

## **Abstract**

The aim of this study is to provide a further insight into influence of environment on clonal plants. The study focuses particularly on effects of fertilization level and light availability on production and growth of clonal organs. Three experiments were carried out within the study, targeted to elicit influence of these environmental conditions or clonal interactions on six species of clonal plants. Interspecies dependencies on these conditions was compared, regarding habitat occurrence of these species. A comparison was made also between species producing rhizomes and stolons.

The experiments revealed that five of six studied species show significant relationship among at least one environmental condition and parameters of clonal reproduction. Most of the species showed higher elongation and production of clonal organs in relation to fertilization level. On the contrary, only three species reacted significantly to the light availability level by alternation of at least one parameter of clonal reproduction and the light availability level affected each species differently. A strong influence on production and elongation of clonal organs had also a size of a plant.

There was not found significant difference in influence of environmental conditions on clonal reproduction among plant families. It rather seems that species sharing similar autochthonous environmental conditions respond to each variable in similar way and with similar intensity. Stolons- and rhizomes-producing species have showed similar reactions to environmental conditions.

**Key words:** clonal plants, plasticity, carrying capacity, light, size, foraging response, stolon, rhizome, *Agrostis stolonifera*, *Alopecurus pratensis*, *Brachypodium pinnatum*, *Fragaria vesca*, *Stellaria holostea*

