

Technical Data Report

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Effects of NUTRIPLANT™ AG on Sorghum Production

Objective

The objective of this study was to determine the best application timing of Nutriplant AG on production of sorghum.

Materials and Methods

Field trials were conducted on sorghum (*Sorghum bicolor* (L.) Moench) at Agricultural Experimental Station, University of Arkansas, Fayetteville, Arkansas, USA. The trials were performed on Captina silt loam soil type with flat to 0.1% slope topography. Sorghum variety Paymaster was planted at seeding rate of 6.7 kg/ha (6 lb/acre) on 5 May. Plot size was 24.8 sq m (267 sq ft) consisting of four rows, each 102 cm (40 inches) wide and 6 meter (20 feet) long. Three treatments were evaluated using randomized Complete Block design with four replications. Treatments consisted of: 1) untreated control, 2) Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 3 to 5 leaf stage, and 3) Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at early anthesis. Application at 3-5 leaf stage was done on 21 May with cloudy skies, at temperature of 21°C (70°F). The early anthesis application was done on 16 June at clear skies and 29°C (85°F) temperature. The product was diluted and applied using carbon dioxide backpack with spray output of 188 liters/ha (20 gallons/acre), 43 cm (17 inches) above the crop canopy. Plots were fertilized with 112 kg/ha (100 lb/acre) of 30-30-30 (N-P₂O₅-K₂O) and 168 kg/ha (150 lb/acre) of urea as side dress. Weed control included applying Lasso and Atrazine. Other cultural practices followed local practices and were the same for treated and untreated plots. Sorghum plots were harvested by hand on 28 September. Results were evaluated statistically using standard procedures.

Results

Both timings of Nutriplant AG applications improved sorghum yields compared to untreated control (Table 1). The Nutriplant AG treatment applied at early anthesis increased sorghum yields by 385 kg/ha (344 lb/acre) and Nutriplant AG applied at 3-5 leaf stage significantly improved sorghum yields by 646 kg/ha (577 lb/acre). Lower yield increase obtained with application at early anthesis maybe result of unfavorable environmental conditions (clear skies and high temperature) under which the application was performed while application at 3-5 leaf stage was performed at optimal conditions of ambient temperature and cloudy skies.

Table 1. Influence of Nutriplant AG on sorghum grain yield production. University of Arkansas, Fayetteville, Arkansas, USA.

Treatment	Sorghum yields		Difference		Difference
	(kg/ha)	(lb/acre)	(kg/ha)	(lb/acre)	(%)
Control	5564	4968 b*	-	-	-
Nutriplant AG at early anthesis	5949	5312 ab	385	344	6.9
Nutriplant AG at 3-5 leaf stage	6210	5545 a	646	577	11.6

* Means followed by different letter are significantly different ($p \leq 0.05$).

Conclusions

Compared to untreated control, application of Nutriplant AG at early anthesis increased sorghum yields by 6.9%.

Higher efficiency of Nutriplant AG was achieved with application of Nutriplant AG at 3-5 leaf stage, which produced statistically significant 11.6% higher yields than untreated control.