

Barley CP Planning Meeting Report (2013)

Barley FHB Research: The Next Two Year Coordinated Project for”

April 17, 2013, Rm 408 Hayes Hall, St. Paul Campus of the University of Minnesota

In Attendance:

Art Brandli
Wynse Brooks (Phone In)
Robert Bruggeman
Sue Canty
Lynn Dahleen
Mike Davis
Ruth Dill-Macky
Rich Horsley
Aaron Lorenz (Phone In)
Subas Malla (Phone In)
Gary Muehlbauer
Charles Ottem
Kevin Smith
Madeleine Smith
Frances Trail
Marvin Zutz

Purpose / Description

The barley FHB research community will submit a two-year coordinated project (CP) in the fall of 2013. The participants of this Barley CP planning meeting evaluated the progress of currently funded CP grants and discussed plans and coordinated efforts for the next two-year funding cycle.

The meeting was conducted with two primary objectives:

I. Review Research Progress

Each PI was given time to update the group on their current project/s and plan moving

II. Discussion of Draft Letters of Intent and plan for next barley CP

A request for draft letters of intent (DLOIs) was sent to the barley research committee. All DLOIs, describing the project/s the PIs plan to submit as part of the barley CP were compiled and distributed to the group prior to the barley CP meeting. Each project was discussed as a group and all suggestions/criticisms were addressed.

The meeting began with Mike Davis the president of AMBA giving the group an update on the current situation concerning the President’s budget and the proposed reallocation of the USWBSI funding to other USDA-ARS projects. There was discussion by the PIs and stakeholders about how important FHB breeding and research projects could not be maintained if the SCAB initiative is terminated. The rest of the morning was focused on reviewing the progress of research funded by the current two-year barley CP. During the project review, there was discussion about how the current research will shape the future directions and plans for the next two-year cycle of funding. After the reviews the PIs summarized and presented the research projects proposed in the DLOIs, opening up discussion about important considerations

for developing the next two-year plan that would strengthen the overall mission of the barley CP.

Summary of Some Major Discussion Points

1. Coordination of NABSEN and screening western US barley germplasm

The lines in the NABSEN comprise the most important sources of resistance and therefore the NABSEN data represent a valuable resource for genetic mapping. Kevin Smith and Rich Horsley suggested that all new NABSEN entries and old NABSEN entries be genotyped with the Illumina 9K barley SNP array. The complete data set can be utilized to conduct association mapping. The genotyping and AM data will be made available to barley breeders and geneticists on T3 website.

2. Genomic Selection

Based on predictions this process will shorten the breeding cycle. There was some discussion on the use of genotype by sequencing particularly the GBMAS system and the development of a 384 marker set that would be easier to change out SNP markers and make the process less reliant on the company providing reagents to the genotyping facilities in a timely manner.

3. Virginia breeding effort The Virginia Tech group is developing several mapping populations for FHB in winter barley. Various suggestions were made including the need to set up several nursery locations in the region per year to obtain more robust phenotyping data. It was suggested that at least a second location in N. Carolina is needed and the PI should check with Paul Murphy.

4. Transformation Pipeline

There are two transgenic lines that have been evaluated in the field for the past five years that have consistently shown a reduction of DON accumulation. Others are in the pipeline. There were suggestions on how the validation of putative transformants could be improved beyond using PCR validation. Suggestions included the use of Southern analysis for validation and copy number determination. Westerns should be used to determine protein expression. Gary Muehlbauer suggested that a commercial method, Anti-Flag Tag, was available to tag transgenes providing an easier and more reliable way to monitor proteins production from transgenes.

Moving forward with the Barley CP

The group decided that we must move forward with cautious optimism that the USWBSI will be funded for the next two-year cycle. Some PIs were encouraged to ask for the additional funding for expanding projects objectives that would strengthen the overall goals of the CP. When the call for letters of intent is sent out by the NFO, the PIs will submit their LOI to the CP committee for each proposed project. The LOIs received by the CP committee will be sent out with a survey to all the PIs and a group of stakeholder to be evaluated and prioritized. The CP committee will use the evaluations and prioritization information to make decisions about inclusion in the CP and funding allocation.