

## Progress report 2010

**Submitted to:** Nebraska Wheat Board, Lincoln, Nebraska

**Project Title:** Integrating Molecular Markers into Winter Wheat Breeding for Nebraska

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*Specific objectives:* The objectives are to: (1) to facilitate the transfer of Sr2 and WSMV resistance genes to improved wheat breeding lines and cultivars and 2) continue research on improving breeding efficiency.

We have obtained and planted several cultivars that contain single or multiple stem rust genes e.g. Janz, Amigo, Agent, sunleg (sr 24), Shrike and sunleg (sr 26), Japee, Sission, Mengavi, and NE 73843 (sr 36), R16088 contains sr 40. We also several cultivars that contain a small introgression segment from rye that and may contain alleles for stem rust resistance. These cultivars should be very useful as a source of resistance.

Primer pairs that are linked to stem rust resistance genes sr2, 6, 16, 26, 36, and 40 have been synthesized and will be used to verify the presence of the genes in the cultivars above.

Several Nebraska wheat lines that contain known resistance are being growing in the greenhouse. These lines will be intercrossed in an effort to Pyramid few genes in one line. The primers specific for each resistance genes will be used to verify the gene pyramiding.

Publication:

Liakat Ali, P. Stephen Baenziger, Zakaria Al Ajlouni, B. Todd Campbell, K. S. Gill, K. M. Eskridge, A. Mujeeb-Kazi, and Ismail Dweikat. 2011. Mapping QTLs for Yield and Agronomic Traits on Wheat Chromosome 3A and a Comparison of Recombinant Inbred Chromosome Line Populations. Crop Sci. In press.