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Research Area: **IIR** **Duration of Award: 1 Year**

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PROJECT 2 ABSTRACT

(1 Page Limit)

This is an Integrated/Interdisciplinary Project that encompasses priorities of the Varietal Development and Uniform Nursery (VDUN), Host Genetic Resources (HGR), and Host Genetic and Genomics (HGG) Research Area Committees (RAC). In FY07, the objectives of this project will be to phenotype for FHB resistance and DON accumulation: 1) breeding lines from five upper Midwest barley research programs and the ICARDA/CIMMYT barley breeding program (VDUN), 2) accessions from various barley collections from around the world (e.g., Syria, Russia, The Netherlands) (HGR), and 3) lines being evaluated in mapping studies or studies to validate FHB resistance QTL/markers (HGG). A division of the funding for the project could be based on the proportion of lines being screened from each RAC (i.e., 38.4% VDUN, 56.85% HGR, and 4.75% HGG. The nursery is located at Zhejiang University – Hangzhou, China, and it has been used for screening upper Midwest barley germplasm since 1995. Use of this nursery allows for an additional field screen for FHB resistance each year and screening of materials from all Midwest barley improvement programs at a common location where FHB is the only head blighting disease. Specifically, this project addresses the research priorities of the VDUN research programs of: 1) breeding and release of FHB-resistant wheat and barley varieties and germplasm that are adapted to FHB-threatened states and ii) multi-location validation of FHB resistance through participation in the appropriate uniform FHB screening nurseries; 2) the HGR research program of: i) discovery of novel sources of FHB resistance to U.S. populations of *Fusarium* in barley and generation of unique and adapted parental germplasm and generation of unique and adapted parental germplasm; and 3) the HGG research programs of i) genetic analysis and mapping of new and/or novel FHB resistance germplasm and ii)validation of FHB resistance QTL/markers.