Technical Data Report

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Effects of Nutriplant™ SL and Nutriplant™ AG on Irrigated Soybeans

Objective

The objective of this study was to determine the effects of Nutriplant SL and Nutriplant AG on irrigated soybeans.

Materials and Methods

Field trials were conducted on soybeans (*Glycine Max* L. cv. Syngenta 9173) at Irrigation Research Foundation located in Yuma, Colorado, USA in 2013. Using the strip-till implement, nitrogen and phosphorus were applied at 54.1 kg N/ha (48.3 lb N/acre) and 35.6 kg P_2O_5/ha (31.8 lb P_2O_5/acre) at depths of 10.2 cm (4 inches) and 25.4 cm (10 inches) on April 8. On May 23, soybeans were planted at 543,400 seeds/ha (220,000 seeds/acre) and starter 21.8-11-1.8-1.2S-0.1Zn fertilizer was applied at 112 l/ha (12 gal/acre) in 2x2 placement (2 inches to the side and 2 inches below the seed) to all treatments including control. Additionally, 32-0-0 fertilizer was applied through the irrigation system at 93.3 l/ha (10 gal/acre) on June 20 and 56 l/ha (6 gal/acre) on July 3.

The following treatments were evaluated:

1) Untreated control
2) Nutriplant SL at 0.29 l/ha (4 fl oz/acre) with 37.3 l/ha (4 gal/acre) of water applied in furrow followed by two applications of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) prior to flowering stage on June 10 and at pod set (R3-R4) on July 19.
3) Nutriplant SL at 0.29 l/ha (4 fl oz/acre) with 37.3 l/ha (4 gal/acre) of water applied in furrow followed by Nutriplant AG at 1.2 l/ha (16 oz/acre) with glyphosate prior to flowering stage on June 10 and Nutriplant AG at 1.2 l/ha (16 oz/acre) at pod set (R3-R4) on July 19.

Weeds were controlled with applications of Boundary at 1.4 l/ha (1.2 pt/acre) mixed with Touchdown Total at 1.76 l/ha (24 fl oz/acre) and ammonium-sulfate (AMS) at 2 kg/100 l (17 lb/100 gal) of water and nonionic surfactant (NIS) at 250 ml/100 l (1qt/100 gal) of water on May 25, and applications of Fusilade at 0.6 l/ha (8 oz/acre) with Touchdown at 1.76 l/ha (24 oz/acre) and NIS at 250 ml/100 l (1 qt/100 gal) of water and AMS at 2 kg/100 l (17 lb/100 gal) of water on June 10 and 23. Insecticide applications consisted of aerial applications of Orthene 97 at 1.2 kg/ha (1 lb/acre) on July 14 and Endigo at 0.37 ml/ha (5 fl oz/acre) on June 26. Fungicide Quilt was applied at 0.77 l/ha (10.5 fl oz/acre) on June 26. Soybeans were irrigated with 40 cm (15.75 inches) of water. Other cultural practices followed local practices and were the same for treated and untreated plots. Soybeans were harvested on October 8. Grain yield was measured and adjusted to 13% moisture.

Results

Nutriplant treatments improved soybean yields when compared to the untreated control (Table 1). Application of Nutriplant SL at 0.29 l/ha (4 fl oz/acre) with 37.3 l/ha (4 gal/acre) of water applied in furrow followed by Nutriplant AG at 1.2 l/ha (16 oz/acre) prior to flowering stage and at pod set (R3-R4) improved soybean yields by 505 kg/ha (7.5 bu/acre) over control. The same treatment with addition of glyphosate to Nutriplant AG application prior to flowering increased soybean yields by 582 kg/ha (8.7 bu/acre) compared to control, and 77 kg/ha (1.2 Bu/acre) greater than treatment without glyphosate application.

Table 1. Influence of Nutriplant SL and Nutriplant AG on irrigated soybean grain yields at Irrigation Research Foundation, Yuma, Colorado, USA in 2013.

Treatment	Grain Yield		Difference		Difference (%)
	(kg/ha)	(bu/acre)	(kg/ha)	(bu/acre)	
Control with starter fertilizer	4,971	73.97	-	-	-
Nutriplant SL applied in furrow followed by two applications of Nutriplant AG prior to flowering stage and at pod set (R3-R4)	5,476	81.49	505	7.5	10.2
Nutriplant SL applied in furrow followed by Nutriplant AG with glyphosate prior to flowering stage and Nutriplant AG at pod set (R3-R4)	5,553	82.64	582	8.7	11.7

Conclusions

Compared to untreated control, application of Nutriplant SL at 0.29 l/ha (4 fl oz/acre) applied in furrow followed by Nutriplant AG at 1.2 l/ha (16 oz/acre) prior to flowering stage and at pod set (R3-R4) improved soybean yields by 10.2%, and addition of glyphosate to Nutriplant AG prior to flowering increased yields by 11.7%.