Technical Data Report

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Effect of Nutriplant™ SD and SL on Irrigated Soybeans

Objective

The objective of this study was to determine the effect 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 2017. Uniform plots were selected for this trial. The following treatments without starter fertilizer were evaluated: 1) Untreated control, 2) Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds, 3) Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds, 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.

Soybeans were planted at 444,600 seeds/ha (180,000 seeds/acre) with the seed inoculant Microsurge Dry using a Farmreign precision planter on 23 May. On 17 March, soil detoxifier Overhaul was applied to the experimental area at 4.7 l/ha (64 fl oz/acre). Liquid 9.6-17-3S 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 with a strip-till implement on 5 April. Additionally, 28-0-0-5 fertilizer was applied through the irrigation system at 18.7 l/ha (2 gal/acre) on 15, 20 and 26 June, 56 l/ha (6 gal/acre) on 12 July and 37 l/ha (4 gal/acre) on 22 and 25 July. Weeds were controlled with the following applications: Boundary 6.5 EC at 1.75 l/ha (1.5 pt/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and 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) on 24 May, Sequence at 5.8 l/ha (2.5 qt/acre) with Fusilade DX at 0.4 l/ha (6 fl oz/acre) and Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and 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) on 22 June, Fusilade DX at 0.4 l/ha (6 fl oz/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and fertilizer 27-0-0-1 at 9.3 l/ha (1 gal/acre) and 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) on 21 July.

Soybeans were irrigated with 31.1 cm (12.25 inches) of water and received 31.9 cm (12.56 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 15 October and grain yield was adjusted to 13% moisture.

Results

Application of Nutriplant SD and SL improved soybean yields (Table 1). Compared to untreated control, Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds increased yields by 242 kg/ha (3.6 bu/acre), Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds by 1,082 kg/ha (16.1 bu/acre), and Nutriplant SL at 0.29 l/ha (4 fl oz/acre) in 37.3 l/ha (4 gal/acre) of water applied in-furrow by 1,190 kg/ha or 17.7 bu/acre.

Table 1. Influence of Nutriplant SD and SL on irrigated soybean grain yields at Irrigation Research Foundation, Yuma, Colorado, USA in 2017.

Treatment Without starter fertilizer	Yield (kg/ha)	Yield (bu/acre)	Difference from control (kg/ha)	Difference from control (bu/acre)	Difference (%)
Control	3,212	47.8	-	-	-
Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds	3,545	51.4	242	3.6	7.5
Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds	4,294	63.9	1,082	16.1	33.7
Nutriplant SL at 0.29 l/ha (4 fl oz/acre) in 37.3 l/ha (4 gal/acre) of water applied in-furrow	4,402	65.5	1,190	17.7	37.0

Conclusions

Compared to untreated control, application of Nutriplant SD at 250 g/100 kg (4 oz/100 lb) of seeds improved soybean yields by 7.5%, Nutriplant SL at 0.15 l/100 kg (2 fl oz/100 lb) of seeds by 33.7%, and Nutriplant SL at 0.29 l/ha (4 fl oz/acre) in 37.3 l/ha (4 gal/acre) of water applied in-furrow by 37.0%.