

National Wheat Improvement Committee

Chair: David Van Sanford
Dep. Of Agronomy
University of Kentucky
Lexington, KY 40546-0091

Secretary: Bob Graybosch
USDA-ARS
University of Nebraska
Lincoln, NE 68588

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To Whom It May Concern:

On the occasion of the 2002 CSREES Stakeholders meeting, The National Wheat Improvement Committee (NWIC) would like to take this opportunity to articulate the need for continued public funding of genomics research on wheat.

Recently, the National Research Council of the National Academy of Sciences recommended that the National Science Foundation (NSF) fund future genomics research in four reference species: rice, maize, tomato and *Medicago truncatula*. Without questioning the panel's choice of crop species, the NWIC would like to argue that wheat should be added to the list. First, there are a number of compelling scientific reasons to fund genomics research on wheat. Wheat is an historic and classic model for research on polyploidy, an important genetic mechanism to fix hybrid vigor; thus, wheat should be exploited as a targeted program for polyploid genetics research. The wheat genome, in spite of its large size, is genetically tractable because of an unparalleled array of cytogenetic stocks that allow targeted mapping of thousands of agronomic genes, yield QTLs, and ploidy-related genes. Recent research has shown that the wheat genome is organized into gene-rich and gene-poor regions and that most agronomic genes are located in gene-rich regions constituting 2.5 % of the wheat genome. Most agronomic genes appear to be crop-specific and can be most efficiently accessed by isolating and sequencing gene-rich regions.

This last point is critical in assessing the model species approach to funding. In fact, a case can be made that wheat is the ideal public crop (e.g. public investment for the public good) and that it needs to be studied to prove the model species research is in fact transferable and that public investment can have impact. Funding for maize and rice has increased dramatically in recent years, while funding for wheat genomics research has lagged far behind. This situation is exacerbated by the virtual lack of private investment in wheat genomics, in contrast to maize, for example. A continued lack of funding imperils the largest cadre of research workers and the scientific base and, hence, future advances in wheat genetics research.

Recently the international wheat genetics community has launched IGROW (International Genome Research on Wheat) to undertake and coordinate the effort to sequence the gene rich regions of the wheat genome. In the absence of U. S. funding, this project will not include the U. S., nor will the U. S. have access to the international genomics data.

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Many crop scientists feel that research in crop plant genomics holds the greatest promise for enhancing yield as well as protecting the environment. We strongly urge that wheat, a critical crop to the U.S. and world economy, a polyploid model, a temperate plant member and an integral part of rice-maize-wheat research triad receive at par funding priority. This funding will allow U.S. scientists to participate and leverage IGROW efforts in wheat genome sequencing and genetic infrastructure that will lead to fundamental advances in polyploid genetics research, plant productivity, world food security, and protection of the environment.

In closing I will note that although the focus of this letter has centered around issues of great interest to wheat scientists, the greatest cost of the lapse in funding of wheat genomics will be borne by stakeholders: wheat producers, processors, end – users, and ultimately consumers. We appreciate the opportunity to comment on this issue.

Sincerely,

David A. Van Sanford
Professor and Chair
National Wheat Improvement Committee