

ILLINOIS PLANT BREEDING CENTER

MISSION

- > Educate future generations of plant breeders—those involved in all areas related to crop improvement and seed product development—and provide on-going support through continuing education.
- > Conduct research that encourages a multi-disciplinary team orientation, and fosters the educational goals of relevance, quality, and impact at state, national, and global levels.

VISION

- > Supply skilled and innovative plant breeders for industry and the public sector, and become the premier education/research institution for plant breeding in the United States.
- > Represent a new standard in plant breeding education by focusing on the use of new types of genomic information in crop improvement.
- > Become the national model for education and research in plant breeding.



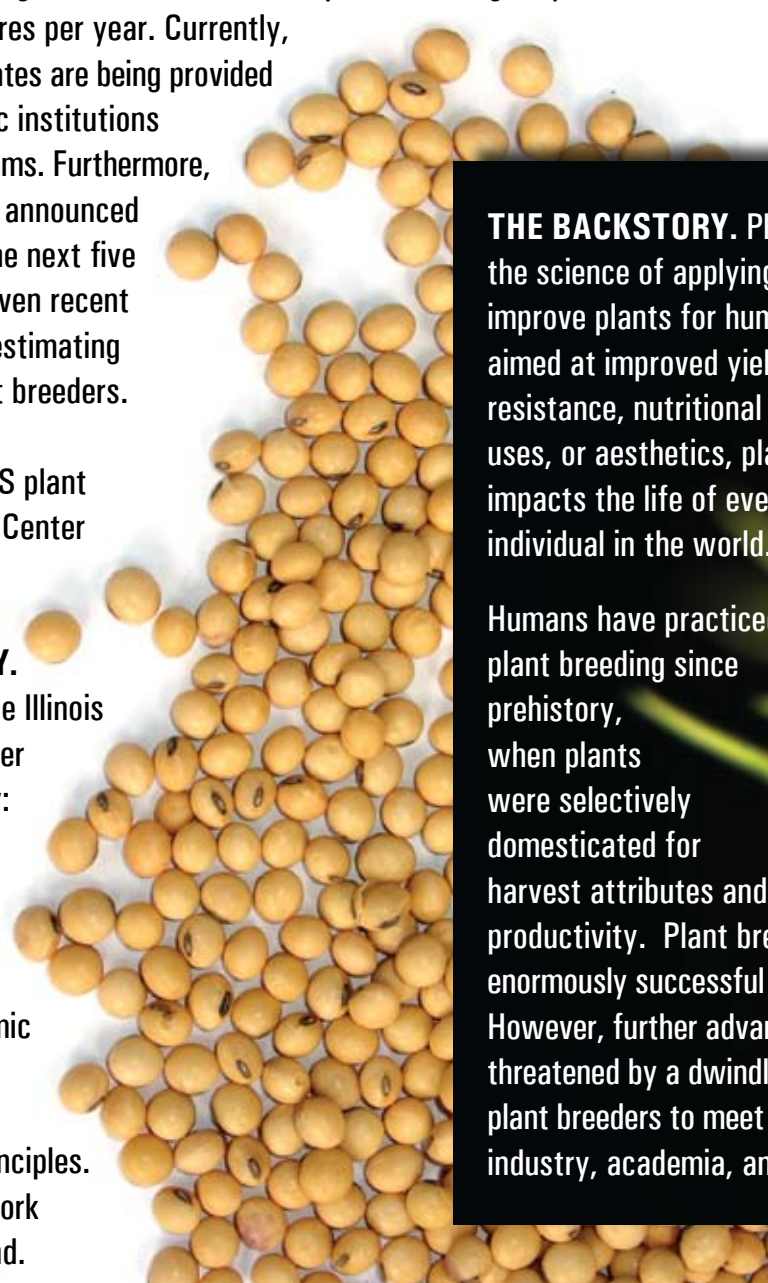
THE STATS. Estimates are that approximately 2,200 plant breeders currently work in the United States. Assuming that half of these will retire in the next 10-15 years, and also assuming a 15 percent rate of job growth in the seed industry, 1,430 new graduates holding a Ph.D. and/or M.S. in plant breeding may be needed by 2020—an average of 110 new hires per year. Currently, only two-thirds this number of graduates are being provided annually by the eight major academic institutions in the U.S. with plant breeding programs. Furthermore, in early 2009 major seed companies announced plans to double research output in the next five years—a fact which suggests that even recent assessments may be sharply under-estimating the future demand for qualified plant breeders.

THE CHALLENGE. The world NEEDS plant breeders. The Illinois Plant Breeding Center is ready. Are you?



THE OPPORTUNITY. Students can use the Illinois Plant Breeding Center as a portal to educational opportunity:

- > Customize your curriculum to meet specialized career interests.
- > Learn from global leaders in genetic improvement.
- > Participate in cutting-edge genomic applications.
- > Get a first-hand look at industry implementation of plant breeding principles.
- > Benefit from a rich resource network across the Illinois campus and beyond.



THE BACKSTORY. Plant breeding is the science of applying genetic principles to improve plants for human use. Whether aimed at improved yield, disease resistance, nutritional qualities, industrial uses, or aesthetics, plant breeding impacts the life of every individual in the world.

Humans have practiced plant breeding since prehistory, when plants were selectively domesticated for harvest attributes and increased productivity. Plant breeding has been enormously successful and beneficial to society. However, further advances in plant breeding are threatened by a dwindling supply of well-educated plant breeders to meet the needs of industry, academia, and government.

THE RESEARCH. Twenty-eight faculty members of the College of Agriculture, Consumer, and Environmental Science participate in the Illinois Plant Breeding Center. These scientists are internationally recognized for their research in a broad range of areas related to plant improvement. In the collaborative educational model of the Center, students learn not only from direct mentors, but from other faculty and industry leaders as well. Current research specializations include:

- > Biofuels
- > Nutritional aspects of food/feed
- > Genetic control mechanisms
- > Stability and sustainability of production: yield, biotic and abiotic stress
- > Climate change
- > Genotype by environment interaction: genomic to field performance levels
- > New sources of useful genetic diversity
- > Improved efficiency of plant breeding systems
- > Bioinformatic tool development.

THE PARTNERS. The Illinois Plant Breeding Center actively solicits partners to collaborate in shaping the future of plant breeding education. University/private sector partnering allows students to obtain insight into industry operation and practice, and ultimately provides industry with outstanding candidates for a variety of positions. Current industry partners include seed companies, biotechnology developers, and food producers.



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The **ILLINOIS PLANT BREEDING CENTER** specializes in graduate programs to prepare students for the growing career field of plant breeding. Our perspective is global and the expertise of our faculty is unrivaled. Our curriculum couples the University of Illinois' record of significant research in plant breeding with a real-world emphasis on practical applications in both the field and the lab. The result: M.S. and Ph.D. graduates who are prepared to be creative, challenged, and in-demand upon graduation, and who are primed for meaningful careers in plant breeding.



plantbreeding.illinois.edu

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Genomics in action for food, feed, fuel and flora

