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## **Influence of Nitrogen Fertilization on Seed Production of ‘Highlander’ Eastern Gamagrass in Northern Mississippi**

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### **Abstract**

Eastern gamagrass [*Tripsacum dactyloides* (L.) L.] is a native warm season perennial bunchgrass with potential for use as forage in the southeastern U.S. Large acreages are required for seed production due to low seed yields. Nitrogen fertilization has been shown to increase seed yields of perennial grasses; however, nothing is reported on the effects of N fertilization on seed production of eastern gamagrass. Objective of this study was to compare N rates on production of fertile and vegetative tillers, seed yield, seed fill, grain weight and germination of ‘Highlander’ eastern gamagrass. Nitrogen was applied as ammonium nitrate in single and split applications of 0, 112 and 224 kg ha<sup>-1</sup> to replicated plots at Coffeeville, Prairie and Starkville, MS in 2001-2003. The single application and first split application of 0, 56 and 112 kg ha<sup>-1</sup> were applied when spring regrowth reached 15 cm and the second application was applied when 50% of the fertile tillers were in the boot stage. Nitrogen increased vegetative tillers 24% and fertile tillers 28%, but the increase in fertile tiller numbers did not correspondingly show increased seed yield, likely due to environmental influences and seed shattering prior to harvest. Nitrogen had minimal effect on seed yield, grain weight, percent seed fill and germination. There was no advantage in splitting the N on seed production parameters. Results of this study suggest that

seed producers of Highlander eastern gamagrass in the upper southeastern states should apply N fertilizer in a single application of 56 to 84 kg ha<sup>-1</sup> when spring regrowth reaches 15 cm. Environmental influences and timing of harvest are critical factors impacting seed yield and quality of eastern gamagrass.

*Key words:* eastern gamagrass, N fertilization, reproductive tillers, seed production, vegetative tillers

