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FY07 ARS Agreement #: 59-0790-5-F092

Research Category: BAR-CP/VDHR

Duration of Award: 1 Year

Project Title: Screening Hordeum Germplasm for Resistance to Fusarium Head Blight and DON Accumulation.

PROJECT 1 ABSTRACT

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Overall goals: identify and acquire 'new sources of FHB resistance' in barley, thus 'diversifying the current resistance gene pool' with emphasis in 6-row types, and to 'facilitate the utilization of resistant germplasm'.

Specifically, the objectives of the project are:

- Providing agronomically suitable FHB resistant barley germplasm to US collaborators through pre-breeding activities using major USA cultivars.
- Testing USA barley germplasm at CIMMYT-El Batán field station and/or through the ICARDA International Barley Improvement Network.
- Introduction of ('highly') resistant barley germplasm from international programs' and 'Promoting germplasm exchanges', especially 6-row types, through the ICARDA gene bank and ICARDA international network that otherwise maybe inaccessible to US researchers.
- Screening new FHB resistant barley germplasm through extensive systematic screening activities of the barley genetic resources available at the ICARDA gene bank and making that available to the programs cooperating with the USWBSI.
- Testing preliminary resistant germplasm identified through other projects searching for novel sources of resistance in order to determine the GxE interaction of such sources.

The plans to accomplish the projects goals include:

- Resistance to FHB will be incorporated into commercially grown barley varieties for developing countries, specifically identifying and combining resistance to initial infection, resistance to spread and resistance to toxin (DON) accumulation.
- The best sources of FHB resistance will be crossed with US barley parents and segregating populations will be screened for other foliar diseases in El Batán, Ecuador and Terbol, Lebanon, and advanced through the two-cycle-a-year breeding shuttle program, in which malting quality will also be pursued.

The most promising materials developed in the program, introduced from other countries or identified in the gene banks will be made available to USWBSI researchers every year, seed being sent to Dr. Brian Steffenson.