

Technical Data Report

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

Objective

The objective of the study was to determine the effects of Nutriplant SD and Nutriplant SL 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. 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 SL to seeds at 0.3 l/100 kg (4 fl oz/100 lb) of seeds, and 4) Nutriplant SL in the seed furrow at 0.6 l/ha (8 fl oz/acre) (4-10 gal water/acre). 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 treatments improved yield of irrigated corn (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), Nutriplant SL to seeds at 0.3 l/100 kg (4 fl oz/100 lb) of seeds by 1,499 kg/ha (23.9 bu/acre), and Nutriplant SL in the seed furrow at 0.6 l/ha (8 fl oz/acre) by 1,148 kg/ha (18.3 bu/acre) compared to control.

Table 1. Effects of Nutriplant SD and Nutriplant SL 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 SL to seeds at 0.3 l/100 kg (4 fl oz/100 lb) of seeds | 17,116 | 272.9 | 1,499 | 23.9 | 9.6 |
| Nutriplant SL in the seed furrow at 0.6 l/ha (8 fl oz/acre) (4-10 gal water/acre) | 16,765 | 267.3 | 1,148 | 18.3 | 7.3 |

*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 increased corn yields by 4.3%, Nutriplant SL to seeds at 0.3 l/100 kg (4 fl oz/100 lb) of seeds by 9.6%, and Nutriplant SL in the seed furrow at 0.6 l/ha (8 fl oz/acre) by 7.3%.