

## **Marker Assisted Selection for Fusarium Head Blight Resistance in Durum Wheat**

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Due to low the heritability, environmental influence, and polygenic inheritance, potential of marker assisted selection (MAS) was studied in this research to identify resistant durum [*Triticum turgidum* (L.) var. *durum*] lines to the disease Fusarium head blight (FHB). Extensive economic losses affecting the durum wheat industry due to FHB caused by *Fusarium graminearum* Schwabe (telomorph *Gibberella zea* (Schw.) Petch have focused research on the development and release of resistant cultivars. A Type II disease resistance mechanism was studied in this research using ‘Sumai 3’ as the source of resistance. Two populations were screened with microsatellite locus *Xgwm533*, which is linked to a region on 3BS (*Fhb1*) associated with resistance. The two populations were derived from a cross between Sumai 3 and cultivars ‘Ben’ and ‘Lebsock’ respectively. The lines selected with the Sumai 3 locus exhibited lower disease scores than lines selected without. Both populations showed significant differences to FHB resistance among the lines in replicated field trials at two locations. Heritability estimates for FHB were found to be low (0.3 in population I) and medium (0.5 in population II) suggesting that use of MAS can be helpful in the selection process. As susceptible lines are easier to classify phenotypically, results show that the markers were effective in removing this group from the populations. The top 10% of lines with FHB resistance in the two populations exhibited low scores and should be evaluated to identify genotypes with acceptable levels of FHB coupled with desirable agronomic and quality traits.

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