# ZENGLU LI – SOYBEAN RESEARCH PROFILE

Farmer Blog



Zenglu Li, Professor, Georgia Seed Development Professorship in Soybean Breeding and Genetics, University of Georgia

**Why did you decide to pursue a career that includes soybean research?**
*I grew up on a small farm where we grew vegetables. At that time, I didn't think of vegetables as food. I thought of crops like corn, rice and wheat as real food. I wanted to work to improve a "food" crop. I studied agronomy and then plant breeding at universities. After receiving my master's degree in plant breeding, I wanted to work on wheat, but no positions were available in that crop. Instead, I took a position in soybeans, and then continued earning my doctorate's degree and post-doctoral training in soybean breeding. I enjoy that crop — and my career path — very much. After I worked for major companies on other crops, I wanted to get back to soybeans because I like the crop, so I gladly came to the University of Georgia to focus on soybean breeding and genetics research. Soybeans are used for so much, including food and feed for livestock, another type of food, which has a huge global impact.*

**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?**
*Soybean breeding is a complex endeavor. It takes substantial resources and many years to complete a breeding cycle to develop cultivars. Accelerating this process necessitates the adoption of innovative breeding technologies aimed at shortening the breeding cycle. Since I have been leading the University of Georgia soybean breeding program, we have successfully incorporated genomic tools into the cultivar development pipeline. These tools include genetic mapping of the genes underlying economically important traits like disease and pest resistance, abiotic stress tolerance and seed composition. Tools also include using molecular markers to predict superior crossing combinations and select desired progeny for yield, agronomic traits, seed composition and more. I've seen how important it is to get high-yielding soybean cultivars to farmers, and the tools and methodologies we've developed*

*and implemented have allowed us to expedite the delivery of new soybean cultivars with enhanced efficiency.*

**How has the soybean checkoff enhanced your ability to find answers to production problems for farmers?**
*Funding is crucial for research endeavors. Funding from the soy checkoff plays a pivotal role in supporting my research program, which has enabled us to develop and release new soybean cultivars for soybean growers, conduct gene discovery for economically important traits and develop new methodologies that support soybean cultivar development. Moreover, the checkoff funds also provide vital support to training students who will become the next generation of the workforce for the soybean industry. Without the soy checkoff funding support, I wouldn't be able to successfully run this breeding program.*

**Within your area of expertise, what are the top two or three general recommendations you would offer farmers to improve their management practices?**
*Soybean production, especially in the Southeast, presents numerous challenges that can significantly impact yield and farmers' profitability. These challenges include issues such as weeds, diseases, insect pests and various abiotic stresses. As a soybean breeder, I advocate for two primary strategies to mitigate these challenges and optimize soybean yield.*

*First, it's crucial for soybean growers to carefully select appropriate soybean cultivars tailored to their specific region. Different cultivars exhibit varying levels of resistance or tolerance to prevalent pests, diseases and environmental stresses. By choosing cultivars that are well-suited to local conditions, farmers can enhance their resilience against these challenges and maximize yield potential.*

*Second, employing appropriate field management practices throughout the growing season is essential for safeguarding soybean yield. This includes implementing effective weed control measures, timely disease and pest management strategies, and adopting practices to mitigate abiotic stresses such as drought or heat. By integrating these management practices into their farming operations, growers can minimize the impact of potential threats and optimize the performance of their soybean crops.*

**Within your area of expertise, what do you consider to be critical soybean research needs that can impact the profitability of famers in the future?**
*Soybean is one of the most important crops in the United States, underscoring the critical need for ongoing research to develop high-yielding cultivars and germplasm with climate resilience. This imperative research not only ensures the future profitability of farmers, but also safeguards the stability of the agricultural sector. Moreover, sustaining public breeding programs is crucial, as they serve as essential platforms for pursuing long-term goals in germplasm enhancement and cultivar development, as well as new methodology advancements. These programs also play a pivotal role in training the next generation of research professionals, ensuring the continuity of innovation and expertise in soybean*

*breeding and agriculture as a whole.*

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