

2020 DAVIS-PURDUE AGRICULTURAL CENTER RESEARCH AND DEMONSTRATION PROJECTS

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<https://ag.purdue.edu/arp/pac/Pages/dpac-home.aspx>

Using Tilapia for Aquatic Weed Control

Purpose: Evaluate the use of Tilapia for Aquatic Weed Control in Ponds.

Contact: Jonathan Ferris, Wayne County Extension Educator

Using Climate Corporation's FieldView Software to Collect Planting Data

Purpose: Evaluate FieldView in the collection of planting data.

Contact: Mark Carter, Delaware County Extension Educator

Indigenous Soil Potassium (K) Supply, Fertilizer K Use-Efficiency, and K Budgets in Indiana Corn and Soybean Production

Purpose: Evaluate the agronomic efficiency of currently recommended K fertilizer rates; evaluate theoretically improved soil K tests for the ability to predict soil K supply.

Contact: Shaun Casteel and Jim Camberato; Agronomy

Soybean Seeding Rate Trial

Purpose: Identify agronomically and economically optimum seeding rates for soybean production in Indiana.

Contact: Shaun Casteel; Agronomy

Long Term Impact of Cover Crops on Cash Crop Nutrient Uptake, Yield & Nitrogen Application Rate

Purpose: Evaluate barriers in cover crop inclusion; deepen our understanding of cover crop to affect the availability of manure and inorganic Nitrogen to cash crops in multiple cropping systems.

Contact: Shalamar Armstrong, Agronomy

Weed Science Herbicide Evaluation

<u>Trial</u>	<u>Acreage</u>	<u>Title</u>	<u>Crop</u>
20-DPAC-Bayer-B5	0.4	CONFIDENTIAL-Bayer HA20USAAB5	noncrop
20-DPAC-PL-AV1	0.45	Sorbyx with soil applied herbicides	noncrop
N/A	0.22	J. Haarmann noncrop/PPO trial	noncrop
N/A	0.45	T. Delucchi waterhemp density trial	noncrop
	1.52		
N/A	0.22	J. Haarmann PPO soybean trial	soybean
20-DPAC-WC-ADJ	0.46	West Central adjuvants with Liberty	soybean
20-DPAC-HelmSoy	0.35	CONFIDENTIAL Helm herbicides	soybean

20-DPAC-RosensEngenia	0.35	Rosen's adjuvants w/ Engenia	soybean
20-DPAC-RosensEnlist	0.35	Rosen's adjuvants w/ Enlist	soybean
20-DPAC-RosensLiberty	0.35	Rosen's adjuvants w/ Liberty	soybean
20-DPAC-Seedbank	0.90	influence of herbicides on seedbank	soybean
20-DPAC-RosensGluf	0.35	Rosen's adjuvants w/ Glufosinate	soybean
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3.33			
20-DPAC-Syn-401	0.39	Acuron XR and Acuron Flexi in corn	corn
20-DPAC-Syn-403	0.28	Acuron GT one-pass system in corn	corn
20-DPAC-ToughDemo	0.55	Tough demonstration strip trial in corn	corn
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1.22			

Contact: Bryan Young and Bill Johnson, Botany and Plant Pathology

Aerial Reconnaissance of the Effects of Disturbed Soil Due to Recent

Purpose: An opportunity to determine what can be detected using UAV cameras and sensors throughout the growing season

Contacts: Bob Nielsen & Jim Camberato; Agronomy

UAV Stand Assessments of Soybean (Seeding Rate x Plant Type)

Purpose: Use UAV imagery to assess stand establishment as well as standard protocol for scouting of soybean early to late season.

Contact: Shaun Casteel, Agronomy

FMC Agricultural Solutions

1. Preemergence Experimental Herbicide and Tank Mixes Targeting Grass and Broadleaf Species in Corn – 18 treatments x 3 Reps
2. Preemergence Experimental Herbicide and Tank Mixes Targeting Grass and Broadleaf Species in Corn – 18 treatments x 3 Reps
3. Preemergence Experimental Herbicide Targeting Broadleaf Species in Corn – 11 Treatments x 3 Reps
4. Preemergence Experimental Herbicide and Tank Mixes Targeting Grass and Broadleaf Species in Soybeans – 18 treatments x 3 Reps
5. Postemergence Experimental Herbicide Targeting Applications at Different Times of day in Soybeans – 7 Treatments x 3 Reps
6. Postemergence Experimental Herbicide Targeting Soybeans at Different Stages of Growth – 7 Treatments x 3 Reps
7. Pre-emergence Experimental Herbicide Targeting Grass and Broadleaf weeds in Corn and Soybeans – 9 Treatments x 3 Reps with split corn/soy plots
8. Postemergence Experimental Herbicide Targeting Grass and Broadleaf weeds in Corn and Soybeans – 10 Treatments x 3 Reps with split corn/soy plots
9. Preemergence Experimental Herbicide Targeting Grass and Broadleaf weeds in Corn and Soybeans – 9 Treatments x 3 Reps with split corn/soy plots
10. Early Silk Application of experimental Insecticides on Sweet Corn Targeting Corn Earworm – 9 Treatments x 3 Reps

Purpose: Evaluate Crop Response of Corn/Soy, overall efficacy of all weed species present (% control), and stalk or root lodging (corn only). In soybean trials, stand counts were evaluated to characterize the treatment effect of heavy rains after chemical application. Notes were taken on symptomology on both the crop and weed species. Soil samples were

taken in order to compare results at DPAC with trials implemented at other sites around the Midwest with similar soil properties.

Contact: Scott Swanson, FMC Agricultural Solutions, Field Development Representative - Midwest

Controlled Drainage for Improvement of Water Quality

Purpose: Quantify environmental benefits of managed drainage and use of soil amendments under standard crop production.

Contact: Brenda Hofmann, Biological Science Technician and Javier Gonzalez, Soil Scientist with USDA-ARS National Soil Erosion Research Lab

Interaction of management practices on soil health and water quality

Purpose: Develop management techniques using cover crops and gypsum to increase soybean yield while maintaining soil health.

Contact: Brenda Hofmann, Biological Science Technician and Javier Gonzalez, Soil Scientist with USDA-ARS National Soil Erosion Research Lab

Cover crops, phosphorus and sulfur management on soil quality and grain yield

Purpose: Evaluate the effects of cover crops on soil phosphorus, sulfur and soil quality and grain yield

Contact: Brenda Hofmann, Biological Science Technician and Javier Gonzalez, Soil Scientist with USDA-ARS National Soil Erosion Research Lab

Legacy of Phosphorus

Purpose: Evaluate soil phosphorus drawdown rates, plant phosphorus uptake, and potential changes in corn and soybean yield with elimination of phosphorus fertilizer to long-term Fertility research plots.

Contact: Brenda Hofmann, Biological Science Technician and Javier Gonzalez, Soil Scientist with USDA-ARS National Soil Erosion Research Lab

Effect of Gypsum on Crop Yield and Soil Properties

Purpose: Evaluate the effect of gypsum on crop yields and soil properties.

Contact: Jim Camberato; Agronomy

Cover Crop Management with Roller Crimper in Soybean Production System

Purpose: Compare weed management, soybean yield and soil temperature and moisture in cereal rye plots.

Contact: Michael O'Donnell; Purdue Extension-Delaware County

Influence of the rate and frequency of FGD gypsum applications and cover crops on soil health and water quality

Purpose: Determine the effects of gypsum on grain yield and soil and water quality.

Contact: Brenda Hofmann, Biological Science Technician and Javier Gonzalez, Soil Scientist with USDA-ARS National Soil Erosion Research Lab

Topography Influences on Crop Yield

Purpose: Use high resolution LIDAR topography data to evaluate water flow and moisture

Contact: Dennis Buckmaster, Ag and Biological Engineering

Soybean Aphid Suction Trap Network

Purpose: Monitor flight of soybean aphids.

Contact: Christian Krupke; Entomology

Insect Pest Monitoring Network

Purpose: Monitor insect pest levels of corn, soybeans and wheat.

Contact: John Obermeyer; Entomology

Cooperative Ag Pest Survey

Purpose: DPAC is used as a monitoring site for a statewide trap grid for the early detection of exotic, invasive insect pests of soybean and vegetables.

Contact: Larry Bledsoe; Entomology

Heliothine Research Survey

Purpose: Use DNA samples from Heliothine moths (Corn earworm) collected weekly throughout the United States to determine the phenology and distribution of a group of viruses known to infect those moths and determine how to use those viruses in IPM strategies.

Contact: Paul Baker, Bruce Webb UKY and John Obermeyer; Entomology

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>

Contacts: Beth Hall; Agronomy

National Weather Service Weather Station (NWS)

Purpose: Record weather data on a daily basis and maintain weather record data base.

Contact: Brad Herald, National Weather Service

Understanding Habitat Needs of Northern Long-Eared Bats

Purpose: Monitor activity of Northern Long-eared bats through various collection methods.

Contact: Cheyenne Gerdes, Dr. Patrick Zollner, Forest and Natural Resources

Mixed Hardwood Demonstration Tree Planting

Purpose: Demonstrate mixed hardwoods trees planted in Indiana and the effects deer have on growth and survival of the planted and voluntary trees.

Contact: Don Carlson; Forestry and Natural Resources

Wildlife Shrub Demonstration Plantings

Purpose: Demonstrate several commonly planted wildlife species and the effects deer have on growth and survival.

Contact: Don Carlson; Forestry and Natural Resources

Forest Regeneration Demonstration Area

Purpose: Demonstrate how a forest regenerates following the removal of the woody material. Supplemental tree planting of both standard and select nursery stock occurred on the sites along with fencing of half of the site to exclude impacts of deer on regeneration.

Contact: Don Carlson; Forestry and Natural Resources

Long Term Continuous Forest Inventory

Purpose: Permanent forest inventory plots have been established and maintained on most of the woodlands at Davis PAC to monitor changes in species abundance, growth, survival, and timber quality over time.

Contact: Mike Jenkins and Don Carlson; Forestry and Natural Resources

80+ years of Central Hardwood Forest Dynamics

Contacts: Mike Jenkins and Robert Morrissey, Hardwood Tree Improvement and Regeneration Center, Department of Forestry and Natural Resources