Effects of a dwarf gene transferred from rapid cycling Brassica rapa to canola (B. napus). (C07-muangprom185616-Poster)

Authors:

- A.Muangprom - *University of Wisconsin Madison*
- I.J.Maureira - *University of Wisconsin Madison*
- T.C.Osborn - *University of Wisconsin Madison*

Abstract:

Lodging can cause significant yield losses in canola. In wheat and rice, dwarf genes have been used to reduce lodging leading to the green revolution. We identified a single, semi-dominant, GA insensitive dwarf mutant in B. rapa. Results from comparative mapping with Arabidopsis showed that RGA, a homolog of the wheat green revolution gene, is a good candidate for the mutant gene. Using interspecific hybridization of B. rapa and B. oleracea and embryo rescue, we resynthesized a B. napus containing the dwarf gene. The resynthsized B. napus was backcrossed to two parent lines of potential commercial hybrid combination to the BC4 generation. A heterozygous BC4 plant from each line was selfed to obtain homozygous short and tall plants, which were used to produce seed for a field evaluation in 2002. Homozygous lines (short or tall), homozygous hybrids (short or tall) between these two lines, heterozygous hybrids and the original hybrid were planted using a random complete block design with 7 replications in Arlington, WI. Plant height, flowering time, lodging, yield and oil components will be evaluated to determine the potential usefulness of this dwarf gene in canola cultivars.

Corresponding Author Information:

Amorntip Muangprom
University of Wisconsin
1575 Linden Drive
Madison, WI 53706

phone: 608 2629570
fax: 608 2625217
e-mail: amuangprom@students.wisc.edu

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