

ISU Soybean Breeding Program: An Update

RFR-A2075

Asheesh Singh, professor
Brian Scott, ag specialist
Jennifer Hicks, research scientist
Will Doepke, ag specialist
Lucas Huber, ag specialist
Current and previous employees and
graduate students
Department of Agronomy

Introduction

The ISU soybean breeding program started in 2014. The focus of this program is to develop soybean varieties for Iowa and Midwest farmers. Specifically, breeding non-GM and food grade eligible soybean. Additionally, researchers are active in scientific discovery and tool development related to breeding and crop production. The group consists of staff, graduate, and undergraduate research students who are going to become the next generation scientists and breeders capable in agriculture, engineering, and data sciences related topics.

Group mission. Educating the next generation of breeders in agriculture, engineering, and data science to develop tools and technologies that advance science and empower farmers to increase profitability and sustainability.

Group research goals. To improve agricultural production and to positively impact farmers and the agriculture industry through the development of new products (cultivars and germplasm), gene discovery, and research insights on pertinent topics.

Update. The research and breeding work this group does at ISU farms is critical for success, as this gives the team valuable data leading to new discoveries and research insights. In 2020, there were over 27,000 variety plots on various research farms across Iowa. These

research plots also supported research projects of several graduate students and fellows.

Through partnership with the Committee for Agricultural Development (CAD), foundation seed of three new varieties was increased in 2020. Seed will be commercialized in 2021. Several other new varieties, representing new genetics with commercialization potential, underwent multi-state testing in 2020. This process ensures a continuous output of new varieties catering to the need of soybean farmers and industry. Eleven research papers were published in the past two years on helping advance digital and precision agriculture, disease and stress protection, yield enhancement, and developing better methods, tools, and breeding approaches.

Acknowledgements

Thanks to the funding support received in the past or currently receiving from the Iowa Soybean Association, Iowa Crop Improvement Association, Bayer Chair in Soybean Breeding, United Soybean Board, North Central Soybean Research Program, USDA-NIFA, National Science Foundation, and Iowa State University (R F Baker Center, Plant Sciences Institute).

This group appreciates the support received from farm staff and managers across the ISU farm network, particularly Mike Fiscus (Ag Engineering/Agronomy Farm), Terry Tuttle (Northwest Research Farm), Ken Pecinovskiy (Northeast Research Farm), Matt Schnable (Northern Research Farm), Myron Rees and Cody Schneider (Southeast Research Farm), Dallas Maxwell (Armstrong Memorial Research Farm), Domninic Snyder (Muscatine Island Research Farm), and Kevin Scholbrock (CAD).