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Czech J. Genet. Plant Breed.

Vernalization Response of Some Winter Wheat Cultivars (*Triticum aestivum* L.)

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For 17 cultivars of winter wheat (*Triticum aestivum* L.) different vernalization and photoperiod responses were detected. The effect of photoperiod sensitivity was not significantly changed by vernalization; different vernalization responses were probably due to the presence of multiple alleles at *Vrn* loci. The delay in heading depended on the vernalization deficit exponentially: $y = \text{Parameter (1)} + (y_0 - \text{Parameter (1)}) \times \text{EXP}(\text{Parameter (2)} \times (x - x_0))$. The dependence was shown to be general and significant for the given model in all the studied cultivars. Individual regressions characterised responses of cultivars to a deficit of vernalization treatment. Cluster analysis according to the characterisation obtained (full vernalization requirement, minimum

vernalization requirement, insufficient vernalization and parameters of the dependence) showed the relationships between cultivars and enabled their grouping by similar profiles of vernalization, and, possibly, of photoperiod response. In individual cultivars, an attempt was made to use the model to predict performance for some agronomic traits.

Keywords:

Triticum aestivum; wheat; *Vrn* genotypes; vernalization response; time to heading

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