

National Plant Genome Initiative Five-Year Plan: 2014-2018

NIFA National Program Leader Ed Kaleikau participates on the *Interagency Working Group on Plant Genomics (IWGPG)*, a Working Group under the Life Sciences Subcommittee of the National Science and Technology Council's (NSTC) Committee on Science. The IWGPG serves as part of the internal deliberative process of the NSTC and provides overall guidance and direction for plant genomics research across the Federal government agencies. In May 2014, the IWGPG released its publication of the National Plant Genome Initiative Five-Year Plan: 2014-2018

(https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/NSTC/npgi_five-year_plan_5-2014.pdf).

The goal of the National Plant Genome Initiative (NPGI) Five-Year Plan is to develop a basic knowledge of the structures and functions of plant genomes and to translate this knowledge into a comprehensive understanding of all aspects of economically important plants and plant processes of potential economic value. By bridging basic research and plant performance in the field, the NPGI will advance basic discovery and innovation to improve the practice of agriculture, reduce the demands on environmental resources, and address challenges posed by global climate change.

This NPGI Plan builds on the landmark advances made under three prior NPGI strategic plans by setting six major new objectives. Objectives 1 and 2 focus on open-access data and knowledge sharing and expanding the interoperability of tools and databases, while objectives 3–6 focus on enhancing the application of genomics for agriculture, acceleration of plant breeding, improvement of the practice of agriculture, reduction of the demands on environmental resources, and addressing challenges posed by global climate change. Moreover, the NPGI will continue to adhere to the guiding principles first articulated in 1998, including timely access to the outcomes of NPGI investments.

NIFA aims to focus on:

- **Crop genetic improvement.** NIFA will continue to support research in basic plant biology to increase our understanding of important traits for crop improvement, such as drought tolerance, disease resistance, and nutrient utilization efficiency. NIFA will also support translational research for sustainable food production by providing opportunities for pre-breeding and germplasm enhancement, cultivar development, selection theory, applied quantitative genetics, and participatory breeding.
- **Genomics.** NIFA research, education, and extension opportunities in plant genomics, genetics, and breeding will address future challenges on food security, bioenergy, climate change, and sustainable intensification. By supporting investigations at the molecular, cellular, and whole-plant levels, NIFA will provide innovative and environmentally sound approaches to improve plants and protect them from biotic and abiotic stresses. NIFA will coordinate with Federal partners on areas especially relevant to plant genome structure and function to connect genotype to phenotype and to support new tools, resources, databases, training, and outreach to breeders, research scientists, students, farmers, and growers.