Technical Data Report

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Evaluation of NUTRIPLANT™ SL and NUTRIPLANT™ AG Applications without Starter Fertilizer on Production of Irrigated Corn

Objective

The objective of the study was to determine the effect of Nutriplant SL and Nutriplant AG applications without starter fertilizer on production of irrigated corn.

Materials and Methods

Field trial was conducted on irrigated corn (*Zea mays* L., var DeKalb 52-04) at the independently owned and operated agricultural research facility, Irrigation Research Foundation at Yuma, Colorado, USA under the supervision of Colorado State University in 2013. Uniform plots were selected for the trial. Two treatments were tested: 1) control without starter fertilizer, and 2) Nutriplant SL applied in-furrow without starter fertilizer followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage. Corn was planted at 83,980 seeds/ha (34,000 seeds/acre) on May 13. Nutriplant SL was applied in-furrow at 0.6 l/ha (8 fl oz/acre) with 37 l/ha (4 gal/acre) of water on May 13. Starter fertilizer 21.8-11-1.8-1.2S-0.1Zn was applied at 5 cm to the side and 5 cm deep (2 x 2 inches) at a rate of 168 l/ha (18 gal/acre). All plots were fertilized with high input fertilizer program before planting and during growing season. Prior to planting, plots were fertilized with 19-13-0 fertilizer at 10 cm (4 inches) deep at 93 l/ha (10 gal/acre) and 25.4 cm (10 inches) deep at 121 l/ha (13 gal/acre) using a strip-till implement on April 5. Following planting, plots were fertilized through the sprinkler system with 32-0-0 at a rate of 37 l/ha (4 gal/acre) on June 12 and 20, and 56 l/ha (6 gal/acre) on July 1, 4, 14, 19 and 30. Weed control included application of Degree Xtra at 7.0 l/ha (3.0 qt/acre) with Roundup Weather Max 2.3 l/ha (32 fl oz/acre) and Class Act at 1.4 (0.6 qt/acre) on April 30, and Status at 0.4 l/ha (5 fl oz/acre) with Roundup Weather Max 2.3 l/ha (32 fl oz/acre) and non-ionic surfactant (NIS) at 0.25 l/100 l (1qt/100 gal) of water and ammonium sulfate (AMS) at 2.0 kg/100 l (17 lbs per 100 gal) of water and on June 29. Crop was irrigated with a total water amount of 42 cm (16.59 inches) during the season. Other cultural practices followed local practices and were the same for treated and control plots. Corn was harvested on November 2. Yield was determined and adjusted to 15.5% moisture.

Results

In-furrow application of Nutriplant SL at 0.6 l/ha (8 fl oz/acre) with 37 l/ha (4 gal/acre) of water followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage improved corn production by 934 kg/ha (13.9 bu/acre), a 7.4% increase over control without starter fertilizer (Table 1). These results indicate that Nutriplant SL and Nutriplant AG are beneficial for programs without starter fertilizer.

Table 1. Effects of Nutriplant SL applied without starter fertilizer and Nutriplant AG on corn yields. Irrigation Research Foundation, Yuma, Colorado, USA.

Treatment	Corn Yield		Difference		Difference (%)
	(kg/ha)	(bu*/acre)	(kg/ha)	(bu/acre)	
Control with no starter fertilizer	12,627	187.9	-	-	-
Nutriplant SL at 0.6 l/ha (8 fl oz/acre) in-furrow with no starter fertilizer followed by Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage	13,561	201.8	934	13.9	7.4

**One bushel (bu) of corn equals 56 lb at 15.5% grain moisture*

Conclusions

Compared to the control treatment without a starter fertilizer, application of Nutriplant SL at 0.6 l/ha (8 fl oz/acre) in-furrow without a starter fertilizer followed by application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) improved corn yields by 7.4%.