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THE NATIONAL COALITION FOR
FOOD & AGRICULTURAL RESEARCH

Program:

PLANT BREEDING AND GENETICS

*A paper in the series on
The Need for Agricultural Innovation to
Sustainably Feed the World by 2050*

March 22, 2017

PROGRAM

Welcome and Introduction

JANE DEMARCHI
NATIONAL C-FAR REPRESENTATIVE

Distinguished Speakers

DR. P. STEPHEN BAENZIGER
DEPARTMENT OF AGRONOMY AND
HORTICULTURE
UNIVERSITY OF NEBRASKA-LINCOLN



DR. RITA H. MUMM
DEPARTMENT OF CROP SCIENCES
UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

Open Forum

Closing

JANE DEMARCHI

NATIONAL C-FAR IS a nonprofit, nonpartisan, consensus-based and customer-led coalition that brings food, agriculture, nutrition, conservation and natural resource stakeholders together with the food and agriculture research and extension community, serving as a forum and a unified voice in support of sustaining and increasing public investment at the national level in food and agricultural research, extension, and education.

ABSTRACT

The ultimate goal of plant breeding is to develop improved crops. Improvements can be made in crop productivity (e.g., grain yield; adaptation to a specific region; disease and pest resistance; tolerance to drought, heat, cold, or salinity), crop processing and marketing (e.g., milling or baking/ cooking/fermentation quality, biofuel yield, visual appeal, postharvest storability, shelf life), and/or consumer quality (e.g., flavor, protein content, oil profile, fiber quality, nutritional value). Given the goals and steps in the plant breeding process, innovation provides the means to achieve greater gains, increase efficiency, and accelerate time-to-market for improved cultivars. The innovation can come in the form of new genetic technologies that may involve creation or assembly of genetic diversity, production of the progeny to be evaluated, structures and schemes to facilitate selection of superior *genotypes*, and even systems to enable delivery of superior performance to farmers. Several significant examples of innovative technologies are presented to demonstrate what has been done to date. Given the focus and investment devoted to technological innovation in crop improvement, it is vital that maximal value is derived; this often means fitting improved cultivars and the process to create them with other features of the agricultural production system and the value chain. Integration with farmer-implemented agronomic practices; delivery options for crop protection; and machinery used for planting, harvest, and postharvest storage are important to realizing the full genetic potential of improved cultivars and deriving maximal value and impact from innovation. Likewise, further innovation in production systems and value chains will sustain and leverage genetic advancements.

SPEAKER BIOGRAPHIES

Dr. P. Stephen Baenziger is currently a professor and Nebraska Wheat Growers Presidential Chair in the Department of Agronomy and Horticulture at the University of Nebraska–Lincoln. He is the primary small grains breeder at the university, and two of his basic research goals are developing improved breeding methodology, emphasizing biotic and abiotic stress tolerance, and the use of biotechnology. Dr. Baenziger received his B.A. in biochemical sciences from Harvard, his M.S. in plant breeding and genetics from Purdue, and his Ph.D. in plant breeding and genetics from Purdue.

Dr. Rita Hogan Mumm is a Professor Emerita from the University of Illinois. She joined academia in 2008 as founding director of the Illinois Plant Breeding Center and served as an associate professor in quantitative genetics and plant breeding. Prior to this time, most of her professional career was in the seed industry. She continues as a consultant for GeneMax Services—a firm in Urbana, Illinois—specializing in applications of biotechnology to crop improvement. She earned her A.S. degree with an emphasis in agriculture at Joliet Junior College, her B.S. in agricultural science at the University of Illinois, and her Ph.D. in genetics and plant breeding at the University of Illinois.

SEMINAR SERIES DESCRIPTION

National C-FAR's Seminar Series regularly presents leading-edge researchers to address pressing issues confronting the public and Congress. National C-FAR and the Seminar Series serve as a resource to policymakers and staff.

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