

Barley Coordinated Agricultural Project Work Plan for Year 4 (4/1/2009-3/30-2010)
Byung-Kee Baik, Washington State University

1) Describe the research, education, and outreach activities you are planning for Year 4 (4/1/2009-3/30-2010)

Research

In the first six month, we will continuously work on the sample preparations and food-use trait analyses of 960 barley varieties/lines harvested in 2008 for food use traits. Variations in barley grain characteristics among barley varieties and genotypes as well as their significance in and relationships with functional properties of barley for food uses will be determined in this period.

Education

We expect that a Ph.D. student, who will be supported from the barley CAP grant, will continuously investigate the relationship between physical and biochemical characteristics of barley and its grain hardness and the significance of barley grain hardness in food processing and product quality. Undergraduate students will be also recruited to

Outreach

Our research activities on food use quality traits of barley as a part of barley CAP project will be shared with other plant and food scientists, food processors and growers during the growers' meetings, international conventions and workshops.

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

Complete data for food-use traits, including grain hardness, dehulling characteristics, starch amylose content, phenolic compound content and polyphenol oxidase activity, of 960 barley CAP varieties/lines harvested in 2008 will be available. The distribution/variation of barley varieties/lines in all four food quality traits will be also analyzed.

3) List specific outcomes and deliverables will be accomplished in the second 6 months. These will be used as benchmarks for the bi-annual progress report.

Data for grain characteristics of barley varieties/lines harvested in 2009, including grain hardness, dehulling characteristics and possibly some chemical composition will be available.

Barley Coordinated Agricultural Project Six-Month Progress Report
(4/1/08 – 9/30/08)
Byung-Kee Baik, Washington State University

1) Describe the research, education, and outreach activities you completed (4/1/08 to 9/30/08)

Research

We have completed the analyses of the food-use quality traits of 960 barley lines harvested in 2007. Barley grains were pearled to remove the hull and determined for kernel hardness. Dehulled barley grains were ground and subjected to compositional analyses. We have completed the determination of kernel hardness, phenolic compound content, polyphenol oxidase activity and amylose content for 960 barley lines. We also explored the relative significance of genotype and environment on grain hardness variation in barley. The relationship between grain hardness and virtuousness was also determined.

Education

One Ph.D. student and two undergraduate students have been involved in the determination of food-use quality traits. The Ph.D. student, who is supported by the barley CAP grant, has worked on her research project, investigating the relationship between physical and biochemical characteristics of barley and kernel hardness, and the significance of barley grain hardness in food processing and product quality. Based on her research findings, she has written an abstract and presented her research findings at the American Association of Cereal Chemists International annual meeting on September 2008.

2) List specific outcomes and deliverables accomplished (4/1/08 to 9/30/08)

Data for physical characteristics of barley grain including kernel hardness, size, weight and proportion of hull (hulled barley only), and compositional characteristics including phenolic compound content, polyphenol oxidase activity and amylose content of 960 barley lines harvested in 2007 are available.