TARGETED REQUEST FOR PROPOSALS SUBMISSION
DEADLINE EOB 1/16/2024

TRFP TITLE: MEASURES TO ENSURE SUCCESS IN FOLIAR NUTRITIONAL APPLICATIONS IN MS SOYBEAN PRODUCTION USING MANGANESE AS A MODEL ELEMENT

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PROPOSAL DEADLINE: EOB 1/16/2024

INTRODUCTION:
The Mississippi Soybean Promotion Board (MSPB) focuses on investing Mississippi checkoff dollars to develop and promote soybean and soybean production to improve the bottom-line potential for soybean farmers. The MSPB strategy is to leverage funds and partner with public and private entities to address production research, identify market opportunities, and communicate the outcomes to Mississippi soybean farmers and industry influencers.

PURPOSE OF TRFP:
MSPB is trialing a framework through which it can more effectively invest checkoff dollars on behalf of Mississippi soybean growers. That framework will utilize Targeted Requests for Proposal (TRFP). The strategy of TRFPs is built upon identification of comprehensive General Focus Areas (GFAs). The GFA is a general agronomic subject matter with high interest of growers and industry. A single TRFP is tied to a single GFA. The GFA is further divided into Specific Research Targets (SRTs) which correspond to the 'scope' of the more comprehensive GFA. Proposals should be directed to address one to several of the SRTs. The intentions of the framework include: 1) shift a portion of research focus and budget spend from present issues and impact and toward near-term (5 year) and longer-term (10 year) efforts and impacts, 2) develop a greater proportion of funded research that is unique, new, and likely to accentuate MSPB funded research within the soybean industry, 3) encourage collaborative efforts across disciplines for a better understanding of key issues, and 4) close some of the gap between current research and focus areas of early-adopters in the state.

BACKGROUND & PURPOSE OF PROJECT:

Foliar application of nutrients is not a new concept. It is a commonly used practice in specialty crops as part of standard nutrient management. In larger scale row crop agriculture, it is less common; however, it is gaining in popularity with increasing yields despite a lack of support from the public sector. This general lack of support is tied to inconsistent results from previous research but comprehensive research in the space is scarce.

In markets and areas with greater adoption of foliar feeding, the practice is often coupled with some type of plant sampling. Many datasets exist within private and public labs as well as private consulting firms which correlate to crop performance. Plant nutrient testing can be used to 1) identify a problem noticed in the field, 2) determine a 'hidden hunger' before symptoms can be seen, 3) push yield barriers, and 4) determine efficacy of applications.

Foliar applications can have multiple intentions. In many instances, the application is made to meet a known nutrient deficiency in the crop. In other instances, the application is targeted at a critical crop phenology to ensure or prolong the nutrient level within the sufficiency range. In nearly all situations, the goal is to improve the quantity or quality of crop yield.

The past decade has provided insight into reasons for inconsistency of past products. Many new additives or technologies have been identified and are currently paired with foliar nutritional products to improve absorption, translocation, and ultimately activity of these products.

The purpose of this CFA/TRFP is to build dataset to support 'Best Management Practices' framework for foliar applications of plant Mn nutrition in the various production systems of MS soybean.

Expected outcomes should include, but are not limited to:

1) An understanding of measures of success which should be used to determine.
2) Guidelines for spray water quality that will improve success of foliar feeding nutrients.
3) A set of BMPs regarding spray application parameters for foliar feeding.
4) A set of BMPs regarding application timings for foliar feeding.
5) An understanding of the effect of nutrient source material on efficacy.
6) An understanding of interaction with pesticides on efficacy of both.

TARGET AUDIENCE:
The target audience is both the MS Soybean growers and those who influence soybean production in MS.

SPECIFIC RESEARCH TARGETS (<u>Proposals to include one to several SRTs</u>):

1) *Evaluate measures of success, beyond yield, for foliar applications of Mn, a model element.*
    a) Nutritional status (tissue testing vs sap testing)
        i) Tissue testing vs sap testing
        ii) Absorption and translocation
        iii) Duration
    b) Growth Rate/Nutrient Accumulation
2) *Survey spray water sources across the state*
    a) Geographically and temporally
    b) pH, TDS, chlorine, hardness, etc.
3) *Evaluate the effect that application parameters have on measures of success above.*
    a) Water qualities
        i) pH, TDS, chlorine, hardness, etc.
        ii) Evaluate corrective measures (fulvic acid, de-chlorinators, AMS, reverse osmosis)
    b) Spray application parameters
        i) Pressure
        ii) Volume
        iii) Air vs ground
        iv) Additives/adjuvants
    c) Application timing
        i) Time of day (temperature and relative humidity)
        ii) Crop growth stage
4) *Document the impact of other potential influences on measures of success above.*
    a) Source material (available)
        i) Mn EDTA, MnSO4, MnO, Mn chelates/complexes, Mn oxysulfates
    b) Common pairing
        i) Pesticides (herbicide, fungicide, insecticide)

ADDITIONAL CONSIDERATIONS:
The contractor is expected to work with MSPB and BBRC and maintain regular contact throughout the contract period.

DELIVERABLES

Completion Date	Description of Deliverables
October 15, 2023	Posting of TRFPs
January 16, 2024	Submission of Proposal
February 6, 2024	Revision of Proposal (if necessary)
February 20, 2024	Funding
March 15, 2024	Verbal Check In
June 15, 2024	Field Visits, Short Summary to Date
October 15, 2024	Q4 Preliminary Review, Data Sharing
December 1, 2024	Yearly Analysis in PPT Form
December 31, 2024	MSSOY.org Postings

RFP TIMELINE:

- TRFP distribution: October 15, 2023.
- Last day to submit questions: January 16, 2024
- Initial project proposals due: January 16, 2024
- Selections made: February 20, 2024
- Prospective contractors notified: February 23, 2024

INSTRUCTIONS:

Please email proposals to research@mssoy.org by January 16, 2024.

Proposals must contain at a minimum the specific criteria listed below:

1) A description of PI's capabilities, resources, and experience. Emphasis should be placed on experience related to this RFP.
2) A thorough proposal outlining PIs' planned work, deliverables, and timeline to complete the work focused on Research Specific Target(s).
3) Detailed budget: all bids for services must provide a breakout of how the fee was derived including but not limited to a breakdown of hourly rate and the amount of effort they anticipate doing the work.
4) Proposals should be no longer than 10 pages (8 ½" x 11").