SOUTHEAST PURDUE AGRICULTURAL CENTER
RESEARCH AND DEMONSTRATION PROJECTS
2016

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Soil Drainage and Water Quality
Long-term project to determine:
1) The effect of tile drain spacing on corn and soybean yields on a Clermont soil
2) The movement of nitrates into drainage water under typical management practices
   Eileen Kladivko, Agronomy

Cover Crops to Improve Resilience of Corn Cropping Systems
Evaluate the impacts of cover crops and other conservation practices on soil carbon, soil
aggregation, water holding capacity, nitrate leaching, and crop growth and yield in the face
of changing climate.
   Eileen Kladivko, Phillip Owens and Laura Bowling, Agronomy

Effect of Sulfur (S) and Zinc (Zn) in Corn Yields
Test different forms of S and Zn in corn where there is a low soil test for these nutrients.
   Dave Osborne, Ripley County Extension

Effect of Varying Levels of Corn Seed Treatment in Relation to Corn Yield
Seed corn with various concentration levels of seed treatment evaluated for grain yield
   Dave Osborne, Ripley County Extension

Soybean Variety Performance Trial
State variety performance trials.
   Phil DeVillez and Bill Foster, Agronomy

Corn Hybrid Performance Trial
State variety performance trials.
   Phil DeVillez and Bill Foster, Agronomy

Sun Grant Nitrogen Biomass Study
Determine the ability of annual biomass like maize and sorghum crops to produce with
various nitrogen inputs and evaluate perennial biomass crops such as switchgrass, native
prairie and miscanthus on marginal land sites.
   Sylvie Brouder, Jeff Volenec, and Niki DeArmond, Agronomy
**Indigenous Soil Potassium Supply, Fertilizer Potassium Use Efficiency, and Potassium Budgets in Indiana Corn and Soybean Production**
Evaluate the agronomic efficiency of currently recommended potassium fertilizer rates
Evaluate theoretically improved soil potassium tests for ability to predict soil potassium supply.
   Sylvie Brouder and Ronald Navarre, Agronomy

**Responses of Corn to Biological Inoculants Applied In-furrow or on the Seed**
Evaluate effectiveness of commercially biological products.
   Bob Nielsen, Jim Camberato and Jason Lee, Agronomy

**Corn Yield Response to Plant Populations**
Compare corn yield response to seeding rates
   Bob Nielsen and Jim Camberato, Agronomy

**Comparison of In-Furrow and 2X2 Starter Fertilizers on the Growth, Development, and Yield of Continuous Corn**
Corn starter fertilizer test.
   Bob Nielsen, Jim Camberato and Cody Hornaday, Agronomy

**Soybean vs. Corn Planting Dates**
Planting dates are important for both soybean and corn. This project is designed to
determine which crop should be planted to maximize yield of the respective crop as it relates
to the calendar and the growing season.
   Shaun Casteel, Bob Nielsen and Andrew Westfall Agronomy

**Soybean Seeding Rate Trial Crossed by Plant Type**
Evaluate and fine tune soybean planting rate recommendations.
   Shaun Casteel and Andrew Westfall, Agronomy

**Aspergillus – Large Experiment**
Determine background population of A.flavus and F. verticilliodes and examine the effects of
applications of Afla-guard and AF-36.
   Kiersten Wise and Jeff Ravellette, Botany & Plant Pathology

**USDA-ARS Northern Soybean Uniform Test**
Evaluate USDA-ARS Northern Uniform Soybean Test strains grouped by maturity for
comparison and seed increases.
   Gary Nowling, Brandi Schemerhorn and David Schuleter, USDA-ARS

**16S-SEP-CORN-05 Herbicide Trial**
Scepter herbicide Post Tank Mixes in Soybean.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology
**16S-SEP-SOY-08 Herbicide Trial**
Scepter herbicide post-applied tank mixes in Soybean.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**16S-SEP-CORN-04 Herbicide Trial**
Liberty herbicide post-emergence on corn.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**15-SEP-SOY-07 Herbicide Trial**
Scepter herbicide tank Mixes pre-plant in Soybean.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**15F-SEP-SOY-02 Herbicide Trial**
Dicamba-based Fall/Spring applied programs on Marestail control.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**15-SEP-SOY-03 Herbicide Trial**
Authority applied pre-plant with Two-Pass burndown.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**15-SEP-SOY-01 Herbicide Trial**
2,4-D based Fall/Spring applied programs on Marestail control.
   Bill Johnson, Dustin Johnson, and Joe Ikley, Botany & Plant Pathology

**Covercrop Termination Study**
Evaluate effectiveness of various burndown herbicides on multiple covercrop species.
   Bryan Young, Botany & Plant Pathology

**Covercrop Carryover Study**
Evaluate multiple covercrop species planted into various preemergence soybean herbicides
   Bryan Young, Botany & Plant Pathology

**BOLT Technology Non –CE programs- Basis Blend areas**
Evaluate herbicides in soybeans.
   Kelly Backscheider, Dupont Crop Protection

**BOLT technology non –CE programs- LeadOff areas**
Evaluate herbicides in soybeans.
   Kelly Backscheider, Dupont Crop Protection

**HarmonySG or Resolve SG plus Mesotrione for Pre-plant Burndown in Corn**
Evaluate corn herbicides
   Kelly Backscheider, Dupont Crop Protection

**FeXapan in no-till 2-pass programs for RR2X soybeans-southern US**
Evaluate soybean herbicides.
   Kelly Backscheider, Dupont Crop Protection

**FeXapan in total POST programs for RR2X soybeans-southern US**
Evaluate soybean herbicides.
   Kelly Backscheider, Dupont Crop Protection
Preplant Dicamba Programs for No-till Burndown in RR2X Soybeans-Southern US
Evaluate soybean herbicides.
Kelly Backscheider, Dupont Crop Protection

Corn Earworm Pheromone Trapping
To monitor the presence of corn earworm moths.
John Obermeyer, Entomology

Black Cutworm Pheromone Trapping
To monitor the presence of black cutworm moths.
John Obermeyer, Entomology

Armyworm Pheromone Trapping
To monitor the presence of armyworm moths.
John Obermeyer, Entomology

Surveying Indiana Soybean for Soybean Vein Necrosis Associated Virus and Evaluating New Management Practices
Learn more about Soybean Vein Necrosis epidemiology in Indiana to quantify the level of the threat and to also evaluate new management practices for Indiana soybean growers.
Punya Nachappa, Biology and Christian Krupke, Entomology

Soybean Aphid Suction Trap
To monitor the presence of soybean aphid.
Dave Voegtlin, National Soybean Research Center

Biomass Harvest Site Demonstration Tree Planting
Four, two-acre planting sites with four treatments and half of the acreage fenced.
Don Carlson, Forestry & Natural Resources

Woody Biomass Removal Study
Harvest a woody biomass to document the economic returns and ecological impacts from varying woody biomass retention levels.
Mike Saunders and John Dunning, Forestry & Natural Resources

Biomass Harvest Site – Research on Forest Moths (Lepidoptera)
Investigate the ecological impacts of biomass harvesting for bioenergy on forest ecosystems
Keith Summerville and Connor Parish, Drake University Environmental Science

Assessment of Repellex Systemic Capsaicin Herbivory Deterrents
The effectiveness of various products for deer and herbivore browse prevention in new hardwood tree plantings will be tested with an emphasis on the newly approved Repellex systemic repellants.
Doug Jacobs, Don Carlson, and Joshua Sloan, Forestry & Natural Resources

Woodland Salamander Response to Woody Biomass Harvest
Investigate the population response of woodland salamanders to woody biomass harvest.
Patrick Ruhl, Jewel Yeager, and Rob Chapman, Forestry & Natural Resources
**Screening Butternut for Resistance to Butternut Canker Disease - Started 2011**
To evaluate butternut canker disease.
   Jim McKenna and Brian Beheler, Hardwood Tree Improvement & Regeneration Center

**Ecological Fitness and Comparison of Pure and Hybrid Butternut - Started 2011**
Evaluate butternut from all over the native range as well as hybrids and pure lines from the SEPAC orchard.
   Jim McKenna and Brian Beheler, Hardwood Tree Improvement & Regeneration Center

**Pure Butternut Seed Orchard of New Clones Resistant to Butternut Canker – Started 2011**
Orchard seed production.
   Jim McKenna and Brian Beheler, Hardwood Tree Improvement & Regeneration Center

**Butternut Test - Started 2010**
Evaluate butternut from all over the native range as well as hybrids and pure lines from the SEPAC orchard.
   Jim McKenna and Brian Beheler, Hardwood Tree Improvement & Regeneration Center

**Limited Range Provenance Test of Black Cherry – Started 2006**
First year test in Southern Indiana of a limited range provenance (common garden) test to evaluate black cherry seedlings collected from the Allegheny National forest in Northwestern Pennsylvania in comparison to northern and southern Indiana sources along with seedlings from selections in an IDNR seed orchard with other plots in Central Indiana and Southern Michigan 50 miles north of the Indiana border.
   Phil O’Connor, Indiana Department of Natural Resources; Jim McKenna, Keith Woeste, Hardwood Tree Improvement & Regeneration Center

**Mass Selection of Butternut for Resistance to Butternut Canker from a Range-Wide Collection – Started 2005**
Evaluation of Butternut seedlings collected throughout the native range of butternut from resistant individuals for future breeding and development of Butternut Canker resistant germplasm.
   Jim McKenna, Keith Woeste, Hardwood Tree Improvement and Regeneration Center

**Mass Selection of Butternut for Resistance to Butternut Canker from a Wisconsin Forest – Started 2004**
Evaluation of Butternut seedlings from a wood lot in Wisconsin where a large population of Butternut trees with resistance to the butternut canker fungus are growing.
   Jim McKenna and Keith Woeste, Hardwood Tree Improvement & Regeneration Center

**Butternut Resistance Test – Started 2004**
A test of susceptible, moderately resistant and resistant butternut seedling families for resistance to butternut canker disease.
   Jim McKenna and Keith Woeste, Hardwood Tree Improvement & Regeneration Center
**Butternut Resistance Seed Orchard – Started 2001**
Grafted butternuts from resistant selections from Southern Illinois University (Carbondale) to be used for future breeding of resistant butternut along with own-rooted cuttings from butternut seedlings.

Keith Woeste, Paula Pijut, and Jim McKenna, Hardwood Tree Improvement and Regeneration Center; Mike Ostry USDA-Forest Service -Northern Research Station; John Seifert, Indiana Department of Natural Resources

**Progeny Test of Black Walnut Families for Timber Production via Sprouted Seed - Started 2004**
Evaluation of select black walnut families for vigor and timber quality using sprouted seed as a means of better controlling variables such as initial seedling size and to make grid-planting easier and more economical

Jim McKenna and Keith Woeste, Hardwood Tree Improvement & Regeneration Center

**Effect of Genotype and Seedling Size on Early Walnut Plantation Performance**
Test walnut seedlings from 9 diverse mother trees grown at 3 different planting densities in the IDNR State Forestry Nursery for out-planting survival and growth.

Jim McKenna and Doug Jacobs, Hardwood Tree Improvement & Regeneration Center

**Limited Range Black Cherry Provenance Test – Started 2007**
Second year test in Southern Indiana of a limited range provenance (common garden) test to evaluate Black Cherry seedlings collected from the Allegheny National forest in north western Pennsylvania in comparison to northern and southern Indiana sources along with seedlings from selections in an IDNR seed orchard. Other plots are in Central Indiana and Southern Michigan 50 miles north of the Indiana border.

Jim McKenna, Keith Woeste, and Rob Chapman, Forestry & Natural Resources; USDA Forest Service, National Forest - Region 9; Phil O'Connor, Indiana Department of Natural Resources

**Red Oak Progeny Test – Started 2008**
The beginning of a northern red oak improvement program using genetic testing of select northern red oak seed trees.

Keith Woeste, Rob Chapman, Keith Woeste and Jim McKenna, Forestry & Natural Resources; Phil O'Connor, Indiana Department of Natural Resources

**Red Oak Progeny Test – Started 2008**
Ongoing testing of select northern red oak seed trees.

Keith Woeste, Rob Chapman, and Jim McKenna, Forestry & Natural Resources; Phil O'Connor, Indiana Department of Natural Resources

**Black Walnut Progeny Test – Started 2008**
Ongoing genetic improvement of select black walnut seed trees to develop improved walnut seed sources for Indiana and the Midwest.

Keith Woeste, Rob Chapman, and Jim McKenna, Forestry & Natural Resources
Deer Fencing, Select Genetics, & Slow-Release Fertilizer Mixed Hardwood Plantation
– Started 2008
Demonstration of research results that have shown improvement in tree growth and form utilizing deer fencing, select genetic stock, and fertilizing with slow-release fertilizer at the time of planting with each main factor being tested in large blocks to demonstrate their applied application with species including northern red oak, white oak, black walnut & cherry.
  Don Carlson, Jim McKenna, Lenny Farlee, Rob Chapman, Mike Saunders, Doug Jacobs, and Keith Woeste, Forestry & Natural Resources; Phil O’Connor and Bob Hawkins, Indiana Department of Natural Resources

Red Oak Progeny Test – Started 2009
Ongoing genetic improvement of select black walnut seed trees to develop improved northern red oak seed sources for Indiana and the Midwest.
  Keith Woeste, Rob Chapman, and Jim McKenna, Forestry & Natural Resources; Phil O’Connor, Indiana Department of Natural Resources

Black Walnut & Northern Red Oak Container-grown vs. Bare-Root Nursery Grown Stock – Started 2009
Assess the performance of containerized grown tree seedling to determine uniformity, year-to-year consistency and lower cost of planting of red oak and black walnut.
  Lenny Farlee, Rob Chapman, Keith Woeste, Don Carlson, and Jim McKenna, Forestry & Natural Resources; Anthony Davis, University of Idaho

Purdue Continuous Forestry Inventory Plots
Maintain continuous forestry inventory data from established woodlots.
  Don Carlson, Forestry & Natural Resources

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