



# American Malting Barley Association, Inc.

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## Press Release: Accelerating Barley Variety Development

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April 18, 2013 – New genetic technologies are being applied to the development of barley varieties that greatly increase breeding efficiencies. Many of these technologies grew out of the USDA-National Institute of Food and Agriculture (NIFA) funding for the Barley Coordinated Agricultural Project (CAP) and are being used to enhance agronomic and quality traits of barley in the new Triticeae (Barley & Wheat) CAP or TCAP. Dr. Gary Muehlbauer, University of Minnesota, noted that “the USDA-NIFA funding was critical in rapidly advancing these new genetic technologies and refining them so they can be applied by breeders in developing varieties that utilize fertilizer and water more efficiently and resist important barley diseases.” The TCAP grant totals \$25 million over five years and funds barley and wheat researchers at 55 universities in 21 states.

The development of a new barley variety can take ten to twelve years and involves the growing and evaluation of thousands of research plots each year. The use of genetic markers developed in the CAPs enables breeders to confirm the presence of desirable agronomic and quality traits in new barley lines in the laboratory using greenhouse grown plants. Such evaluations reduce costs and the time it take to release a new variety.

Another technique that can accelerate the development of new varieties is the use of doubled haploid lines. Barley varieties are true breeding or inbreds. This means that each pair of its seven chromosomes are identical copies of each other and that the variety remains the same year after year when planted. It takes many generations of breeding after the parental lines are crossed before a line reaches this true breeding state. In doubled haploid breeding, the lines are true breeding after the initial cross saving four to five breeding cycles. Dr. Patrick Hayes, Oregon State University, uses doubled haploids in his winter malting barley program and offers the service to any interested barley breeder. He feels that “doubled haploids are an essential component of a barley breeding program, if you want to capitalize on new opportunities and met new challenges. It’s just the way to go.”

More information on the T-CAP or doubled haploid breeding can be found at <http://www.triticeaecap.org/> and <http://barleyworld.org/doubled-haploid>, respectively.