

Technical Data Report

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Effects of Nutriplant™ SD and SL on Irrigated Soybeans

Objective

The objective of this study was to determine the effects of Nutriplant SD and Nutriplant SL on irrigated soybeans without starter fertilizer.

Materials and Methods

The field trial was conducted on soybean (*Glycine Max* L. cv. Syngenta NK S24-K2) at the Irrigation Research Foundation located in Yuma, Colorado, USA under the supervision of Colorado State University in 2016. Uniform plots were selected for this trial. Four treatments were tested: 1) Untreated control without starter, 2) Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds without starter fertilizer, 3) Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds without starter fertilizer, and 4) Nutriplant SL at 0.29 l/ha (4 fl oz/acre) in 37.3 l/ha (4 gal/acre) of water applied in-furrow without starter fertilizer at planting. Soybeans were planted at 296,400 seeds/ha (120,000 seeds/acre) with seed inoculant Microsurge Dry on 25 May. Using a strip-till implement, liquid 16.4-8.2-1.3-4.7S fertilizer was applied at 94 l/ha (10 gal/acre) 10 cm (4 inch) deep and 122 l/ha (13 gal/acre) 25 cm (10 inch) deep on 16 March. On 22 March, soil detoxifier Overhaul was applied at 2.3 l/ha (32 fl oz/acre). Additionally, 28-0-0-5 fertilizer was applied through the irrigation system at 93 l/ha (10 gal/acre) on 8 July and 56 l/ha (6 gal/acre) on 16 and 21 July. Quilt Xcel fungicide was applied at 0.8 l/ha (10.5 fl oz/acre) with Endigo ZCX insecticide at 0.3 l/ha (3.5 fl oz/acre). Weeds were controlled with the following applications: Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) with ammonium-sulfate (AMS) at 0.25 l/100 l (1 qt/100 gal) and nonionic surfactant (NIS) at 0.25 l/100 l (1 qt/100 gal) and Boundary at 1.75 l/ha (1.5 pt/acre) on 28 May, Fusilade at 0.4 l/ha (6 fl oz/acre) with Roundup WeatherMax at 32 fl oz/acre and nonionic surfactant (NIS) at 0.25 l/100 l (1 qt/100 gal) and fertilizer 10-34-0 at 1.2 l/ha (1 pt/acre) on 8 June and Fusilade at 0.4 l/ha (6 fl oz/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and Sequence at 2.9 l/ha (2.5 pt/acre) and fertilizer 10-34-0 at 2.3 l/ha (1 qt/acre) and nonionic surfactant (NIS) at 0.25 l/100 l (1 qt/100 gal) on 8 July. Soybeans were irrigated with 17.3 cm (6.82 inches) of water (limited water applied due to problems with irrigation system after lightning) and received 25.8 cm (10.15 inches) from rainfall during the season. Other cultural practices followed local practices and were the same for treated and untreated plots. Soybeans were harvested on 19 September and grain yield was adjusted to 13% moisture.

Results

Application of seed treatments improved soybean yields (Table 1). Compared to untreated control without starter fertilizer, Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds without starter fertilizer increased yields by 457 kg/ha (6.8 bu/acre), Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds without starter fertilizer by 497 kg/ha (7.4 bu/acre), and Nutriplant SL at 0.29 l/ha (4 fl oz/acre) applied in-furrow without starter fertilizer by 598 kg/ha or 8.9 bu/acre.

Table 1. Influence of Nutriplant SD and SL on irrigated soybean grain yields at Irrigation Research Foundation, Yuma, Colorado, USA in 2016.

Treatment	Yield (kg/ha)	Yield (bu/acre)	Difference from control (kg/ha)	Difference from control (bu/acre)	Difference (%)
Control without starter fertilizer	1,835	27.3	-	-	-
Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds without starter fertilizer	2,292	34.1	457	6.8	24.9
Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds without starter fertilizer	2,332	34.7	497	7.4	27.1
Nutriplant SL at 0.29 l/ha (4 fl oz/acre) applied in-furrow without starter fertilizer	2,433	36.2	598	8.9	32.6

Conclusions

Compared to untreated control without starter, application of Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds without starter fertilizer improved soybean yields by 24.9%, Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds without starter fertilizer by 27.1%, and Nutriplant SL at 0.29 l/ha (4 fl oz/acre) applied in-furrow without starter fertilizer by 32.6%.