

PUBLIC AFFAIRS

ASPB Coordinates USDA–CSREES Stakeholders' Workshop on Plant and Pest Biology



(From left) Anna Palmisano, CSREES deputy administrator for Competitive Programs; Gary Stacey, ASPB Committee on Public Affairs chair; and Liang-Shiou Lin, CSREES national program leader for Competitive Programs, attend a Stakeholder's Workshop on Plant and Pest Biology.

The USDA Cooperative State Research, Education, and Extension Service (CSREES) sponsored a Stakeholders' Workshop on Plant and Pest Biology on November 20 in Alexandria, Virginia. The workshop provided the opportunity to a diverse array of stakeholders to present their priorities for research on plant and pest biology.

Nearly 30 stakeholder organizations participated, representing primarily science societies and grower organizations. Nearly 20 officials from USDA–CSREES took part in the workshop, together with representatives from USDA Agricultural Research Service (ARS), the National Science Foundation (NSF), and the Department of Energy (DOE).

Colien Hefferan, CSREES administrator, presented the opening remarks for the program. Anna Palmisano, CSREES deputy administrator for Competitive Programs, explained CSREES program opportunities to stakeholders. Michael Fitzner, plant systems section director for Plant & Animal Systems, discussed programs offered in the plant systems section.

A panel was held of CSREES national program leaders and representatives from ARS, NSF, and DOE. Ed Kaleikau, Ann Lichens-Park, Liang-Shiou Lin, Gail McLean, and Mary Purcell participated on behalf of CSREES Competitive Programs. Ann Marie Thro and Tom Bewick represented CSREES Plant & Animal Systems. Michael Mishkind explained research programs supported by the NSF Directorate for Biological Sciences. Sharlene Weatherwax of the DOE Office of Biological and Environmental Research (BER) discussed plant research opportunities within BER. Kay Simmons discussed plant research supported by ARS.

Committee on Public Affairs Chair Gary Stacey of the University of Missouri presented the ASPB research priorities. Stacey noted that USDA–CSREES–funded research conducted by ASPB members addresses all six CSREES strategic goals. For example, member Debra Mohnen (University of Georgia) identified the Arabidopsis GAUT1 gene, providing insight into a gene family that affects plant biomass for biofuel production. Member Jorge Dubcovsky (University of California, Davis) recently received the USDA Discovery Award for research to enhance wheat nutritional value. The USDA website highlights member John Cushman (University of Nevada), whose work on the resurrection plant may provide novel insight on how to protect plants from drought stress. These are a few of the many ongoing projects by ASPB members that directly address CSREES strategic goals.

The majority of ASPB members perform research that addresses fundamental questions in plant biology. It is this basic research that leads to new approaches to improve crop production. For example, basic plant research led to the discovery of RNA interference, which is now influencing both plant and human biology. ASPB has urged CSREES to continue funding basic plant biology research through the National Research Initiative Competitive Grants Program rather than shifting funding to specific agricultural applications.

Good applied research begins with good basic research. The sequencing of the model plant *Arabidopsis thaliana* has been followed by tremendous advances in our understanding of crop genomes. These advances have greatly accelerated our ability to identify genes controlling important agronomic traits while also enhancing the use of molecular tools to breed superior crop varieties. These resources were developed through significant investments by both USDA and NSF and were accomplished by consortiums of multiple laboratories.

Although continued resource development in some crop plants is needed, model plants (e.g., *Arabidopsis*) remain relevant to agriculture. According to Stacey, it is time to focus again on solving specific biological questions, which is best accomplished by individual laboratories working in the plant system best suited to address the specific problem.

Stacey recommended an increased priority on basic plant research supported by the National Research Initiative Competitive Grants Program. For example, greater emphasis on and support for basic research in Program 56 Plant Biology will provide an increased understanding of gene function, growth and development, environmental stress, regulation, and biochemistry, providing the knowledge needed to attain significant gains in crops yields.

Knowledge of plant genomics is revolutionizing our understanding of the genetic bases of important crop traits. Hence, it seems prudent to also provide greater support for Program 52.1 Plant Genome, whose funding has fueled this knowledge revolution. Stacey recommended increased support for the Joint USDA–DOE Plant Feedstocks Genomics Program. He recommended that the department work closely with science and grower stakeholders in future implementation of new basic and applied plant research opportunities pending authorization of new specialty crops, biofuels, and bioproducts research initiatives.

The tremendous prospect of displacing 30% of imported transportation fuels with homegrown biofuels in future years will depend on innovations in both basic and applied plant research. For both specialty and all crops, a balanced portfolio of fundamental and applied research will contribute to the best returns for growers and consumers. ASPB coordinated the workshop with a grant from USDA–CSREES. ASPB also coordinated USDA–CSREES Stakeholders' Workshops on Plant and Pest Biology in 2002 and 2005.