
Statement of the American Society of Plant Biologists Presenter: Dr. Roger Innes

The American Society of Plant Biologists (ASPB) represents nearly 6,000 plant biologists. The central mission of ASPB is to promote research and education in plant biology with special emphasis on cellular and molecular plant biology, plant biochemistry, and plant physiology.

Each of the five CSREES major issue areas and strategic goals benefit from research conducted by ASPB members. Basic plant research supported by USDA-CSREES, including the National Research Initiative Competitive Grants Program, provides new knowledge that leads to improved and value-added crops. This enhances economic opportunities for America's farmers (issue one). This in turn benefits rural economies and the quality of life in rural communities (issue two). NRICGP-funded research performed by ASPB members has also led to major advances in enhancing and protecting the safety of the nation's agriculture and food supply (issue three). ASPB members are also studying how plants accumulate nutrients in order to develop crop plants with higher nutrient content (issue 4), and are learning how plants utilize water and soil nutrients (e.g. nitrogen and phosphorous) in an effort to develop crops that require less fertilizer, which would have major environmental, economic and health benefits (issue 5).

Research leading to improved energy crops could boost economies in rural and urban areas of America while reducing dependence on foreign oil. USDA and DOE reported in April how more than 33 percent of our nation's transportation fuels could be supplied by homegrown biofuels compared to the current two percent. This would help cut the nation's trade deficit, while also reducing carbon emissions. The nation's September 2005 trade deficit set an ominous record of \$66 billion. A frightening \$24 billion of that trade deficit went to purchasing foreign oil. We applaud USDA-CSREES for its own and collaborative efforts with the Department of Energy and National Science Foundation to increase basic understanding of plants for enhanced production of biofuels. Advances in plant research that have helped farmers give Americans the world's lowest cost for food (as the share of personal income) could also lower fuel costs and stabilize energy supplies.

The majority of ASPB members perform research that addresses fundamental questions in plant biology. It is this basic research that leads to unexpected breakthroughs and new approaches to improving crop production. For example, the discovery of RNA interference arose from basic research on the control of gene expression and on virus resistance in plants, but is now revolutionizing research and applications in both plant and human biology. ASPB urges CSREES, including the NRI, to continue supporting world leading basic plant biology research, rather than shift funding to specific agricultural applications. New enhanced crops result from research on crops and on simpler model plants with shared traits, such as Arabidopsis.

Tremendous advancements in our understanding of plant genomes have been made in the last five years. These advancements have greatly accelerated our ability to identify genes controlling important agricultural traits such as disease resistance, flowering time, and drought tolerance. These genomic resources have also greatly enhanced our abilities to use molecular breeding tools to develop superior crop varieties. Such resource development has required significant investments by both the USDA and the NSF, and has been accomplished by consortiums of multiple laboratories. Although continued resource development in some crop plants is still needed, it is time to focus again on solving specific biological questions, which is best accomplished by individual laboratories rather than large consortiums.

Concerns. We have recommended in the past that the USDA-NRI program increase the dollar amount given to individual research grants for both direct and indirect costs, but NOT decrease the total number of grants awarded. This requires additional funding for the NRI program. Unfortunately, the NRI budget for existing programs has not increased substantially. As a result, to accomplish an increase in award sizes, the NRI has had to fund fewer grants. This has caused funding rates to plummet. If such low funding rates are maintained, it will cause many research labs to close and make it difficult for universities to justify maintaining faculty in these areas. It will also make it very difficult to attract new students and faculty into plant biology, just at a time when the opportunities for rapid advancement are unprecedented. A substantial increase (14-percent a year over five years) of the NRI budget would multiply the positive impact that plant biology has on human health and nutrition, environmental quality, clean energy production and farming practices.