Growth Regulator Effects on Cell Arangement of Two Turfgrass Species. (C05-heckman081851-Poster)

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Abstract:

Trinexapac-ethyl and mefluidide are synthetic plant growth regulators (PGRs) which inhibit gibberellic acid (GA) biosynthesis. Two greenhouse experiments using tall fescue cv. Mustang (Festuca arundinacea Schreb.) and St. Augustinegrass cv. Raleigh (Stenotaphrum secundatum S. (Walt.) Kuntze) were conducted with a randomized complete block experimental design and 4 replications. Chemical applications were trinexapac-ethyl at 0.286 kg/ha for tall fescue and 0.145 kg/ha for St. Augustinegrass and mefluidide at 0.137 kg/ha for both species. Leaf cell density and arrangement sampled 4, 8, 16, 32, and 48 days after treatment using a confocal microscope. Leaf elongation rates were measured 3 times per week for seven weeks after chemical application. Trinexapac-ethyl and mefluidide decreased leaf elongation rate of both species by 30%. Tall fescue and St. Augustinegrass cell density increased 15 and 20%, respectively, from both PGR treatments relative to the control. These results indicate that these PGRs inhibit cell elongation.

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