DAVID CLAY – SOYBEAN RESEARCH PROFILE

Farmer Blog



David Edward Clay, distinguished plant science professor, South Dakota State University

Why did you decide to pursue a career that includes soybean research?
My primary interest is in improving soybean profitability and reducing effects on the environment. To achieve these goals, we have conducted research designed to improve our understanding of the soybean system. Principle obstacles to this research have been: (i) linking information collected at cellular or plant scales with higher organizational levels; (ii) developing analysis tools that quantitatively define the impact of stress on plant growth, (iii) mathematically defining how different limiting factors interact to influence yield, and (v) developing experimental approaches to solve multivariate problems. We have used simulation models, remote sensing, tracking stable isotopes pulses, microarray analysis, detailed soil and plant measurements, and natural abundance stable isotope approaches in our research.

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?
An exciting area of research is the use of hyperspectral remote sensing imagery to develop improved techniques for quantifying abiotic and biotic stress in soybeans. In this research, we are flying a UAV that is collecting information from more than 400 unique spectral wavelengths. We will use this information to develop new mathematical equations for predicting the factors responsible for soybean yield reductions.

How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?
We have assisted farmers in conducting on-farm studies where the help can provide answers to their specific questions. This information is made available to the general public, too, on a website where the information can be search and reviewed.

Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?
Magic bullets do not exist for improving profitability. It requires optimization of your individual production program. We believe profitability can be improved by conducting on-farm research. Keep trying to improve, be a life-long learner, be proactive in your pest management, and pay attention to details.

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?
I believe that a critical need is how to integrate precision and data science into soybean production systems.

SRIN articles:

South Dakota Research Project for Higher Soybean Yields Grows and Evolves

South Dakota On-Farm Research Can Help Producers Statewide

SOYBEAN RESEARCH & INFORMATION NETWORK

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