IGNACIO CIAMPITTI – SOYBEAN RESEARCH PROFILE

Farmer Blog

Ignacio A. Ciampitti, co-director of the Institute for Digital and Advanced Agricultural Systems and agronomy professor, Purdue University. Former farming systems professor at Kansas State University.

Why did you decide to pursue a career that includes soybean research?
I grew up in Buenos Aires, Argentina, and early during my childhood I was in contact with agriculture during my summer times. My passion to do research and help famers started early on in my life. My passion for soybean research started when I understood the importance of the crop in the farming systems and its potential for contributing nitrogen to the rotation.

What research topic have you completed in the past or are working on now that could have or has had the most significant impact on soybean production?
We have completed several research projects on soybeans. Among some of the most relevant are investigating historical changes in soybean nutrient uptake and partitioning, studying the variation of optimal plant density at varying yield levels, reviewing importance of nitrogen (N) fixation and the overall N budget, and describing the retrospective changes on seed quality (protein, oil, amino acids and fatty acids) in soybean varieties for the last decades.

We are completing a large project investigating the effect of management practices on soybean seed quality, funded by the United Soybean Board and in collaboration with several universities across the Midwest. The project has produced multiple publications with relevant outcomes linked to understanding effects of late inoculation, co-inoculation, sulfur application and more.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?

The soybean checkoff (from our perspective mainly including the United Soybean Board, North Central Soybean Research Program and Kansas Soybean) is a critical source of funding for our large and heavily research-applied team. We are extremely proud and humble to have the support from U.S. soybean farmers and to help on improving their livelihoods via increasing their understanding of soybean production and overall sustainability of current farming systems.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
The mission of our team, Ciampitti Lab, is to foster excellence in research and service, devoted to innovation and focused on integrating new technologies and data science for improving the overall prediction of the behavior of farming systems with the emphasis on farmers. As for potential recommendations, our team strives to provide recommendations considering profitability as a main factor. Within this context we believe that managing the system (e.g., considering residue or cover crops, narrowing rows, plant density, rotation) is critical for sustainable soybean production, emphasizing importance of establishing a healthy plant for nodulation and N fixation. We must start thinking about management that includes quality as our next frontier of knowledge and market opportunity.

Within your area of expertise, what do you consider to be critical soybean research needs that can impact the profitability of farmers in the future?
Improving our understanding about soybean seed quality and expanding market opportunities will be critical for our crop and the overall profitability of farmers. This research has manyfold implications, from rethinking and investigating carbon and nitrogen allocation to seeds, studying energetic costs of processes related to yield, N fixation and seed formation of compounds, and redefining the role of soybeans in current rotation systems to increase opportunities.

SRIN articles:

The Sky's the Limit: Predicting Oil and Protein Levels Within Soybean Fields

Exploring How Soybeans Respond to Nitrogen and Sulfur Fertilization

Planning for the Future: Mapping Soybean Fields for Protein and Oil Quality

Can Late-Season Inputs Help Improve Soybean Yield?

Effect of Cultural Practices on Soybean Seed Quality: A Review and Research Studies

SOYBEAN RESEARCH & INFORMATION NETWORK

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