

# 2022 MSC Request for Proposals - Production

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*The mission of the Michigan Soybean Committee is to manage checkoff resources to increase return on investment for Michigan soybean farmers while enhancing sustainable soybean production.*

The Michigan Soybean Committee (MSC) welcomes production research proposals in this 2022 request for proposals. Within this request, MSC's research priorities are outlined with the intent of providing structure and focus to divide limited research resources while ensuring flexibility and transparency. Researchers are empowered to devise creative solutions and figure out new ways to approach challenges.

## Background

The Michigan Soybean Committee has been administering programs in the areas of soybean research, education and market development since a grower approved assessment program became effective in 1976.

Headquartered in St. Johns, the Committee is governed by a seven member board of soybean producers representing seven distinct soybean producing districts as defined in the 1976 approved referendum and subsequently amended. This board directs the program for which these proposals are being solicited. Any project approved and administered by the MSC shall be conducted in accordance with the Soybean Promotion, Research and Consumer Information Act, P.L. 101-624 and with the Soybean Promotion and Research order, 7 CFR Part 1220 by virtue of the MSC being appointed by the United States Department of Agriculture to administer the federal program in Michigan.

## Objective

The Michigan Soybean Committee seeks research projects through the Request for Proposal process that address production challenges outlined in the 2022 Research Priorities in order to best accomplish our mission of managing checkoff resources to increase return on investment for Michigan soybean farmers while enhancing sustainable soybean production.

## Procedures

Proposals should be preceded by a cover sheet that lists project title, 2022 MSC research program area(s), budget request, organization information, project summary and signature of principle investigator. Proposals should include a brief project summary, objectives, project deliverables, experimental procedures and benefit to soybean farmers. Evaluation benchmarks at the project mid-point and conclusion should also be included. Proposal submissions should be limited to three pages and written for review by non-technical reviewers. Proposals should utilize 11 point font and single spaced text.

A project budget form should accompany each proposal. Multiple year projects must request funding annually. Supplemental detail must be provided on all direct costs including materials and supplies, travel, publication costs and computer costs that exceed \$1,000. Leveraged fund sources and amounts are to be provided. Principle investigator salaries and benefits, nonexpendable equipment and administrative overhead charges including indirect costs are not permitted for inclusion on MSC grants.

Upon funding approval, projects will be entered and tracked through a national on-line database at [www.soybeanresearch.com](http://www.soybeanresearch.com). Written mid-term and final reports will be submitted through this system.

**MSU proposal requests will be routed through MSU's KC system.** A separate proposal development document is required for each proposal. Questions regarding this process should be directed to Jackie Garcia at [jdesande@msu.edu](mailto:jdesande@msu.edu) or 517.884.3862.

Non-MSU proposal requests should be sent directly to MSC via email to Mark Seamon at [mseamon@michigansoybean.org](mailto:mseamon@michigansoybean.org). Expect email confirmation of your proposal submission.

All forms, including the Request for Proposals, proposal cover sheet and budget sheet are available at <https://www.michigansoybean.org/request-for-proposals.html>, or among the Agricultural Commodity Group RFP listing at AgBioResearch's website under Researcher Resources.

## **Proposals are due December 1, 2021.**

### Time-frame

MSC legal requirements dictate research projects are funded in one year increments, though projects with multi-year time frames will receive priority contingent upon adequate progress and adherence to proposed timelines.

### Funding level

While no formal parameters dictate funding levels, strong justification is necessary for projects exceeding \$30,000 for projects with graduate student education components or \$20,000 without graduate student components.

### Research Structure

Four key research categories have been identified, each representing specific areas of soybean production and profitability. All proposals should indicate the specific research priority area(s) which will be addressed.

- Resource Limitations: factors that impact attaining maximum genetic potential
- Plant Health: issues that compromise and detract from plant health
- Genetics: inherent genetic potential of soybean plants
- External Factors: factors that impact soybean profitability external plant production

Within each category, specific focus areas are outlined. Research projects are intended to work across focus areas and develop integrated solutions to production issues. For instance, row spacing studies impact resource competition and environmental focus areas.

### Evaluation Criteria

Project proposals will be evaluated based on relevancy to 2022 research priorities, impact potential for Michigan soybean farmers, feasibility, originality, scientific soundness, investigator qualifications and collaboration. Collaboration is encouraged not only among investigators, departments, institutions and organizations, but between disciplines and research focus areas as well.

For basic science proposals in particular, these research funds are intended to function as seed money in order to leverage outside funds.

### Communication of Project Results

Sharing of project results is critical to the impact of the investment made by MSC. A technical report including details of the project as well as a soybean grower/field crops industry focused report which summarizes results with a focus on management implications are required.

### Confidentiality

Proposals are distributed to the MSC board of directors and research staff for review. Some proposals may be selected for peer review. Proposals are considered privileged information and are shared only on a confidential basis. Special requirements for confidentiality should be included with proposals.

# 2022 MSC Research Priorities

## External Factors

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### **Harvest and handling**

*Goal: Minimize harvest losses and quality degradation in storage*

2022 research priorities:

Improve combine harvest efficiency

Develop recommendations for on-farm storage including grain monitoring equipment, length of storage and seed quality preservation

### **System approaches**

*Goal: Develop soybean management strategies that maximize profitability and sustainability across the crop rotation*

2022 research priorities:

Develop system-wide fungicide management plans

Develop system-wide plant / soil management plans

Increase understanding of the fate of soil and applied nutrients in field crops systems

Improve understanding of carbon sequestration within carbon credit system and its effect on soybean management

## Resource Limitations

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### **Water**

*Goal: Ensure optimal moisture conditions by maximizing water availability through soil water holding capacity, supplemental irrigation, and drainage systems*

2022 research priorities:

Improve irrigation management with overhead systems with a focus on practical management techniques.

Develop systems to mitigate negative effects of extreme weather events

Optimize the utilization of nutrient and pesticide applications through irrigation systems.

Evaluate the best use of controlled drainage systems

### **Nutrients**

*Goal: Sustainably (economic and environmental) manage crop nutrient availability*

2022 research priorities:

Improve understanding of nutrient management treatment yield responses to environment and management.

Explore crop nutrition interaction with disease management.

Increase understanding of the effects of manure applied in soybean systems.

Explore novel application timing including vegetative nitrogen applications and new technology.

## **Resource competition and utilization**

*Goal: Manage biotic and abiotic factors that limit resource availability*

### 2022 research priorities:

- Develop novel weed control management systems
- Combat herbicide resistance issues
- Optimize soybean plant populations by yield potential and environment
- Improve seedbed preparation systems
- Manage systems for optimal root growth and development
- Novel approaches to increase access to light and temperature
- Evaluate use of inoculants in special situations

## **Plant physiology**

*Goal: Modify plant physiology to maximize genetic potential*

### 2022 research priorities:

- Modify plant physiological responses to environment and management
- Explore applications for foliar growth promoters and biological products
- Improve understanding of fungicide yield responses in absence of disease pressure
- Improve stress mitigation
- Develop integrated systems for wide-scale implementation in the area of soil health

## **Plant Health**

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### **Nematology**

*Goal: Mitigate yield reduction from nematodes*

#### 2022 research priorities:

- Improve understanding of SCN distribution and prevalence
- Evaluate emerging technologies for nematode control
- Maintain relevant and current management recommendations

### **Pathology**

*Goal: Mitigate yield reduction from disease*

#### 2022 research priorities:

- Foster awareness and management of new and emerging pathology issues
- Improve understanding of pathology interactions with environment and management
- Further refine white mold management strategies to minimize yield loss

### **Entomology**

*Goal: Mitigate yield reduction from insects*

#### 2022 research priorities:

- Management of new and emerging entomology issues
- Ensure rapid response to seasonal threats
- Address issues related to seed applied insecticides
- Evaluate alternative control options for soil insects

## **Yield**

*Goal: Identification of yield potential and development of new germplasm*

2022 research priorities:

Identify high yielding varieties

Increase understanding of yield interactions with management and environment

Develop new high yielding varieties

## **Protein and oil**

*Goal: Increase soybean value through protein and oil characteristics*

2022 research priorities:

Improve national and international positioning of Michigan's inherent high protein

Implement non-GMO varieties with specialty oil characteristics

Increase protein and oil with management

Develop new high protein and oil varieties

## **Value added traits**

*Goal: Increase soybean value through genetic characteristics*

2022 research priorities:

Identify and develop white mold resistance

Identify and develop sudden death resistance

Develop novel, high value, non-GMO traits

Evaluate management practices for high value traited soybeans