U.S. Wheat & Barley
Scab Initiative

MINUTES

USWBSI Steering Committee (SC) Meeting
Wednesday, May 30, 2007, 8:00 AM – 3:30 PM
Holiday Inn Lexington North
Lexington, Kentucky

Approved by SC: 12/4/07

Co-Chairs: Tom Anderson (Private Grower, MN) and Dave Van Sanford (University of KY)
Members Present: Louis Arnold (North Dakota Barley Council), Stephen Baenziger (University of NE), Jim Bloomberg (Bayer CropSciences), Christina Cowger (USDA-ARS), Mike Davis (American Malting Barley Association), Jane DeMarchi (NAMA), Ruth Dill-Macky (University of MN), Calvin Haile (Private Grower, VA), Rich Horsley (ND State University), Amir Ibrahim (SD State University), Ken Grafton (ND State University), Fred Kolb (University of IL), Larry Lee (ND Durum Grower), CJ Lin (Mennel Milling Co.), Larry Madden (Ohio State Univ.), Barry Morton (National Assoc. of Wheat Growers, DC), Ben Moreno-Sevilla (WestBred L.L.C), Steven Neate (ND State University), Herb Ohm (Purdue University), Jim Pestka (MI State University), Steve Scofield (USDA-ARS, attending in place of Blake Cooper), Linnea Skoglund (BARI, Inc.), Frances Trail (MI State University) and Marv Zutz (Minnesota Barley Council)
Member participating via Teleconference (audio only): Bill Bushnell (retired, USDA-ARS) and Marcia McMullen (ND State University)
USDA-ARS-NPS ADODR: Kay Simmons
Staff: Sue Canty

Meeting called to order at 8:00 a.m.

1. **Introductions and Opening Remarks**

2. **Minutes from 12/12/06 Steering Committee (SC) Meeting**
   Minutes were approved as distributed.

3. **FY07 Final Funding and FY08 Budget Outlook**
   Mike Davis – Update on Federal Budget:
   - FY07: Finalization of FY07 Appropriations was stalled as a result of election. Congress finally passed continuing resolution in February. All earmarks were eliminated including CSREES special research grants (e.g. US Barley Genome project and Barley for Rural Development). After much complaining from universities to Congress, the funds for the special research grants were placed into hatch funds (distributed to land-grant universities using a formula-based method) for one year. That resulted in an inequitable distribution of funds, with some land-grants net funding winners and others losers. University administrators are tying to cover some of the losses to special research projects with their increased Hatch Funds. ARS was funded at FY06 levels, with no allocation directives

from Congress. Barley and wheat interests were pleased that USWBSI funding of about $1M proposed for termination in the President's budget was not "redirected" by ARS and was one of the first programs to receive their FY07 funding allocation.

- FY08: Senate and House have both passed their budget blueprints for FY08. President's proposed budget again eliminates earmarks which includes the funding increases (approximately $1M) the USWBSI received since FY01. Wheat and Barley groups worked hard lobbying for maintaining the USWBSI's current funding level. Congress has added extensive paperwork to be completed for funding requests. Hopefully, we will have information soon on the Agriculture Appropriations Subcommittee's proposed appropriations for FY08.
    - Farm Bill is up for renewal this year (provides authorization for funding research programs, as well as the structure of USDA, and gets renewed every five years). A proposal (Create 21) has been submitted to Congress to combine ARS and CSREES, which both barley and wheat groups oppose (our view is: not broken, doesn't need to be fixed). The House Agriculture Research Subcommittee has developed their version of the Research Title which does not merge ARS and CSREES, but it does add another layer of bureaucracy to the system by creating multiple institutes between research agency administrators and the Under Secretary' Office. Agency (e.g. ARS) administrators would then have to report to each of the institutes' directors. Proposal would also create an Institute for Food and Agriculture within CSREES One last concern about Create 21 is that it would require the President to provide a single, combined (for both ARS and CSREES) line item in the budget. There was also the Danforth proposal which would create a new stand along institute to funding competitive grants. National Barley Improvement Committee and National Association of Barley Growers will both lobby against Create-21 and the Houses proposal. NAWG is of the same opinion. Senate has not released their version yet. Discussions with some key Senators indicate they are not in favor of consolidation of ARS and CSREES.

      Mike Davis asked: What is the opinion of Universities on the Create 21 proposal? University SC members replied that some smaller land-grant universities oppose it, but in general most of the large land-grant universities are in support of the proposal.

  Overall, there is a potential for very big changes. The USWBSI will be reauthorized in the 2007 Farm Bill, and everything we are doing - development of the Action Plan and integration of coordinated projects – will aid in assuring the continuation of future funding. Jane DeMarchi - One down side to sub committee's proposal versus these other proposals is that there is not additional money for the research title of the Farm Bill

Kay Simmons – Update on USDA-ARS Issues: Millions of dollars (approximately ¼ of budget) within ARS' FY07 budget likely are being redirected. The USWBSI was not selected for that redirection because of all of the active participation and efforts by the Initiative to draft a very proactive Action Plan. NPS staff had worked very hard to get the FY07 agreements out starting with the grants expiring first. As of yesterday (5/29/07), all of the USWBSI FY07 agreements had been sent to the various institutions.

4. Update from NFO

- Update on funds (approx. $55K) held back for increased DON Testing to address greater emphasis on DON

- The DON Labs were surveyed on their capacity, as well a surveying of the Breeders/Pathologists of their needs. Preliminary results indicate we are meeting the needs of the USWBSI research projects. In addition to the now three DON testing labs, David Schmale at Virginia Tech, has purchases a GSCS instrument and is very interested in participate , and has offered to handle special studies (outside routine breeder sampling).
- Communication Activities – During a recent conference call, the EC approved to redirect part of those funds to support a part-time communications/marketing specialist who will work on enhancing and accelerating the USWBSI's communication activities.

- Redesign of Electronic Pre-Proposal Submission (EPS) System: Sue Canty gave an overview of the redesign currently underway on the electronic submission of pre-proposals (PIs submitting pre-proposal to the FHB Management RA will use the EPS system).
  - **Summary of Changes for PIs**
    - New Software – faster response to commands
    - Eliminated need for Co-PIs and AOR's (i.e. grants offices) to access system.
    - PI will complete pre-proposal using distributed RFP application including all forms.
    - Choice of uploading a single file or multiple files (Word or PDF formats) based on pre-set components.
    - Automatic conversion to PDF format.
    - Final submit feature and confirmation of receipt.
  - **Summary of Changes for Reviewers**
    - Reviewers given option of receiving pre-proposals in paper format, on a CD, or via the EPS System.
    - EPS system will be configured so all pre-proposals are formatted the same (i.e. order and name of P-P components).
  - **Feedback from SC:** PIs importing references from EndNotes or Reference Manager (or other Bibliography software) into their pre-proposal should convert to PDF format before uploading to EPS system.

  Special thanks were given to Steve Harrison and David Schmale who provided feedback and insight into the redesign of the EPS system. Steve Harrison and David Schmale along with Sue Canty, Dave Hane and Dave Van Sanford make-up a Technical/Communication Advisory Committee.

5. Overview of Proposed USWBSI's Action Plan and Implementation for FY08 Request for Pre-Proposal Process.

Dave Van Sanford reviewed the process leading up to the final draft of the Action Plan. Following the Forum where the first draft of the Action Plan was developed, asked the original writing teams to revise their original drafts with input from various individuals. A second draft was then posted on the web for public comment and .then the Research Area Committees were asked to provide input, as well as address the public feedback. What still needs to be developed are milestones or performance expectations (3-5 year timeline), which the SC was asked to break-up into pre-assigned groups to craft possible milestones.

6. Results from Small Discussion Groups

- **Suggested Milestones**
  - **FHB Management Goals**
    - **1)** Validate integrated management strategies for FHB and DON.

- Short-term (1-2 yr) goal: Assemble all available data on DON accumulation in relation to management practices (by region or wheat type).
- Year 1 - establish regional teams of researchers to develop a regional nursery to examine a limited number (e.g. 5) lines ex the uniform regional FHB nurseries (with different genes/gene combinations) to test the interaction of best management practices on the resistance of lines to be released with improved FHB resistance.
- Teams are set up to carry out an integrated factorial experiment in each state or sub-region with varieties appropriate to that location that represent a range of resistance levels. Other factors are planting date and fungicide treatments.
- The projects are planted by spring 2008 (spring wheat) or fall 2008 (winter wheat).
- Make available to industry data from the multi-state trials determining best management practices for FHB management.
- Validate current models using data from the multi-state trials.
- Validate models using 3 year economic data.

2) Enhance communication and end user education/outreach. We recognize that our audience includes, but is not limited to producers, agricultural advisors, research community, and grain processors.

- Conduct a survey of the industry to determine current FHB management practices, where is information about best practices being obtained, and how growers are making decisions regarding FHB.
- Document that there is increased implementation of good FHB/DON management practices in the country (perhaps with surveys).
- Years 1&2 - USWBSI establish a document outlining the best management practices and identify areas where knowledge on best management practices is missing.
- Document negative data for why management was ineffective in reducing FHB.
- A database with the results from Goal 1 is available on the USWBSI web site.
- An interdisciplinary team is formed to design and oversee the survey regarding adoption of FHB/DON management practices.
- An interdisciplinary team is formed to design the “ScabSmart” outreach materials and platform.

3) Develop the next generation of management tools for FHB/DON control.

- Document that there is an actual reduction in DON when “novel” management tools are used.
- Document grower usage of FHB forecasting system.
- Add additional crop management (previous crop, tillage) to FHB forecasting system.
- Develop content for website describing what does not work.

4) Develop a full understanding of specific factors influencing infection and toxin accumulation that can be used to develop the next generation of scab and DON risk assessment measures

- Year 1 - determine if DON can be detected in asymptomatic grain; establish a relationship between grain symptoms and DON (+/- not quantification).
- Year 1-2 - determine the role of host genetics, pathogen genetics and environmental variables on DON accumulation.
- Years 3-4 - apply the above information to the FHB prediction model.
- Publications are submitted on:
- role of post-flowering weather and late/secondary infections;

- conditions leading to high DON with low/no visual symptoms; and
- relative contributions of in-field vs. external inoculum sources.
- Practical recommendations are developed based on the publications.
- The FHB risk forecaster is updated using the results described in the publications.

- **FSTU Goals**
  1) Provide analytical support for DON/trichothecene quantitation for Initiative's stakeholders.
     - Standardized sampling protocols adopted for regional (commercial field) and research testing for DON and posted on the USWBSI's website. **(SC encouraged RAC to develop protocols as quickly as possible and get them posted on the Scab Website.)**
     - Accurate information and analysis regarding ADONs and DON is publicly available in a form accessible to the FHB research community and the interested public.
     - Provide DON data in a timely manner.

     Suggested re-write of PM 1.3: Available information on frequency, abundance, and toxicity of ADONs will be collated, analyzed, and made available to the FHB research community and public through the USWBSI web site. The occurrence and abundance of glycosidic forms of DON and of tricothecenes other than DON will be the focus of targeted studies.
  2) Provide requisite information on DON/trichothecene safety issues to producers, millers, researchers, risk assessors, and regulators.
     - Validate current FDA standard of DON ppm in flour.
     - Improved safety protocols and strategies established for workers (researchers, growers, grain-elevator operators).
     - One or more studies are in progress regarding DON and related tricothecenes that will allow extrapolation from animals to humans.
     - A scientific publication is generated from this study or studies.
     - The information is used to produce accessible outreach materials for the public.
     - A list is compiled of commodity groups, food safety groups, and other interested parties that have received the access outreach material.
- **GDER Goals** (SC changed name of RA from 'Genetic Engineering and Transformation' to 'Gene Discovery and Engineering Resistance')
  1) Characterize the genetic function of existing and novel loci for FHB resistance. (SC changed language for Goal 1 – moved mapping to VDHR). – No milestones were developed for this goal.
  2) Increased efficiency of identification of candidate genes for resistance against FHB and reduced DON accumulation.
     - Identify X new candidate genes that confer increased *Fusarium* resistance.
  3) Develop effective FHB resistance through transgenic strategies.
     - Assess the activity of the candidate genes when expressed in wheat.
- **PGG Goals**
  1) Characterize genetic variation in FHB pathogen population with regard to aggressiveness toward plants and mycotoxin potential.
     - Determine genotype of strains being used for GH and field screening.
     - Put together isolate collection of characterized strains to distribute as required.
     - Compile information about the aggressiveness of different Fusarium strains and make a range of these strains available to researchers.
     - Characterize the interaction of these strains of various cultivars.

2) Characterize plant-fungal interactions in plant lines being developed by USWBSI.
- Characterization of cultivar/strain interactions with respect to colonization, infection, mycotoxin production.
- Determine where and when DON is produced in different cultivars.

3) Develop new strategies for reducing impact of FHB disease and mycotoxin contamination in barley and wheat.
- Take information from Goal #2 and apply to reducing DON.
- Implement knowledge of genes identified as essential to pathogenicity and collaborate with GET for evaluation.

- **VDHR Goals**

1) Increase acreage planted with varieties exhibiting improved FHB resistance.
- One new variety with scab resistance released per year in each of the wheat types/regions.
- Three lines with scab resistance being increased every year in each of the wheat types/regions.
- Database(s) developed and maintained on website with detailed information on all the wheat varieties with some resistance. Place on the website for grower ratings of varieties.
- Establish mechanism for the annual identification of a) acreage by variety and b) variety by FHB resistance - this info will be used to document the anticipated increase of commercial acreage planted to wheat and barley with improved FHB resistance.
- Evaluate the economic impact of lines with improved FHB resistance with respect to the predominant cultivars in a region.
- A survey should be made to determine the wheat varieties currently in production to determine a baseline for the use of FHB varieties.
- Identify X (this will vary with marker class) with good FHB resistance to be prioritized for introduction.

2) Increase efficiency of individual breeding programs to develop FHB resistant varieties.
- One new variety with scab resistance released per year in each of the wheat types/regions.
- Three lines with scab resistance being increased every year in each of the wheat types/regions.
- Database(s) developed and maintained on website with detailed information on all the wheat varieties with some resistance. Place on the website for grower ratings of varieties.
- Expand the number and increase the level of FHB resistance of entries in regional uniform FHB screening nurseries. Reporting of the performance of all entries shall be required for all breeding programs participating in the USWBSI.
- Establish a database to share information on the FHB resistance (or susceptibility) of all cultivars, advances lines and germplasm sources utilized by breeding programs.
- Annually, breeders in each market class contribute data called out in the performance measures to a table that is made available on the USWBSI web site.

3) Efficiently introgress effective resistance genes into breeding germplasm.
- Identify research programs to be charged (with specific funding) with introgressing resistance genes into wheat lines.

- Establish a database documenting the progress of the introgression of resistance from all sources of resistance (e.g. a table providing information on the sources of resistance utilized and giving the FHB evaluations from early generation materials utilizing those sources).
- Provide public documentation of the novelty of all known sources of genetic resistance.
- Demonstrate that the USWBSI has developed a plan to undertake the strategic testing of putative sources of resistance (e.g. define a small group of researchers who can cooperate to test new sources of resistance and establish their value quickly so that they may either be discarded or disseminated rapidly to other breeding programs).
- Annually, breeders in each market class contribute data called out in the performance measures to a table that is made available on the USWBSI web site.
- Create website listing all FHB resistance sources and describing any associated markers; keep this site updated.

4) Develop and map diagnostic markers for effective sources of FHB resistance. (New goal as a result of SC moving mapping out of Gene Discovery and Engineering Resistance RA).

- Identify X genes that increase FHB resistance.

The SC concurred that input is needed from the RACs on the drafted milestones. Specifics are required (e.g. at least one new variety with FHB resistance will be released next year). Example milestones are needed prior to distribution of the RFP (7/2/07).

7. Finalize Action Plan and Process for Implementation

- A motion was made and seconded to empower the EC to finalize the details of the Action Plan and its implementation.
- Motion made and seconded to accept the following deadlines:

July 1	RFP distributed no later than this date
Aug 1	Deadline for all Letters of Intent to be sent to the coordinators/leaders of the Coordinated Projects: Barley, Hard Winter Wheat, Uniform Nurseries – Spring Wheat (incl. Durum), Northern Winter Wheat and Southern Winter Wheat)
Aug. 17	Deadline for Pre-Registration for submission of FHB Management Pre-Proposals
Sept. 11	Deadline for submission of ALL Pre-Proposals
Sept. 28	All pre-proposals distributed to reviewers
Nov. 14	Individual Reviews submitted to RAC Chairs/Coordinators
Nov. 21	All Review Forms received by NFO.
Nov. 26	Final Recommendations (electronic format) received by NFO.
Dec. 1	EC meets with Research Leaders/Coordinators
Dec. 4	SC meets to review FY07 recommended budget and research plan

NOTE: Some of the dates for deadlines above were changed by the EC.

- Setting of Working Caps: The SC empowered the EC to review the data showing the redistribution of FY07 funds based on the new research structure (caps and areas). Background documents will then be developed and distributed to the SC for the first round of polling. After the first round of polling is completed, the individual recommendations will be summarized and redistributed to the SC for a second round of polling. The input will be tabulated and distributed

to the EC who will use it to develop a recommendation for the FY08 Working Caps, which will be voted on the by the SC prior to the review process.

- With the development of the Action Plan and the proposed restructuring of the research areas, the NFO asked the SC to approve extending all members terms for all committees by one year, which would eliminate all elections in 2007. A motion was made and seconded to extend all terms by one year, as well as empower the EC to establish the terms for the members of the new research areas.
- Establishment of Coordinated Projects (CP): The SC approved the establishment of two commodity-based coordinated projects: Barley and Hard Winter Wheat. They also approved the VDHR research area be organized into three coordinated projects based on the Uniform Nurseries: Spring Wheat Parents (includes Durum), Northern Winter Wheat and Southern Winter Wheat.
- The SC approved the converting the proposed projects for the new Coordinated Projects (Barley, Hard Winter Wheat and VDHR) to a two year funding cycle. For the mid-term pre-proposal process, pre-proposals for new projects that would fall under one of the CPs, should be submitted to the relevant research area.

8. Other Items:

- Revision of Policies & Procedures: The SC approved the creation of a sub-committee to work with the NFO to revise the Policies & Procedures (P&P). Mike Davis agreed to chair the sub-committee. Both Jane DeMarchi and Calvin Haile agreed to serve as members.
- 2007 National FHB Forum
    - **Program Format** – Van Sanford presented the general program format for the 2007 National FHB Forum (see below).
        - scientific talks and posters
        - reports from the fields, elevators, malt houses, mills etc
        - group meetings, research planning sessions, etc
            - Breeders meet with DON labs to establish sampling protocols
            - Millers meet with Growers
            - Pathologists discuss issue of Section 18 for Folicur, etc.
        - taking care of business – elections etc.
    - **Schedule of USWBSI Administrative Meetings**
        - 12-1: EC meets with leaders of review panels/research areas
        - 12-2: EC meets to finalize funding recommendation.
        - 12-4: Steering Committee Meeting
        - 12-4: EC Post-Forum Meeting
- 3rd International Symposium on FHB: Van Sanford announced the details for the 3rd International Symposium on FHB. The Symposium will be held in Szeged, Hungary in early September 2008.
- 2008 National FHB Forum: The NFO proposed Indianapolis as the location for the 2008 National FHB Forum. The SC approved the location. The NFO will poll the SC by e-mail for the selection of the final dates (during first two weeks of December).

Meeting Adjourned at 3:15 PM

Minutes recorded and written by:

Susan M. Canty

Susan M. Canty, Manager
USWBSI's Networking & Facilitation Office