

**SOUTHWEST-PURDUE AGRICULTURAL CENTER  
RESEARCH AND DEMONSTRATION PROJECTS  
2023**

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**Department of Agronomy**

**Clean Air Status Trends Network/ Dry Deposition Measurements (CASTNET)**

Purpose: The measurement of gaseous and collection of gaseous and particulate pollutants in combination with meteorological conditions are made at this site in order to 1) characterize geographic patterns and temporal trends in chemical atmospheric dry deposition 2) support assessments of atmospherically – deposited nutrients.

Contact: Rich Grant

**National Atmospheric Deposition Program/Mercury Deposition Network (MDN)**

Purpose: The collection of rain water from this site in order to: 1) characterize geographic patterns and temporal trends in wet chemical mercury deposition and 2) Support assessments of atmospherically-deposited mercury on the productivity of biological accumulators such as fish.

Contact: Rich Grant

**National Atmospheric Deposition Program/Mercury Litterfall Network (MLN)**

Purpose: The collection of litterfall from this site in order to: 1) characterize geographic patterns and temporal trends in dry chemical mercury deposition and 2) Support assessments of atmospherically-deposited mercury on the productivity of biological accumulators such as fish.

Contact: Rich Grant & SWPAC Staff

**National Atmospheric Deposition Program/National Trends Network (NTN)**

Purpose: The collection of rain water from this site is made in order to: 1) Characterize geographic patterns and temporal trends in chemicals as well as quantity and conductivity of atmospheric wet deposition and 2) support assessments of atmospherically – deposited nutrients influencing crop productivity.

Contact: Rich Grant

**National Atmospheric Deposition Program/Ammonia Monitoring Network (AMON)**

Purpose: The collection of gaseous ammonia from the site is made in order to 1) characterize geographic patterns and temporal trends in background ammonia levels, 2) support assessments of atmospherically-deposited nitrogen on the ecosystem function.

Contact: Rich Grant

## Department of Agronomy (Continued)

### **Purdue Automated Agricultural Weather Station (PAAWS)**

Purpose: Automated collection of weather data from this site is sent to the Indiana State Climate Office at Purdue University - data can be observed at: <http://climate.agry.purdue.edu>

Contact: Beth Hall

### **National Weather Service Station (NWS)**

Purpose: Manual collection of daily weather observations from this site are sent to the NWS via a web-based application known as WxCoder.

Contact: Rich Grant & SWPAC Staff

### **Winter Wheat Breeding Trials**

Purpose: To generate data that can be used in variety selection process.

Contact: Mohsen Mohammadi & Tracy Richards

## Department of Botany & Plant Pathology

### **Greenhouse Trial to Manage Fusarium Wilt of Watermelon Transplants**

Purpose: To determine a microbial product that can be used to manage Fusarium wilt of Watermelon transplants. Products chosen are also organically listed.

Contact: Dan Egel.

### **Downy Mildew Sentinel Plot**

Purpose: To monitor the possible on-set of Downy Mildew in Indiana.

Contact: Dan Egel.

### **Wheat Fungicide Trial (1)**

Purpose: Efficacy of foliar fungicides for wheat scab.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Wheat Fungicide Trial WHT 23-04**

Purpose: Evaluation of fungicide efficacy on wheat scab.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Wheat Fungicide Trial (2)**

Purpose: Efficacy of foliar fungicides and variety on scab of wheat.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Soybean Fungicide Trial (1)**

Purpose: Compare the efficacy of foliar fungicides in soybeans.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Soybean Fungicide Trial (2)**

Purpose: Compare the efficacy of foliar fungicides in soybeans.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Soybean Fungicide Trial (3)**

Purpose: Compare the efficacy of foliar fungicides in soybeans.

Contacts: Darcy Telenko, Steven Brand & Su Shim

## Department of Botany & Plant Pathology (continued)

### **Corn Fungicide Trial (1)**

Purpose: Compare the efficacy of foliar fungicides in corn.

Contacts: Darcy Telenko, Steven Brand & Su Shim

### **Corn Fungicide Trial (2)**

Purpose: Compare the efficacy of foliar fungicides in corn.

Contacts: Darcy Telenko, Steven Brand & Su Shim

## Department of Entomology

### **Flowering Cover Crops on Watermelon**

Purpose: Most watermelon producers use rye as an intercrop that functions primarily as a wind-break to prevent sandblasting damage to vulnerable, newly-transplanted seedlings. However, rye may act as a 'green bridge' for critical pests leading to preventative and expensive miticide applications. This project will test flowerings cover crops that are both non-hosts for mites and non-crop food resources to boost beneficial insects.

Contact: Zeus Mateos & Ian Kaplan

### **BSF Soil Amendments**

Purpose: Evaluate the impacts of black soldier fly (BSF) generated compost on plant productivity and tolerance to insect pest damage.

Contact: Laura Ingwell

### **Corn Earworm Trapping Network**

Purpose: To monitor the presence of corn earworm moths.

Contact: Laura Ingwell

### **Squash Vine Bore Trapping Network**

Purpose: To monitor the presence of squash vine bore moths.

Contact: Laura Ingwell

### **Two-spotted Spider Mites Management on Cucumbers in High Tunnels**

Purpose: Understanding the distribution of two-spotted spider mites on cucumbers grown in high tunnels.

Contact: Laura Ingwell and Wenjing Guan

### **Indiana Cooperative Agricultural Pest Survey (CAPS) for Exotic Insect Pests of Soybean & Corn**

Purpose: Establish traps sites and sample areas needed to monitor for exotic insect species.

Contact: Alicia Kelly

### **Armyworm Pheromone Trapping**

Purpose: To monitor the presence of armyworm moths.

Contact: John Obermeyer

## Purdue Extension

### **Day on the Farm for 3<sup>rd</sup> Graders**

Purpose: Educational event to allow Knox County 3<sup>rd</sup> graders an opportunity to plant a watermelon and visit a farm.

Contact: Valerie Clingerman, Mitch Wagoner & Tonya Short

### **Pumpkin Days for 1<sup>st</sup> Graders**

Purpose: Educational event to allow Knox County 1<sup>st</sup> graders the opportunity to visit a pumpkin field and pick their own pumpkins.

Contact: Valerie Clingerman, Mitch Wagoner & Tonya Short

### **Winter Canola Proprietary Germplasm Screen**

Purpose: Evaluate winter canola entries for winter hardiness, stand ability, disease tolerance, and yield potential.

Contacts: Kenneth Eck & Brian Caldbeck

### **National Winter Canola Variety Trial**

Purpose: Evaluate canola varieties to identify best adapted varieties for southwest Indiana.

Contacts: Kenneth Eck & Mike Stamm

### **Industrial Rapeseed Germplasm Screen**

Purpose: Evaluate commercially available industrial rapeseed entries for winter hardiness, standability, disease tolerance, and yield potential.

Contacts: Kenneth Eck & Brian Caldbeck

### **Field Day Weed Plot**

Purpose: To show participants giant ragweed and waterhemp emergence in 1-2 m<sup>2</sup> sections.

Contacts: Valerie Clingerman & Bill Johnson

### **Field Day Weed Plot**

Purpose: To monitor giant ragweed and waterhemp control with residual herbicides—fallow area.

Contacts: Valerie Clingerman & Bill Johnson

### **Wheat Variety Trial**

Purpose: Southwestern Indiana Independent Wheat Variety Trials exist to provide growers in this area unique information to their geographic area.

Contacts: Valerie Clingerman & Aaron Neufelder

## Department of Horticulture & Landscape Architecture

### **Seedless Watermelon Variety Trial (2023)**

Purpose: Evaluate yield and fruit quality of seedless watermelon varieties.

Contact: Wenjing Guan

### **Seeded Watermelon Variety Trial (2023)**

Purpose: Evaluate yield and fruit quality of seedless watermelon varieties.

Contact: Wenjing Guan

**Personal Size Watermelon Variety Trial (2023)**

Purpose: Evaluate yield and fruit quality of personal size watermelon varieties.  
Contact: Wenjing Guan

**Cantaloup Variety Trial (2023)**

Purpose: Evaluate yield and fruit quality of personal size watermelon varieties.  
Contact: Wenjing Guan

**Seedless Watermelon Irrigation/Fertility Trial (2023)**

Purpose: Trial is designed to respond to growers' needs to reevaluate fertility recommendation for growing seedless watermelon.  
Contact: Wenjing Guan

**Watermelon Roots Develop Under Varied Irrigation**

Purpose: Understand watermelon root development under varied irrigation  
Contact: Wenjing Guan

**Evaluate Open Field Strawberry Cultivar (2022-2024)**

Purpose: The project will evaluate strawberries grown in the open field with white vs. black plastic.  
Contact: Wenjing Guan and Steve Meyers

**Evaluate Winter Cover Management of Strawberries Grown in a High Tunnel (2022-2023)**

Purpose: The project will evaluate pest dynamics of strawberries grown in a high tunnel with different winter management approaches.  
Contact: Wenjing Guan and Laura Ingwell

**Mini Watermelon Production in Caterpillar Tunnel**

Purpose: Explore mini watermelon production at urban farms using caterpillar tunnels  
Contact: Wenjing Guan

**Ginger Production in Tunnels**

Purpose: Explore ginger production at urban farms in tunnels  
Contact: Wenjing Guan

**Cover Crop Mix Demonstration**

Purpose: Demonstrate cover crop mixes at small farms  
Contact: Casey Kennett and Wenjing Guan

**Tomato Cultivar Evaluation in Open Field with Different Irrigation Management**

Purpose: Evaluate tomato cultivars under different irrigation management.  
Contact: Wenjing Guan

**High Tunnel Tomato Cultivar Evaluation with Companion Plants**

Purpose: Evaluate high tunnel tomatoes and pest management with companion plants  
Contact: Wenjing Guan and Laura Ingwell

**Wine Grape Research**

Purpose: Evaluation of wine grape varieties in southwest Indiana.

Contact: Miranda Purcell

**Table Grape Research**

Purpose: Evaluation of table grape varieties in southwest Indiana.

Contact: Miranda Purcell

**Chestnut Study**

Purpose: Evaluate Chestnut tree growth and nut production.

Contact: Miranda Purcell

**Sweet Potato Allelopathy Study**

Purpose: Determine if cultivars identified in greenhouse research maintain their weed suppressive abilities in-field.

Contact: Stephen Meyers and Emmanuel Cooper

**Organic Sweet Potato Plant Spacing Trial**

Purpose: Two cultivars will be planted at one of three spacings, in two different competitive environments.

Contact: Stephen Meyers and Emmanuel Cooper

**Organic Sweet Potato Weed Removal Timing Study**

Purpose: The purpose of this study is to investigate the role of cultivar shoot architecture and between-row cultivation frequency on weed control.

Contact: Stephen Meyers and Emmanuel Cooper

**Mult-Year Plasticulture Strawberry Cover Crop Trial (2022-2023)**

Purpose: The objective is to determine if cover crops can be used to suppress weeds in row middles for multi-year plasticulture strawberry production.

Contact: Stephen Meyers and Wenjing Guan

**Evaluation of Herbicides in a Two-year Plasticulture Strawberry System (2022-2023)**

Purpose: Evaluating several herbicides to control weeds in a two-year production system.

Contact: Stephen Meyers and Wenjing Guan

**Mult-year Plasticulture Strawberry Herbicide Program (2023-2024)**

Purpose: Evaluating several herbicides to control weeds in a two-year production system.

Contact: Stephen Meyers and Jeanine Arana

**Evaluation of Row Middle Mulches in a Two-year Plasticulture Strawberry**

Purpose: Evaluating non-chemical options to control weeds.

Contact: Stephen Meyers and Jeanine Arana

**Mult-year Plasticulture Strawberry Cover Crop Trial**

Purpose: To determine if cover crops can be used to suppress weeds in row middles for multi-year plasticulture strawberry production.

Contact: Stephen Meyers and Jeanine Arana

## Department of Horticulture & Landscape Architecture (continued)

### **USDA AFRI Grant – Taking the Next Step as a Small and Medium-sized Farm: Understanding the Integration of Production, Food Safety, and Profitability.**

Purpose: The goal is to improve the profitability of small and medium-sized vegetable farms.

Contact: Petrus Langenhoven and Nathan Shoaf

## Collaborations

### **Knox County CISMA Native Plant Propagation**

Purpose: The Knox County CISMA hopes to continue to propagate a variety of native plant species in one of the SWPAC's greenhouses starting in March 2021 through September 2021.

Contact: Will Drews, Knox County Soil and Water

### **Native Plant Restoration for the Pollinators at SWPAC**

Purpose: Restore native plants for bee pollinators.

Contact: Will Drews, Knox County Soil and Water

### **Invasive Species Control**

Purpose: Remove and control of invasive species in woodlands.

Contact: Will Drews, Knox County Soil and Water

### **Surveying Bats Throughout Indiana**

Purpose: Surveying bat communities across the state of Indiana to evaluate maps predicting the current distribution of bats based on huge population declines caused by white-nose syndrome.

Contact: Scott Bergeson, Biological Sciences – Fort Wayne