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Project ID: 0506-CA-095 **FY04 ARS Agreement #:** New

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

Project Title: International Barley Germplasm and Information Exchange Through ICARDA/CIMMYT.

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' 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.
- 'Promoting germplasm exchanges' and 'introduction of ('highly') resistant barley germplasm from international programs' through CIMMYT international network, otherwise maybe inaccessible.
- 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 USA barley germplasm at CIMMYT-Toluca field station and/or through the CIMMYT International Wheat Improvement Network.
- Testing preliminary resistant gemplasm 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 for FHB will be incorporated into commercially grown barley varieties for developing countries, specifically identifying and combining, on selected sub-sets of germplasm, resistant types I (penetration), II (spread), III (low toxin content; also denoted as Type V) and IV (tolerance, good grain fill in the presence of the disease; also denoted as Type III).
- The best sources of FHB resistance (carrying also disease resistance) will be crossed with US barley parents and segregating populations will be screened for other foliar diseases in Toluca, Mexico, and advanced though the two-cycle-a-year breeding shuttle, in which also the desired malting quality will be pursued.
- The most promising materials developed in the program, introduced from other countries or identified in the gene banks will be shipped to USWBSI researchers.