Effect of winter germplasm introgression into Spring Canola Hybrids. (C07-quijada115536-Oral)

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Abstract:

Introgression of winter germplasm into spring canola represents a novel approach to improve hybrid yields in canola. A QTL mapping study was conducted to determine the effect of winter germplasm introgression into spring canola. Two lines (MF216 and RV128) derived from two French winter cultivars were crossed to a fertility-restorer line (transgenic male sterility system) and 150 doubled haploid (DH) lines of each cross were developed by microspore culture. The DH lines were crossed with a tester (male sterile line) to produce F1 hybrids. Hybrids were planted for two years at two locations (Wisconsin, USA and Saskatchewan, Canada). Many hybrids (~ 30%) significantly out-yielded the best spring hybrid in each trial. Using 150 RFLP probes, we built two linkage maps that included 220 loci ordered in 19 linkage groups (LG). We detected 10 QTL (3 in the MF216 population and 7 in the RV18 population) in which the winter alleles increase seed yield. A common QTL, which explained 11% and 19% of the genotypic variation in the MF216 and RV128 populations respectively was detected in LG N10 in the Canadian environments. Confirmation of these QTL in different genetic backgrounds is underway.

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