

Technical Data Report

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Evaluation of NUTRIPLANT™ SD and AG on Production of Irrigated Corn with Starter Fertilizer

Objective

The objective of the study was to determine the effects of Nutriplant SD and Nutriplant AG on production of irrigated corn with starter fertilizer.

Materials and Methods

The field trial was conducted on irrigated corn (*Zea mays* L., var. LG 5618 STX RIB) at the independently owned and operated agricultural research facility, Irrigation Research Foundation (IRF) at Yuma, Colorado, USA under the supervision of Colorado State University in 2017. Three uniform plots were selected for this trial. The following treatments with starter fertilizer were evaluated: 1) Untreated control, 2) Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds, and 3) Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds followed up by foliar application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage on 27 June. On 23 March, 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 using strip-till implement. Corn was planted at 83,980 seeds/ha (34,000 seeds/acre) and starter fertilizer 16-9-0-3S-0.1Zn was applied at 168 l/ha (18 gal/acre) on 8 May. The 28-0-0-5 fertilizer was applied at 37.3 l/ha (4 gal/acre) on 29 May and 56.0 l/ha (6 gal/acre) on 15, 20 and 28 June, 2, 6, 12, and 17 July, and 37.3 l/ha (4 gal/acre) on 22 July through Reinke sprinkler irrigation system. Miticide Oberon was applied at 0.4 l/ha (5 fl oz/acre). Weed control included application of Acuron at 3.5 l/ha (1.5 qt/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and Ammonium-sulfate (AMS) 0.25 l/100 l (1 qt/100 gal) of water and nonionic surfactant (NIS) at 0.25 l/100 l (1qt/100 gal) of water on 17 May, and Halex at 3.0 l/ha (2.6 pt/acre) with Roundup WeatherMax at 2.3 l/ha (32 fl oz/acre) and Ammonium-sulfate (AMS) 0.25 l/100 l (1 qt/100 gal) of water and nonionic surfactant (NIS) at 0.25 l/100 l (1qt/100 gal) of water on 6 June. The crop received 36.7 cm (14.44 inches) of rainfall and 33.0 cm (13.0 inches) of water from irrigation during the season. Other cultural practices followed local practices and were the same for treated and control plots. Corn was harvested on 1 November and yield was determined and adjusted to 15.5% moisture.

Results

Application of seed and foliar treatments improved yield of irrigated corn with starter fertilizer (Table 1). Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds increased yields by 671 kg/ha (10.7 bu/acre) and Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds followed up by foliar application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage produced 1,662 kg/ha (26.5 bu/acre) higher yield compared to control.

Table 1. Effects of Nutriplant SD and Nutriplant AG on yields of irrigated corn with a starter fertilizer. Irrigation Research Foundation, Yuma, Colorado, USA.

Treatment with starter fertilizer	Corn Yield		Difference		Difference (%)
	(kg/ha)	(bu*/acre)	(kg/ha)	(bu/acre)	
Control	15,617	249.0	-	-	-
Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds	16,288	259.7	671	10.7	4.3
Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds followed up by foliar application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage	17,279	275.5	1,662	26.5	10.6

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

Conclusions

Compared to the control, application of Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds improved yield of irrigated corn by 4.3% and Nutriplant SD to seeds at 0.5 kg/100 kg (8 oz/100 lb) of seeds followed up by foliar application of Nutriplant AG at 1.2 l/ha (16 fl oz/acre) at 6-8 leaf stage increased yield by 10.6%.