MISSISSIPPI SOYBEAN PROMOTION BOARD
2014-2015 FUNDED RESEARCH/EXTENSION PROJECTS

Title: Lepidopteran insect pest management in soybeans, 01-2014, $72,163

PI: Don Cook (dcook@drec.msstate.edu), Miss. State Univ.

Objectives: Refine/validate current corn earworm thresholds in soybeans; determine residual efficacy of new insecticides for control of soybean looper; maintain and continue testing of labeled insecticides to manage soybean insects.

Duration: Year 4 of 4

Expected Results: Development of data that will be used to update soybean insect control guidelines in the "Insect Control Guide for Agronomic Crops".

Title: Evaluation of soybean plant response to tillage system, 02-2014, $12,000

PI: Ernie Flint, ernestf@ext.msstate.edu, MCES

Objectives: Determine economic feasibility of adopting a no-till system for soybean production, and evaluate soybean performance and soil parameters when a no-till system is converted to a till system of production.

Duration: Year 2 of 3

Expected Results: Provide definitive expectations that will be realized from converting a till system for soybean production to a no-till system, and vice versa.

Title: Effect of spray additives on spray droplet size, coverage, and efficacy, 04-2014, $15,131

PI: Darrin Dodds, dmd76@pss.msstate.edu, MCES

Objectives: Determine the impact of spray additives on spray droplet size, spray coverage, and efficacy of common pesticides.

Duration: Year 1 of 3

Expected Results: Improve application efficiency of new pesticide technologies that have potential for off-target movement that can adversely impact non-target species and crops.

Title: Support of Delta Agriculture, Delta Council, 05-2014, $15,000

Title: Agronomic and economic evaluation of soybean/corn rotation with twin-row production and increased nutrient management, 07-2014, $22,678

PI: M. Wayne Ebelhar (webelhar@drec.msstate.edu), Miss. State Univ./DREC

Objectives: Determine agronomic implications of soybean/corn rotations in twin-row planting systems under standard and high soil fertility with irrigation; evaluate impact of soybean/corn rotation system on whole-farm profitability.

Duration: Year 3 of 6

Expected Results: Determination of the feasibility of a soybean/corn rotation system for increasing yields and profits when used on irrigated soils in Mississippi.

Title: Costs and benefits of on-farm water storage (OFWS) systems, 10-2014, $67,896

PI: Mary Love Tagert, (MLTagert@abe.msstate.edu), Miss. State Univ.

Objectives: Quantify and determine the cost-benefit of using OFWS for irrigation water supply, and quantify the nutrient load in recycled water that is used for irrigation.

Duration: Year 1 of 3

Expected Results: Increase the water supply options for irrigation of Mississippi crops to replace underground water that is being overdrawn.

Title: Soybean storage profitability and marketing strategies for Mississippi soybean growers, 11-2014, $30,792

PI: Brian Williams, (williams@agecon.msstate.edu), Miss. State Univ.

Objectives: Determine the advantages of and estimate the costs associated with storing and drying soybeans in on-farm facilities.

Duration: Year 1 of 3

Expected Results: Determination of optimal storage capacity and development and explanation of marketing strategies for producers who use on-farm storage facilities.

Title: Nematode management investigations in Mississippi soybean production systems, 12-2014, $38,808

PI: Tom Allen, (tallen@drec.msstate.edu), Miss. State Univ./DREC

Objectives: Determine impact of 1) Telone II and seed-applied nematicides on soybean production in nematode-infested fields, 2) variety selection for root knot nematode-infested fields, and 3) winter cover crops for managing sites with high nematode pressure.

Duration: Year 2 of 3

Expected Results:	Specific management guidelines for growing soybeans on soils that are infested with nematode species that limit soybean production.
Title:	Determining environmental management schemes to influence the development of high seed quality in MG IV and MG V soybean, 14-2014, $90,699
PI:	Tom Allen (tallen@drec.msstate.edu), Miss. State Univ./DREC
Objectives:	Create environments (controlled and natural settings) conducive to the development of seed rot, and determine their impact on seed quality; determine specific pathogenic organisms that infect soybean plant parts in the different environments, and their pathogenicity; and determine nutrition status of seed and plant tissue and its possible correlation with seed rot.
Duration:	Year 1 of 6
Expected Results:	Determination of the fungal complex responsible for and its association with seed rot in conducive environments; determination of specific environmental conditions and associated pathogens that promote seed rot in soybeans; development of strategies involving fungicide/insecticide applications and application timing that can be used to reduce the impact of seed rot on harvest seed quality of soybeans when conducive environmental conditions are anticipated.
Title:	Soybean disease monitoring for Mississippi soybean producers ,15-2014, $50,000
PI:	Tom Allen (tallen@drec.msstate.edu), Miss. State Univ./DREC
Objectives:	Monitor occurrence and geographic location of foliar diseases, including rust, and provide producers with up-to-date information that can be used to make timely treatment decisions; determine environmental conditions that promote soybean rust, and effective fungicide management schemes for rust treatment in locations where it occurs.
Duration:	Continuous
Expected Results:	Notification of producers through media outlets within hours of detection of significant outbreaks of yield-limiting diseases so that timely treatment decisions can be made.
Title:	Threecornered alfalfa hopper (TCAH) management in soybeans, 17-2014, $50,820
PI:	Fred Musser (fm61@msstate.edu), Miss. State Univ.

Objectives: Refine current TCAH thresholds in soybeans; estimate sweep net sampling efficiency for TCAH in soybeans; and evaluate efficacy and residual activity of insecticide seed treatments and foliar insecticides against TCAH.

Duration: Year 3 of 3

Expected Results: Refined thresholds to enable consultants and growers to apply insecticides when economically justified, and the guidelines to translate sweep net catches of TCAH into reliable threshold estimates.

Title: Evaluation of private and public soybean varieties and breeding lines for resistance to stem canker, forgeye leaf spot, purple leaf and pod stain, black root rot, and rust, 19-2014, $49,093

PI: Gabe Sciumbato (Gabe@drec.msstate.edu), Miss. State Univ./DREC

Objectives: Determine virulence of collected stem canker isolates; evaluate entries in the Mississippi Soybean Variety Trials (MSVT) for resistance/reaction to stem canker, frogeye leaf spot, purple leaf and pod stain, and black root rot; and evaluate MSVT entries for resistance to soybean rust.

Duration: Continuous

Expected Results: Data that will provide producers information about the level of varieties' disease resistance and/or susceptibility so that disease-tolerant/resistant varieties can be selected to avoid yield losses.

Title: Addressing critical weed control issues in soybean, 20-2014, $121,608

PI: Trent Irby (tirby@ext.msstate.edu), Miss. State Univ./MCES

Objectives: Develop strategies for management of herbicide-resistant (HR) weeds; determine utility of dicamba-, 2,4-D-, and HPPD-tolerant soybeans for positioning into weed management programs; evaluate weed control strategies such as winter cover crops for managing weeds in soybeans.

Duration: Year 2 of 3

Expected Results: Identification/development of cost effective control strategies for the various weed control problems that occur in soybeans, to include burndown options to control problem weeds, control options for HR weeds, management options to prevent or delay development of HR weeds, and assessment of new herbicide technologies and traits that provide new weed management options.

Title: Response and net profit of genetically enhanced and conventional soybean varieties to fertilizer recommendations on low nutrient soils in rainfed and irrigated production systems, 21-2014, $57,616

PI: Mark Shankle (shankle@ra.msstate.edu), Miss. State Univ., PRFBES

Objectives: Compare/validate fertility recommendations from different soil testing facilities; identify optimum K fertilizer rate for new compared to old soybean varieties grown on soils low in K; determine the economic benefits of K fertility recommendations from different testing labs.

Duration: Year 2 of 3

Expected Results: Determination of the economic K fertility rate for soybean varieties grown in rainfed and irrigated environments, and determination of the correct K fertilizer rate based on recommendations from different soil testing labs.

Title: Correlation of soil test K and P indices with plant tissue concentrations and soybean yield, 22-2014, $34,406

PI: Bobby Golden (bgolden@drec.msstate.edu), Miss. State Univ./DREC

Objectives: Evaluate soybean yield response to P and K fertilization rate; correlate Lancaster and Mehlich-3 soil test P and K with plant indices (tissue concentration and seed yield).

Duration: 3 of 5

Expected Results: Provide a set of soil test recommendations that can be applied to soil test data from laboratories that use the Mehlich-3 extractant; update current P and K fertility recommendations for soybean that are based on the Lancaster extraction method; develop prescription fertilizer application guidelines for variable rate equipment.

Title: Corn and soybean crop residue management impact on soil quality, yield, and returns, 25-2014, $36,714

PI: Normie Buehring (buehring@ra.msstate.edu), Miss. State Univ./NMREC

Objective: Determine how tillage and management of residue in a corn/soybean rotation affect soil quality, crop yields, and economic returns.

Duration: Year 4 of 5

Expected Results: Information that can be used by producers to make informed decisions (based on soil quality and economic returns) regarding tillage-crop residue management practices in a corn/soybean rotation production system.

Title: Soybean response to N addition in high yield environments, 27-2014, $22,770

PI: Bobby Golden (bgolden@drec.msstate.edu), Miss. State Univ./DREC

Objective: Determine critical application time for and form of N fertilizer that will minimize detriment to N_2 fixation and potentially increase soybean seed yield.

Duration: Year 2 of 3

Expected Results: Recommendations and guidelines for applying N fertilizer to soybeans that may have insufficient N in high-yield environments.

Title: Developmentof Phomopsis seed decay-resistant soybean lines from new sources of resistance, 28-2014, $18,000

PI: Anne Gillen (Anne.Gillen@ars.usda.gov), USDA-ARS

Objective: Develop high-yielding soybean lines with resistance to Phomopsis seed decay (PSD).

Duration: Year 4 of 4

Expected Results: Identify soybean lines with resistance to PSD that can used in a breeding program to develop resistant varieties.

Title: Delta agricultural weather project, 29-2014, $23,889

PI: Mark Silva, marks@ext.msstate.edu, Miss. State Univ./DREC

Objective: Continue data collection and dissemination of pertinent agricultural weather data and products required by Delta researchers and producers.

Duration: Continuous

Expected Results: Collection of weather data for Delta Counties that will be assimilated into the DREC weather website archive to be available as a historical weather source for researchers, producers, and consultants.

Title: Evaluation of the inheritance of resistance to Phomopsis seed decay (PSD) in PI 458130 populations, 31-2014, $43,303

PI: Shuxian Li (shuxian.li@ars.usda.gov), USDA-ARS

Objective: Phenotype F_2 population of PI 458130 based on seed plating assays for incidence of Phomopsis infection from a Phomopsis-inoculated field trial in order to identify new sources/genes for resistance to PSD that can be used for breeding high-yielding varieties with PSD resistance.

Duration: Year 1 of 2

Expected Results: New sources/genes that impart resistance to PSD that can be used in the development of high-yielding varieties and agronomically competitive breeding lines with PSD resistance.

Title: Phenotyping F_2 populations segregating for frogeye leaf spot resistance, 32-2014, $24,500

PI: Jeff Ray (Jeff.Ray@ars.usda.gov), USDA-ARS

Objectives: Apply molecular markers to F2 DNA from previous F2 phenotype screening, phenotype a confirming F2 population segregating for *C. sojina* resistance, collect tissue and isolate DNA from the confirming population, and advance F2 lines in a breeding program.

Duration: Year 2 of 3

Expected Results: Molecular data that will be used in future studies to map FLS-resistance genes that will ultimately be used to identify race-specific FLS-resistant soybean genotypes.

Title: Development of reniform nematode resistant soybean lines from JTN-5203, PI 404166, and 02011-126-1-1-5-1-1 soybean, 33-2014, $23,300

PI: Salliana Stetina (Sally.Stetina@ars.usda.gov), USDA-ARS

Objectives: Develop F_2 and $F_{2:3}$ populations derived from crosses between the above lines and soybean lines agronomically adapted for Mississippi, and evaluate progeny from these populations for selection of genotypes with superior reniform nematode resistance.

Duration: Year 2 of 3

Expected Results: Development of soybean germplasm with resistance to reniform nematode that can be used to develop resistant varieties for Mississippi soybean production systems.

Title: Development of a seedling inoculation technique to evaluate soybean for resistance to Phomopsis seed decay, 34-2014, $26,679

PI: Shuxian Li, (shuxian.li@ars.usda.gov), USDA-ARS

Objective: Develop a seedling inoculation technique to evaluate soybean for resistance to Phomopsis seed decay (PSD), analyze the correlation between seed assays from field trials and the seedling assays, and use the technique to test soybean varieties for PSD resistance.

Duration: Year 2 of 2

Expected Results: Develop and use the technique to determine the reaction of soybean lines to Phomopsis infection in order to identify lines with resistance to PSD.

Title: Provide in-field soybean diagnostic service for Mississippi soybean producers, 35-2014, $10,000

PI: Billy Moore (wfm1888@aol.com), Private Consultant

Objective: To provide soybean disease diagnostic assistance to soybean producers and leaders of MSPB-funded projects.

Duration: Continuous

Expected Results: Disease problems that occur in producer and MSPB-funded project fields will be evaluated to provide assistance to MSU researchers and Extension personnel.

Title: Characterization of the resistance potential for the diamide insecticides Belt and Prevathon, 37-2014, $37,316.

PI: Jeffrey Gore, (jgore@drec.msstate.edu), Miss. State Univ./DREC

Duration: Year 2 of 3

Objective: Quantify the variation in response of bollworm; determine influence of selection pressure on resistance development in bollworm, soybean looper, and beet armyworm; correlate field control with this insecticide class against resistant and susceptible insect populations; and determine heritability and mechanisms of resistance in these insects.

Expected Results: Management strategies for the use of diamide insecticides in soybeans that will mitigate resistance development and thus prolong/preserve their effectiveness.

Title: Yield and economic responses of soybean to irrigation initiation on clay soil in Mississippi, 40-2014, $25,322

PI: H.C. (Lyle) Pringle (lpringle@dres.msstate.edu), Miss. State Univ./DREC

Duration: Year 3 of 4

Objective: Determine the relationship of irrigation initiation timing to yield and economic return from soybean grown on Mississippi Delta soils.

Expected Results: Irrigation initiation timing recommendations that will lead to maximum economic yields and conservation of irrigation water (increased irrigation efficiency) for producers growing early-planted MG 4 soybean varieties.

Title: Video support for Mississippi soybean producers, 41-2014, $16,203

PI: Leighton Spann, leightons@ext.msstate.edu, Miss. State Univ.

Duration: Continuous

Objectives: Identify important soybean production topics and produce video segments that will provide producers with current, timely information needed to address issues related to those topics; video presentations of results from MSPB-funded research projects that will be posted on the MSPB website (www.mssoy.org)

Expected Results: Video segments featuring projects and presentations of results from funded projects posted on the MSPB website.

Title: Determining the effect of low concentrations of dicamba and 2,4-D on soybean growth and yield, 42-2014, $37,469

PI: Dan Reynolds (dreynolds@pss.msstate.edu), Miss. State Univ.

Duration: Year 3 of 3

Objectives: Determine effect of simulated drift and volatility of dicamba and 2,4-D on soybean growth and yield, and the most sensitive soybean growth stage to these herbicides; compare the effectiveness of various clean-out procedures for sprayers that have been used to apply these auxin herbicides.

Expected Results: With the advent of new transgenic herbicide technologies, results from this research will demonstrate to producers the importance of good stewardship in the application of auxin herbicides, as well as the importance of and methodology for cleaning spray equipment used in their application.

Title: Mitigating herbicide spray drift under field conditions, 44-2014, $38,167

PI: Dan Reynolds (dreynolds@pss.msstate.edu), Miss. State Univ.

Duration: Year 3 of 3

Objectives: Compare effect of various spray tips on herbicide drift, and the efficacy of these spray tips when used with contact, auxin, and systemic herbicides; compare efficacy of light and non-light activated herbicides when applied during both daytime and nighttime hours.

Expected Results: Recommendations to optimize herbicide efficacy and avoid off-target deposition when applying herbicides that can be used with new transgenic herbicide traits in soybean.

Title: Large-scale drift assessment with aerial imagery and ground-based spectral reflectance, 45-2014, $39,667

PI: Dan Reynolds (dreynolds@pss.msstate.edu), Miss. State Univ.

Duration: Year 2 of 3

Objectives: Evaluate effect of drift reduction technologies on off-target soybean injury with dicamba; assess use of aerial imagery and ground-based spectral reflectance methods for mapping drift injury on large landscapes; and develop a pictorial guide for rating dicamba injury.

Expected Results: An objective tool for recognizing and assessing drift injury from auxin herbicides at the field or landscape level.

Title: Remote sensing of row crops with small unmanned aerial vehicles (UAV), 46-2014, $2,700

PI: Dean Pennington, dean@ymd.org, YMD

Duration: 1 year

Objectives: Evaluate and improve operational capabilities of the UAV/remote imagery/data analysis components used in remote sensing, and identify correlations between imagery data and components of mapped locations.

Expected Results: UAV-acquired multispectral canopy reflectance data that can be used to map canopy cover and calculate Normalized Differential Vegetative Index (NVDI) to provide an estimate of plant stress/vigor.

Title: Surface conditions affecting likelihood of temperature inversions and timing of aerial spraying, 47-2014, $10,463

PI: Steve Thomson (steve.thomson@ars.usda.gov), USDA-ARS

Duration: Year 2 of 2

Objectives: Use weather tower data to track atmospheric stability over a cropping season and use results to predict when a temperature inversion is likely to occur.

Expected Results: Provide guidelines to pilots and farm managers that can be used to avoid spraying under stable atmospheric conditions.

Title: Estimation of deer damage to soybean production in Mississippi: a spatial and temporal context, 48-2014, $28,281

PI: Bronson Strickland (bstrickland@cfr.msstate.edu), Miss. State Univ.

Duration: Year 3 of 3

Objectives: Quantify deer abundance and utilization of soybean fields during browsing, and estimate/quantify subsequent loss of soybean yield; characterize deer habitat surrounding soybean fields to establish relationship with soybean damage; and test various deer-damage mitigation techniques for potential economic benefit.

Expected Results:	A reliable estimate of the impact of deer depredation on soybean fields that will be used to develop cost-effective management practices, and information for producers to use for accurately targeting areas for damage mitigation.
Title:	Farm Families of Mississippi, MFBF, 50-2014, $15,000
Title:	Bufkin Fellowship–Effect of fall-seeded cereal cover crops when used in soybeans for control of Palmer amaranth in Mississippi soybeans, 51-2014, $68,000
PI:	Ryan Edwards, recipient (re219@pss.msstate.edu), Miss. State Univ.
Duration:	Year 3 of 3 (starts June 2014)
Objective:	Determine effectiveness of cover crops for controlling underlying weed populations in conjunction with PRE residual herbicide applications in soybeans.
Expected Results:	Determine if cover crops can be used as a viable weed management component for Mississippi soybeans, and determine which cover crop species may provide the most benefit if this option is viable.
Title:	Developing scientific irrigation scheduling methods for Mississippi soybean production systems, 52-2014, $34,977
PI:	Jason Krutz (jkrutz@drec.msstate.edu), Miss. State Univ./DREC
Duration:	Year 3 of 3
Objective:	Evaluate existing and new irrigation scheduling tools for improving soybean yield, seed quality, and irrigation water use efficiency under Midsouth growing conditions.
Expected Results:	Identification of best method(s) that can be used by soybean producers to schedule soybean irrigation for optimum yield and returns, and water conservation.
Title:	Developing profitable deficit irrigation guidelines for Mississippi soybean production systems, 53-2014, $98,497
PI:	Jason Krutz (jkrutz@drec.msstate.edu), Miss. State Univ./DREC
Duration:	Year 3 of 3

Objectives: Increase soybean yield potential and profitability by developing production systems that require up to 25% less irrigation water through 1) determining optimum physiological period for initiating irrigation, 2) determining critical physiological period for terminating irrigation, and 3) determining growth stage(s) when deficit irrigation adversely affects yield and profitability.

Expected Results: Identification of those periods of soybean development when irrigation water can be withheld or curtailed in order to reduce seasonal irrigation application amounts.

Title: Developing strategies for improving furrow irrigation efficiency, 54-2014, $76,100

PI: Jason Krutz (jkrutz@drec.msstate.edu), Miss. State Univ./DREC

Duration: Year 2 of 3

Objectives: Determine utility of surge irrigation and surge irrigation + PHAUCET for increasing surface irrigation efficiency while simultaneously maintaining or improving irrigated soybean yields.

Expected Results: Identification of a furrow irrigation system that can be used by Mississippi soybean farmers to realize the most efficient use of surface-applied irrigation water for soybeans.

Title: Row crop irrigation science extension and research (RISER) program, 55-2014, $137,256

PI: Jason Krutz (jkrutz@drec.msstate.edu), Miss. State Univ./DREC

Duration: Year 2 of 3

Objectives: Develop and validate irrigation best management practices, and utilize onsite farm application and training programs to facilitate wide-spread adoption of these best irrigation management practices and water conservation tools for soybean producers in Mississippi

Expected Results: Identify and validate irrigation best management practices, and disseminate this information to Mississippi soybean producers in training venues offered via new and existing extension programs.

Title: Impact of irrigation initiation timing on plant development and yield of indeterminate and determinate soybean varieites, 56-2014, $48,890

PI: Trent Irby (tirby@ext.msstate.edu), Miss. State Univ./MCES

Duration: Year 2 of 2

Objectives: Provide economic assessment of various irrigation initiation timings, and measure differences in plant development and yield from the different timings.

Expected Results: Determination of differing yields/costs/savings associated with different irrigation initiation timings, and determine the effect of these timings on plant development and yield components.

Title: MSU-ES on-farm soybean variety demonstration program, 57-2014, $46,624

PI: Trent Irby (tirby@ext.msstate.edu), Miss. State Univ./MCES

Duration: Year 2 of 3

Objectives: Identify soybean varieties that are best suited to specific soil regions of Mississippi, and collect data that can be used to refine results from the MSVT.

Expected Results: Identification of soybean varieties and subsequent management practices/issues that are specific to distinct production regions in Mississippi.

Title: Impact of planting date and maturity group on management strategies for insect pests in Mississippi, 58-2014, $58,647

PI: Angus Catchot, (acatchot@ext.msstate.edu), Miss. State Univ./MCES

Duration: Year 2 of 2

Objectives: In ESPS and conventional soybean plantings of MG IV and V varieties, identify seasonal periods that are most susceptible to damage from insect pests, evaluate effects of season-long caterpillar control, and document potential risk from caterpillar pests by using disruptive pyrethroid sprays.

Expected Results: Risk models for major caterpillar pests, identification of periods of greatest benefit for using high-value insecticides, and documentation of potential risk vs. reward for disruptive sprays.

Title: Bee project: Assessing impact of neonicotinoid (NEO) seed treatments on pollinators, 59-2014, $54,948

PI: Angus Catchot, (acatchot@ext.msstate.edu), Miss. State Univ./MCES

Duration: Year 2 of 2

Objectives: Quantify number of honey bees visiting agronomic crops in MS, titrate NEO insecticides in feeding stations in bee hives and monitor bee health, and determine NEO levels in soybeans from emergence through maturity after seed treatment with NEO insecticides.

Expected Results:	Identify active bee feeding times and duration in row crops, determine if NEO insecticides detected in crops have adverse effect on bees, and determine when NEO levels decrease to safe levels for pollinator exposure.
Title:	Characterization of endophytic microbial communities associated with charcoal rot disease in soybean, 60-2014, $61,064
PI:	Shi-En Lu, (sl332@msstate.edu), Miss. State Univ.
Duration:	Year 2 of 2
Objectives:	Characterize endophytic bacterial and fungal communities associated with charcoal rot disease, and investigate the effects of inoculation with bacteria and fungi on charcoal rot disease development and soybean growth.
Expected Results:	Provide basis for guidelines for charcoal rot disease management in soybeans, and possibly provide a bacterial/fungal-based microbial package for controlling charcoal rot.
Title:	Investigations into strobilurin fungicide resistance of soybean pathogens in Mississippi, 61-2014, $53,585
PI:	Maria Tomaso-Peterson, (mariat@pss.msstate.edu), Miss. State Univ.
Duration:	Year 2 of 4
Objectives:	Monitor soybean fields for strobilurin (Qo1) resistance in selected diseases, ID mechanisms of resistance, and determine potential fitness costs associated with Qo1 resistant soybean pathogens.
Expected Results:	New information and awareness concerning fungicide resistance, the extent of that resistance, the potential threat of that resistance to profitable soybean production, and a determination of the long-term effects of disease resistance to this class of fungicides.
Title:	Determine irrigation rate and timing, and water availability for optimum yield, water use efficiency, and profitability of soybean in Mississippi Blackland Prairie region, 62-2014, $25,000
PI:	Gary Feng, gary.feng@ars.usda.gov, USDA-ARS
Duration:	Year 1 of 3
Objectives:	Determine triggering criteria to maximize yield and water use efficiency (WUE) when using on-farm stored water for irrigation, and compare economics of using surface vs. groundwater.
Expected Results:	A management tool for predicting the amount of stored/impounded water available/needed for soybean irrigation and how best to schedule irrigation from impounded water.

Title: Soybean vein necrosis virus (SVNV) in Mississippi, 66-2014, $49,391

PI: Sead Sabanadzovic, (ss501@msstate.edu), Miss. State Univ.

Duration: Year 2 of 3

Objectives: Estimate incidence of SVNV in Mississippi soybeans, annotate symptoms in infected plants, ID alternative hosts, and study genetic diversity of the MS SVNV population.

Expected Results: New knowledge about this relatively new virus pathogen of soybeans.

Title: Blaine Fellowship–Managing charcoal rot using soil incorporated nutrients, 72-2014, $70,800

PI: Tessie Wilkerson, recipient, twilkerson@drec.msstate.edu, Miss. State Univ.

Duration: Year 2 of 3 (starts Aug. 2014)

Objectives: Determine the role of nutrition and soil-applied nutrients in reducing infection by charcoal rot, and determine pathogenicity differences among isolates of the pathogen that originate from other hosts in addition to soybeans.

Expected Results: Provide management options and specific methods to alleviate stress and delay disease symptom expression resulting from charcoal rot infestation.

Title: Soybean physiological maturity: documentation and developing a tool for management, 75-2014, $100,718

PI: K. Raja Reddy, krreddy@pss.msstate.edu, Miss. State Univ.

Duration: Year 1 of 3

Objectives: Precisely identify reproductive stages of soybean and soybean physiological maturity as a defined period from flowering in MG IV and V varieties.

Expected Results: Development of a tool that can be used to precisely identify critical soybean reproductive stages that are used as triggers for management inputs.

Title: Web application for flexible pipe calculation system, 76-2014, $26,487

PI: James Loper, randyl@ext.msstate.edu, Miss. State Univ.

Duration: 1 Year

Objectives: Create an online software tool that can be used to optimize designs for flexible pipe irrigation systems.

Expected Results: An updated, online version of the PHAUCET tool.

Compiled by Larry G. Heatherly, Mar. 2014, larryheatherly@bellsouth.net