

P34. Molecular selection in one winter wheat population for *Fhb1* resistance gene to Fusarium head blight

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Marker-assisted backcrossing (MAB) is an efficient strategy to accelerate the breeding progress, especially for traits such as resistance to Fusarium head blight (FHB) that are difficult to select for under field conditions and that are controlled by multiple genes. The purpose of the present work is to incorporate the resistance gene *Fhb1* located on chromosome 3B into one Polish advanced breeding line of winter wheat (recurrent parent, RP) SMH8527 (Smolice Plant Breeding Company, IHAR Group). The donor of the resistance gene is wheat line AIII62 (F₅BC₂) derived from the cross between 'Sumai 3' and the Polish cultivar 'Muszelka'. This line was confirmed with molecular markers to contain *Fhb1* gene.

In order to reduce the size of the donor chromosome segment containing the target locus, plant selection in the offspring population (F₁BC₂) is focused on selecting individuals with the target gene (*Fhb1*) and recombination events between the target locus and linked flanking markers (recombinant selection). DNA polymorphism between RP and *Fhb1* gene donor at ten SSR flanking markers (gwm389, barc238, barc12, gpw7080, gwm493, barc131, wmc754, gpw3248, barc92 and cfp1274) spanning ca 40 cM, allowed us to choose two polymorphic flanking markers and two central markers (confirming the presence of *Fhb1* gene).

A total of 120 plants were tested with two flanking markers (cfp1274 and gwm389) and one central marker UMN10. Nine individuals were chosen after the analysis in order to obtain the next generation (F₂BC₂).

Keywords: resistance, Fusarium head blight, marker-assisted backcrossing, molecular markers