



Response of DEKALB® Brand Corn Products to Irrigation and Seeding Rate

Trial Objective:

- With the increase in limited irrigation due to reductions in pumping capacity or restrictions on the amount of water producers can pump over a certain time frame, it is imperative that Bayer Crop Science tests products under varying irrigation rates to supply better corn product recommendations by irrigation level.
- The objective of this study was to determine the yield response of key DEKALB® brand corn products for the region based on seeding rate and irrigation amount.

Research Site Details:

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Rainfall (inches)	Irrigation Applied 100% Rate (inches)
Bruning, NE	Silt loam	Soybeans	No tillage	5/12/2018	10/3/2018	13.0	7.7

- Seven DEKALB® brand corn products were planted at 24,000, 30,000, 36,000, and 42,000 seeds/acre under full irrigation (100% irrigation) and a half irrigation rate (50% irrigation). Corn products and seeding rates were replicated two times under the 50% and 100% irrigation rates.
- The trial was irrigated with a center pivot system with drop nozzles placed just above the crop canopy.
- May through mid-June were dry with below normal rainfall. Another dry period followed during the first three weeks of July. Late-season rainfall (mid-August through September) was above normal.
- Weed control was excellent.
- 200 lb of actual nitrogen was side-dressed at the V2 stage.
- The amount of irrigation applied per pass was 0.8 and 0.4 inches at the 100 and 50% treatments, respectively, totaling 7.7 inches in the 100% treatment and 3.85 inches in the 50% treatment.
- Some stalk lodging was observed prior to harvest.

Understanding the Results

- Averaged across all products and seeding rates, yields were 20 bu/acre higher for the 100% irrigation than the 50% irrigation treatment. These results are very similar to what occurred in this same trial in 2017.
- The yield response to increasing irrigation was as high as 33 bu/acre (DKC56-45RIB and DKC60-67RIB brand blends) averaged across all seeding rates. DKC57-97RIB brand blend had the lowest response to irrigation (4 bu/acre).
- Increasing the seeding rate from 24,000 to 30,000 seeds/acre provided the largest yield increase for most products. The average yield response across all products was 16 bu/acre with 50% irrigation, and 23 bu/acre at full irrigation.
- The yield response to increasing the seeding rate from 30,000 to 36,000 seeds/acre was much less, with several products having lower yields, and an average of a 6 bu/acre increase with full irrigation.
- Increasing the seeding rate from 36,000 to 42,000 seeds/acre had mixed results. Within each irrigation regime, the trend was generally for slightly lower yields.



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Bruning, NE				
DEKALB® Brand Blend	Trait	Seeding Rate (seeds/acre)	Average Yield 50% Irrigation (bu/acre)	Average Yield 100% Irrigation (bu/acre)
DKC55-84RIB	SSRIB	24,000	205	216
		30,000	217	237
		36,000	205	248
		42,000	214	218
DKC56-45RIB	SSRIB	24,000	208	215
		30,000	228	246
		36,000	203	254
		42,000	198	257
DKC57-97RIB	SSRIB	24,000	218	217
		30,000	240	238
		36,000	243	250
		42,000	235	247
DKC60-67RIB	SSRIB	24,000	212	228
		30,000	212	253
		36,000	224	259
		42,000	219	261
DKC62-52RIB	SSRIB	24,000	235	239
		30,000	232	252
		36,000	258	260
		42,000	225	267
DKC63-60RIB	SSRIB	24,000	189	228
		30,000	243	257
		36,000	245	251
		42,000	211	254
DKC64-34RIB	SSRIB	24,000	234	235
		30,000	245	266
		36,000	232	266
		42,000	237	252
Average		-	228	248



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What Does This Mean for Your Farm?

- Producers should take care in their corn product selection and seeding rate to maximize their return based on the irrigation environment in each field.
- While yield will typically increase with increased irrigation applied, producers should weigh the costs of applying that extra water against the increase in crop production, especially under yield-limiting conditions.
- These data would suggest that even at reduced irrigation levels, the seeding rate should be at least 30,000 seeds/acre as there is a consistent yield and profit penalty due to under-planting, regardless of product selection.
- Bayer Crop Science intends to repeat these trials to evaluate product response to irrigation level and seeding rate under changing environmental conditions for the 2019 season. Readers should keep in mind that these results are from one location only, and should look at results from multiple sites before drawing conclusions.

Legal Statements

The information discussed in this report is from a single-site, replicated demonstration trial. 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.

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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