

# **NCSRP**



**NORTH CENTRAL SOYBEAN  
RESEARCH PROGRAM**

**2019 ANNUAL REPORT**



**2019 NCSRP RESEARCH PROJECT  
SUMMARIES CAN BE FOUND  
ONLINE AT:**

**SoybeanResearchInfo.com**



**PROJECTS FUNDED IN FY2019:**

- An Integrated Approach to Enhance Durability of Soybean Cyst Nematode (SCN) Resistance for Long-Term Strategic SCN Management
- Validation of the Benchmarking Process Through an Integrated On-Farm Partnership
- Multi-pronged Strategies to Provide Efficient, Sustainable and Durable Control of Sclerotinia Stem Rot
- Characterization of Phytophthora sojae and Phytophthora sansameana Populations in the North Central Region and an Assessment of Management Strategies
- Developing an Integrated Management and Communication Plan for Soybean Sudden Death Syndrome (SDS) in the North-Central Region
- Discovering and Finally Understanding the Functions of Genes that Underlie Major Agricultural Traits in Soybean
- Increasing the Rate of Genetic Gain for Yield in Soybean Breeding Programs
- Second SCN Coalition: Resistance Management and Awareness Campaign
- Seedling Diseases: Biology, Management and Education
- Soybean Entomology in the North-Central Region: Management and Outreach for New and Existing Pests
- Soybean Extension Group: Bringing Science to Farmers
- Non-Transgenic Generation of Herbicide Resistance in Soybean Using CRISPR Base Editing

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# 2019 NCSRP BOARD OF DIRECTORS

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# WHO WE ARE

The North Central Soybean Research Program (NCSRP) is recognized as a leader in multi-state collaborative research and outreach efforts to support soybean farmers and drive the soybean industry forward. The focus of NCSRP is soybean production research and extension outreach. NCSRP's emphasis on enhancing and protecting soybean yield through genetics and agronomic practices contributes to soybean farmer success today and tomorrow.

**Mission:** NCSRP will serve as a bridge between state and national soybean organizations and will be the recognized leader in funding and communicating basic and applied soybean research programs that are highly collaborative and uniquely appropriate in addressing soybean production, profitability and environmental sustainability for growers across the North Central region.

## Guiding Statements:

**1.** NCSRP Executive Board will review overall program impact and success and establish specific research priorities of regional importance on a five-year cycle (e.g. key diseases, insects, production practices, etc.).

**2.** NCSRP funded programs and projects will not be redundant with current state (QSSB) or nationally (USB) funded programs but may complement and extend state or nationally funded projects when addressing the common interests and needs of North Central region soybean growers.

- NCSRP will maintain communication and collaborative connectivity with QSSBs and the USB to maintain awareness of state and national soybean research priorities and funding.

- Regional researchers submitting proposals for NCSRP funding must provide clear statements of research being funded by a QSSB or the USB.

**3.** Multi-year research project or program proposals will be accepted for funding consideration, but annual renewal will be predicated on successful generation and communication of meaningful annual results.

**4.** NCSRP emphasizes the collection, compilation and dissemination of research results through appropriate peer reviewed scientific abstracts and journals, extension publications, farmer-focused bulletins, appropriate websites (Soybean Research & Information Network) and databases (National Soybean Checkoff Research Database).

## Collaborative Soybean Research Objectives and Priorities:

**1.** Soybean yield and quality enhancement through genetic improvement and biotic and abiotic stress mitigation for soybean maturity groups 0-IV.

- Classical and molecular soybean breeding efforts that will enhance yield potential and yield stability

clearly focused to the North Central region.

- Research that addresses the control of insects and diseases (defensive traits) with consistent or potentially significant economic impacts across the North Central region.
- Research that addresses weed resistance to herbicides for species of common occurrence and threat across the North Central region.
- Research that addresses soybean response to water, nutrients, soil and environmental conditions unique to the North Central region.

**2.** Soybean production practices that will increase yield, profitability and environmental stewardship issues specific to the North Central region.

- Soybean-corn rotations
- Plant populations, row spacing and input management
- Water quality and watershed planning
- Cover crops and other conservation agronomy
- Soybean production sustainability and life cycle assessment and life cycle assessment.



# LETTER FROM THE PRESIDENT

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**A**t the end of the decade farmers faced a whirlwind of activity including harsh weather with record-breaking floods, low export quantities and tariff issues. However, the North Central Soybean Research Program (NCSRP) has continued to prevail with its commitment to soybean research.

Our summer board meeting in Wooster, Ohio, greenlighted two new projects: Combatting the soybean gall midge, and novel approaches for increasing soybean seed protein while maintaining oil and yield. The board continued support for nine other ongoing projects.

Two NCRSP-funded projects that interest me personally are the use of CRISPR base editing in soybeans, led by Ohio State University; and the project focusing on SCN resistance and its approach to long-term management. It is great that seven states are collaborating to fight this soybean disease.

I encourage you to take a few minutes and visit the Soybean Research & Information Network website ([www.soybeanresearchinfo.com](http://www.soybeanresearchinfo.com)). This

website and the National Soybean Checkoff Research Database ([www.soybeanresearchdata.com](http://www.soybeanresearchdata.com)) are great resources available for you — and by you — thanks to your checkoff dollars.

I hope when reading about the accomplishments of NCSRP, you can see how regional research and collaborations are important to keep moving forward and evolving the future of soybeans.

To the soybean farmers of Pennsylvania, we welcome you and the Pennsylvania Soybean Promotion Board to the NCSRP.

I also want to extend thanks to the United Soybean Board for partnering with us this year. We are very excited to be working with you and warmly welcome this partnership. Thank you for the honor of serving as your NCSRP president this year. It truly has been a wonderful and rewarding experience.

**Cecil Demott, NCSRP PRESIDENT**

*Rock Port, Missouri*

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## FROM THE EXECUTIVE DIRECTOR

**S**oybean farmers and their checkoff organizations have faced some challenging years and 2019 was particularly tough. We are grateful to the NCSRP board members, state staff and the thousands of Midwest soybean farmers they represent, for maintaining checkoff investments in research.

An article published in the Harvard Business Review states, “History shows that the companies that continue to invest in their innovative capabilities during tough economic times are those that fare best when growth returns.” The NCSRP farmer board members understand that sustained investments in research, Extension and communications provide short- and long-term benefits for soybean farmers, the agriculture industry and the broader US economy.

We are proud to share these examples of how farmer checkoff investments contribute to discoveries in genetics, agronomics and

biotechnology; and to train the next generation of scientists, engineers, farmers and other professionals. Today’s research advancements can equip them with tools and technologies to ensure Midwest and US soybeans continue to be the most profitable, sustainable, reliable, highest quality and diversely beneficial sources of protein and oil for expanding markets and a growing population.

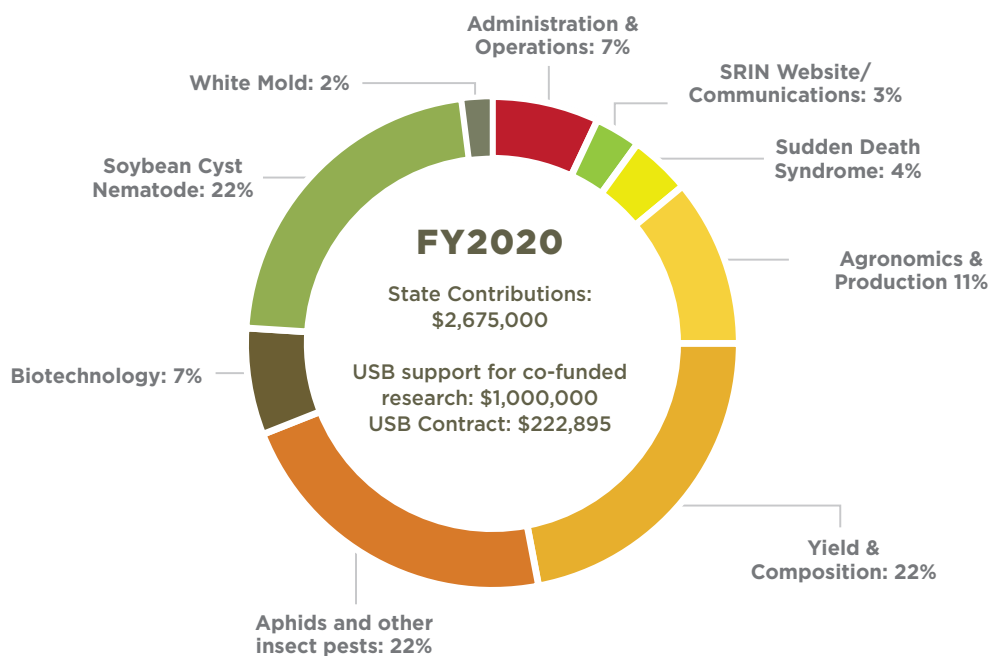
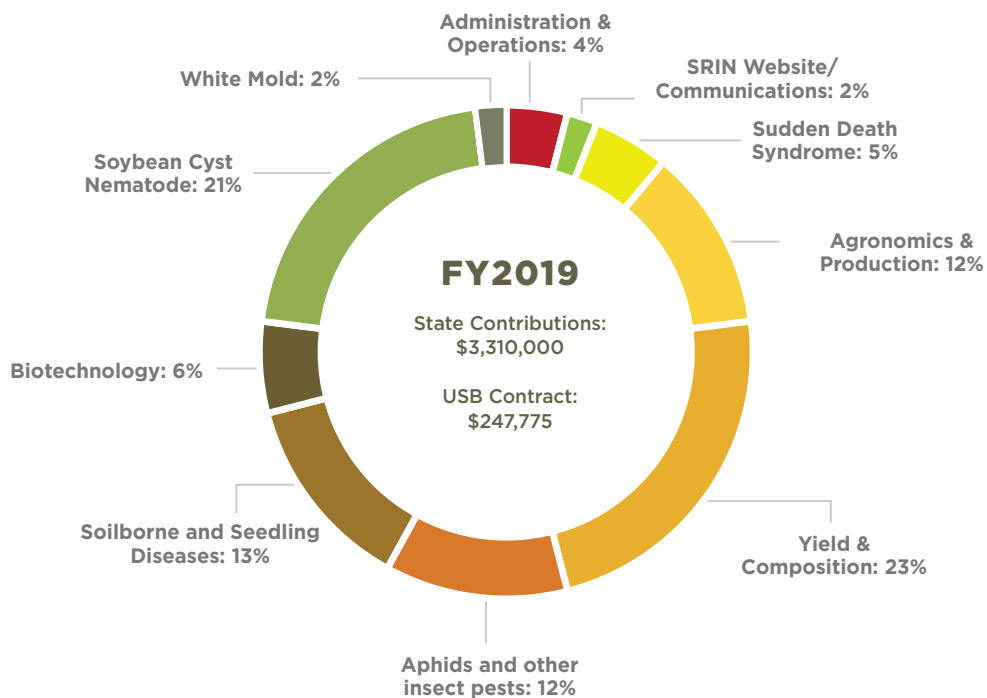
As always, if you have comments or questions about NCSRP and the work supported by this regional soybean checkoff organization, please contact me, one of our farmers, state staff or funded researchers. Thank you for taking time to read the 2019 NCSRP Annual Report.

**Ed Anderson, PhD**

**NCSRP EXECUTIVE DIRECTOR**

*Ankeny, Iowa*

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*funded by the soybean checkoff*