THROCKMORTON PURDUE AGRICULTURAL CENTER RESEARCH AND DEMONSTRATION PROJECTS 2024

Jay Young, Superintendent
Chloe Henscheid, Horticulture Crops Research Manager
8343 South US 231
Lafayette IN 47909
765-538-3422
jayyoung@purdue.edu
richa267@purdue.edu
https://ag.purdue.edu/arge/pac/Pages/tpac-home.aspx

Department of Agronomy

Corn Nitrogen – Biological Trial (Field Scale)
Purpose: Corn response to different nitrogen rates and comparing yield response to Envita and Source biological treatments.
Contact: Dan Quinn

Sulfur Source x Cerea Rye Cover Crop (Field Scale)
Purpose: Comparing soybean response to different sources of sulfur in cereal rye cover crop vs. no Cover crop.
Contact: Shaun Casteel

Corn Response to Hybrid Type and Downforce Settings (Bechman)
Purpose: Research trial examining 2 corn hybrids in response to variable static and active down force settings to assess emergence, final plant stands, and yield.
Contact: Dan Quinn

Corn Response to Pre-plant P and K Fertilizer (Mosaic)
Purpose: Research trial examining corn nutrient uptake and yield response to various preplant applied P and K dry fertilizer combinations.
Contact: Dan Quinn

Corn Response to Seed Orientation Ratio and Oriented Prototype Planting (John Deere)
Purpose: Corn response to seed orientation ratio and also the assessment of a new prototype planter unit designed to orient the seed in the same direction within the row. Treatments are compared to a current commercial max-emerge row unit.
Contact: Dan Quinn

Corn Response to Xyway LFR application timings (FMC)
Purpose: Research trial examining different placements and in-season timings of the fungicide Xyway LFR (Flutriafol). Study examines corn foliar disease, tissue flutriafol concentrations and yield in response to Xyway LFR applied at plant and at sidedress.
Contact: Dan Quinn

Department of Botany and Plant Pathology

SOY23-SENTINAL-TPAC
Purpose: Monitoring of disease development in soybeans over the growing season.
Contact: Darcy Telenko

COR23-SENTINAL-TPAC
Purpose: Monitoring of crop disease development in field corn over the growing season.
Contact: Darcy Telenko

COR24- Sentinel TPAC Corn
Purpose: Monitor crop disease over the growing season in soybeans.
Contact: Darcy Telenko & Steven Brand

COR24- Sentinel TPAC Soybeans
Purpose: Monitor crop disease over the growing season in corn.
Contact: Darcy Telenko & Steven Brand

24-TPAC-Corn-12
Purpose: Showcase – Priority GT vs Halex GT on field corn.
Contact: Bill Johnson & Bryan Young

24-TPAC-Corn-12
Purpose: Showcase – Pyroxasulfone SC vs Zidua SC on corn.
Contact: Bill Johnson & Bryan Young

24-TPAC-Soy-07
Purpose: Showcase – Pyroxasulfone SC vs Zidua SC on soybean.
Contact: Bill Johnson & Bryan Young

24-TPAC-Corn-09
Purpose: Storen for weed control in corn.
Contact: Bill Johnson & Bryan Young

24-TPAC-Soy-07
Purpose: Showcase Syngenta soybean herbicide programs.
Contact: Bill Johnson & Bryan Young

24-TPAC-Corn-01
Purpose: Liberty Ultra corn program.
Contact: Bill Johnson & Bryan Young

24-TPAC-Corn-06
Purpose: Residual weed control with Surtain in corn.
Contact: Bill Johnson & Bryan Young

24-TPAC-Popcorn-01
Purpose: Popcorn tolerance to Surtain.
Contact: Bill Johnson & Bryan Young

Department of Botany and Plant Pathology (continued)

24-TPAC-Soy-04
Purpose: Glufosinate formulations in soybean.
Contact: Bill Johnson & Bryan Young

24-TPAC-Corn-01
Purpose: Liberty Ultra efficacy trial in corn.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-04
Purpose: Status plus Zidua EPOST in corn.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-05
Purpose: Surtain burndown in corn (stale seedbed).
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-03
Purpose: BASF Corn Programs for giant ragweed.
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-03
Purpose: Confidential soybean herbicide evaluation.
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-02
Purpose: Confidential preemergence herbicides in soybean.
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-01
Purpose: BASF tank mixes in E3 soybeans.
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-07
Purpose: Zalo herbicide in soybeans.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-07
Purpose: Maverick corn herbicide PRE comparisons.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-08
Purpose: Two pass programs with Maverick POST.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-12
Purpose: FMC showcase treatments for corn.
Contact: Bryan Young & Bill Johnson

Department of Botany and Plant Pathology (continued)

24-TPAC-Corn-13
Purpose: Short corn trials.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-02
Purpose: Encapsulated acetochlor + mesotrione in corn.
Contact: Bryan Young & Bill Johnson

24-TPAC-Corn-12
Purpose: Corn showcase treatments – Intrava DX PRE.
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-07
Purpose: Soybean showcase treatments SAUSX08..
Contact: Bryan Young & Bill Johnson

24-TPAC-Soy-Carson
Purpose: Early planted soybean trials.
Contact: Estevan Carson

24-TPAC-Corn-Davis
Purpose: Surtain programs in corn.
Contact: Jada Davis

24-TPAC-Corn-Davis
Purpose: Corn injury potential with Surtain.
Contact: Jada Davis

24-TPAC-Soy-Norsworthy01
Purpose: Soybean response to DFF/Mesotrione/metribuzin trial 1
Contact: Abi Norsworthy

24-TPAC-Norsworthy-02
Purpose: Soybean response to DFF/Mesotrione/Metribuzin trial 2
Contact: Abi Norsworthy

24-Meigs South-03
Purpose: Showcase – Priority S vs Dual II Magnum in corn
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-05
Purpose: Showcase – Priority S vs Dual II Magnum in soybean
Contact: Bryan Young & Bill Johnson

24-Meigs South-01
Purpose: Rapidicil preplant burndown in notill corn
Contact: Bryan Young & Bill Johnson

Department of Botany and Plant Pathology (continued)

24-MGS-Soy-04
Purpose: Rapidicil preplant burndown in soybeans.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-05
Purpose: Valent showcase treatments for soybeans.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-05
Purpose: FMC showcase treatments for soybeans.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-06
Purpose: SC600/619 for weed control in soybeans.
Contact: Bryan Young & Bill Johnson

24-Meigs South-02
Purpose: Weed control in corn with Sipcam herbicides – site 1.
Contact: Bryan Young & Bill Johnson

24-Meigs South-03
Purpose: Restraint showcase treatments for corn.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-02
Purpose: Waterhemp control with 2,4-D, Glufosinate, Dicamba.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-03
Purpose: Enlist weed control programs.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-01
Purpose: Encapsulated Acetochlor in E3 soybeans.
Contact: Bryan Young & Bill Johnson

24-MGS-Soy-05
Purpose: Soybean showcase treatments.
Contact: Bryan Young & Bill Johnson

24-Meigs South-03
Purpose: Corn showcase treatments – Intrava DX PRE.
Contact: Bryan Young & Bill Johnson

24-Meigs South-PrecisionCC
Purpose: Residual herbicides.
Contact: Bill Johnson

Department of Botany and Plant Pathology (continued)

24-USB-IN
Purpose: Early and Green on weed management and crop yield.
Contact: Bryan Young & Bill Johnson

24-Meigs South- 04
Purpose: Mesotrione – site 3
Contact: Bryan Young & Bill Johnson

24-Meigs South-Isaacs
Purpose: Tough tank mixtures for HPPD inhibitors.
Contact: Grant Isaacs

24-Meigs South-Norsworthy
Purpose: DFF programs for Waterhemp control
Contact: Abi Norsworthy

24-Meigs South-Edwards
Purpose: Drone evaluation of adjuvants.
Contact: Ryan Edwards

24-Meigs South-Medenwald
Purpose: Drone evaluations of adjuvants.
Contact: Bill Johnson

Soybean Root Traits
Purpose: Identify and prioritize soybean root traits that can be targeted by breeders to enhance sustainability of soybean production, while increasing yields.
Contact: Anjali Iyer-Pascuzzi & Denise Caldwell

Department of Entomology

Evaluation of a Novel Soybean Herbicide Tolerance Trait
Purpose: Trial included periodic evaluations of pest and beneficial insect populations on soybeans expressing a novel herbicide tolerance trait and comparison with a near isoline. No pesticides applied to the plot during the growing season and the crop was destroyed prior to maturity.
Contact: Christian Krupke

Drone Choice of Apis Mellifera
Purpose: When a honey bee worker enters the wrong hive, she is promptly thrown out. When a male honey bee drone enters, he is often allowed to stay despite the burden he places on the hive. This research aims to determine how drones decide which colonies to invade, how colonies decide what drones to let in, and how this affects colony health. This work will have applications in honey bee health, disease control, and breeding.
Contact: Brock Harpur

Department of Entomology (continued)

Bee and Butterfly Forage Garden
Purpose: In an effort to supply a dedicated area of pesticide free, diverse, and season-long forage for a range of pollinating insects used in research and extension, an area of Meigs is being "rehabilitated" to remove poison ivy, brambles, and other low-value (for pollinators) species and replace with a mix of annual and perennial wildflowers and forbs that are native to the area.
Contact: Christan Krupke

Describing Syrphis fly Communitiy Dynamics and their Impact as Natural Enemies in High Tunnels
Purpose: This project aims to provide a comprehensive description of the syrphis fly community within high tunnels and its role in suppressing aphid populations during the early stages of infestation.
Contact: Laura Ingwell & Allison Zablah

Companion Planting in High Tunnels
Purpose: Determine what kind, and how much plant diversity, can be beneficial in a high tunnel tomato system of natural enemy recruitment and retainment to reduce pest pressure.
Contact: Laura Ingwell & Allison Zablah

Insect Pest Pheromone Trapping and Reporting
Purpose: Monitor with haystack traps for army worm (April to mid-June) and corn earwork (mid-June to September). PAC personnel will check trap daily and report captures.
Contact: Laura Ingwell & John Obermeyer

High Tunnel SCRI
Purpose: Classify the communities of pollinating insects that occur in high tunnel growing systems and compare this community to that of field growing systems. Evaluate changes in the composition of pollinator communities in different growing contexts, specifically in monoculture vs polyculture production.
Contact: Laura Ingwell & Robert Grosdidier

Black soldier fly Compost Amendments to Specialty Crops
Purpose: Examining the efficacy of black soldier fly derived compost as a soil amendment for the production of specially crops, specifically carrots and a leafy green.
Contact: Laura Ingwell & Milena Agila

Sweet Corn Insecticide Efficacy Trial
Purpose: Examining five different planting dates, all with the same cultivar to evaluate the efficacy of 4 different insecticide spray schedules. Planting dates will extend from as early as we can get into the fields through late June.
Contact: Laura Ingwell

Department of Entomology (continued)

Regenerative Agriculture Demonstration Plots

Purpose: To lay the groundwork for a long-term project measuring the impacts of regenerative (resilient) practices on specialty crops production, we will be growing popcorn as the first crop in this field. The field will be divided in half. One section will be dedicated to conventional practices (tillage, seed treatments, calendar-based pesticide applications) while the other half will be managed using regenerative practices (cover cropping, reduced or no tillage, pest scouting and threshold-based applications of pesticides). Popcorn is the first crop selected because of the capacity of the farm to plant and harvest this crop.

Contact: Laura Ingwell

Synergy of EPNs with Cultural Management Practices for Low-input Control of Flea beetles in Brassica Crops

Purpose: Aim to develop a technique for controlling flea beetles in high tunnel brassica crops using a combination of EPNs and trap crops.

Contact: Ian Kaplan & Julia Wooby

Sustainable Watermelon Production

Purpose: This project will test an alternative watermelon production approach with hairy vetch as a cover crop, a threshold-based insecticide program and the reliance on wild pollinators.

Contact: Ian Kaplan & Zues Mateos

Spider mite Outbreak on Watermelon

Purpose: Pests are a concern for watermelon growers and pesticides are routinary applied in commercial fields to control them. However, overly aggressive insect management could trigger spider mite outbreaks. IPM programs based on thresholds can minimize secondary pest outbreaks. Additionally, rye is used to protect watermelon seedlings from sand blasting damage but growers believe rye can also act as a bride to the crop for spider mites, and they may spray more unnecessary miticides. We hypothesize that intensive insecticide programs and rye cover crop can facilitate spider mite outbreaks, whilst using an IPM program for insect control and no rye would prevent spider mites from outbreak with no miticide applications need.

Contact: Ian Kaplan & Zues Mateos

Department of Horticulture & Landscape Architecture

USDA AFRI Grant – Taking the next step as a small and medium-sized farm: Understanding the integration of production, food safety, and profitability

Purpose: Our goal is to improve the profitability of small and medium-sized vegetable farms by developing a research-based extension program that increases strategic soil to market decision making by farmers titled Soil to Market Decision Making.

Contact: Petrus Langenhoven & Nathan Shoaf

Hort 318- Field Production of Horticultural Crops

Purpose: An eggplant demonstration will be planted for class experiential learning opportunities. Ten varieties of different types will be planted and evaluated. Students will harvest, determine yield estimates, and look at IPM aspects of eggplant production.

Contact: Petrus Langenhoven & Kyle Daniel

Department of Horticulture & Landscape Architecture (continued)

SFS 391/ FS 491- Boilermaker Sauces and Pickles
Purpose: A scotch bonnet pepper variety trial will be planted for class experiential learning opportunities. 25 variest will be evaluated. Disease pressure and variety performance will be monitored. The produce will be used to make test recipes for the boilermaker black and gold hot sauces. Micronutrient and capaicin content will be evaluated. Genotypes will be characterized.
Contact: Petrus Langenhoven

Self-cooling Water Harvesting Cellulose Mulch for Sustainable Agriculture
Purpose: Aim to develop a cellulose-based mulch with atmospheric water harvesting and optothermal management, addressing the pressing issue of water scarcity. Compare the cellulose-based mulch with common commercial white and black plastic mulches.
Contact: Petrus Langenhoven & Yun Zhang

Field Trial of Genetically Modified Camelina for Higher Oil Production
Purpose: Asses the performance of transgenic camelina compared to the non-transgenic in total oil production and yield under natural growth conditions.
Contact: Petrus Langenhoven & Kranthi Varala

Hort 317/ Hort 318
Purpose: Plant material will be grown to use in Hort 317 and Hort 318
Contact: Kyle Daniel

Herbicides Effectiveness in Driveways
Purpose: Evaluate different herbicides on gravel driveways
Contact: Aaron Patton, Brandon McNally

Multi-Year Plasticulture Strawberry Cover Crops Trial
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 & Jeanine Arana

Multi-Year Plasticulture Strawberry Herbicides Programs
Purpose: The objective is to determine viable herbicide-based weed control programs for Plasticulture strawberries frown for two harvest seasons. It will include a combination of per-transplanting, fall, a spring, and post-harvest application timings of different herbicides.
Contact: Stephen Meyers & Jeanine Arana

Effects of Pyrozasulfone on Rotational Crops
Purpose: Collect performance data to support reduction of registered rotational intervals for several crops following pyroxasulfone application.
Contact: Stephen Meyers

Effects of PRE Herbicide on Pumpkin
Purpose: Establish crop tolerance to herbicides at planting in support of registrations.
Contact: Stephen Meyers

Department of Horticulture & Landscape Architecture (continued)

Effects of Early Post/Layby herbicides on Pumpkin
Purpose: Establish crop tolerance to herbicides at 14 and 28 days after planting in support of registrations.
Contact: Stephen Meyers

Pumpkin Burndown
Purpose: Glyphosate-resistant marestail is a primary concern of indiana no-till pumpkin growers. This trial looks at potential burndown options to manage marestail (if present) and document pumpkin crop safety to burndown treatments.
Contact: Stephen Meyers

Termination and Fertilizer
Purpose: Evaluate different rye termination methods and glyphosate applications on pumpkins.
Contact: Stephen Meyers

Potato Silage Tarp and Herbicides
Purpose: Investigate the use of sileage tarps for early season weed control along with cultivation and herbicides for longer season control.
Contact: Stephen Meyers & Josue Cerritos

Cowpea Silage Tarp and Herbicides
Purpose: Investigate the use of sileage tarps for weed control along with cultivation and herbicides for use later season crops, cabbage.
Contact: Stephen Meyers & Josue Cerritos

Determine Optimal Roll Time of Sunnhemp for Cover Crop Based Reduced Tillage (CCRT) Vegetable Systems
Purpose: Conserving soil resources and improving soil health are on the forefront of farmers. Policy makers, and even consumers minds. Reduced tillage is challenging for vegetable production systems due to the need to prepare beds and cultivate. In addition, the short season nature of many vegetable crops often results in nitrogen asynchrony from cover crop decomposition and cash crop uptake. Previous research investigating legumes for reduced tillage systems have had varying results. New cover crop options for reduced tillage vegetable systems production are needed. This project aims to evaluate sunnhemp for a reduced tillage vegetable system. Sunnhemp has shown it can provide large quantities of biomass in addition to its upright stature. These both attributes conducive to a cover crop based reduced tillage system. In addition, sunnhemp can provide up to 134kg/ha of N, which could eliminate or reduce N asynchrony issues observed in cereal rye CCRT systems. This project aims to determine the 1. optimal time to roll sunnhemp, 2. measure N release from cover crop residue and estimate cash crop uptake.
Contact: Moriah Bilenky

Addressing Knowledge Gaps in Animal Traction for Vegetable Production
Purpose: The innovation of this proposal is the revivalof an old practice as a climate smart solution to powering small farms.
Contact: Moriah Bilenky

Department of Horticulture & Landscape Architecture (continued)

Sheep: Investigating the Re-integration of Organic Food Crops and Animal Production on Above and Below Ground Diversity, Soil Health, Farm Resilience, and Food Safety.
Purpose: Examine the impact of ICS on soil health, microbiome, and presence of food pathogens on vegetable farms and in tuen, the effects of ICS on animal and crop yield and quality and economic feasibility.
Contact: Moriah Bilenky & Jose Alvarez

Chicken: Investigating the re-integration of organic food crops and animal production on above and below ground diversity, soil health, farm resilience, and food safety.
Purpose: Examine the impact of ICS on soil health, microbiome, and presence of food pathogens on vegetable farms and in tuen, the effects of ICS on animal and crop yield and quality and economic feasibility.
Contact: Moriah Bilenky & Jose Alvarez

Evaluation of Row Spacing on Edamame Growth and Weed Competition.
Purpose: Evaluate cultural practices for edamame growth and weed management.
Contact: Moriah Bilenky & Moyeed Talukder

Evaluating Relay Cropping in Vegetable Crops
Purpose: Evaluate vegetable-small grain integration for enterprise diversification and seed seedbank reduction.
Contact: Moriah Bilenky

Wine Grape Research
Purpose: Replicated variety and advanced selection trial, advanced selection observations, a few bulk rows for miscellaneous studies (Ripe Rot, SWD management, leaf phylloxera)
Contact: Miranda Purcell

VSD Monitoring on Trees
Purpose: Monitor VSD on infected redbud, tulip, and sweetgum trees
Contact: John Bondowski

USDA

Long Term Phosphorous Stratification Study
Purpose: Purpose of project is to quantify the effects phosphorous products and crop rotation on yield and soil quality in corn and soybean.
Contact: Javier Gonzalez, Brenda Hoffman

Legacy Phosphorous Study
Purpose: Evaluation of soil phosphorous levels under different application rates.
Contact: Javier Gonzalez, Brenda Hoffman

Long Term Erosion Study
Purpose: Quantify the effects of tillage systems and crop rotations on corn and soybean yields and soil quality.
Contact: Javier Gonzalez, Brenda Hoffman