

Understanding the role of earliness in the aspect of yield formation under environmental stress conditions in spring barley (*Hordeum vulgare* L.)

Piotr Ogrodowicz

Global warming has led to the concurrence of several abiotic and biotic stresses in plants. Drought, as one of the most devastating factors for plant growth, has widespread deleterious effects on agricultural systems and on the yield of most crops. Among different stress responses mechanisms, the short life cycle of crop plants might be considered as an important trait related to water deficiency adaptation.

One of the several crop species most vulnerable to drought is barley (*Hordeum vulgare* L.), which is also a model plant in genetic studies due to collinearity and synteny across rye, barley, and wheat genomes.

In this presentation, I will summarize my original studies aimed at demonstrating the role of growing season duration in spring barley in response to drought stress. To this end, the water-seeking “behaviour” patterns of selected barley genotypes in the search for water resources were investigated and the diversity of drought responses of phenologically differentiated plants was highlighted. In addition, the regions in the short arm of chromosome 2H of spring barley were identified as having a potential pleiotropic effect related to earliness, root architecture and many yield-forming traits.