REQUEST FOR PROPOSAL

SUBMISSION DEADLINE
May 29, 2020 5:00PM CST

RFP TITLE: DEVELOPING NUTRITIONAL DIFFERENTIATORS OF U.S. SOYBEAN MEAL

RFP CONTACT:

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INTRODUCTION:

Soybean meal serves as the primary protein source in swine and poultry feed. Demand for soybean meal in the Americas region is increasing as consumption of pork and poultry products grows. U.S. soybean meal offers superior nutritional value and furthers efficient, sustainable production of swine and poultry that supports animal performance and health. The consistent high quality of U.S. soybean meal also helps to keep feed formulation costs low. However, the advantages of U.S. soybean meal as a feed ingredient are not fully captured by the most frequently used measures of nutritional value.

PURPOSE OF RFP:

Through this project, USSEC seeks a U.S. university (or group of U.S. universities) to develop and publish information on nutritional differentiators that better illustrate the value of U.S. soybean meal as feed ingredient. This RFP includes studies on each of the four following topics: 1) the influence of soybeans' geographical origin on amino acid content and digestibility; 2) the crude protein and amino acid (AA) content of soybean meal from different origins and its correlation with protein quality indicators; 3) the levels of phytic acid in soybean meal from different origins and its impact on protein digestibility; and 4) the effect of fermentation of soybean meal from different origins on antioxidant activity and isoflavone and trypsin inhibitors content.

BACKGROUND & PURPOSE OF PROJECT:

Through this project, USSEC ultimately aims to: 1) provide information to customers on nutrition levels and bioactive components needed to enhance poultry and swine nutrient utilization efficiency and thus optimize feed formulation costs; 2) demonstrate to customers the nutritional differentiators of U.S. soybean meal that allow animals to display their full genetic potential, improve animal health and welfare, and reduce nutrient output to the environment.

Meeting maintenance and production requirements for amino acids of modern genotypes is essential to support growth, health, and welfare, as well as reduce nutrient excretion to the environment, all of which increase each animal operations' profitability and sustainability. In order to meet animals' requirements, it is imperative that to determine the biological availability of essential and non-essential amino acids, and especially those that are not available in crystalline forms (*i.e.,* leucine and isoleucine) or those that are cost prohibitive (*i.e.,* valine).

Analysis of quality indicators (*e.g.,* trypsin inhibitors and KOH solubility) is a tool utilized by global customers to predict the quality of soybean meal they purchased regarding its level and availability of crude protein. However, in order to predict the value of soybean meal, it is key to establish correlations not only between crude protein and quality indicators, but also between those and the soybean meal amino acid profile. These correlations aim to show our customers the importance of uniform and consistent processing in order to preserve the inherent nutritional quality of the beans. Moreover, special attention has to be paid to the indicators that can provide a more accurate prediction of the real nutritional value of soybean meal, such as reactive lysine and Evonik's processing condition indicator, which establish the real availability of Lysine for the animal and the degree of destruction of thermolabile amino acids (*i.e.* lysine and cystine) due to harsh thermal processing.

Phytate or phytic acid is present in all vegetal feedstuffs and it is considered to be an antinutritional factor (ANF) for monogastric species. In its native state, this molecule binds phosphorus and calcium and is capable of forming insoluble complexes with various cations (*e.g*. Mg and Zn), protein, lipids, and starch, thus limiting their availability for poultry and swine as they do not secrete phytase (the enzyme needed to break down the phytic acid molecule) and instead rely exclusively on exogenous phytases supplemented via feed. Therefore, the measure of the actual levels of phytic acid in soybean meal from different origins and the further determination of protein, starch, phosphorus, and calcium, with regard to *in vitro* digestibility in presence of this ANF, will set the starting point for the characterization of this substrate, which is heavily influenced by geographical localization and climate conditions. This will allow nutritionists to optimize the supplementation of exogenous phytases in poultry and swine feed.

Fermentation has been proven to improve soybean meal nutritional and functional properties. It increases nutrients' availability and reduce ANF levels. Consequently, the evaluation of the effect of fermentation of soybean meal from different origins will show the degree of improvement of nutrients contained in the beans, as well as the potential of U.S. Soy as a functional ingredient due to the enhancement of the isoflavones levels, and consequently, the antioxidant properties.

TARGET AUDIENCE: USSEC staff will use the reports and peer-reviewed publications to communicate with customers about the advantages of U.S. soybean meal. Peer-reviewed publications will also benefit the broader scientific community.

SCOPE (SERVICES) OF WORK:

- Study on the influence of soybeans' geographical origin on amino acid (AA) content and their standardized ileal digestibility coefficients, and on sucrose and oligosaccharides (stachyose and raffinose) contents.
    - Collect commercial samples from the following origins: U.S., Argentina, Brazil, Bolivia, China, and Paraguay
    - Measure the content of AA expressed as g/kg DM and as a percentage of crude protein
    - Determine the crude protein and amino acids standardized ileal digestibility coefficients in broiler chickens from 1 to 21 days of age
    - Determine the relations between crude protein and sucrose and oligosaccharides contents
- Study on the crude protein and AA contents of soybean meal from different origins and its correlation with protein quality indicators
    - Collect commercial samples from the following origins: U.S., Argentina, Brazil, Bolivia, China, and Paraguay
    - Establish correlations between soybean meal crude protein, AA content and quality indicators. Include indicators such as KOH solubility, PDI, urease, trypsin inhibitors activity and reactive lysine
- Study on levels of phytic acid in soybean meal from different origins and its impact on protein digestibility
    - Collect commercial samples from the following origins: U.S., Argentina, Brazil, Bolivia, China, and Paraguay
    - Measure phytic acid contents in these samples
    - Determine the effects of phytic acid contents on crude protein digestibility *in vitro*
- Study on the effect of fermentation of soybean meal from different origins on antioxidant activity and isoflavone and trypsin inhibitors content
    - Collect commercial samples from the following origins: U.S., Argentina, Brazil, Bolivia, China, and Paraguay
    - Evaluate the effects of fermentation on *in vitro* improvement of nutrients, isoflavone levels, and antioxidant properties
    - Evaluate the *in vitro* potential of U.S. soybean meal as a functional ingredient based on these properties (ex. free radical-scavenging activity).

DELIVERABLES:

Completion Date	**Description of Deliverables**
Within 5 business days of contract start date	Finalize study design in consultation with USSEC staff
07/15/20	Submit preliminary report BCAA study

07/15/20	Submit preliminary report crude protein and AA study
07/20/20	Submit preliminary report phytic acid study
07/25/20	Submit preliminary report fermentation study
08/20/20	Complete BCAA study and submit report (05/20 to 08/20)
08/20/20	Complete crude protein and AA study and submit report (06/20 to 08/20)
08/20/20	Complete phytic acid study and submit report (06/20 to 08/20)
08/20/20	Complete fermentation study and submit report (06/20 to 08/20)
09/20/20	Submit at least one manuscript on each study (total of four) to peer-reviewed journals
09/30/20	Submit final report on the overall project

PROJECT TIMELINE: June 12, 2020 – September 30, 2020

RFP TIMELINE:

- **RFP Distribution:** April 20, 2020
- **Q&A Timeframe:** Last day to submit questions May 22, 2020 by 5:00PM CST
- **Project Proposals Due:** May 29, 2020 by 5:00PM CST
- **Selections Made By:** June 12, 2020

INSTRUCTIONS:

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

1. Please email the proposal to RFP@USSEC.ORG by ***5:00PM Central Time*** on ***May 29, 2020***
2. A description of Prospective Contractor's capabilities, resources and experience. Emphasis should be placed on experience related to this RFP.
3. A thorough proposal outlining Prospective Contractors planned work, deliverables and timeline to complete the work.
4. Resumes for each of the Prospective Contractor's personnel assigned to work directly on the implementation of the contract. Resumes must include a list of scientific publications in peer-reviewed journals on topics related to animal nutrition, physiology, biochemistry, biotechnology, feedstuffs, and/or animal products.
5. Provide a minimum of two names and contact information for other similarly sized clients for reference purposes.
6. Detailed Fee and Expense Breakdown

- 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 to do the work.

7. Proposals should be no longer than ***10 pages*** (8 ½" x 11").

NOTES:

- Prospective Contractors are hereby notified that proposals will be duplicated for internal review only. Every effort will be made to maintain confidentiality of all information presented. The appropriate representatives from staff and legal counsel will review proposals. Proposals will not be returned.
- USSEC reserves the right to retain all proposals submitted. Submission of a proposal indicates acceptance by the submitter of the conditions contained in the request for proposal, unless clearly and specifically noted in the proposal submitted and confirmed in the contract between USSEC and the contractor selected.
- Confidentiality - Without USSEC's prior written consent, Prospective Contractors and its officers, employees, agents, representatives, affiliates, and subcontractors shall not disclose to any third party any documents, materials or information that the Prospective Contractors learn from or is provided in relation to the RFP request.
- During the evaluation process, USSEC reserves the right to request additional information or clarifications from proposers, or to allow corrections of errors and omissions.
- USSEC reserves the right to reject any proposal that is in any way inconsistent or irregular. USSEC also reserves the right to waive proposal defects or deficiencies, to request additional information, and/or to negotiate with the Prospective Contractor regarding the proposal.
- Prospective Contractor agrees that Fees are in lieu of any and all other benefits, including, but not limited to, repayment of any and all taxes related to contractor service fees, health and life insurance, administrative costs and vacation.
- Prospective Contractor agrees that any income taxes, value added taxes or any other form of direct or indirect taxes on compensation paid under the contract shall be paid by Contractor and not by USSEC or Funding Sources.
    - Prior to any payment to a Contractor, a contractor must provide a W-9, W-8, or W-8BEN upon agreement signature
- Non-Competition. Contractor shall not act as agent or representative for any product or service directly or indirectly competitive with U.S. soybeans or soybean products for the length of the contract.
- USSEC and Prospective Contractor agrees to comply with the provisions of Equal Employment Opportunity (EEO). USSEC provides EEO to all employees and applicants for employment without regard to race, color, religion, gender, sexual orientation, gender identity or expression, national origin, age, disability, genetic information, marital status,

amnesty, or status as a covered veteran in accordance with applicable federal, state and local laws.

SUPPLEMENTAL INFORMATION AND BACKGROUND

BUILDING A PREFERENCE FOR U.S. SOY

USSEC's strategy can be found here: http://ussec.org/about-ussec/vision-mission/
USB's Long Range Strategic Plan can be found here: http://unitedsoybean.org/about-usb/strategic-planning/

We are a dynamic partnership of key stakeholders representing soybean producers, commodity shippers, merchandisers, allied agribusiness and agricultural organizations.

Through a global network of international offices and strong support in the U.S., we help build a preference for U.S. soybeans and soybean products, advocate for the use of soy in feed, aquaculture and human consumption, promote the benefits of soy use through education and connect industry leaders through a robust membership program.

Our 15-member board of directors is comprised of four members from the American Soybean Association (ASA), four members from the United Soybean Board (USB), and seven members representing trade, allied industry, and state organizations.

New board members are seated annually. We are receiving funding from a variety of sources including soy producer checkoff dollars invested by the USB and various state soybean councils; cooperating industry; and the American Soybean Association's investment of cost-share funding provided by the United States Department of Agriculture's (USDA) Foreign Agriculture Service.

The United Soybean Board, created by the 1990 Farm Bill to manage and direct the National Soybean Checkoff, is dedicated to marketing and research for the soybean industry. USB is comprised of 73 volunteer soybean farmers representing the interests of fellow growers nationwide. Each board member is nominated by Qualified State Soybean Boards (QSSBs) and appointed by the U.S. Secretary of Agriculture.

Because of the limitations on administrative and salary costs established in the Act, USB outsources the majority of its program management responsibilities to USB's three primary contractors:

- SmithBucklin-St. Louis for domestic marketing, new uses, production research and Board initiative activities;
- Osborn & Barr Communications for communications/public relations activities and;
- U.S. Soybean Export Council (USSEC), Inc. for international marketing and global opportunities activities.

As one of these three primary contractors USSEC may also undertake initiative activities on behalf of USB. USB considers primary contractor staff (approximately 60 people) as core USB staff. These three primary contractors use a number of subcontractors and, together, these entities carry out approximately 450 projects each year for USB. USB also manages approximately 10 subcontractors.

Non-Discrimination Statement

In accordance with Federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.

Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible Agency or USDA's TARGET Center at (202) 720-2600 {voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.

To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax: (202) 690-7442; or (3) email: program.intake@usda.gov.

USDA is an equal opportunity provider, employer, and lender.

Civil Rights Clause

Contractor agrees that during the performance of this Agreement it will not discriminate against any employee or applicant for employment because of race, color, religion, gender, national origin, age, disability, political beliefs, sexual orientation, marital or family status, parental status or protected genetic information. Contractor further agrees that it will fully comply with any and all applicable Federal, State and local equal employment opportunity statutes, ordinances and regulations, including, without limitation, Title VII of the Civil Rights Act of 1964, the Americans with Disabilities Act of 1990, the Age Discrimination in Employment Act of 1967, and the Equal Pay Act of 1963. Nothing in this section shall require Contractor to comply with or become liable under any law, ordinance, regulation or rule that does not otherwise apply to Contractor.