Variability of clonal growth of European grass species in climate change experiments

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Current plant functional trait research aims to predict the outcome of land use and climate change at the species, community and ecosystem level. However, there is little insight in the role of the intraspecific variability of these traits. Initial research results suggest that functional variability of plant species may be crucial to adapt to rapidly changing environmental conditions.

Here, we investigate the impact of climate change phenomena such as drought and warming on the clonal growth of European key grass species (Alopecurus pratensis, Arrhenatherum elatius, Festuca pratensis, and Holcus lanatus). Furthermore we tested for significant differences of five provenances from different climatic regions of Europe (Bulgaria, Spain, Italy, Germany, and Sweden). Clonal diversity and clonal growth was measured for 50 to 100 individuals of each species in a controlled pot experiment. Measures included presence of clonal growth organs (CGOs), number of respective tillers and buds and the capacity of lateral spread.

Regression analyses were applied to test each species for differences in treatment and provenance. First results e.g. for A. pratensis indicate significant differences between provenances in the number of hypogeogenous rhizomes while treatment had no significant effect on this plant functional trait. Further results will be presented.