

HEADING DATE QTL IN THE BARLEY ‘NURE’ X ‘TREMOIS’ MAPPING POPULATION

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Temperate cereals can be categorized according to their response to prolonged periods of cold (vernalization - *Vrn*) and daylength (photoperiod - *Ppd*). Interactions between the two pathway result in a fine regulation of the transition from vegetative to reproductive growth. More than 80 Quantitative Trait Loci (QTLs) for heading date have been mapped up to now in different crosses in barley and they often concentrated in chromosome locations corresponding to previously known *Triticeae Vrn*, *Ppd* or ‘*Earliness per se*’ genes. In the present work, 118 doubled haploids lines deriving from the ‘Nure’ x ‘Tremois’ cross were genotyped with the DArT technique to create a medium density linkage map (more than 500 loci). The same NT population was grown in different, controlled conditions (phytotron) of vernalization and photoperiod. QTL analysis confirmed that the ‘Nure’ x ‘Tremois’ genetic system supports the *VRN-H1/VRN-H2* two locus epistatic model for vernalization requirement previously proposed, based on phenotypic segregation, mapping data, and allele sequence at candidate loci. Besides *VRN-H1* (chromosome 5H) and *VRN-H2* (chromosome 4H), other genomic regions controlling the days to heading trait were identified on chromosomes 1H and 2H. Interestingly, the *HvBM8* gene, encoding for a MADS-box transcription factor, was mapped in coincidence with a highly significant QTL determining heading date on chromosome 2H. Functional characterization of *HvBM8* is being carried out in order to confirm its involvement in the control of barley vegetative to reproductive transition.