Water stress on Puna chicory and Lancelot plantain. Morphological and physiological effects. (C06-labreveux164820-Oral)

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Abstract:

Summer growth of cool-season species in the NE USA is reduced due to a combination of high temperature and drought. A two year experiment near State College, PA was designed to compare the effect of soil water availability conditions on chicory (Cichorium intybus L.) and plantain (Plantago lanceolata L.). Control plots received water every wk to maintain soil near field capacity. Stressed plots received water every three wk in 2000 and five wk in 2001. Dry matter (DM) yield of Puna chicory was not affected by the water treatments applied. Stressed chicory plants had a lower leaf area index (LAI, 4.2 vs. 2.7 and 3.1 vs. 2.5 on control and stressed plots in 2000 and 2001, respectively, $P<0.05$) than unstressed plants. Stressed chicory plants also had slightly lower specific leaf area (SLA, 33.8 vs. 30.0 m2 kg-1 and 24.5 vs. 21.9 m2 kg-1 control and stressed plots in 2000 and 2001, respectively) than unstressed plants which may have compensated to maintain yield. Water stress did not affect photosynthesis rates during 2000 and 2001 which were close to 12 micromol CO2 m-2 s-1. Lancelot plantain had low plant survival in 2000 which masked the effect of water treatment on DM yield.

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