Annual Bluegrass and Creeping Bentgrass Responses to Contrasting O2 and CO2 Levels at Two Near-Freezing Temperatures. (C05-dionne221306-Oral)

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Abstract:

Ice encasement and impermeable winter protective covers can induce anaerobic conditions on golf greens. We assessed annual bluegrass (Poa annua var. reptans) and creeping bentgrass (Agrostis palustris Huds) tolerance to anoxia at two near-freezing temperatures (-2 and 1C). Four atmospheric composition treatments were studied: 1- low O2 (<1%) and low CO2 (<2%), 2- low O2 (<1%) and high CO2 (15-17%), 3- high O2 (20%) and high CO2 (15-17%), and 4- normal atmospheric composition (21% O2 and 0.04% CO2). Gas concentrations were monitored twice a week using gas chromatography and target gas concentrations were achieved by injection of standard mixtures when needed. Our results suggest that 1- combination of low O2 and high CO2 is more damageable than low O2 alone, 2- incubation at subfreezing temperature (-2C) delays anoxia induced damage, and 3- annual bluegrass is more sensitive to anoxia than creeping bentgrass.

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