

Technical Data Report

Prepared by P. Wiatrak, Ph.D.
Director of Technical Services

Effects of Nutriplant™ AG and APSA-80 on Irrigated Soybeans

Objective

The objective of this study was to determine the effects of Nutriplant AG and APSA-80 on irrigated soybeans.

Materials and Methods

The field trial was conducted on soybean (*Glycine Max* L. cv. Syngenta NK 24-K2) at the Irrigation Research Foundation located in Yuma, Colorado, USA under the supervision of Colorado State University. Four uniform plots were selected for the trial. Four treatments were tested: 1) Untreated control without starter, 2) Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at pre-bloom on 2 July, 3) Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at pre-bloom on 2 July and again at pod-set (R3-R4) on 4 August, and 4) APSA-80 at 1.1 l/ha (15 fl oz/acre) applied broadcast on 8 April prior to planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at pre-bloom on 2 July. Soybeans were planted at 444,600 seeds/ha (180,000 seeds/acre) with the seed inoculant Vault SP on 27 May., liquid 23-0-3-5.7S 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 27 March using strip-till implement. On 6 April, soil detoxifier Reclaim was applied at 2.3 l/ha (32 fl oz/acre). Starter fertilizer 22.7-9.1-1.9-1.3S-0.05Zn was applied at 117 l/ha (12.5 gal/acre) on 21 May. Additionally, 32-0-0 fertilizer was applied through the irrigation system at 46.7 l/ha (5 gal/acre) on 4, 9, 18 and 24 July. Weeds were controlled with the following applications: Boundary at 1.75 l/ha (1.5 pt/acre) with Touchdown Total at 2.3 l/ha (32 fl oz/acre) and Select at 0.6 l/ha (8 fl oz/acre) and ammonium-sulfate (AMS) at 1 kg/100 l (8.5 lb/100 gal.) of water and nonionic surfactant (NIS) at 0.25 l/100 l (1qt/100 gal) of water on 30 May, and Fusilade at 0.4 l/ha (6 oz/acre) with Touchdown at 2.3 l/ha (32 oz/acre) and NIS at 0.25 l/100 l (1 qt/100 gal) of water in the mix with fertilizer 10-34-0 on 26 July and 4 August. Insecticide applications consisted of Endigo ZC at 0.25 l/ha (3.5 fl oz/acre) with NIS at 0.25 l/100 l (1 qt/100 gal) of water on 31 July. The same day, fungicide Quilt was applied at 0.77 l/ha (10.5 fl oz/acre). Soybeans were irrigated with 17.8 cm (7.0 inches) of water and received 40.6 cm (16 inches) of rainfall during the season. Other cultural practices followed local practices and were the same for treated and untreated plots. Soybeans were harvested on 29 September and grain yield was adjusted to 13% moisture.

Results

The Nutriplant and APSA-80 with starter fertilizer improved soybean yields when compared to the untreated control with starter fertilizer (Table 1). Application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom with starter improved yields by 171 kg/ha (2.73 bu/acre) or 3.9%, Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom and again at pod-set (R3-R4) with starter increased yields by 221 kg/ha (3.53 lb/acre) or 5.1%, and APSA-80 at 1.1 l/ha (15 fl oz/acre) applied broadcast prior to planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom with starter produced 327 kg/ha (5.21 bu/acre) or 7.5% higher yields that control with starter fertilizer.

Table 1. Influence of APSA-80 and Nutriplant AG on irrigated soybean grain yields at Irrigation Research Foundation, Yuma, Colorado, USA in 2014.

Treatment	Yield (kg/ha)	Yield (bu/acre)	Difference from control (kg/ha)	Difference from control (bu/acre)	Difference (%)
Control with starter fertilizer	4,359	69.50	-	-	-
Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom (starter fertilizer at planting)	4,530	72.23	171	2.73	3.9
Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom and again at pod-set (R3-R4) (starter fertilizer at planting)	4,580	73.03	221	3.53	5.1
APSA-80 at 1.1 l/ha (15 fl oz/acre) broadcast prior to planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom (starter fertilizer at planting)	4,686	74.71	327	5.21	7.5

Conclusions

Compared to the untreated control with starter fertilizer, Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom with starter improved yields by 3.9%, Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom and again at pod-set (R3-R4) with starter increased yields by 5.1%, and APSA-80 at 1.1 l/ha (15 fl oz/acre) applied broadcast prior to planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at pre-bloom with starter improved yields by 7.5%.