RFP Title:
Genetic Improvement of Seed Protein

Proposal Manager’s Name:
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RFP Contact:
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Proposal Start Date:
10/1/2018

Completion Date:
9/30/2019

Proposal Deadline:
4/16/2018

Anticipated Decision Date:
7/20/2018

Action Team: Supply
Target Area: Meal
Program Goal: Sustainable Production
Road Map: Protein+ - Differentiating soybean meal product to meet end user needs
Track: Technical Solution (Creating competitive advantage for U.S. soy growers by differentiating soy offerings throughout the value chain, leveraging the latest technological advancements and innovations)

Milestone(s): Create new soybean germplasm lines with modified composition traits that result in soybeans that produce meal with an improved nutritional bundle.

Audience: Public Researchers
Objective: Objective A: Public researchers will create innovation in soybean meal composition that can be incorporated into commercial products.
Stage: Technical Solution Stage 2 - Investigation Stage - Explore important problems, opportunities & potential solutions for feasibility
Innovativeness: Moderate (New but familiar market or solution)

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<th>Description/Purpose of RFP</th>
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<td>As soybean yields have increased in the US, the protein levels have decreased. Lower protein levels put US growers at a disadvantage in the marketplace. In general, soybean researchers see an inverse correlation of protein to yield and also of protein to oil. This correlation is not perfect and there is significant scientific evidence to support that there is a range of protein levels in soybean germplasm. Historically, in the US, soybean varieties have been developed from a relatively small percentage of the known soybean germplasm diversity. There is an</td>
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opportunity to increase soybean value for the entire value chain in developing soybean with consistent higher levels of protein. This can be done by germplasm selection and the identification of genes and pathways controlling seed protein synthesis and storage. Once identified, development of markers will provide the opportunity to create soybeans with higher protein levels and will aid in the development of commercial soybean varieties with an improved nutritional bundle.

**Current Market Environment:**
A century of soybean breeding efforts in the US have focused primarily on yield. A negative consequence of these efforts is a small but continual decline in soybean seed protein content. The rate of decline is estimated to be between 0.02% and 0.04% based on two separate studies. One study evaluated quality of varieties released in the US from 1920-2010. The other study used USDA-NASS and USSEC quality samples collected from 1985-2015. In recent years it has become more and more difficult for processors to meet the minimum protein content required for high-protein meal designation. In November 2016, CME lowered soybean futures meal contracts by 0.5% to 47.5% and allowed for no rejection or penalty to 47.0% to reflect the lower average protein content.

**Proposal Direction:**
This RFP is focused on finding genetic solutions to the protein decline issue and drive progress towards developing, high-protein soybean varieties that are also high yielding. Proposals should address the following objectives:
- Exploration of diverse soybean germplasm, including wild soybeans, for sources of genetic diversity responsible for protein content.
- Identification of genes responsible for seed protein synthesis and storage.
- Development of genetic markers for identified protein genes to assist in selection of high quality germplasm with high protein levels and increases in select amino acids.
- Deployment of biotechnology to influence protein or amino acid changes.

**Proposal Submission Instructions:**
To request a proposal worksheet to assist you in developing your proposal in USB’s correct format, please contact:
Connie Davis; codavis@smithbucklin.com

For strategic and project specific questions, please contact:
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For budget and compliance questions, please contact:
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