PI: Maarten van Ginkel **PI's E-mail: m.van-ginkel@cgiar.org**

Project ID: 0405-VA-055 **FY03 ARS Agreement #: 59-0790-0-F076**

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

Project Title: International Durum Wheat Germplasm and Information Exchange Through CIMMYT.

PROJECT 2 ABSTRACT
(1 Page Limit)

Overall goals: identify and acquire tetraploid 'new sources of FHB resistance', thus 'diversifying the current resistance gene pool' and to 'facilitate the utilization of resistant germplasm '.

Specifically, the supporting objectives of the project are:

- 'Systematic search' of 'primary gene pool' in CIMMYT gene bank (largest global collection of wheat and wheat relatives) for 'novel resistance' in durum wheat and other tetraploids.
- 'Promoting germplasm exchanges' and 'introduction of ('highly') resistant durum wheat germplasm from international programs' through CIMMYT's international network, otherwise maybe inaccessible.
- Evaluate acquired and CIMMYT Gene Bank germplasm at FHB hotspot(s) in Mexico and globally through the CIMMYT International Wheat Improvement Network, to identify 'highly resistant elite durum wheat germplasm'.
- Resistance from other relevant genomes will be moved into durum wheat.

The plans to accomplish the projects goals include:

- Durum wheat germplasm from FHB-prone regions from 'throughout the world' already in the CIMMYT gene bank but not fully evaluated for 'novel resistance' will be subjected to 'a systematic search', and subsequent evaluation for FHB. Other relevant traits may also be thus introduced. New promising tetraploid wheat relatives will be acquired for screening from other gene banks.
- Above and additional candidate 'new sources of FHB resistance' will be evaluated by CIMMYT in 'international programs' in Mexico, China and Uruguay/Brazil/Argentina, as a preventative measure against the risk of pathogen diversification and to identify widely effective 'resistant elite germplasm'.
- Synthetic wheats, shown to be resistant to FHB based on the *Triticum tauschii* parent, will be used in crosses in which the *ph1c* allele will promote homeologous recombination with the AABB durum wheat genome, with the intent to promote transfer of the resistance.
- The best new tetraploid wheat sources of FHB resistance will be crossed with USA parents and F1 top crosses will be screened for *Septoria tritici*, *Puccinia recondita, and P. striiformis*.
- All these tetraploid stocks will be shared with USWBSI.