

THROCKMORTON PURDUE AGRICULTURAL CENTER RESEARCH AND DEMONSTRATION PROJECTS 2022

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Department of Agronomy

High Carotenoid Orange Corn in Organic Cropping System

We are breeding and growing orange corn for superior performance in an organic cropping system.

Contact: Torbert Rocheford, Agronomy

Department of Botany & Plant Pathology

Fungicide Trials on Ornamentals

Fungicide trials on already established blocks of Peonies and Dogwoods.

Contact: Jana Beckerman, Botany & Plant Pathology

Fungicide Trials for Bitter Rot Management on Apples

Fungicide evaluation (ai, timing) for the management of bitter rot on Apple trees.

Contact: Jana Beckerman, Botany & Plant Pathology

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Contact: Jana Beckerman, Botany & Plant Pathology

22S MGS Corn 01

Showcase treatments with TriVolt in corn.

Contact: Bill Johnson

22S MGS Corn 02

Belchim Evaluation of Tough R for Waterhemp Control

Contact: Bill Johnson

22S MGS Corn 03

Belchim Tough R and Atrazine plus Summit Demos

Contact: Bill Johnson

22S MGS Fallow-04

Belchim Tough R and Tough R Burndown in Corn

Contact: Bill Johnson

22S MGS Fallow-11

Belchim Tough Preplant Burndown in Soybean
Contact: Bill Johnson

22 MGS Soy 01

USB Planting Green
Contact: Bill Johnson

22S MGS Soy 02

Basf Engenia PRE for Weed Control in Soybean
Contact: Bill Johnson

22S MGS Soy 03

FMA Authority Herbicides for Residual Control in Soybean
Contact: Bill Johnson

22S MGS Soy 04

UPL Preview Programs and AMVAC Demos
Contact: Bill Johnson

22S MGS Soy 05

BASF Engenia Burndown
Contact: Bill Johnson

22S MGS Soy 06

UPL Mesotrione & Sulfentrazone Rate Titration 1
Contact: Bill Johnson

22S MGS Soy 07

UPL Mesotrione & Sulfentrazone Rate Titration 2
Contact: Bill Johnson

22S MGS Soy 08

UPL Mesotrione & Metribuzin Rate Titration 1
Contact: Bill Johnson

22S MGS Soy 09

UPL Mesotrione & Metribuzin Rate Titration 2
Contact: Bill Johnson

22S MGS Soy 10

Corteva and Valent Enlist Weed Control Demos
Contact: Bill Johnson

22S MGS Soy 12

Helm Revition Burndown
Contact: Bill Johnson

22S MGS Soy 13

Belchim Tough + Metribuzin Tolerance in Soybean
Contact: Bill Johnson

Weed Seed Bank

Weed Seed Bank Depletion by Cover Crop
Contact: Bill Johnson

22S TPAC Corn 02

Valent Primary/Core PRE soil residual with Maverick
Contact: Bill Johnson

22S TPAC Corn 01

Post and sequential weed control with Maverick
Contact: Bill Johnson

22S TPAC Corn 03

Syngenta Acuron vs Competitors
Contact: Bill Johnson

22S TPAC Corn 04

BASF Residual PRE Corn Herbicides
Contact: Bill Johnson

22S TPAC Corn 05

Syngenta A23980 Compared to Acuron and Competitors
Contact: Bill Johnson

22S TPAC Corn 05

Rosen's Adjuvant Effects on Status
Contact: Bill Johnson

22S TPAC Corn 07

Rosen's Adjuvant Effects on Resicore
Contact: Bill Johnson

22S TPAC Corn 08

Marcelo's Group 15/Clethodim Antagonism Experiment
Contact: Bill Johnson

22S TPAC Corn 09

AMVAC Late POST Tank Mixes with Impact
Contact: Bill Johnson

22S TPAC Corn 10

AMVAC Tank Mixes of Impact Core for AMBRT Control
Contact: Bill Johnson

22S TPAC Corn 11

Corn Demonstration Treatments
Contact: Bill Johnson

22S TPAC Soy 01

BASF Evaluation of new Liberty 3 way Premix for Broadleaf Control
Contact: Bill Johnson

22S TPAC Soy 02

BASF Evaluation of new Liberty 3 way Premix for Grass Control
Contact: Bill Johnson

22S TPAC Soy 03

Bayer Competitive Soybean System – Giant Ragweed
Contact: Bill Johnson

22S TPAC Soy 04

Bayer Competitive Soybean System – Waterhemp
Contact: Bill Johnson

22S TPAC Soy 05

Soybean safety and yield with SC619 premix
Contact: Bill Johnson

22S TPAC Soy 06

Soybean safety with preplan applications of SC619 in soybean
Contact: Bill Johnson

22S TPAC Soy 07

Syngenta Tendovo Crop Tolerance
Contact: Bill Johnson

22S TPAC Soy 08

Replant of Syngenta Tendovo Crop Tolerance
Contact: Bill Johnson

22S TPAC Soy 09

Soybean Demo Treatments Xtendflex
Contact: Bill Johnson

22S TPAC Soy 10

Soybean Demo Treatments Enlist
Contact: Bill Johnson

22S TPAC Soy 11

Corteva Drone Project
Contact: Bill Johnson

22S TPAC Roller Cripmer

Lucas cover crop trial
Contact: Bill Johnson

22S TPAC Corn Cultivator Herb

Marcelo cultivation trial with herbicides
Contact: Bill Johnson

22S TPAC Corn Cultivator Organic

Marcel cultivation trial - organic
Contact: Bill Johnson

22S TPAC Soy Cultivator Herb

Marcel cultivation trial – with herbicides
Contact: Bill Johnson

22S TPAC Soy Cultivator Organic

Marcel cultivation trial - organic
Contact: Bill Johnson

AGCO TPAC

Confidential evaluation of sprayer parameters
Contact: Bryan Young

Cannabis Disease Management and Diagnostics

Fungicide trial work and disease detection in Cannabis. IR4 trials used for double duty and collaboration with K9 biodetectors.
Contact: Jana Beckerman & Marguerite Bolt

Fungicide Trials on Spruce Trees

Fungicide evaluation for management of Rhizosphaera and Phomopsis on Spruce trees.
Contact: Jana Beckerman

Sentinel Plot Scouting

Observe row crop diseases throughout the growing season.
Contact: Darcy Telenko & Kaitlin Waibel

Tomato Seed Trial

Harvest seeds from field grown Tomatoes to use for in-class experiments.
Contact: Denise Caldwell & Anjali Iyer-Pascuzzi

Industrial Hemp in the Midwest: an Assessment of Incorporating Fiber Hemp Production into Organic Crop Rotations

This project assesses the effects of industrial hemp production on subsequent organic crops under different tillage conditions and evaluates the effects of industrial hemp cultivation on soil health parameters and weed communities.

Contact: Kevin Gibson, Josh Kraft & Andres Fonnegra

Department of Entomology

Windbreak Cover Crop Trial for Watermelon Production

Field trial examining the impact of different windbreak cover crops on watermelon production to support plant establishment and ecosystem services.

Contact: Ian Kaplan & Zeus Fierro

Sweet Corn Insecticide Efficacy Trial

Examining five different planting dates, all with the same cultivar (Nirvana) to evaluate the efficacy of 4 different insecticide spray schedules: 1. Helicovex + Warrior, 2. Coragen + Radiant, 3. Helicovex + Coragen, 4. Coragen + Helicoex 5. Untreated control for CEW suppression 3 planting dates will be examined: Early, Mid, Late

Contact: Laura Ingwell

Corn Ear Worm Trapping Network

Monitoring CEW populations in Harstack traps to report online for informed grower decision making.

Contact: Laura Ingwell

Department of Entomology (continued)

Strawberry and Spinach Trial

Determine the best options for a biocontrol program against *Macrosiphium euphorbae* (potato aphid) using biopesticides and biocontrol agents on fall/winter Strawberry and Spanish crops in high tunnels.

Contact: Laura Ingwell & Sam Wilden

Cucumber Cultivar Susceptibility against Two-spotted Spider Mite in High Tunnel.

Evaluate the performance of this pest and possible management strategies optimized for HT systems. Here, we will present results from an experiment evaluating the susceptibility of cucumber cultivars bred for high tunnel production to manage TSSM. Cucumbers were grown in HTs across Indiana. Cultivar susceptibility was evaluated using the Horsfall-Barret scale across 10 varieties replicated within a single tunnel in a RCB design. The information gained through this work can help growers select varieties that minimize TSSM damage and biopesticides that are efficacious at managing this damaging pest.

Contact: Laura Ingwell & Leslie Aviles Lopez

Leafy Greens Demonstration Plot

We will be planting mixed vegetables as a demonstration, and utilizing row covers as a tool for pest management targeting flea beetles. Crops will include: cabbage, collard greens, arugula, and dill.

Contact: Laura Ingwell

Squash Vine Borer Trapping Network

Monitoring the activity of Squash Vine Borer in bucket traps and reporting the trap catches online for informed grower decision making.

Contact: Laura Ingwell

Pumpkin Patch

A pumpkin patch will be planted using a variety of organic squashes and pumpkins. The plot will serve as the trap for Squash Vine Borer monitoring and the crop itself will be available to the community at the farm.

Contact: Laura Ingwell

Black Soldier Fly Compost Generation for Vegetable Production

We will deploy a BSF compost bin on the farm to evaluate the production of compost using organic waste from crop production

Contact: Laura Ingwell

Low Tunnel Demonstration Plot

We will be planting mixed vegetables as a demonstration, and utilizing row covers and entomopathogenic nematodes as tools for pest management targeting flea beetles. Crops will include: kale, spicy mustard mix and Tokyo bekana cabbage.

Contact: Laura Ingwell

Bee and Butterfly Forage Garden

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

Department of Entomology (continued)

Trapping of Cucumber Beetles

Trapping and monitoring cucumber beetle populations using sticky traps and pheromone traps.

Contact: Ian Kaplan & Rachael Youngblood

Department of Horticulture & Landscape Architecture

Wine Grape Research

Replicated variety and advanced selection trial, advanced selection observations, a few bulk rows for miscellaneous studies (Ripe Rot, SWD management, leaf phylloxera control, frost damage mitigation, etc.)

Contact: Miranda Purcell

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

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. The project has three objectives: 1) improve farm planning practices of small and medium-sized vegetable farmers; 2) increase farm production capacity and produce quality by enhancing farmers' ability to manage soil health while using appropriate genetic materials; and 3) increase farmer success

Contact: Petrus Langenhoven & Nathan Shoaf

HORT 31800 – Field Production of Horticultural Crops

Teaching – Field planting of kale and cabbage with water wheel transplanter. Demonstrate raised bed making, laying of plastic mulch and drip irrigation.

Contact: Petrus Langenhoven

AgSEED Grant - Getting it right inside: Developing a propagation standard for Indiana hemp growers

We lack clear standards for CBD hemp production, particularly when it comes to propagation and suitable cultivars for Indiana. This project aims to address the lack of propagation and production standards while identifying cultivars that may be optimal for production in Indiana.

Contact: Petrus Langenhoven & Marguerite Bolt

Morning glory Interference in Triploid Watermelon

This is a repeat of the trial from 2021 with six densities of morning glory in seedless watermelon. The purpose of this study is to determine the influence of 6 season-long morning glory densities on plasticulture-grown triploid watermelon yield and quality.

Contact: Stephen Meyers & Jeanine Arana

Simulated Flumioxazin Tank Contamination in Cantaloupe

This study was conducted to determine the influence of flumioxazin tank contamination on cantaloupe crop response and yield. 'Athena' cantaloupe was transplanted into plasticulture rows and allowed to establish. Then a tank contamination rate of flumioxazin (Chateau® herbicide) was applied with and without clethodim plus increasing rates of non-ionic surfactant (0 to 2%, v/v). The trial was included in the 2022 Meigs Field Day.

Contact: Stephen Meyers

Department of Horticulture & Landscape Architecture (continued)

Organic Sweet potato Weed Removal Timing Study

This replaces the cultivation study from 2021. Treatments are 3 cultivars, and 7 weedy removal periods (starting at 0, 7, 14, 21, 28, 35, and 42 days after transplanting).

Contact: Stephen Meyers & Emmanuel Cooper

Organic Sweet potato Plant Spacing Trial

Two cultivars (Monaco, Covington) will be planted at one of three spacings (20, 30, and 40 cm in-row), in two different competitive environments (maintained weed-free 2 to 6 weeks after transplanting or weed-free the whole season).

Contact: Stephen Meyers & Emmanuel Cooper

Sweet potato Allelopathy Trial

Determine if c.v.s identified in greenhouse research maintain their weed suppressive abilities in-field.

Contact: Stephen Meyers & Emmanuel Cooper

Command Herbicide Screen of Banana Pepper

The purpose of study is to determine the influence of 3 Command herbicide rates (0, 1x, 2x) on crop response, yield, and quality on two cultivars. Data will be used to support registration in IN. The herbicide would be applied to prepared beds after laying plastic, but before transplanting.

Contact: Stephen Meyers

SARE Cover Crop Demonstration Plot

The field was sown in fall 2021 with cereal rye, oats, and rapeseed. In spring 2022 the cereal rye and rapeseed were terminated by roller crimping. The oats were winter-killed. Burndown treatments of glyphosate, glufosinate, and glyphosate plus saflufenacil were applied to demonstrate the benefits of using glufosinate or glyphosate plus saflufenacil to control glyphosate-resistant marestail, a common no-till weed. Additionally, glyphosate followed by soil-residual herbicides were applied after direct-seeding zucchini to demonstrate the potential of season-long weed control with the combination of cover crops and herbicides. Results were shared with attendees at the 2022 Meigs Farm Field Day and attendees at the 2022 Tri-State CSA Conference.

Contact: Stephen Meyers

Strawberry Variety Trial

Evaluate 15 strawberry cultivars in two types of plastic mulch (white vs black).

Contact: Wenjing Guan, Stephen Meyers & Jeanine Arana

Strawberry Cover Crops Trial

Evaluate the effect of three types of cover crops (clover, oats, and cereal rye) planted between rows.

Contact: Stephen Meyers & Jeanine Arana

Strawberry Herbicide Trial

Evaluate the effect of several herbicide applications throughout the multiyear strawberry production system.

Contact: Stephen Meyers & Jeanine Arana

Apple Progeny

Evaluation of Apple progeny blocks.

Contact: Peter Hirst