

Barley Coordinated Agricultural Project Work Plan
FY07 (4/1/07 – 3/31/08)
GrainGenes Curators (V. Carollo, D. Matthews, G. Lazo, O. Anderson)

1) Describe the research, education, and outreach activities you are planning for the next year (4/1/07 – 3/31/08) research: The GrainGenes Curation team will be actively recruiting the community to assist in adding data to the database. A pipeline to enable users to upload new QTL data to GrainGenes via a set of data templates in an Excel-based format is now available from GrainGenes at <http://wheat.pw.usda.gov/ggpages/QTLworkbook.xls>.

All QTL reported before 2002 and summarized in BarleyWorld will be available in GrainGenes by mid-2007. To date, 170 of the 750 QTL have been validated in the literature and added to the database. A separate proposal to the BarleyCAP will request funds to update the barley QTL in GrainGenes published from 2002 through 2007. QTL consensus maps to reflect all major QTL in 5 trait areas (Agronomic, Biotic Stress, Abiotic Stress, Quality, and Other) will be initiated. The base maps for this effort are under discussion. An ideal map to place these QTL on may be the one resulting from the Illumina data that is due to be released by Tim Close, if that map contains sufficient anchor RFLPs (markers that most QTL have been mapped to).

As SNP mapping data becomes available for the Triticeae, the GrainGenes curators will be placing it in GrainGenes with fully curated marker reports linking to the Barley1GeneChip Exemplars at PLEXdb, the Barley SNP Database at SCRI, and eventually the Hordeum Toolbox.

Education and Outreach: Dave Matthews regularly serves as a guest lecturer for Bioinformatics courses at Cornell University and could include results for the BarleyCAP project. Victoria Carollo will be giving yearly faculty seminars at Montana State University and will provide attendees with URLs and screenshots of the Hordeum Toolkit once it is online and populated with data.

2) List specific outcomes and deliverables that will be accomplished in the first 6 months (4/1 – 9/30). These will be used as benchmarks for your bi-annual progress report.

A curated interactive map from Tim Close's Pilot OPA consensus map (if available).

Validation of the remaining ~580 (of 750) barley QTL listed in the QTL Worksheet of the Barley QTL Community Curation Workbook (<http://wheat.pw.usda.gov/ggpages/QTLworkbook.xls>) and loading into the GrainGenes database. (Note that this effort is being funded by the USBGP).

Uploaded QTL data records from users using the data templates in the QTL workbook.

3) List specific outcomes and deliverables that will be accomplished in the second 6 months (10/1 – 3/31). These will be used as benchmarks for the bi-annual progress report.

Creation of a data pipeline from the Hordeum Toolbox into GrainGenes.

Uploaded QTL data records from users using the data templates in the QTL workbook.

Barley Coordinated Agricultural Project Progress Report
Year 1 (4/1/06 – 3/31/07)
Victoria Carollo Blake, GrainGenes Curator, USDA-ARS

1) Describe the research, education, and outreach activities you completed

Research. The GrainGenes project continues to add genetic maps, barley QTLs and new SNP markers to the database. QTL catalogued previously from the BeerGenes and BarleyWorld projects are being validated in the originating literature and added to GrainGenes. New QTL from publications since 2003 are being noted and records created.

Education The USDA-ARS (GrainGenes) role in the CAP project does not include an education component.

Outreach: Photographs of the Barley CAP nurseries in Bozeman Montana were taken, and posted with annotations at <http://hordeum.oscs.montana.edu/capnursery/index.htm> .

2) List specific outcomes and deliverables accomplished

- New Barley maps include:
 - [Barley, Consensus 2005, SNP](#) (Rostoks Consensus SNP map)
 - [Barley, Lina x H.spont, SNP](#) (Rostoks, et al)
 - [Barley, OWB, SNP](#) (Rostoks, et al)
 - [Barley, Steptoe x Morex, SNP](#) (Rostoks, et al)
 - [Barley, L94 x Vada, 2006](#) (SSR and SNPs from Niks, Marcel, et.al)
 - [Barley, Cabada Capa x SusPtrit](#) (SSR and SNPs from Niks, Marcel, et.al, on GG Classic)
 - [Barley, Vada x SusPtrit](#) (SSR and SNPs from Niks, Marcel, et.al, on GG Classic)
 - [Barley, Consensus 2006, Stein](#) (consensus transcript map of barley containing 1032 EST-based markers. 45 cMWG markers (Graner et al. 1991), 185 GBM markers (Thiel et al. 2003, Varshney et al. 2006) and 200 additional anchor markers (Costa et al. 2001, Graner et al. 1991, Kleinhofs et al. 1993) were integrated with new EST-based RFLP, SNP markers.
- Complete marker records for 64 snps and indels developed by SCRI (for example [ABC00046_L01R01](#)) have been placed on GrainGenes.
- The Barley QTL Community Curation Workbook (http://wheat.pw.usda.gov/ggpages/qtl_worksheet_beta.xls) is available on GrainGenes, and has been beta –tested by several members of the database community. This template was adopted by Guy Davenport at CIMMYT.
- 221 Barley QTL have been validated in the original publications, curated into GrainGenes records and added to the database.