

University of Minnesota
The Stakman-Borlaug Center (SBC) for Sustainable Plant Health

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The Stakman-Borlaug Center for Sustainable Plant Health is pleased to have the opportunity to comment on the priorities of the newly launched Foundation for Food and Agriculture Research (FFAR). Our center builds on the vision of University of Minnesota scientists Elvin C. Stakman and Norman E. Borlaug, who applied interdisciplinary approaches to solve plant health problems that impact global food security and ecosystem health. This model was successfully applied to wheat improvement in Mexico, launching the Green Revolution that ultimately saved millions of people in South Asia from starvation.

Plant health issues impact plant efficiency. For the stated goal of improving plant efficiency, **FFAR must consider the major factors threatening plant health and the associated impacts on crop productivity and quality.** Plant health is influenced by many factors including the physiology of crops, input use efficiency (i.e. water and nitrogen), response to biotic (i.e. diseases, insects, and weeds) and environmental stresses (i.e. heat/cold, drought/flooding, and salinity), and crop pollinator health and sustainability. Significant post-harvest losses occur with many crops and should also be addressed in this program.

Healthier, more resilient and productive crops are needed to feed a growing world population. Changing global climate means that future crops must be produced in increasingly unstable and unpredictable environments. Erratic moisture patterns, temperature extremes, and shifting pathogen and insect population genetics represent direct plant health threats to productive sustainable agriculture. Enhancing crop productivity through breeding requires genetic diversity. However, just a small percentage of the potential allelic diversity available for plant improvement has been utilized in modern varieties. Crop wild relatives represent a virtual treasure trove of valuable alleles for breeding, yet thousands of accessions reside, under-utilized, in genebanks in the U.S. and abroad. **FFAR should support the launch of a systematic effort to capture genetic diversity for plant health improvement and enhanced crop productivity through genomics, phenomics, and informatics.**

Timely response to emerging plant health threats is needed to minimize impacts on plant efficiency and crop productivity. Oftentimes, responses to newly emerging threats to agriculture are too slow and too passive. **FFAR should enable a national and international network of scientists, educators, extension specialists, crop production professionals, and stakeholders to serve as a “rapid response team” that can quickly assess plant health threats and provide courses of action to mitigate impacts to plant efficiency and crop productivity.**

The University of Minnesota Stakman-Borlaug Center for Sustainable Plant Health supports research, teaching, extension, and outreach in the area of plant health. The center builds partnerships with industry, government entities, philanthropic foundations, and the engaged public to safeguard plant health, improve food security, and protect the environment. The Stakman-Borlaug Center would be happy to serve as a partner in support of emerging FFAR priorities in the area of sustainable plant health.