

Technical Data Report

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Evaluation of Nutriplant™ SL and Nutriplant™ AG Applications on Production of Irrigated Sugar Beet

Objective

The objective of the study was to determine the effect of Nutriplant SL and Nutriplant AG on production of irrigated sugar beet.

Materials and Methods

The field trial was conducted on irrigated sugar beet (*Beta vulgaris* L. var. 9173RR) at the Irrigation Research Foundation located in Yuma, Colorado, USA, under the supervision of Colorado State University in 2016. Two uniform plots were selected for the trial. Two treatments were tested: 1) Untreated control and 2) Nutriplant SL at 0.6 l/ha (8 fl oz/acre) with 37 l/ha (4 gal/acre) of water applied in-furrow at planting followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at the 8-10 leaf stage on 30 May. Sugar beets were planted at 121,030 seeds/ha (49,000 seeds/acre) on 21 April. Prior to planting, 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 using DMI strip-till on 15 March and soil detoxifier Overhaul was applied at 2.3 l/ha (32 fl oz/acre) on 22 March. On April 21, starter fertilizer (15.7-8.9-2.6S-0.047Zn) was applied 5 cm to the side and 5 cm deep (2x2 inches) at 117 l/ha (12.5 gal/acre) to all plots. Additionally, 28-0-0-5 fertilizer was applied through the irrigation system at 47 l/ha (5 gal/acre) on 11 June and 20 and 25 July, 94 l/ha (10 gal/acre) on 8 July, and Black Label at 9.4 l/ha (1 gal/acre) on 14 July.

Weeds and diseases 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) water with non-ionic surfactant (NIS) at 0.25 l/100 l (1 qt/100 gal) of water on 23 May, Quadris at 1.1 l/ha (15 fl oz/acre) on 6 June, Fusilade at 0.4 l/ha (6 fl oz/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and 10-34-0 at 2.3 l/ha (1 qt/acre) and NIS at 0.25 l/100 l (1 qt/100 gal) on 10 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 10-34-0 at 2.3 l/ha (1 qt/acre) and NIS at 0.25 l/100 l (1 qt/100 gal) water on 8 July.

Total applied irrigation to sugar beets was 34.9 cm (13.75 inches) and crop received 30.4 cm (11.95 inches) from rainfall during the season. Other cultural practices followed local practices and were the same for treated and untreated plots. Sugar beets were harvested on 13 November.

Results

Nutriplant SL at 0.6 l/ha (8 fl oz/acre) applied in-furrow at planting, followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at the 8-10 leaf stage, improved sugar beet yields by 0.58 T/ha (0.26 T/acre) and total sugar yield by 354 kg/ha (316 lb/acre) over the untreated control (Table 1).

Table 1. Effect of Nutriplant SL and Nutriplant AG on sugar beet yields. Irrigation Research Foundation, Yuma, Colorado, USA in 2016.

Treatment	Total Yield		Difference		
	(T/ha)	(T/acre)	(T/ha)	(T/acre)	%
Control	74.86	33.42	-	-	-
Nutriplant SL at 0.6 l/ha (8 fl oz/acre) in-furrow at planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 8-10 leaf stage	75.44	33.68	0.58	0.26	0.8
Treatment	Sugar Yield		Difference		
	kg/ha	lb/acre	kg/ha	lb/acre	%
Control	13,253	11,833	-	-	-
Nutriplant SL at 0.6 l/ha (8 fl oz/acre) in-furrow at planting and Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 8-10 leaf stage	13,607	12,149	354	316	2.7

Conclusions

Compared to the untreated control, Nutriplant SL at 0.6 l/ha (8 fl oz/acre) applied in-furrow at planting, followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) applied at the 8-10 leaf stage, increased sugar beet yields by 0.8% and total sugar yield by 2.7%.