

Barley Coordinated Agricultural Project Work Plan
FY06 (3/1/06 – 2/29/07)
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 (3/1/06 – 2/29/07)

Research: GrainGenes aims to update the collection of curated data records for published barley QTL by early 2007. A pipeline, currently under development, will enable users to easily upload new QTL data to GrainGenes via a set of data templates in an Excel-based format. Since this tool is Excel-based, it will be simple to modify (if necessary) the templates to port the QTL data generated from the BarleyCAP project to GrainGenes. Major QTL will be assigned to a barley consensus map and become available by late 2006. New QTL generated from the Barley CAP and elsewhere can also be added to the consensus map.

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

GrainGenes traits linked to QTL have Ontology Values assigned (manually) by searching the Plant Ontology site at Gramene. As this Ontology develops, child terms may become more specific to the Triticeae, and it is expected that new, more refined Ontology values will be assigned for several traits in the database.

Education: Dave Matthews regularly serves as a guest lecturer for Bioinformatics courses at Cornell University and could include results for the BarleyCAP project.

Outreach: The data links from the Hordeum ToolBox to GrainGenes will be featured in a figure on the GrainGenes poster to be presented at the Plant and Animal Genome Meeting in January 2007.

2) List specific outcomes and deliverables that will be accomplished in the first 6 months (3/1 – 8/31). These will be used as benchmarks for your bi-annual progress report.

- Four curated interactive maps sets from Rostocks et al. (MGG 274:515-527) to include the three component maps (Steptoe x Morex, Luna x H.Spont, OWB D x R) and the Integrated Map.
- Complete Marker records from the SCRI snps, ssrs and indels mapped on the above maps including links to the Barley SNP Database at SCRI (http://germinate.scri.sc.uk/barley_snpdb/), the Barley1 GeneChip Exemplars at PLEXdb (<http://www.plexdb.org/>),
- GrainGenes Germplasm Records for the 960 lines to be evaluated by the Barley CAP Project
- Validation of the 750 Barley QTL currently listed in the QTL Worksheet of the Barley QTL Community Curation Workbook (http://wheat.pw.usda.gov/ggppages/qtl_worksheet_beta.xls) and loading onto the GrainGenes database.
- Host the barleycap.org site at the GrainGenes server at Cornell.

3) List specific outcomes and deliverables that will be accomplished in the second 6 months (9/1 – 2/29). These will be used as benchmarks for the bi-annual progress report.

- Update of the Barley QTL Collection to include QTL reported from 2002 to the present. These will be added to GrainGenes and added to the QTL Worksheet, and an updated Workbook will be made available.
- Placement of major QTL on a Barley Consensus Map.
- Reevaluate all traits in the GrainGenes Trait Collection to determine if the Ontology Values are up to date.
- Host the barleycap.org site at the GrainGenes server at Cornell

**Barley Coordinated Agricultural Project Biannual Progress Report
FY06 (4/1/06 – 9/30/06)
Victoria Carollo Blake, Dave Matthews, Gerard Lazo, GrainGenes Curators, USDA-ARS
Olin Anderson, GrainGenes Director, USDA-ARS**

1) Describe the research, education, and outreach activities you completed in the first half of the FY06 (4/1/06 – 9/30/06)

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> .

List specific outcomes and deliverables accomplished in the first half of FY06 (4/1 – 9/30).

- 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 ((SSR and SNPs from Niks, Marcel, et.al,)
(Please note these last 3 maps will be in GrainGenes 2.0 by 10/16/2006)
- 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.
- 148 Barley QTL have been validated in the original publications, curated into GrainGenes records and added to the database.