

# Biostimulants: A Dialogue on Needs and Next Steps

March 5, 2020 | Portland, Oregon

## Introduction

The Agriculture Sector is challenged with demands for increased productivity and decreased environmental impact resulting in a need that producers become more efficient. Other factors make this challenge even more intractable, such as “unpredictable climates, droughts, flooding, intense heat, along with other stresses.”<sup>1</sup> This complicated combination of factors and demands requires that meeting future productivity goals will call for significant innovation across a spectrum of technologies.

Over the last thirty years, several technological innovations have been proposed to “enhance the sustainability of agricultural production systems, through a significant reduction of synthetic agrochemicals like pesticides and fertilizers.”<sup>2</sup> Biostimulants encompass a diversity of products that enhance uptake of added or existing nutrients, nutrient efficiency, plant health, yield, and quality. They can be derived from natural or biological sources such as bacterial or microbial inoculants, biochemical materials, amino acids, humic acids, fulvic acid, seaweed extract and other similar materials.<sup>3</sup> These products are a “promising and environmental-friendly innovation” and improve agricultural sustainability and soil health and are emerging as an important tool for farmers who are seeking to increase productivity and profitability. The biostimulant industry is active, growing quickly and expected to become an approximately \$2.5 billion market globally by 2021, but there are regulatory issues preventing further growth in the US. Such issues include a lack of a standardized definition across states, as well as a lack of a specific regulatory path for developers to register products according to their intended use, benefits and safety.

Additional research gaps exist in several aspects, including efficacy and optimal application rates. For example, biostimulants can be used to reduce fertilizer and pesticide inputs while maintaining or enhancing crop yields and/or quality, and improving soil health and water quality on a large scale. However, further research is needed to show consistent results across geographical regions.

- 1 Beaudreau, David. “Biostimulants in Agriculture: Their Current and Future Role in a Connected Agricultural Economy.” Biostimulant Coalition, [www.biostimulantcoalition.org/news/biostimulants-in-agriculture-their-current-and-future-role-in-a-connected-agricultural-economy/](http://www.biostimulantcoalition.org/news/biostimulants-in-agriculture-their-current-and-future-role-in-a-connected-agricultural-economy/).
- 2 Rouphael, Youssef, and Giuseppe Colla. “Editorial: Biostimulants in Agriculture.” *Frontiers in Plant Science*, Feb. 2020. doi: 10.3389/fpls.2020.00040
- 3 “The Importance of Biostimulants in Modern Agriculture.” Barcelonesa, 20 Feb. 2020, [www.grupbarcelonesa.com/en/blog/importance-biostimulants-modern-agriculture](http://www.grupbarcelonesa.com/en/blog/importance-biostimulants-modern-agriculture).

## Opportunity for Partnership

At the Foundation for Food and Agriculture Research (FFAR), we recognize there are several critical challenges and key scientific priority areas through which we can partner with other stakeholders to become change agents focused on advancing soil health. FFAR's [Soil Health Challenge Area](#) focuses on increasing soil health by building knowledge, fueling innovation, and enabling adoption of innovative practices, and biostimulants represent a rapidly growing and intractable industry that could benefit from public-private partnerships.

The inclusion in the 2018 Farm Bill of a description of a plant biostimulant represents a monumental opportunity to support research that improves understanding and recognition of these beneficial products. The language in the Farm Bill supports the development of new sustainable technologies for U.S. agriculture and its farmers. FFAR, in conjunction with the Biological Products Industry Alliance (BPIA), is seeking to identify areas of potential research by engaging with the biostimulant industry. The goal is to identify agronomic, environmental, and regulatory research needs of this burgeoning stakeholder group. As a result, a convening event was held on March 5, 2020 to bring together the diverse group of stakeholders, including NGOs, Federal and Non-federal partners, to provide an opportunity for collaboration. The following information provides an outline of the event as well as a discussion of the key areas for alignment and engagement.



# Agenda

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March 5, 2020: Portland, Oregon

- 9:00 – 9:30am**      **Greetings and Introduction**  
**Keith Jones**, BioAg Field Development Manager, *BPIA*  
**David Beaudreau, Jr.**, Senior Vice President, *D.C. Legislative and Regulatory Services, Inc. (DCLRS)*  
**Dr. Kashyap Choksi**, Director of Strategic Partnerships, *FFAR*
- 9:30 – 9:45am**      **Overview of FFAR and how we work**  
**Dr. Kashyap Choksi**, Director of Strategic Partnerships, *FFAR*
- 9:45 – 10:00am**      **Overview of BPIA**  
**Keith Jones**, BioAg Field Development Manager, *BPIA*
- 10:00 – 10:30am**      **Historical Context Setting: Why is now a Great Time to Discuss the Role of Biostimulants?**  
**Dr. Keith Pitts**, Chief Sustainability Officer and SVP, Regulatory & Gov. Affairs, *Marrone Bio Innovations*
- 10:30 – 11:30am**      **Panel Discussion – Challenges and Opportunities in the Biostimulant Landscape**  
**Dr. Patrick Brown**, Professor, Department of Plant Science, *UC Davis* (and Chairman of the International Congress on Biostimulants in Agriculture)  
**Terry Stone**, Global Regulatory Leader, Biologicals, *Corteva Agriscience*  
**Dr. Denis Troxell**, Conservation Agronomist, *Natural Resources Conservation Service (NRCS) West National Technical Support Center*  
**David Beaudreau, Jr.** (Moderator), Senior Vice-President, *D.C. Legislative and Regulatory Services, Inc. (DCLRS)*
- 11:30am – 12:15pm**      **Lunch/Networking**
- 12:15 – 12:25pm**      **Outline of Breakout Sessions and Next Steps**
- 12:25 – 1:30pm**      **Breakout Group Discussions**
- 1:30 – 2:30pm**      **Report Out by Groups**
- 2:30 – 3:15pm**      **Next Steps and Final Reflections**
- 3:15pm**      **Adjourn**

## Breakout Group Discussions

Breakout sessions were divided into two groups to brainstorm and discuss current challenges, needs, and next steps within the biostimulant industry. The following questions were provided to each breakout group to guide the conversations:

1. How can we integrate biostimulant products into agricultural systems?
2. What Best Management Practices or protocols exist or need to be created to increase adoption of biostimulant products?
3. What role do biostimulant products have in improving sustainability in agricultural systems?
4. What does success mean for the Biostimulant Industry?
5. What are the current challenges/barriers in this space?
6. What opportunities currently exist?
7. What would be actionable next steps in the next six (6) months, the next one (1) year?
8. Who else is not here that should be a part of the larger discussion?
9. What issues were not addressed that merit a discussion?

### Breakout Group 1 Discussion

Four focus areas emerged from the group discussion. Participants anticipate that these areas will guide the future of the biostimulant industry.

1. **Identify hot spots** that would benefit the most from increased biostimulant research. Examples include Lake Erie and the Gulf of Mexico.
2. **Define, monitor and account for expected environmental outcomes:** The use of biostimulants can affect the plant ecosystem as well as the larger environment, leading to the following:
  - a. Abiotic stress
  - b. Decrease in nutrient use efficiency
  - c. Changes in qualitative traits
  - d. Confinement of nutrients



*The word cloud above represents the concepts that came up repeatedly throughout the discussion of Breakout Group 1.*

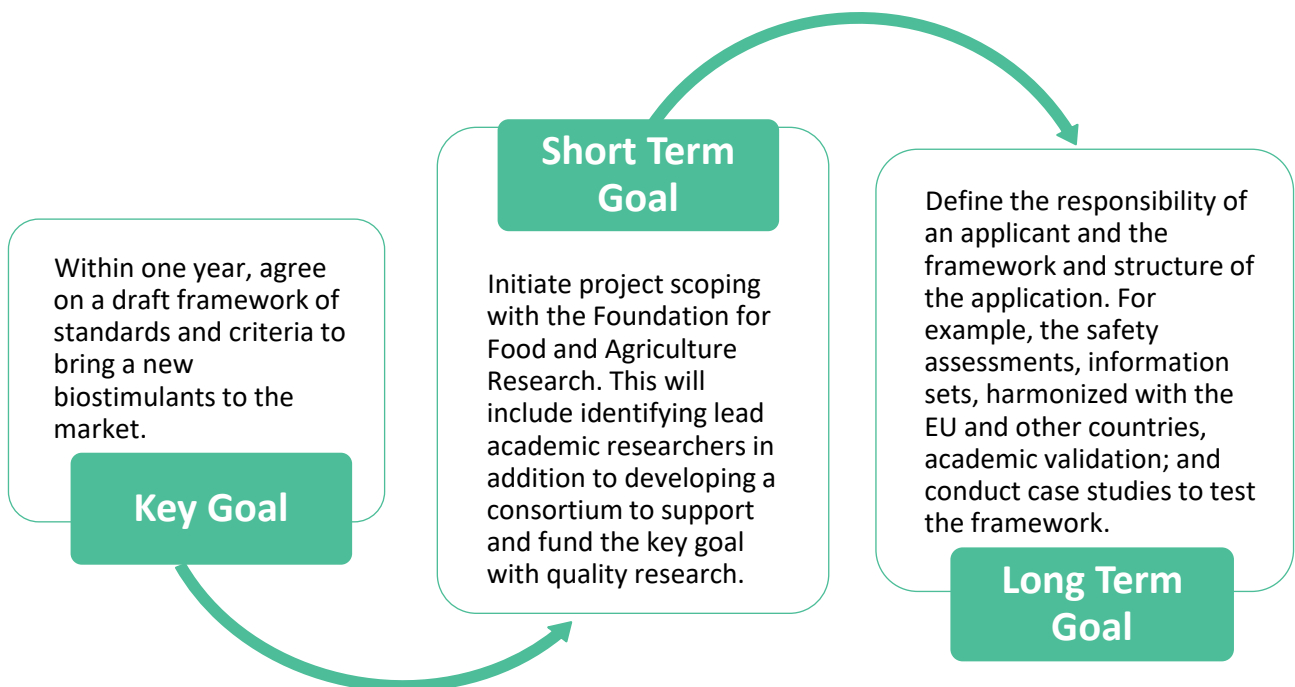
### 3. Develop Partnerships

Participants in this discussion largely already knew each other, and collectively would like to engage with a larger audience. The goal is to expand the group of stakeholders and bring new players to the table in an emerging field. Potential partners could include academics, USDA-NRCS, USDA-Nutrient Management, etc.

4. **Establish an industry standard definition** of biostimulants and related concepts – participants in this breakout group explored the possibility of creating an Industry consortium with the current group of unique partners. The intention would be to work together to push research forward and encourage adoption of a standard definition across multiple levels of the industry.

## Breakout Group 2 Discussion

Group 2 reflected on potential ways to address the 9 broad issues stated in the beginning of this convening event, from integration into current systems and best management practices, to identifying which organizations and thought leaders are currently missing from the conversation. The breakout group identified a key goal, as well as short-term and long-term goals to continue the momentum in the biostimulants space.



## Event Outcomes

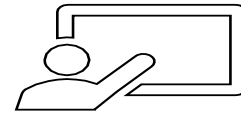
BPIA, FFAR, and its convened stakeholders conducted a panel discussion and breakout discussions to discuss the broad challenges and needs within the biostimulant industry. The following needs, priorities and next steps were identified through the above-referenced discussions and identified as critical:



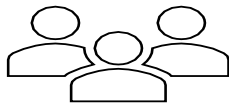
Address the need for a uniform, national level and legal definition of plant biostimulants.



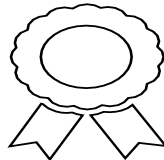
Achieve consistency at the state level – With the likelihood of each state interpreting and implementing guidelines differently, the result is that clarity is going to come from the federal level.



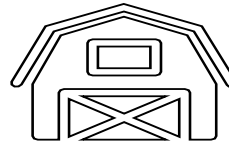
Develop and implement clear and reasoned criteria to assess product efficacy, safety, and compositional claims.



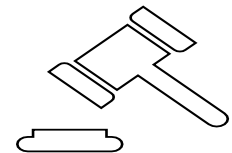
Pull together a team of researchers and regulators to compile case law and current regulations in place that validate the protocols.



Potentially create an interactive award process as the second level of development. By applying for the award, participants would prove the establishment and acceptance of standards and criteria.



Determine how to prove legitimacy in order to protect the farmer.



Potentially form a consortium with currently involved industry partner – a logical method to pool funds and generate match, as well as ensure that the standards created are applied throughout the industry.

## Next Steps

Recommendations from this convening event will help inform FFAR research priorities in the Soil Health Challenge Area, including the development of future funding opportunities at FFAR that may take the shape of requests for applications (RFAs), prize competitions, direct-funding and/or consortia development to achieve FFAR's research objectives. In addition, it is likely that participants will re-engage with existing work stream teams within the industry group for both this effort and the next round of discussions with USDA, EPA and the states on regulatory matters.

For more information about FFAR's interest and engagement in the biostimulants space, please contact Kashyap Choksi, FFAR's Director of Strategic Partnerships at [kchoksi@foundationfar.org](mailto:kchoksi@foundationfar.org), or LaKisha Odom, FFAR's Soil Health Scientific Program Director at [lodom@foundationfar.org](mailto:lodom@foundationfar.org).

## The Mission of the Foundation for Food and Agriculture Research

As a major component of our research, we conduct science that results in thriving farms, environmental resilience and well-being.

**We build public-private partnerships to fund audacious research addressing the biggest challenges in food and agriculture.**

Our world is changing rapidly. The global population is increasing, climate change is causing extreme weather events and natural resources are diminishing. FFAR brings together leading experts to identify and investigate the researchable questions whose answers have the potential to enhance the economic and environmental resilience of our food supply.

## The Vision of the Foundation for Food and Agriculture Research

**We envision a world in which ever innovating and collaborative science provides every person access to affordable, nutritious food grown on thriving farms.**

We believe that this common goal can be met by working together with our research community of nonprofits, foundations, governments, individual researchers and producers, colleges and universities, and companies who can support and implement the science we need. Our research aims to achieve this vision by producing food in an economically and environmentally sustainable way. Part of our role in this collaborative effort is to convene individuals and groups who can pool creative ideas, expertise, and resources so that we can make a difference, together.



## The Mission and Vision of the Biological Products Industry Alliance (BPIA)

### **Advancing sustainability through biological solutions.**

Biologicals are uniquely positioned to meet the demands of today's market. Biologicals offer unique benefits all along the food value chain, providing additional options for growers, buyers, dealers, consultants, and retailers. While biocontrols have been around for more than 50 years, the market has experienced its most significant period of growth – in terms of both sales and user acceptance – over the past five years.

The Biological Products Industry Alliance promotes the responsible development of safe and effective biological products including biopesticides, biostimulants, and biofertilizers as beneficial tools for commercial agriculture, forestry, golf courses, home gardens, horticulture, ornamentals, public health, and more through education, outreach, and advocacy activities at the state, federal, and international levels. Our members provide solutions that benefit growers, consumers, and the environment.



## Join the Conversation!

FFAR looks forward to continuing to build strong public-private partnerships within the agriculture community and welcomes your input. Please feel free to contact Dr. LaKisha Odom at [lodom@foundationfar.org](mailto:lodom@foundationfar.org) to learn more about how you can engage with FFAR.

**To stay up to date on future funding opportunities, please join the FFAR Newsletter mailing list: <https://foundationfar.org/newsletter-signup/>**



**Many thanks to the Steering Committee members for their hard work and support!**

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### Steering Committee for the Biostimulants Convening Event

David Beaudreau, **D.C. Legislative and Regulatory Services, Inc.**  
Kashyap Choksi, **Foundation for Food and Agriculture Research**  
Cordelia Hiers, **Foundation for Food and Agriculture Research**  
Keith Jones, **Biological Products Industry Alliance**  
LaKisha Odom, **Foundation for Food and Agriculture Research**  
Keith Pitts, **Marrone Bio Innovations**