, which can sell for eight times the market price of traditional maple syrup. This project seeks to quantify sap yields and preferred sap collection methods of black walnut in comparison to sugar maples and sycamores in Missouri. Additionally, this project is comparing the chemistry of sap between species, investigating bioactive phenolics and types of sugar present throughout a tapping season.

Bio: Ren Klug is a master's student at the Center for Agroforestry at the University of Missouri. She completed her undergraduate degree at the University of Nebraska at Omaha. Prior to moving to Missouri for school, she worked throughout farms and forests in Pennsylvania, cultivating an interest in perennial agriculture, which she hopes to further pursue following the completion of her thesis.

NATE LAWRENCE

Temporal Effects of Chinese Chestnut Cultivation on Soil Health Parameters: A Chronosequence Analysis

Abstract: This collaborative study with chestnut grower Bob Stehli investigated soil health impacts of transitioning from annual cropping to perennial Chinese Chestnut cultivation. Using a chronosequence approach spanning plantings from 1 to 20 years old, we assessed temporal changes in soil health indicators within a single soil unit and slope class, all sharing similar prior management histories. Soil organic carbon ($P<0.05$) and microbial respiration ($P<0.001$) showed significant positive correlations with planting age, indicating steady improvement over two decades. Wet aggregate stability exhibited a potential bimodal distribution—rapidly improving after perennialization before plateauing. Notably, soil carbon sequestration represented approximately one-third of estimated total ecosystem carbon accrual, with enhanced organic matter and greater microbial activity likely enhancing nutrient storage and cycling. We seek to expand this farmer-researcher collaboration by inviting growers with similar woody crop chronosequences to join our research project, and integrate comprehensive tree measurements to quantify whole-ecosystem dynamics. This work demonstrates the potential of perennial woody cropping systems to enhance soil health parameters while providing agricultural production and ecosystem services.

Bio: Nate Lawrence leads ecosystem research initiatives at the Savanna Institute, investigating how agroforestry affects climate, water quality, and biodiversity to drive wider adoption of trees on farms. His work includes collaborative on-farm studies across the Midwest, where he partners with innovative farmers. These partnerships quantify the ecological benefits of agroforestry, with particular emphasis on soil health, climate, and water impacts. He holds a PhD in Ecology and Evolutionary Biology from Iowa State University, where he specialized in soil greenhouse gas and nutrient dynamics in agricultural landscapes. Nate's research approach bridges scientific rigor with practical applications, ensuring findings are accessible to farmers and land managers who can implement these practices on the ground.

DAN LEFEVER

Growing Chestnuts Organically

Bio (Panelist): Dan Lefever grew up on a homestead in SE PA that was started by his father, who went "back to the land", immediately following World War II. His father read Jay Russell Smith's tree crops and began planting nut trees, and also got involved in organic growing as well. Dan taught himself grafting, as a teenager, by finding a copy of The Grafters Handbook in his high school library. He got involved with NNGA in 1975 by reading a notice of John Gordon's Northern pecan seed distribution program in Mother Earth News; and has been in member ever since. Got a package of the pecan seed which he planted, grew, and transplanted 8 trees in 1981. They are now mature trees, 40 years old, and producing nuts, with one of them being superior. He is currently working with small mature chestnut plantings, on other people's properties. He has also been a member of NAFEX since 1976. Dan has worked with organic horticulture 60 plus years. In the last 5 years he has shifted his organic system technique to utilizing the AdvancingEcoAgriculture.com paradigm; a quantum leap above organic. In the process of attempting to develop a least toxic strategy to control chestnut weevil he found that using increased boron and foliar nutrition is reducing chestnut weevil and plum curculio damage, and should work for pecan weevil also. Also, this treatment reduces the chestnut anthracnose incidence to less than 5%. He has had success with this but it is not totally proven. He will explain how he is going about this, and the basics of the AEA paradigm.

ERIN LIZOTTE

Conference Planning Committee Member

Bio: Erin Lizotte is the Integrated Pest Management Coordinator and Senior Statewide Educator at Michigan State University. Erin provides leadership and focus for integrated pest management education across Michigan through the procurement of grant funding and delivery of educational materials and programming. She provides technical IPM support to chestnut and hop growers.

YUZHEN LU

Detection of On-ground Chestnuts Using Artificial Intelligence Towards Automated Picking

Abstract: Chestnut production in the United States is dominated by small-acreage producers. There is a pressing need to develop small-farm-appropriate chestnut harvesting technology. An automatic chestnut picker powered by machine vision and artificial intelligence (AI) offers a potential, practically viable solution for small-scale chestnut producers. Automated picking requires robust object detection systems to locate on-ground chestnuts accurately, which is challenged by a myriad of factors (e.g., natural variabilities in outdoor environments including uneven terrain, varying lighting conditions, and the presence of occlusions such as grass and debris). This study presents an AI-based approach to detect on-ground chestnuts under variable field conditions, laying the groundwork for automated picking strategies. State-of-the-art object detectors, including YOLOv11 and real-time detection transformers (RT-DETRs), were evaluated for chestnut detection. A custom dataset of field-acquired chestnut images was curated for model development, which consists of 319 high -resolution images (3024×4032) with 6529 bounding box annotations for individual chestnuts. YOLOv11x achieved a mAP@50 of 96.7% with an inference time of 14.5 ms, while the RT-DETR-v2 achieved a mAP@50 of 93.5% with an inference time of 32.8 ms. These results have shown the promise of AI-based models in detecting on-ground chestnuts under challenging environments, paving the way for developing an integrated automatic chestnut-picking system in future work.

Bio: Dr. Yuzhen Lu is an Assistant Professor in the Department of Biosystems & Agricultural Engineering at Michigan State University. His research focuses on the development and deployment of enabling technologies through optical sensing, computer vision, artificial intelligence (AI), and automation/robotics for smart agriculture and food systems, especially addressing practical challenges facing specialty crop industries.

JAMES R. MCKENNA

Screening of Transgenic American OxO Chestnut in Indiana

Abstract: In my former role as operational tree breeder for the U.S. Forest Service Northern Research Station at Purdue University in West Lafayette, Indiana, I began breeding Indiana American chestnut trees with D54 transgenic pollen containing the OxO gene (oxalic acid oxidase) developed at the State University of New York, Environmental Science and Forestry (SUNY-ESF) in 2018. The first crosses were made on grafted pure American chestnut clones in a seed orchard over three consecutive years - 2019, 2020, and 2021. In partnership with the Purdue Department of Forestry and Natural Resources Department (FNR) Hardwood Tree Improvement and Regeneration Center (HTIRC), I continue screening and evaluating the chestnut blight resistance of these crosses. We presented our first year's results at the last two NNGA Annual Conferences. This year's talk and poster will present the results of our 2020 crosses and highlight our most promising older selections. In terms of nut tree breeding, blight resistance of American chestnut remains one of the grandest goals. Chestnut blight is one of the most famous ecological disasters caused by an exotic invasive pathogen in North America. I will present both a poster and an oral presentation on the results of inoculating these seedlings with chestnut blight and their subsequent growth and blight resistance. However there has been more controversy than field data of these transgenic trees. The public needs to know that this work is still in its infancy. SUNY-EFS showcased their work last year and continue developing better transgenic lines and expand their germplasm. In Indiana, we have found significant differences in blight resistance and growth. While not a "silver bullet" that confers 100% blight "immunity," there is a percentage of each family that has resisted blight and lives today. Some families outperform others in resistance and growth. As such, this method offers the ability to conserve pure American germplasm for future breeding and may hold promise for future forest restoration.

Bio: Today, James R. McKenna is the CEO and Founder of a consulting firm, *A Breed Above Timber*, that offers genetic resource management, custom propagation, orchard and reforestation designs, and educational programs. Among a trusted network of landowners, nurseries and foresters, scientists, farmers and breeders, I offer select seed from known genotypes and provenances. I am proud to currently be NNGA's Vice President. I also serve as an officer on several other non-profit tree groups such as the Indiana Nut & Fruit Growers Association (INFGA), the Indiana Chapter of the American Chestnut Foundation (IN-TACF), and the Walnut Council (WC). My research background has focused on breeding disease resistance in trees.

IAN MCSWEENEY

The Farmers Land Trust

Abstract: As landowners across the country grapple with the struggles and challenges of land transitions and succession the next generation struggles with land access and tenure. Now, an unprecedented crisis and opportunity is before us as one-third of all farmland in the United States (roughly 400,000,000 acres) transitions ownership over the 15 years ahead of us. My presentation will introduce The Farmers Land Trust and share the innovative, community-centered, collaborative land -holding Farmland Commons model (thefarmerslandtrust.org/about/process). Highlights of the Farmland Commons developing around the country will be shared along with broad framing of the model and how it addresses farmland protection, transition, ownership, access and tenure for regenerative food production and stewardship and as a model to help foster a relationship with the land that centers care for Earth and communities.

Bio: Ian is the Co-Founder and Co-Executive Director of The Farmers Land Trust, a non-profit organization founded in 2004. He has been a social worker, promoting outdoor experienced-based education; a real estate broker; and a consultant focused on prioritizing conservation, agriculture, and community within land development. Ian has been an active volunteer board member to local, regional, and national organizations. He comes from generations of colonists, immigrants, refugees, abolitionists, and activists from southeastern Massachusetts,

and is committed to bringing about innovations to holistically evolve farmland conservation, equity, secure and affordable access and tenure to build community resilience ensuring regenerative, diversified food production that benefits soil, human, and community health.

CARMEN MEDINA-MORA

Impacts of Pollination Biology on Chestnut Fruit Quality

Abstract: Prolific production of fruit (nut) in the tree species in the genus Castanea relies on the efficacy of pollination, fertilization, and embryo development. *Castanea*, a monoecious tree, consists of male (staminate) flowers borne in spikes or unisexual catkin and female (pistillate) flowers borne at the basal end of bisexual catkins on an individual tree. During pollination, wind-dispersed pollen lands on the stigma at the axial end of the pistillate flowers. The success of pollination and reproduction is primarily dependent on the synchrony of pollen shed and flower maturity among the species and the genotype of the species that cross-pollinate. Upon fertilization, the development of the embryo and endosperm occurs inside a spiny involucre or bur, which falls fully closed to the ground or opens releasing the nuts to the ground depending on the species. Of the 12-known species worldwide, *C. mollissima* (Chinese chestnut), *C. sativa* (European chestnut), *C. crenata* (Japanese chestnut) and their hybrids are of particularly importance due to the commercialization of the fruit. Productivity and profitability of commercial chestnut orchards are hampered by inherent biological processes, environmental conditions, and anthropogenic activities. Additionally, the quality of the fruit can be affected by biotic factors (fungal pathogens and pests) and non-biotic factors such as the genetics of the pollen and the flowers. One example of a non-biotic factor affecting nut quality is internal kernel breakdown (IKB). With this review, we will summarize our understanding of the impact of pollen source as a result of tree selection on fruit quality.

Bio: Dr. Medina-Mora is a former research assistant, laboratory technician, and Michigan State University alumna. Her interests involve fungal pathogens of forest and urban trees, vegetables and

ornamentals, where she can apply molecular biology techniques to detect, identify, and manage diseases. She attained her BS degree in Microbiology from the University of Puerto Rico. As an undergraduate, she attended the MSU-REU program where she discovered how to integrate three of her passions: microbiology, plants, and technology. She received her MS and PhD at MSU, where she worked on chestnut flower phenology, the identification of chestnut cultivars and hybrids using microsatellites, and the etiology of bird's eye lesions on tomatoes under the mentorship of late Dr. Dennis W. Fulbright. In support of Dr. Fulbright's passion and hers, she joined and became the president of Chestnut Orchard Solutions; a consulting company for the establishment, maintenance, and harvest of chestnut orchards in Michigan.

DEBBIE MILKS

Organic Chestnut Production in Kansas

Abstract (Panelist): Debbie Milks, with partner Charles NovoGradac, have been planting, maintaining, producing, and selling from a 20-acre organic tree crop project in eastern Kansas since 1995. Their principal crop, fresh chestnuts, are hand gathered, sorted, inspected and refrigerated on-farm and sold fresh direct to consumer from the farm and by internet orders, and also sold through local and regional grocers, and natural food, specialty, and ethnic market stores. The farm also has some pecans, various walnuts, pawpaws, and other fruits and berries on trials. Chestnut Charlie's Organic Tree Crops has been certified organic every year beginning 1998.

Bio: Deborah Milks is the co-owner of Chestnut Charlie's. She is a CPA with a career in accounting systems with no background or education in agriculture. But after 20 years of learning from the NNGA, CGA, and other growers plus her own agricultural missteps, she is able to offer tips and techniques on chestnut marketing challenges and successes. She has served as NNGA treasurer since 2020.

AMY MILLER

Diversified Processing of Chestnuts and Acorns: Preliminary Findings

Bio: Amy Miller is the manager of Route 9 Cooperative in Ohio and has completed her doctorate in Plant Pathology at the Ohio State University studying nut and fruit diseases. She is committed to specialty crops research and continuing the family orchard legacy while focusing on long-term environmental and economic sustainability.

GREG MILLER

Growing Better Chestnuts Forum

Bio: Since earning a Ph.D. in Forestry (tree breeding and genetics) in 1983 from Iowa State University, Greg has been a full-time commercial chestnut grower in Carrollton, Ohio, having converted his father's hobby farm into an orchard and nursery operation, Empire Chestnut Company. In 2010, Greg and four other chestnut growers formed the Route 9 Cooperative, an agricultural cooperative, to pack and market their chestnut crops. Greg currently serves as Immediate Past President after having served as NNGA President for five years. He currently chairs the Awards Committee and the Research Grants Committee.

BILL NASH

Nash Nurseries: Past, Present, and Future

Abstract: Nash Nurseries is a historic, 200-acre family-owned nursery in Owosso, Michigan. Established in 1860, the property has evolved from traditional farming into a diverse horticultural enterprise under six generations of the Nash family. The nursery grows thousands of plant species, including ornamental trees, shrubs, perennials, fruit and nut

trees, and specialty crops like chestnuts and pawpaws for landscaping and orchard projects across Michigan and the Great Lakes region. The farm's iconic 19th-century barns and property reflect its deep roots in Michigan agriculture while supporting innovative projects such as upcoming tissue culture propagation and advancement of sustainable agroforestry. Nash Nurseries is dedicated to "Making your space a more beautiful place."

Bio: Bill Nash is a pioneering figure in nut horticulture and with his son Jon, owner of Nash Nurseries in Owosso, Michigan. Bill transformed Nash Nurseries from traditional farming into a thriving horticultural enterprise, Bill has devoted decades to advancing nut growing in Michigan and beyond. A past president of the Northern Nut Growers Association, and the Michigan Fruit & Nut Growers, Bill is also a founding member of Chestnut Growers Inc., the state's chestnut cooperative and the Midwest Chestnut Producers Council. Alongside his late friend Dr. Dennis Fulbright, Bill was one of the earliest advocates for commercial chestnut cultivation in Michigan. His close ties to Michigan State University have fueled extensive travels across the country and around the world to study and promote nut research, propagation, and commercialization. Bill's lifelong dedication and leadership have left a lasting impact on the nut-growing community, shaping both industry practices and the future of nut crops in the region.

JON NASH

Conference Co-Chair

Abstract: See abstract for Bill Nash.

Bio: Jon Nash is a sixth-generation horticulturist and owner of Nash Nurseries, a 200-acre family nursery in Michigan established in 1860. Growing up surrounded by horticulture, Jon developed a love for working with all types of plants and now leads orchard and landscape design and build projects throughout Michigan and the Great Lakes region, drawing on the hundreds of species grown at Nash Nurseries. He is also a founder of Treeborn Inc., which focuses on value-added nut & fruit products such as chestnut flour, roasted chestnut chips, and pawpaw

puree. Jon's current projects include advancing tissue culture propagation for chestnuts, pawpaws, and hazelnuts, as well as collaborating with Michigan State University and industry partners to promote agroforestry and sustainable nut production. Jon is an active member of the Northern Nut Growers Association, Chestnut Growers of America, Michigan Nursery & Landscape Association, and Michigan Garden Clubs.

MAYA NIESZ KUTSCH

Update on Maximum Pollination Distance of Transgenic Chestnuts

Abstract: The American chestnut, *Castanea dentata*, was a keystone species across the eastern United States that was rapidly wiped out in the first half of the 20th century due to chestnut blight, caused by an invasive fungus (*Cryphonectria parasitica*). However, restoration is now on the horizon, and we must understand the niche of the American chestnut as best we can to optimize this restoration. My research seeks to understand the effective pollination distance of the American chestnut, to inform restoration planting distances to optimize pollination, and distances needed for pollen exclusion. There are anecdotal reports of effective pollination distance, mostly derived from orchards, but there is very limited data available regarding pollination distance in natural settings. In order to test this in more detail, a permitted site has been established with a central plot of transgenic American chestnuts and spokes of male-sterile European chestnut hybrids. As the central plot is the only place from which viable chestnut pollen can originate, we will let the trees naturally release their pollen and observe the distances at which we find fertilized nuts on the hybrid trees. From this we will be able to estimate the maximum range viable transgenic American chestnut pollen can travel. This will help inform intended American chestnut restoration efforts in the wild, and due to pollen similarities across *Castanea* species, should also be applicable to Chinese and hybrid chestnuts in managed settings.

Bio: Maya is a second-year master's student at SUNY ESF, researching effective pollination distance and bark insulation qualities of American chestnuts within the American Chestnut Research and Restoration Project. Before she came to SUNY ESF, she graduated with a

bachelor's degree in botany with honors from Kent State University. In her free time, she enjoys crocheting, painting, and spending time with the cats (Lantern and Mushroom) and spending time outdoors with the dog (Georgia).

CHARLES NOVOGRADAC

Organic Chestnut Production in Kansas

Abstract (Panelist): Charles NovoGradac, with partner Deborah Milks, have been planting, maintaining, producing, and selling from a 20-acre organic tree crop project in eastern Kansas since 1995. Their principal crop, fresh chestnuts, are hand gathered, sorted, inspected and refrigerated on-farm and sold fresh direct to consumer from the farm and by internet orders, and also sold through local and regional grocers, and natural food, specialty, and ethnic market stores. The farm also has some pecans, various walnuts, pawpaws, and other fruits and berries on trials. Chestnut Charlie's Organic Tree Crops has been certified organic every year beginning 1998.

Bio: Charles NovoGradac is a (non-farmer) retired professional who has planted and managed since 1995, a USDA certified organic farm with chestnuts, walnuts, and pecans. The farm is on 20 acres in Lawrence, Kansas (near Kansas City), and consists of roughly 1500 nut trees. Together with his partner, Deborah Milks, Charles does business as Chestnut Charlie's Organic Tree Crops selling chestnuts both wholesale and to grocery stores and direct to consumers on the farm and on the internet.

MJ OVIATT

Hazel – More Than a Nut: Creating Hedgerows with Hazel and Other Native Woody Species

After a transformative 3-week trip to Southwest England last winter, I became obsessed with the art and culture of hedgerows and

hedgelaying. Hedgelaying is an ancient agricultural practice, originally done to create stock-proof living fences on the British Isles. While this practice is not common in North America, it is a unique agroforestry practice that could benefit our landscapes in a variety of ways. In this presentation, learn how to establish a new hedgerow and choose appropriate species for your landscape. We will go over the basic principles of laying a hedge, the correct tools for the job, the various regional styles, and the benefits that come from planting and maintaining hedgerows. If you are looking to do something new with an old row of hazelnuts, this is the presentation for you!

Bio: Mary Jane (MJ) Oviatt is a NNGA Board Member and professional agroforestry educator in Illinois. She has professional experience in vegetable, cut-flower and tree crop production, with a keen interest in perennial-based agriculture and environmental restoration. Her favorite nut to eat is hazelnut, and her favorite nut tree is the American Chestnut. She plans to expand her work in hedgelaying in the US in the coming years.

CAROLYN PETTIT

Eldering and Regenerative Agriculture

Abstract: Amid the tremendous changes taking place in agriculture at this time, the needs of aging landowners and the yearning of young farmers for access to land continue to create opportunities and challenges for our families and communities. “Eldering” is a word that originated within the Quaker tradition to describe the religious training of young people by elders. Today, the word is being reimagined by younger generations seeking mentoring and support from more experienced older people, especially in the area of regenerative agricultural practices. The skills and knowledge gained by caring for perennial plants and animals over time is not something easily captured or disseminated by modern technology. How can aging people meaningfully share their lived experience with young people, and what might they ask in return? This discussion will outline ideas leading thinkers in regenerative agriculture have been gathering on this topic.

Bio: Carolyn Pettit is the Client Engagement Coordinator for Canopy Farm Management, an agroforestry services company serving

alongside Savanna Institute in the upper Midwest. Carolyn has a Master's of Science in Education, and is a lifelong servant of trees and people with a background in community counseling and education, Costarican ecotourism and reforestation, small business ownership (bicycles!), program development, and grant writing. In her spare time, Carolyn enjoys sharing the locally grown foods of the Driftless region.

TANNER RANKIN

Chestnut Curious: Understanding the Establishment and Management Practices of Chestnut Growers in the Eastern and Midwestern U.S.

Abstract: Chestnut is a rapidly growing tree crop industry in the U.S., but the industry is still young in comparison to other horticultural crops. As a PhD student at the University of Missouri, I am conducting participatory social science research with growers about the practices they use and their perceptions of these practices through interviews, site visits, and surveys. In addition, I am establishing experiments to examine the effects of different practices that growers are concerned about. The first experiment will focus on the effects of different tree protection methods, including fencing, shelters, and wire cages, on tree growth and soil health. A second experiment will examine ground covers that can lower costs for growers through nitrogen fixation and biomass production for mulch while existing within current labor regiments. My talk will explain my ongoing research to give growers an opportunity to become involved and help shape this research as it progresses to further address grower needs.

Bio: Tanner is from Berks County, PA and studied Environmental Engineering and Environmental Science at Vanderbilt University. After graduating in 2017, he served as a Peace Corps Volunteer in The Gambia, West Africa, where he fell in love with agroforestry. He worked on several projects, including growing native trees for reforestation, establishing fruit bearing trees for food security, and designing living fences to protect trees from livestock. After returning to the U.S. during the COVID pandemic, he hiked part of the Appalachian Trail and road tripped across the country before taking a job with the National Science Foundation. His passion for trees and

agriculture drew him to return to school to learn more about agroforestry in the U.S., so he moved to the University of Missouri to begin a degree in agroforestry. He is currently a PhD student in Dr. Ron Revord's lab performing social science and field research related to chestnuts.

LEE REICH

Success with Hazelnuts

Abstract: For the past 25+ years I have been growing hazelnuts (aka filberts), starting out with the pure native species and then moving on to various hybrids. This presentation will recount my experiences with this tasty nut, the various species I have trialed, and my training and pruning methods. Also, problems — specifically two — squirrels and eastern filbert blight, and how I kept them under control. My planting is a relatively small planting, which provides hazelnuts for home use and for sharing (not with squirrels, though). I will also cover harvest, curing, and shelling.

Bio: Lee Reich, PhD, is a scientist, farmdener (farmer/gardener hybrid), and author of numerous magazine and newspaper articles and nine books about gardening. After working in ag research for the USDA and then Cornell University, he turned to writing, lecturing, and consulting. In addition to providing an almost year 'round harvest of fruits and vegetables for home use. His farmden provides a testing ground for innovative techniques in soil care, pruning, and growing fruits and vegetables, and provides an educational site for workshops and training.

RON REVORD

Tree Nut Research Updates from the University of Missouri Center for Agroforestry

Abstract: This talk will offer updates from the University of Missouri Center for Agroforestry's breeding programs. While chestnut will be the talk's emphasis, statuses for the black walnut and hazelnut

programs will be briefly shared including details on prioritized objectives, new selections, and a recent cultivar release. Discussion on chestnuts will share (i) experimental data that supports our cultivar recommendations; (ii) new experimental plans to improve our understanding of cultivar performance, and (iii) early efforts to scale the availability of cultivars through tissue culture and scion blocks. The role of seedlings for on-farm breeding will also be discussed, touching on scale to meet breeding goals, selection priorities, and the basis for a cultivar release.

Bio: Dr. Revord is an Associate Professor and the Director of the University of Missouri Center for Agroforestry. He joined UMCA in 2019 as the lead tree nut breeder after completing his doctoral research on hazelnut at the University of Illinois. At UMCA, he's focused on utilizing the tree nut repositories at UMCA to build systematic field breeding programs for chestnut, eastern black walnut, and elderberry. His lab also collaborates with the Hybrid Hazelnut Consortium for hazelnut improvement.

KATHLEEN RHOADES

What DNA Sequencing Can Tell Us About American Persimmon Cultivars

Abstract: DNA sequencing has revolutionized the field of plant breeding over the last 40 years, allowing researchers to identify causal genes for desirable traits including fruit size, sugar content, color, protein content, and resistance to disease pathogens. As part of the American persimmon breeding program at the Savanna Institute, we are working with collaborators on the first-ever *Diospyros virginiana* reference genome, the DNA sequence of Early Golden. We are also sequencing other American persimmon cultivars to ascertain how inter-related common persimmon cultivars are, to verify pedigrees, and to begin the process of identifying genes that control fruit quality traits such as size, flavor, and astringency. This initial DNA sequencing panel of 39 trees lays the groundwork for the future of advanced genomics and breeding work in American persimmon.

Bio: Kathleen Rhoades is the American persimmon and black locust breeder at the Savanna Institute, a non-profit organization dedicated to

enabling widespread agroforestry practices in the Midwest. She is originally from the Finger Lakes region of New York, and grew up on a dairy goat farm. Kathleen earned her B.S. in Biology from Cornell University and her Ph.D. in Plant Breeding, Genetics, and Biotechnology from Michigan State University. Her dissertation research at MSU was focused on the genomic variation of tart cherry (*Prunus cerasus*). At the Savanna Institute she is developing improved American persimmon cultivars for both silvopasture and human consumption. Outside of work Kathleen has been keeping honeybees for over a decade.

JOSEPH C. SCHEERENS

The Efficacy of Under-tree Netting as a Cultural Practice for Harvesting and Marketing High-quality Pawpaw Fruit

Abstract: See abstract for first author Sarah E. Francino.

Bio: Joseph Scheerens earned a BS in Agriculture from the University of Arizona and advanced degrees from the University of Arizona and the University of Wisconsin. He currently holds the position of Professor in the Department of Horticulture and Crop Science at The Ohio State University. His academic career spanning 50 years has focused on research outlining the genetic, cultural, and environmental factors that affect quality and health benefits in a variety of fruit (strawberries, blueberries, red and black raspberries, elderberries, apples, and grapes), vegetable (lettuce, peppers, cabbage, carrots, onions, and legumes), and potential domesticate (Cornelian cherry dogwood, feral cucurbits, and burdock) crops. Most recently his research efforts have focused on the quality of pawpaw fruit as affected by variety and production/processing parameters

ROGER SMITH

Issues for Commercial Nut Growers Forum

Abstract (forum facilitator): I am the Owner of Prairie Grove Chestnut Growers based in Columbus Junction, Iowa, started in 2013. We are a chestnut broker that provides a market service for chestnut farmers. We are currently buying chestnuts in 7 states. We process, sort, bag, and refrigerate our chestnuts for customers in 47 states and Canada. We provide an online website outlining our standards and pricing for shipment. We deliver in our Midwest markets multiple times a week in late September through the 10th of November. We also provide out-the-door sales for our local customers. We bag in 10, 20, and 25 lb. bags. In 2024 we started the Prairie Grove Chestnut Growers Association for our current growers as well as for new orchards that don't have production at this time. The purpose of this Association is to inform and provide education on areas of interest to the growers. It is also a forum to publish experiences and share how our growers are handling the challenges of growing and maintaining an orchard. We started a Hall of Fame in November 2024. Nominees can be a grower, a customer, or someone connected to the industry that helps our growers. The purpose is to honor a person each year that has demonstrated a willingness to assist our growers and expand our market.

Bio: Roger Smith is the owner of Prairie Grove Chestnut Growers based in Columbus Junction, Iowa.

GUO-QING SONG

Revitalizing the Chestnut Industry: Leveraging Elite Genotypes, Micropropagation, and Precision Breeding

Abstract: Chestnuts (*Castanea* spp.) are valued for both their nuts and timber. To restore the chestnut industry, key strategies include identifying superior genotypes, optimizing micropropagation, and implementing advanced breeding techniques. Since 2017, Michigan State University's Plant Biotechnology Resource and Outreach Center (PBROC) has been at the forefront of chestnut micropropagation and regeneration research. We have developed reliable and efficient micropropagation systems for chestnut genotypes by optimizing culture initiation, shoot proliferation, rooting, and acclimation protocols. Our research demonstrates that multiple factors, including basal culture

media, plant growth regulators, and cultivation methods, play a critical role in successful micropropagation. Additionally, we have established a shoot regeneration system using leaf explants, providing a foundation for future gene editing applications. In this presentation, we highlight our advancements in chestnut micropropagation and share key insights from our work. We also discuss the potential of new biotechnological tools (NBTs) to further enhance chestnut improvement.

Bio: Dr. Guo-qing Song is a Professor in the Department of Horticulture at Michigan State University, with over two decades of experience in plant biotechnology. His expertise includes the successful genetic transformation of 30 plant species, underscoring his proficiency in advancing crop improvement. Dr. Song's research focuses on innovating biotechnological tools for specialty crops, employing cutting-edge methods such as intragenic manipulation, transgrafting, FAST-TRACK breeding, and MADS-box K-domain technology to boost yield and resilience. Currently, he prioritizes gene editing to enhance desirable traits and strengthen stress tolerance in horticultural plants, aligning his work with sustainable agricultural practices and global food security challenges.

DOUGLAS SPANGLER

Beginner Nut Grower Forum

Abstract: See John Kelsey's abstract for forum abstract.

Bio: Douglas Spangler is the NNGA Librarian. He lives in Michigan with his wife and family, and he keeps busy planting, tending, and learning about nut trees. He joined NNGA in 2022, when he decided to try his hand at planting and breeding Hazelnuts. Some 300 trees later, he is still adding new cultivars of hazelnuts to his plantings along with other nut trees and paw paws. As a teenager in the '80s, Douglas planted a dozen Persian walnuts along with some hazelnuts, black walnuts, and two seedling pecans on his family property. The pecans (as yet no filled nuts) and the black walnuts survived, but most of the Persian walnuts and all of the hazelnuts died. From this modest planting, he learned that information about cultivars and tree culture is essential for success with nut trees. Don't hesitate to contact him if you are looking for an article or book from the NNGA Library!

ALEX TANKE

Hickory Processing Developments

Abstract: See abstract for first author Levi Geyer.

Bio: Alex Tanke is a subsistence farmer, nurseryman, and nut explorer with a focus on hybrid hickory. He also works extensively with honey locust, black walnut, American persimmon and is very interested in red and black oak. His life goal is to make hybrid hickory a subsistence crop that is efficient enough in all aspects to be accessible as a staple for any farmer or consumer. He likes eating persimmon leather and hickory nuts more than anything else.

RON TANNER

Build Your Export Sales with USDA Funding

The American nut industry is recognized around the world for the quality of its products. Tree nuts are the third largest U.S. export, totaling $8.2 billion in 2023. Global importers buy U.S. tree nuts for snacking and confectionary needs. Additionally, tree nuts are commonly used as ingredients and in baked goods. Explore whether your company is ready to enter the export market, and the commitment that you need to make to start or build your international business. We will also address where the opportunities are geographically and potential channels of trade. Finally, we will demonstrate how USDA and the State Regional Trade Groups such as Food Export Midwest/Northeast can help fund your export initiative through the Branded Program, which can pay for 50% of your international marketing expenses, including trade shows, buyers missions, labeling translation and more.

Bio: Ron Tanner is president of Tanner Food Group, a food consultancy focused on international trade, industry preparedness and

regulatory activities. He is also the Partnership Coordinator for Food Export Midwest/Northeast. Ron is a former executive team member of the Specialty Food Association, the leading trade association for the $207-billion specialty food industry. His last role after a 33-year career was Vice President, Education, Content and Advocacy. Ron is a frequent speaker on the U.S. specialty food market and food trends and has presented at key national and international industry conferences and events, including FoodEx Japan, Anuga, CIBUS, the Fancy Food Shows, the American Craft Spirits Conference, the American Cheese Society Conference and more. As Partnership Coordinator for Food Export Midwest/Northeast, Ron brings export education and knowledge to industry associations through presentations and partnerships so they can help their members build sales and profits through exporting.

AUBREY TECKAM AND COREY LUNDEN

Exiting the Breeding Pipeline: Meeting Demand for Commercial Hazelnut Cultivars in the Eastern U.S.

Abstract: Eastern Filbert Blight (EFB) caused by the fungus *Anisogramma anomala* is the limiting factor to US hazelnut production. The European hazelnut (*Corylus avellana*) is highly susceptible to EFB but produces superior nuts to EFB-resistant American hazelnut (*Corylus americana*). This issue traditionally limited domestic production to the west coast, outside the native range of the American hazelnut – the endemic host of *A. anomala*. However, EFB was introduced to Washington in the 1960s, spreading to the main production region of Oregon, resulting in dead orchards, increased management costs, and low yields. In the decades since, Oregon State University (OSU) released *C. avellana* cultivars with single-gene EFB resistance from the cultivar 'Gasaway'. Breeding efforts at Rutgers University have led to the release of *C. avellana* cultivars (in 2021) with quantitative resistance (QR) to EFB and selections from crosses of hybrid hazelnuts (*C. avellana* x *C. americana*). Unlike single-gene resistance, trees with QR can heal cankers and lesions while maintaining high yields. Observations over a 10-year period at Rutgers saw trees with QR remaining nearly EFB-free, while the 'Gasaway' gene has broken down, showing the durability of quantitative resistance.

Hazelnuts are monecious, wind-pollinated, and self-incompatible, requiring early, mid, and late season pollenizer cultivars to be planted in orchards. Recent Rutgers cultivar releases need more diverse pollenizers with a variety of S-alleles, durable EFB resistance, and prolific pollen shed. Breeding for pollenizers with cold hardy catkins and diverse EFB resistance will allow production to expand to the midwestern US and USDA hardiness zones 5 and 6. This project will evaluate over 80 late-stage breeding selections over an 8-year period in a replicated trial in New Franklin, MO. Traits of interest include tree health and characteristics, pest and disease response, nut quality, yield consistency, and bloom phenology. The goals of this project are to release the first hazelnut cultivar for Missouri and pollenizers with compatible S-alleles and bloom phenology for Rutgers releases. This will allow the range of hazelnut cultivation in the US to expand and provide breeding programs with an enhanced, diverse pool of breeding parents.

Bio: I am a graduate research assistant in Dr. Ron Revord's lab at the University of Missouri Center for Agroforestry. My thesis research is focused on hybrid hazelnut breeding and I assist in the lab's other breeding programs for chestnut, black walnut, and elderberry.

AMY TWOHIG

Understanding the Role of Insect Vectors in the Oak Wilt Disease Cycle & Impacts to Chestnut Restoration

Abstract: Oak wilt is a vascular disease caused by the fungus *Bretziella fagacearum* that has been identified on multiple species in the Fagaceae family. The disease has been proven lethal to a variety of chestnut species through a series of inoculations; however, these experiments remove the insect vector component, leaving questions about vector transmission unanswered. To better understand the role of insect vectors in the oak wilt disease cycle, this research will determine what wound types are most vulnerable to vector inhabitation, and what fungal pathogens are being transported by these vectors. This will be accomplished by trapping beetles on a

combination of intentional wounds and cankers caused by chestnut blight, and sampling them for any fungal spores. Understanding the interactions between oak wilt vectors on non-oak species will help organizations such as the NYSDEC implement successful mitigation strategies for future oak wilt outbreaks and will further aid restorative efforts for both chestnuts and oaks.

Bio: Amy is a graduate student at SUNY College of Environmental Science and Forestry in Syracuse, New York. Originally from Ireland, she holds a Bachelor of Science degree in Botany from the University of Maine, and is now a Master's student in Environmental Biology with a concentration in Forest Pathology. Her research focuses largely on vector-pathogen complexes of plant diseases, specifically investigating oak wilt disease outbreaks on chestnut trees. She is passionate about conservation and restoration, as well as interpretive science and public outreach. Outside of academia, she is a figure skater, an avid crossword solver, and a proud tarantula parent.

SARA TYLER

Black Walnut Oil Pressing with a Hydraulic Press

Abstract: The use of a hydraulic press for pressing oil from black walnut "fines" (shells and nutmeat pieces too small to sort) was tested using a 6YZ-150. Successful proof of concept was demonstrated. Experiments to test press efficiency sensitivity to particle size, shell fraction, and material temperature provided valuable results. The insights from these tests will be shared.

Bio: Sara is a 20+ year energy professional with technical and leadership experience in both oil and gas and renewable energy who left the energy business in 2018 for a chance to do something completely different. She is now the founder, owner, and general manager of Black Squirrel Farms, the first licensed facility processing black walnuts in New York State. Sara is married, has two children and lives in Houston, Texas. In addition to her role at Black Squirrel Farms, Sara serves as Houston Clean City Commissioner - District G (Reports Committee chair); as Member, Board of Directors, for Bayou Preservation Association, Inc. (Clean Bayous Committee chair); and as Member, Governing Board (Director) for the New York Nut Growers

Association. She received her BS in Geoscience from Bucknell University (1996) and her MS in Geoscience from The Pennsylvania State University (1999).

DYLAN WARNER

Chestnuts: Blight Resistance among Back Crossed Cultivars Grown in Tissue Culture, and Comparison of Mycelial and Spore Inoculations

Abstract: Chestnut blight (*Cryphonectria parasitica)* has historically devastated the American chestnut, resulting in substantial ecological and economic impacts. Recent advances in plant tissue culture (PTC) offer new strategies for addressing diseases like chestnut blight. This approach generates genetically identical clones, providing a controlled environment to study disease resistance and fungal symbiosis, compared to traditional seed propagation. Here, we assessed blight resistance of four backcross chestnut cultivars of the burgeoning American chestnut industry —Marsol, Maraval, Marigoule, and Précoce Migoule, by comparing multiple stem, leaf, and cambium assays. These assays demonstrated a spectrum of resistance levels across the cultivars, highlighting the potential for selecting and advancing blight-resistant lines. The identification of cultivars with enhanced resistance is essential for sustainable chestnut production, potentially mitigating the devastating effects of chestnut blight and supporting the recovery of this valuable species and industry. The generation of chestnut plantlets also provides opportunities to of integrating resistant chestnuts into truffle agroforestry systems. There is growing interest in integrating chestnuts into truffle agroforestry, which could potentially enhance biodiversity and yield economic benefits. We inoculated blight-resistant chestnut plantlets with *Tuber* species using both spores and pure mycelium on potting soil substrates. While it was possible to grow mycelium on these substrates, the method proved challenging and rarely succeeded in our trials. These results demonstrate the promise of chestnut micropropagation in nut and truffle agricultural ecosystems.

Bio: I am a student at Michigan State University studying truffles and chestnut blight. My interest in fungi began during undergrad at Auburn University, where I became passionate about fungi and tree

identification during a class. A privileged and formative experience working on a truffle orchard in Australia deepened my interest in truffles and sustainable agriculture. I later worked as a lab technician at the University of Florida, surveying fungal diversity across Florida ecosystems. My current research focuses on co-cropping clonal chestnut cultivars with truffles while evaluating their resistance to chestnut blight. After completing my degree, I plan to return to Alabama to start a multi-tree truffle orchard. I aim to assess how truffle fungi associate with various trees and soil conditions. Long-term, I plan to pursue a doctorate in tree-microbe interactions or agroforestry economics and establish a nursery producing healthy, truffle-inoculated trees.

GEOFF M. WILLIAMS

Red Oak Health in Michigan Public Lands: Epidemiology, Genetics, and Management

Abstract: Oak wilt (OW) and decline (OD) are widespread, co-occurring causes of mortality across Michigan in red oak species (*Quercus velutina*, *coccinea*, and *rubra*). OW is caused by *Bretziella fagacearum*, whereas OD is complex and associated with a sequence of factors including spongy moth (*Lymantria dispar*) and *Armillaria* root -rot. Knowledge gaps in OW/OD occurrence, aetiology, and risk factors impede disease management decision-making and silvicultural intervention to promote forest health and regeneration. Epidemiological models suggest OW occurs in ageing, overstocked stands on poor quality sites. Shelterwoods for regeneration lead to gap shock and OD of red oak species. Genetic trials indicate adaptive potential of *Q. rubra* under climate change. This knowledge can be integrated in adaptive management of oak resources.

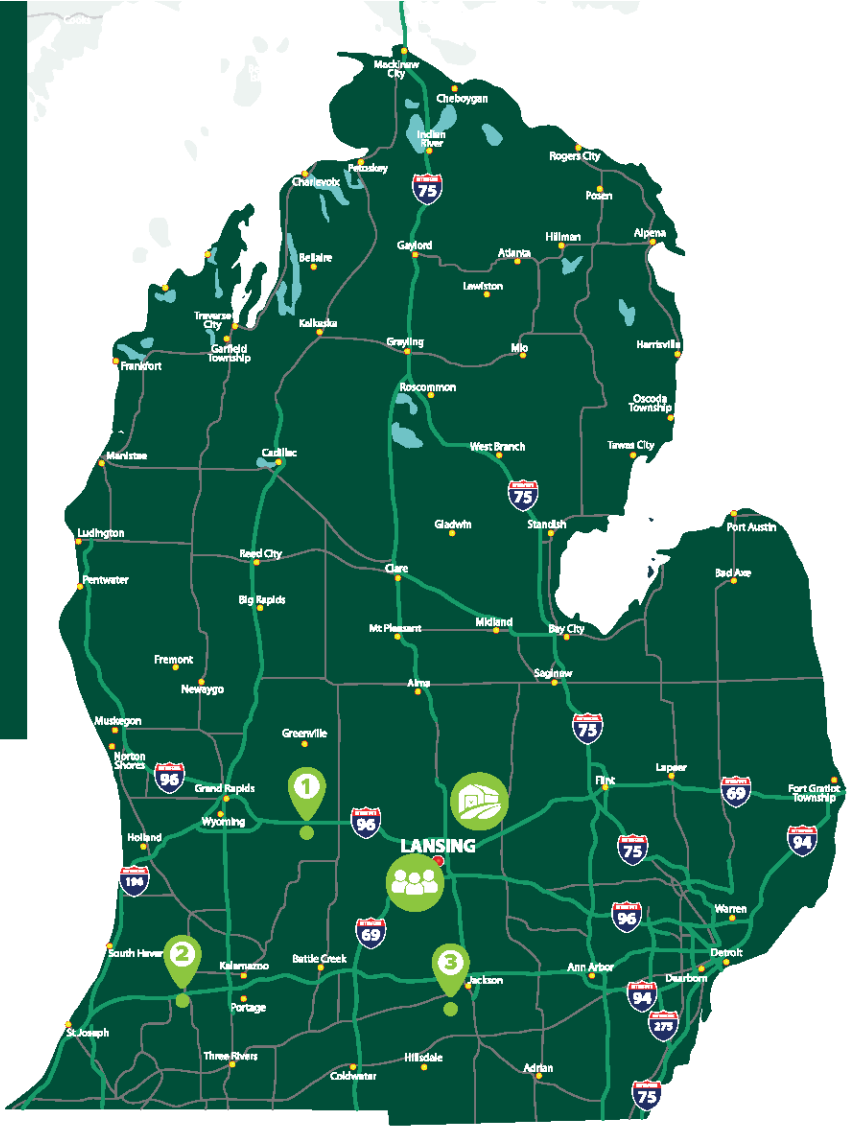
Bio: Geoff Williams has been active in the Walnut Council and served as Fulbright scholar to Argentina and USFS International Programs. He integrates forest pathology, genetics, and epidemiology to understand environment, host, and pathogen roles in disease across scales from microbiome to landscape.

MAPS

DOUBLETREE
by Hilton
LANSING
Michigan Rooms
I
II
III
Skywalk to Lansing Center
Boardroom
State Room II
State Room I
Restrooms
Elevators
Capitol IV
Capitol III
Capitol II
Capitol I
Back Hallway/Servers Hallway
Pre-Function Space
Regency II
Regency I
Stairwell

W Genesee St
Lansing Community College
E Shiawassee St
N Pine St
N Chestnut St
N Walnut St
Seymour Ave
N Washington Sq
N Grand Ave
Grand River
N Larch St
Jackson Field
Museum Dr
DOWNTOWN
STADIUM DISTRICT
MUSEUM DISTRICT
S Pine St
W Washtenaw St
W Kalamazoo St
Hill St
S Hosmer St
Vine St
Jerome St
Eureka St
Prospect St

CONFERENCE LOCATIONS



WELCOME (Sun. 8/3)
NASH NURSERIES
4975 W Grand River Road
Owosso, MI 48867

CONFERENCE (Mon. 8/4 & Tues. 8/5)
DOUBLE TREE BY HILTON
111 N Grand Avenue
Lansing, MI 48933

FIELD TOURS (Wed. 8/6)
Bus Transportation Provided

1. MSU Ag Bio Research Clarksville Center
9302 Portland Road
Clarksville, MI 48815

2. BEYER'S ORCHARD
37360 52nd Avenue
Paw Paw, MI 49079

3. MSU ROGER'S RESERVE
8072 S Jackson Road
Jackson, MI 49201