



# Effect of Irrigation System on Corn Yield

## Trial Objective

- Irrigation is a common practice in Central Nebraska and research is constantly being performed to improve its efficiency. Irrigation system design could have an impact on the amount of water absorbed by plants versus water lost to evaporation.
- The objective of this study was to determine the effect of irrigation system, Dragon-Line® drip-line tubing versus standard sprinkler drop nozzles, on corn yield.

## Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Seeding Rate (seeds/acre)
Gothenburg, NE	Hord silt loam	Corn	Strip-till	5/1/20	10/28/20	250	35,000

- This study was designed to compare yields from corn irrigated with either a standard irrigation sprinkler drop nozzle with a rotating deflector to Dragon-Line® drip-line tubing. There were three replications of each treatment.
  - Six inches of irrigation were applied in six, 1-inch irrigation applications.
- The study used a 109 RM corn product.
- Fertility included 100 lb nitrogen (N)/acre applied using a Chafer Fertilizer Stream Bar on 4/27/20, and 90 lb N/acre and 15 lb sulfur/acre applied using a 360 Y-DROP® applicators on 6/26/20.
- Weeds were controlled as necessary and no other pesticides were used.
- Total shelled weight, test weight, and moisture content were collected to calculate yield.



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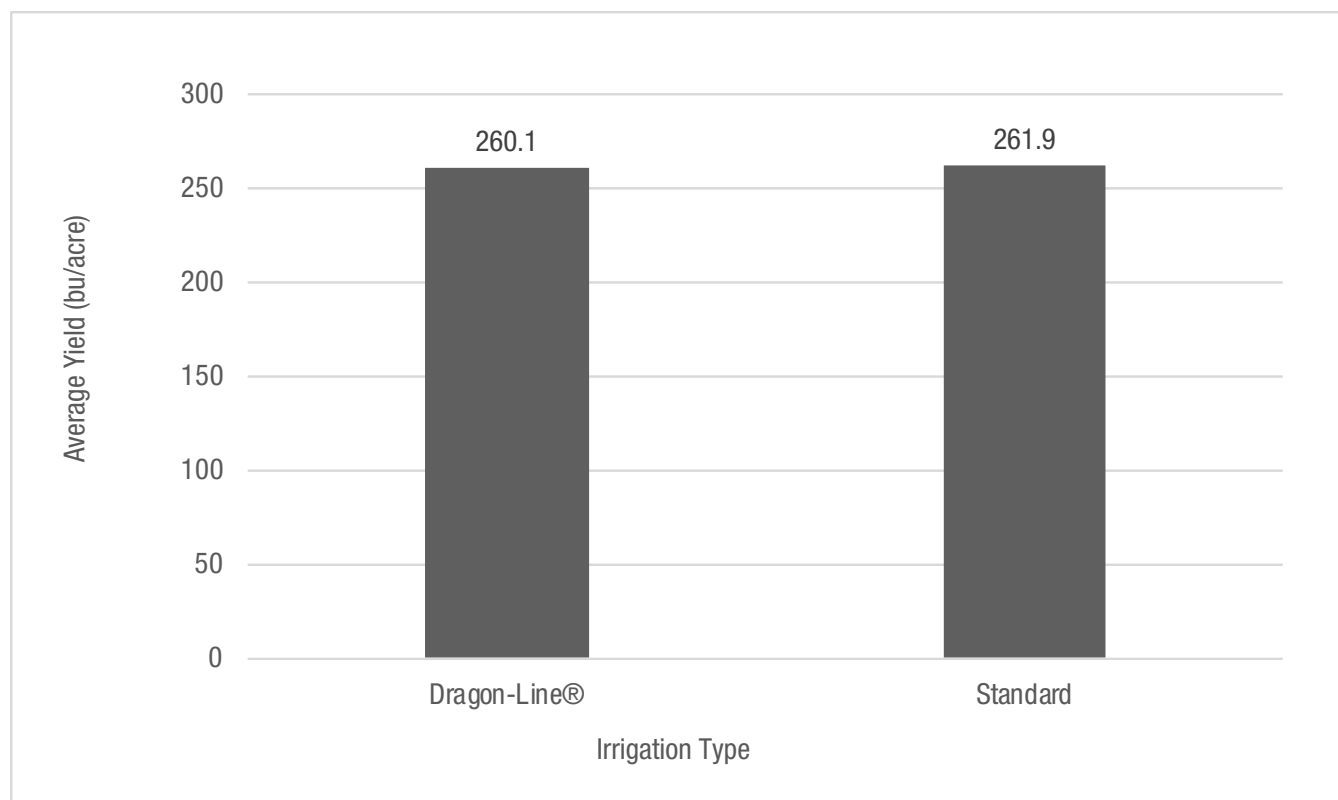


**Figure 1. Dragon-Line® drip-line irrigation tubes between corn rows.**

## Understanding the Results

- There was no significant difference in yield between irrigation type (Figure 2).
- Dragon-Line tended to drift towards one row of corn rather than irrigate directly in between each row (Figure 1). The standard deviation within plots was greater for plots irrigated using Dragon-Line compared to standard nozzles (Table 1). This indicates some corn rows within the Dragon-Line plots received excess irrigation, while other rows did not receive enough or full irrigation.

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**Figure 2. Average corn yield from plots receiving irrigation via a Dragon-Line® drip-line tubing or a standard sprinkler nozzle.**

**Table 1. Standard deviation of average yield between the rows of standard sprinkler nozzles and Dragon-Line® drip-line tubing.**

Treatment (plot)	Standard (101)	Dragon-Line (102)	Dragon-Line (201)	Standard (202)	Standard (301)	Dragon-Line (302)
Standard deviation	6.6	9.4	8.6	5.2	6.3	10.1

## Key Learnings

- The water use efficiency of irrigation systems can be a key component in a production system, and this study found that the Dragon-Line and standard irrigation nozzles produced the same corn yields. While Dragon-Line may have greater variability between rows, the variability did not influence overall yield.
- A producer should choose the irrigation system that maximizes production and profitability for each field.

## Legal Statements

The information discussed in this report is from a single site, replicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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