Biomass Production of Eastern Gamagrass Grown at Two Levels of Carbon Dioxide. (A03-ritchie070629-Poster)

Authors:

- J.C.Ritchie USDA ARS Hydrology Laboratory
- D.C.Gitz III USDA ARS Alternate Crops and Systems Laboratory
- D.T.Krizek USDA ARS Sustainable Systems Laboratory
- V.R.Reddy USDA ARS Alterrnate Crops and Systems Laboratory

Abstract:

Eastern gamagrass (Tripsacum dactyloides (L.) L.) is a warm season perennial which can produce high yields of forage under a variety of environmental conditions. In this study eastern gamagrass was grown in six Soil Plant Atmosphere Research (SPAR) chambers (0.5 x 2 x 2 m, 16 plants per chamber) at two level of carbon dioxide (370 and 740 ppm) and three temperatures (20/14, 27.5/21.5, and 35/29 C day/night) for 20 weeks (mid-May to mid-October 2001). Shoots (tillers taller than 10 cm) were harvested at 10 and 15 weeks and total plants (roots, crowns, shoots) were harvested at 20 weeks. Biomass of shoots, crowns, and roots increased significantly with increased temperature. Biomass, while not significantly different between carbon dioxide treatments, was consistently higher in chambers with increased carbon dioxide. Biomass allocation differed with treatment with percent roots by weight being greatest with the high carbon dioxide and low temperature treatment. Percent roots by weight decreased with increasing temperature. Our results suggest little significant effects on biomass production for a single growing season at increased carbon dioxide. However, the consistently higher biomass at higher carbon dioxide treatments suggests the potential for cumulative effects over time.

Corresponding Author Information:

Jerry Ritchie phone: 301-504-8717 USDA ARS USDA ARS Hydrology and Remote e-mail: Sensing Laboratory peltsville, MD 20705

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