

Technical Data Report

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

Objective

The objective of the study was to determine the effects of Nutriplant SL and Nutriplant AG applications on production of irrigated sugar beets.

Materials and Methods

Field trial was conducted on irrigated sugar beets (*Beta vulgaris* L. var. 9173RR CMX) at the Irrigation Research Foundation located in Yuma, Colorado, USA under the supervision of Colorado State University in 2015. 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 8-10 leaf stage on 5 July. Sugar beets were planted at 121,030 seeds/ha (49,000 seeds/acre) on 22 April. Prior to planting, soil detoxifier Overhaul was applied at 4.7 l/ha (64 fl oz/acre) on 23 March. Using strip-till, liquid 40-20-3-5.7S 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 26 March. On April 22, starter fertilizer 10-34-0 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 75 l/ha (8 gal/acre) on 11 and 16 June, 47 l/ha (5 gal/acre) on 5 July and 4 August, and 37 l/ha (4 gal/acre) on 12 August. Weeds and diseases were controlled with the following applications: Sequence at 2.9 l/ha (2.5 pt/acre) with Touchdown Total at 2.3 l/ha (32 fl oz/acre) and ammonium sulfate (AMS) at 0.25 l/100 l (1 qt/100 gal) of water with non-ionic surfactant (NIS) at 0.25 l/100 l (1 qt/100 gal) of water on 4 June, Quadris at 1.1 l/ha (15.5 fl oz/acre) on 9 June, Fusilade DX at 0.4 l/ha (6 oz/acre) with Touchdown Total at 2.3 l/ha (32 fl oz/acre) and 10-34-0 fertilizer at 2.3 l/ha (2 pt/acre) and NIS at 0.25 l/100 l (1qt/100 gal) on 24 June, Fusilade DX at 0.4 l/ha (6 fl oz/acre) with 10-34-0 fertilizer at 2.3 l/ha (2 pt/acre) on 16 July, and Inspire at 0.5 l/ha (7 fl oz/acre) on 30 July. Total applied irrigation to sugar beets was 23.2 cm (9.15 inches) and crop received 39.0 cm (15.37 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 25 September.

Results

Application of 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) at 8-10 leaf stage increased sugar beet yields by 8.67 T/ha (3.87 T/acre) and sugar yields by 1,690 kg/ha (1,509 lb/acre) over untreated control (Table 1).

Table 1. Effects of Nutriplant SL and Nutriplant AG on sugar beet yields. Irrigation Research Foundation, Yuma, Colorado, USA in 2015.

Treatment	Total Yield		Difference		
	(T/ha)	(T/acre)	(T/ha)	(T/acre)	%
Control	53.2	23.75	-	-	-
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	61.9	27.62	8.67	3.87	16.3
Treatment	Sugar Yield		Difference		
	kg/ha	lb/acre	kg/ha	lb/acre	%
Control	8,028	7,168	-	-	-
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	9,718	8,677	1,690	1,509	21.1

Conclusions

Compared to the untreated control, application of 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) at 8-10 leaf stage increased sugar beet yields by 16.3% and sugar yields by 21.1%.