

Marker assisted backcrossing in two winter wheat populations for *Fhb1* resistance gene to fusarium head blight

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The purpose of the presented work is to incorporate resistance to fusarium head blight (FHB) contributed by gene *Fhb1* (chromosome 3B) into two Polish advanced breeding lines of winter wheat (recurrent parent, RP) SMH8527 and DL414/10. The donor of the resistance gene *Fhb1* was a wheat line AIII62 (F₅BC₂) derived from the cross between Sumai3 and Polish cultivar Muszelka.

In order to reduce the size of the donor chromosome segment containing the target locus, plant selection in the offspring population (F₂BC₂) was focused on selecting individuals with the target gene (*Fhb1*) and recombination events between the target locus and linked flanking markers (recombinant selection). From among polymorphic DNA markers available we used four flanking markers (gwm389, barc12, gwm493 and gpw3248) and one central marker UMN10 (confirming the presence of *Fhb1* gene). In each population 120 plants were evaluated for best combination of alleles at selected marker loci. After molecular selection five and ten individuals in the first (RP SMH8527) and second (RP DL414/10) population were chosen, respectively.