

NORTH CENTRAL SOYBEAN RESEARCH PROGRAM 2020 RESEARCH REPORT

**NCSRP BUILDS
PRODUCTIVE
PARTNERSHIPS**

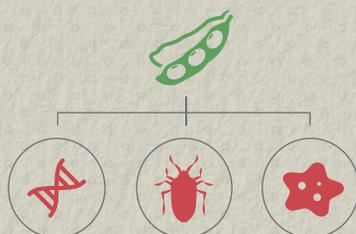


— *THAT WILL* —

◀ **ACCELERATE
AND EXPAND** ▶

— *THE IMPACT OF* —

**SOYBEAN FARMER
CHECKOFF INVESTMENTS**



**2020 NCSRP RESEARCH PROJECT
SUMMARIES CAN BE FOUND
ONLINE AT:**

NCSRP.com and SoybeanResearchInfo.com

PROJECTS FUNDED IN FY2020:



- Discovering and finally understanding the functions of genes that underlie major agricultural traits in soybean
- Boots on the ground: Validation of benchmarking process through an integrated on-farm partnership
- Multi-pronged strategies to provide efficient, sustainable, and durable control to Sclerotinia stem rot
- An integrated approach to enhance durability of SCN resistance for long-term strategic SCN management (Phase II)
- Developing an integrated management and communication plan for soybean sudden death syndrome
- Soybean gall midge: Surveying the North Central region, adult monitoring and host plant resistance
- Expanding the SCN Coalition
- Non-transgenic generation of herbicide resistance in soybean using CRISPR base editing
- Manipulating a major gene governing seed reserves as a means to maintain yield and oil while increasing protein
- Soybean entomology research and Extension in the North Central Region
- Increasing soybean genetic gain for yield by developing tools, know-how and community among public breeders in the North Central US region

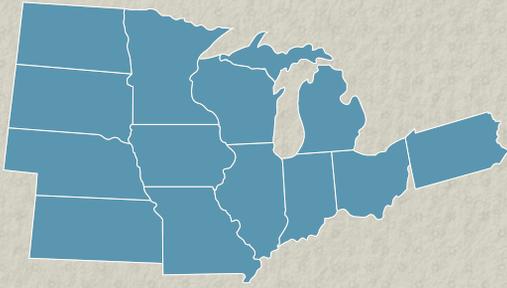
NCSRP DELIVERS SHORT- AND LONG-TERM
BENEFITS TO FARMERS
AND PROVIDE THE
SOYBEAN INDUSTRY
WITH IMPORTANT TECHNOLOGICAL



**ADVANCEMENTS
AND INFORMATION**

**AND THE NEXT
GENERATION OF
SOYBEAN
RESEARCHERS**

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13 MEMBER STATES REPRESENT MORE THAN
355,000 SOYBEAN FARMERS 

AND MORE THAN

85% OF THE SOYBEANS PRODUCED IN THE U.S.

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

Ed Cagney, Scotts, Michigan

As we all know, 2020 was a year unparalleled to any other. Weather events including the August Derecho severely damaged many producers' livelihoods across the North Central region, only to be over-shadowed by the COVID-19 pandemic, touching us all personally and professionally. Even though our jobs of planting and harvesting lent themselves more easily to social distancing - the agriculture industry did not come through 2020 unaffected.

Those of us working for the North Central Soybean Research Program (NCSRP) pushed through these challenges and advanced work to improve soybean quality and productivity for farmers today and in the future. The board last met in person at Commodity Classic in February 2020, shortly before pandemic precautions were put in place. Since then, we have met virtually and awarded FY21 funding for 10 research projects.

The 11 research projects funded in FY20 are being finalized and represent a cross-section of topics that illustrate how NCSRP keeps soybean farmers and their profitability top-of-

mind. Several projects explored the mitigation of the soybean cyst nematode (SCN) genetically and through on-farm management; several projects dealt with genetic gain for improved soybean protein, oil, and pest resistance; and others looked at better control of diseases including sudden death syndrome and Sclerotinia stem rot.

We hope you read the FY20 project summaries to gain a clearer understanding of how the NCSRP board is investing soybean checkoff dollars to support research in your state and across the North Central region.

Our board will continue to persevere through these new challenges, meeting virtually and, hopefully someday soon, in-person again to strengthen our relationships between scientists and agricultural producers. As I reside only a few miles from a COVID-19 vaccination manufacturing facility, I can see a promising future for us all.

Thank you for trusting me to serve as your NCSRP president.

FROM THE EXECUTIVE DIRECTOR

Ed Anderson, Ph.D., NCSRP Executive Director eanderson@iasoybeans.com

In my letter from FY19, I noted that soybean farmers had faced many challenges, especially due to low soybean prices and other uncertainties in the domestic and international markets. In FY20, soybean farmers and their checkoff organizations continued to face many financial, weather, production and COVID-19 pandemic challenges. But, as always, our soybean farmers and their state staff continue to work hard and maintain focus for the long-term. They are providing a sustained investment in basic and applied soybean production research, teaching and training the next generation of soybean researchers and farmers, and communicating research data and information that benefits farmers and the soybean industry now and in the future.

I am proud that our farmer board members continue to invest and support multi-state and multi-disciplinary research, teaching and outreach. Researchers involved in large multi-university programs funded by NCSRP continue to address challenges, opportunities, and bringing value to soybean farmers. NCSRP research projects are focused in the areas of:

- genetics and breeding for increased yield potential and seed quality,
- integrated solutions for understanding and managing disease pathogens,
- innovations for combatting insect pests and weeds,
- on-farm agronomic solutions for improving cropping systems and profitability,
- the development and application of biotechnologies for soybean improvement, and
- maintenance of NCSRP's leadership role in productive partnerships with the United Soybean Board (USB) and other state and regional soybean checkoff organizations.

In this annual report we summarize some of the key research returns on NCSRP regional checkoff investments. I hope you enjoy reading this report and that you make a habit of finding more useful results and information on the Soybean Research and Information Network website (<https://soybeanresearchinfo.com>). Thank you for your time and interest in checkoff-funded soybean research.

