Dehardening of Annual Bluegrass and Creeping Bentgrass during Late Winter and Early Spring

Abstract

Changes in cold hardiness levels of annual bluegrass (*Poa annua* L.) and creeping bentgrass (*Agrostis palustris* Huds.) were monitored under field conditions during the dehardening period of late winter and early spring. During the course of two spring periods the cold hardiness levels of the two species were monitored in conjunction with the following hydration treatments: snow cover maintained to prolong dormancy, snow removal in March, and hydration of crown tissues in combination with snow removal. Cold hardiness levels, percent crown moisture, and soil temperatures were monitored throughout this period. Cold hardiness levels were significantly influenced by year, species, hydration treatment, and a number of interactions of these factors. Generally, plants dehardened 2 wk earlier in 1997 than in 1996. On 1 April, creeping bentgrass had cold hardiness levels averaging −20°C compared to −13°C for annual bluegrass. By 15 April, creeping bentgrass plants had lost their cold hardiness advantage. Increased soil temperature was the greatest

contributor to the loss of hardiness in the spring. An increase in crown moisture of 4% for annual bluegrass and 6% for creeping bentgrass occurred during the period from 25 March to 22 April. Maintaining a snow cover on plots delayed the loss of cold hardiness by 6 to 9 d in 1996 but had no effect in 1997. Maintaining a snow cover also delayed the increase in crown hydration by a week. Plants were able to partially regain cold hardiness when soil temperatures dropped.