Members of the R. F. Baker Center for Plant Breeding work to improve agricultural crops essential to the economic health of Iowa and our nation. Our work includes improvement of corn, soybeans, forages, small grains, and other potentially important new crops. Increased yields of these crops directly benefit farmers and consumers. But, Center members also develop cultivars that benefit the physical health of humans. Improving and enhancing components of food crops can lead to improvements in human health in the larger community.

Current work that addresses the need for healthier foods includes the development of improved soybean cultivars, especially those low in linolenic acid and high in oleic acid. Soybeans with these components exhibit higher stability and eliminate the need for hydrogenation, a process that produces trans-fats, known to be hazardous to human health.

Members are also working on initiatives to produce plants that can be used in the rapidly expanding biofuels industry. Experiments are underway to develop switchgrass cultivars that would be appropriate for fuel production. In addition, studies are investigating the use of corn stover (the residue left after corn has been harvested) as a possible renewable energy source. Improving plants to fit the needs of the biofuels industry is an important component to the success of these innovative approaches to meeting the energy demands of the United States and the world.

Center members take seriously their commitment to education. All members are on the faculty at Iowa State University and serve on committees for graduate students in plant breeding and biotechnology. Members also conduct field day events for Iowa farmers and travel the world as invited speakers at conferences, symposia, and research centers.

Center members work collaboratively with leading plant-breeding researchers, including the USDA-ARS scientists housed on the ISU campus who work in the general area of plant breeding and genetics and are led by Dr. Leslie C. Lewis. Within the last two years, scientists from Serbia, China, Japan, and Yugoslavia have traveled to Iowa to work on projects with Center members.
Raymond F. Baker Center for Plant Breeding

Center Profile 2006

Developing Specialty Traits

Recent Accomplishments

- New maize mapping population (IBM-10) developed
- Map of alfalfa genome completed
- Soybeans low in saturate fat and low in linolenic acid released
- Studies conducted to measure in corn the levels of methionine, the most limiting essential amino acid in poultry feed
- Breeding program launched to enhance oat β-glucan, the soluble fiber in oat shown to lower cholesterol levels and reduce incidence of diabetes
- Large-seed, high-protein soybeans developed for tofu, soy milk, and other food manufacturers
- Weevil-resistant maize investigated
- Soybeans containing higher levels of oleic acid developed
- Experiments with switchgrass to select traits favorable to biofuels industry
- Breeding program begun to select for traits favorable to corn stover initiative

Don't judge each day by the harvest you can reap, but by the seeds you can plant.
—Robert Louis Stevenson

Center Begins Mentoring Program for Undergraduate Agronomy Students

The members of the Center recently launched a mentoring program for undergraduate agronomy students choosing the plant breeding and biotechnology option. Students in the mentoring program will have the opportunity to meet regularly with plant breeding scientists and participate in plant breeding research. The program is designed to introduce students to the kind of work involved in plant breeding and to connect students to scientists involved in plant breeding research.

Center Named for ISU Graduate and Researcher

The Raymond F. Baker Center for Plant Breeding, an affiliate of the Plant Sciences Institute, was established in 2000 as the result of a generous endowment dedicated to continuing the work of Raymond F. Baker. His life-long objective was to produce basic, long-term research in crop improvement. Baker’s dedication to rigorous scientific inquiry and his mission to improve yield stability, enhance germplasm, and create value-added traits for agronomic products serves as the vision for the Center. Baker graduated from Iowa State University in 1935 and was hired by Henry Wallace as the second employee in the Hi-Bred Corn Company, later known as Pioneer Hi-Bred. Baker worked as Pioneer’s lead plant breeder for 43 years.

Raymond F. Baker
Graduate, Iowa State University
Renowned plant breeder, Pioneer Hi-Bred

Center Members
Kendall R. Lamkey, Center Director, Corn Breeding
Walter R. Fehr, Soybean Breeding
Arnel R. Hallauer, Corn Breeding
Michael Lee, Plant Breeding and Genetics

Iowa State University
Of Science and Technology
Department of Agronomy

Plant Sciences Institute