

**Report on the 2009 USWBSI Spring Wheat VDHR
Coordinated Project Planning Meeting
Held on 8 May, 2009 in Fargo, North Dakota**

The Spring Wheat Coordinated Project (CP) planning meeting was held on May 8, 2009 in Fargo, North Dakota, for the spring wheat VDHR CP. The planning meeting was attended by several potential PIs / co-PIs from Minnesota, North Dakota, and South Dakota that have previously received USWBSI funding to support regional VDHR activities. Other NDSU and ARS scientists interested in future participation with the CP were also present. Additionally, stakeholders representing the USWBSI and both Minnesota and South Dakota wheat growers were in attendance. Specifically, attendees included;

Researchers:

Jim Anderson (via conference call), Univ. of Minnesota
Karl Glover, South Dakota State Univ.
Mohamed Mergoum, North Dakota State Univ.
Jose Gonzalez, South Dakota State Univ.
Scott Halley, North Dakota State Univ.
Shiaoman Chao, USDA-ARS, Fargo, ND
Tika Adhikari, North Dakota State Univ.
Senay Simsek, North Dakota State Univ.
Steven Xu, USDA-ARS, Fargo, ND
Rachel MacArthur, North Dakota State Univ.
Marcia McMullen, North Dakota State Univ.
Michelle Mostrom, North Dakota State Univ.

Stakeholders:

Art Brandli, USWBSI Co-Chair, Warroad, MN
Randy Englund, South Dakota Wheat Commission, Pierre, SD
David Torgerson, MN Wheat Growers, Red Lake Falls, MN

Discussion was primarily centered on the upcoming biennial (FY10-FY11) spring wheat VDHR Coordinated Project proposal. An additional discussion was led by Dr. Marcia McMullen (NDSU - Dept of Plant Pathology) that revolved around the recommendation of spring wheat cultivars to be included on the ScabSmart website. Dr. Michelle Mostrom (NDSU - Department of Veterinary and Microbiological Sciences) led a second discussion concerning mycotoxin (i.e., DON) testing protocols. Discussion points will be summarized in the context of the attached meeting agenda.

– Introductions & Introductory Comments

The meeting was initiated when Karl Glover provided a brief summary of discussion points to be considered throughout the day (see agenda). Art Brandli then addressed those in attendance on behalf of USWBSI. His comments were largely centered on two points. The first of which was a concern that outcomes of Initiative research are not as effective nor are they deployed to the extent that was once promised. Perhaps slow progression away from the Initiative's main focal point (i.e., *to develop as quickly as possible effective control measures that minimize the threat of Fusarium head blight*) has taken place. Essentially, it seems that too many projects are being funded with too little money. Secondly, a lack of USWBSI omnipresence is apparent among stakeholders. As a specific example, an internet search of terms such as "head scab" and "FHB" does not immediately result in a link to the USWBSI website.

– Summary of Present Research

A review of research activities conducted within the most recent CP was provided by PIs and co-PIs that were in attendance. The objective was to provide those in attendance with a sense of the scope and nature of VDHR-related breeding and genetics research that has been previously funded by the Initiative. This was accomplished by PIs or co-PIs briefly summarizing their research project. In summary, steady progress has been accomplished. Breeders have focused on recent releases with enhanced resistance. These cultivars are replacing many regionally prominent cultivars which helps to reduce losses due to FHB. New germplasm and QTL's are being discovered by the group.

– Marcia McMullen

Dr. Marcia McMullen led a discussion concerning the ScabSmart website that is designed to provide growers with a centralized Internet location for gathering FHB resistance information on commercially available wheat cultivars. Although links can be followed to obtain agronomic and other disease resistance characteristics associated with many cultivars, the main spring wheat grain class page on the website contains a short list of recommended cultivars. The recommended list is composed of cultivars that are thought to be the most resistant to FHB. Along with other minor points of consideration, Dr. McMullen was mostly interested in obtaining the thoughts of others as to which cultivars should be placed on the recommendation list. It was decided that the list should be composed of the following cultivars; 'Alsen', 'Brick', 'Barlow', 'Bigg Redd', 'Glenn', 'Faller', 'Freyr', 'Tom', and 'Traverse'.

- Summary of Present Research Priorities from Action Plan Goals

Very quickly following the beginning of the afternoon session, it was decided upon by the group that this agenda item would best serve as only a reminder of what must be considered with construction of the next CP proposal. No discussion was initiated with respect to the research priorities.

– Michelle Mostrom

Dr. Michelle Mostrom led a discussion concerning mycotoxin (i.e., DON) testing protocols along with other related issues of interest to VDHR CP PIs and co-PIs. Of particular importance to meeting attendees was learning that although the testing lab receives USWBSI funding each year to analyze 11-12,000 samples, a greater number than this is usually submitted. Some PIs submit more samples than what is anticipated by the lab. Members of the lab are, however, very gracious in their willingness to accommodate as many submissions as possible. Consequently they end up collecting sample data for about 11 months of the year.

Typically samples begin to arrive each year in early- to mid-July and continue to arrive throughout the remainder of the year. Analyses are most often conducted throughout each working day and well into the overnight hours. Approximately 80 samples can be analyzed each day. With respect to the number of allocated samples available to each researcher, Michelle stated that this decision is one to be made by the Initiative. Likewise, the way in which samples are prioritized is not a point of concern for her. She did state that when a researcher asks for sample data to be returned as quickly as possible, adjustments in the order of sample analysis are often made. It was clear that lab members are very flexible with respect to wishes of the Initiative. When and if decisions are made to reprioritize sample analysis, they should be made by the Initiative. Michelle also made clear to the audience that the lab is at "full capacity". Additional samples can not be processed beyond what is currently submitted even if funding levels were to increase. The PI's, and breeders in particular,

believe that the number of DON samples allocated to them is still very low and does not allow them to screen properly for this important trait.

- Formulate Plans to Create New CP Proposal for FY10-FY11 Funding Cycle

To varying degrees several topics were considered with respect to their likely inclusion within the upcoming biennial (FY10-FY11) VDHR CP proposal. Discussion topics and conclusions (where available) are presented below.

Uniform Regional Scab Nursery: Participants agreed that continuation and contribution to the URSN is essential. The only suggestion made to improve the effort was that it would help everyone involved in nursery screening if contributors provided only material which has previously been shown to possess some promising level of resistance. Sometimes URSN entries are more susceptible than the susceptible check. This makes participants wonder whether the material had been screened previously.

DON Testing: A good deal of time was devoted to DON and FHB resistance. It is clear that DON screening within breeding programs will require more attention.

Indigenous and Novel Resistance Sources: Most of the afternoon session was devoted to discussions relating to examination of native/indigenous and novel resistance sources. The intent is that undocumented resistance present in several regionally prominent cultivars of various age may potentially result in new and useful QTLs. Primarily, two methods of identifying useful QTLs associated with indigenous resistance were considered. To some extent, however, additional issues were included in the discussion such as; parental lines that might be most useful for examination, disease assessment methods (i.e., screening for type I or II resistance), etc. Exploration of indigenous and novel resistance sources will likely become a prominent research effort throughout the region. It also seems likely that these research efforts will result in a high level of collaboration among programs throughout the region as populations should be developed using regionally prominent cultivars and resistance phenotyping will benefit from multi-location screening.

Regionalized Backcrossing Program: As was the case at previous regional CP planning meetings, there were several questions on the validity of this approach. It was concluded however, that interest in such an endeavor would require that someone step forward and agree to accept responsibility for this program. Additionally, a significant amount of funding from the Initiative would be required to support it. Therefore, a significant amount of regional support for this concept is presently nonexistent.

Funding: Participants were very concerned about seemingly continual discussions pertaining to reductions in VDHR funding. There was a concern among the audience that the increasing number of projects for the same amount of funding will only impact negatively the on-going and successful projects. This point was also mentioned earlier in the day by Art.

2009 HSW-CP USWBSI – Schedule & Agenda
(Friday, 8 May 2009) – Northern Crops Institute, Fargo, ND

10:00 – 10:30 – Introductions & Introductory Comments

10:30 – 11:40 – Summary of Present Research

- HSW - CP PIs provide brief (i.e., 5 min.) oral summary of their most recently funded research and results.

11:40 - 12:00 – Marcia McMullen

- Discuss a list of the most resistant HRS cultivars for inclusion on ScabSmart recommendation website.

12:00 – 12:45 - Lunch

12:45 – 1:30 - Summary of Present Research Priorities from Action Plan Goals

- *Increase acreage planted to varieties exhibiting improved FHB resistance.*
- *Increase efficiency of individual breeding programs' to develop and release FHB resistant varieties.*
- *Develop new breeding technologies and germplasm to further enhance short term and long term improvement of FHB resistance and to efficiently introgress effective resistance genes into breeding germplasm.*

1:30 - 2:00 – Michelle Mostrom

- Discussion of testing capacity and difficulties along with ways to potentially alleviate the difficulties.
- Dialogue on changing DON testing from first come-first served to a priority system (all or part).
- Discuss program allocations for DON testing.

2:00 – 3:00 - Formulate Plans to Create New CP Proposal for FY10-FY11 Funding Cycle

- Conversation leading to development plans that may include (but not limited to)...
 - a. Preliminary Letters of Intent
 - b. Continuation of (or new) Breeding / Screening / Mapping Efforts
 - c. Regional Backcrossing Program
 - d. Regional Nurseries
 - e. Indigenous Resistance Sources
 - f. DON Testing

3:00 (Approximately) - Adjourn Meeting