



High Input Corn Management

Trial Objective

- With crop budgets tight, farmers must continually evaluate what inputs in their operation bring the most value.
- The objective of this study was to evaluate how three corn products respond to ten different management treatments.

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	Soybean	Strip tillage	04/28/18	11/02/18	320	Variable

- Three corn products (114RM-A, 116RM, and 114RM-B) were planted with four replications.
- The study was set up as a split-plot with management treatment as the whole plot and corn product as the subplot.
- Weeds were controlled uniformly across the study and no insecticide was applied in crop.
- Corn was fully irrigated to meet the evapotranspiration needs of the crop with a total of three inches of applied irrigation.

Table 1. Management treatments.

Treatment	Inputs
LM (Low Management)	32,000 seeds/acre; 180 lb/acre of nitrogen (N) strip-tilled before planting; 60 lb/acre of phosphorus (P) strip-tilled
LM+Den (LM plus increased density)	Increased seeding rate from 32,000 seeds/acre to 38,000 seeds/acre
LM+S & Zn (LM plus sulfur and zinc)	Added 25 lb/acre of sulfur and 0.5 lb/acre of zinc to the strip-till operation prior to planting
LM+Split N (LM plus split application of N)	Split application of N with 100 lb/acre strip-tilled prior to planting and an additional 80 lb/acre of N applied at V7 with Y-drops
LM+Fung (LM plus fungicide application)	Delaro® 325 SC fungicide was applied at 10 fl oz/acre at the VT growth stage
HM (High Management)	44,000 seeds/acre; 160 lb/acre of N strip-tilled before planting and 80 lb/acre of N applied at V7 with Y-drops; 90 lb/acre of P strip-tilled; 25 lb/acre of sulfur and 0.5 lb/acre of zinc added to the strip-till operation; Delaro® 325 SC fungicide applied at 10 fl oz/acre at the VT growth stage
HM-Den (HM minus density)	Reduced seeding rate from 44,000 seeds/acre to 38,000 seeds/acre
HM-S & Zn (HM minus sulfur and zinc)	Remove 25 lb/acre of sulfur and 0.5 lb/acre of zinc from the strip-till operation prior to planting
HM-Split N (HM minus split N application)	Applied 240 lb/acre of N with strip-till operation prior to planting
HM-Fung (HM minus fungicide application)	Remove the application of Delaro® 325 SC fungicide at the VT growth stage



High Input Corn Management

Table 2. Soil test information.

Sample Depth	Soil pH	Sol Salts	Org Matter	Nitrate	P	K	Ca	Mg	Na	Sulfate	
	1:1	mmho/c	LOI-%	Lbs N/A	M-3P	ppm	ppm	ppm	ppm	ppm	
0-8 in	7.2	0.16	3.2	26	11	464	2342	379	36	7.8	
8-24 in				48						6.9	
Sample Depth	Zn	Fe	Mn	Cu	B	CEC	% Base Saturation				
	ppm	ppm	ppm	ppm		me/100	H	K	Ca	Mg	Na
0-8 in	2.7	9.3	3.6	0.42	0.96	16.2	0.96	7	72	19	1

Understanding the Results

- Corn products responded differently to the management treatments. This is the first time in the last five years of conducting a high input corn study that corn products had different responses.
- Overall, corn yields across the three corn products were high and no input provided a 20+ bu/acre increase in yield. Growing conditions were exceptional with timely rainfall and moderate temperatures observed for most of the growing season.
- There was a smaller incremental value of around 8 to 15 bu/acre yield increase observed for some of the management treatments for a given corn product.

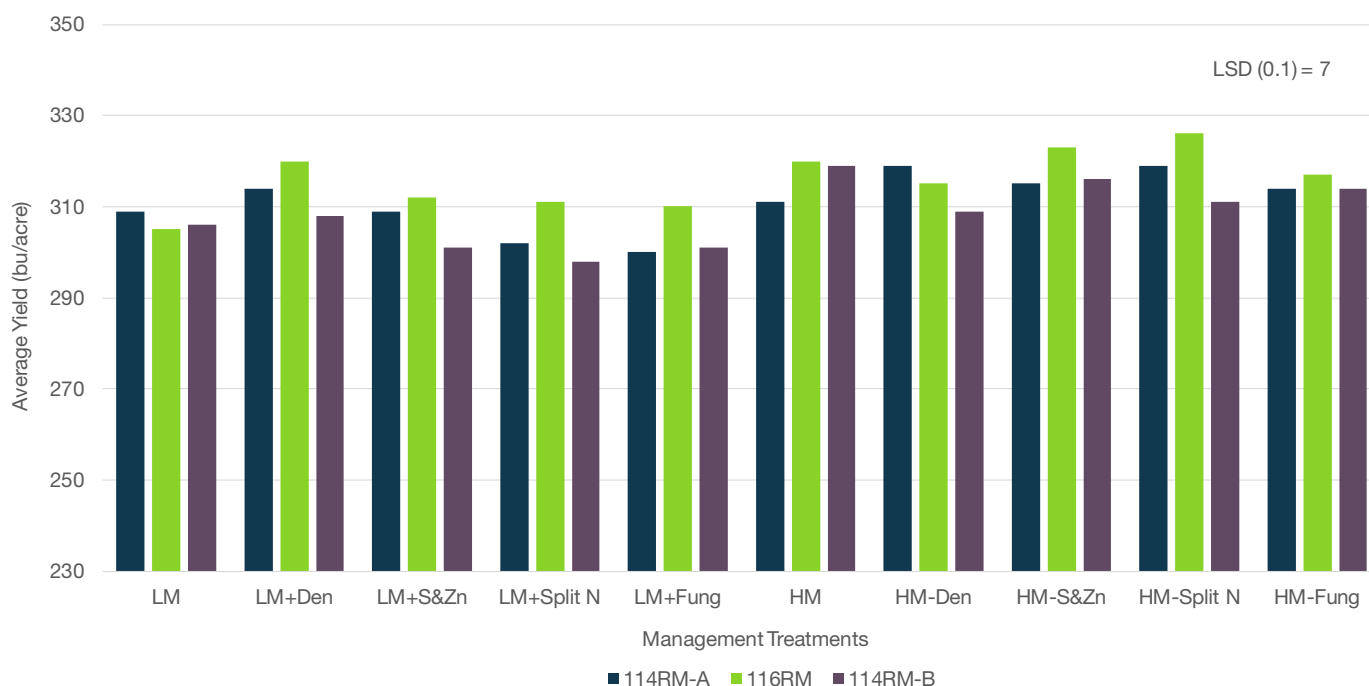


Figure 1. Corn product response to the management treatments.



High Input Corn Management

- Increasing the seeding rate from 32,000 to 38,000 seeds/acre had a positive to flat response on yield, while decreasing the seeding rate from 44,000 to 38,000 seeds/acre increased yield for the 114RM-A product, had no impact on the 116RM product, and reduced yield in the 114RM-B product.
- The addition of sulfur and zinc or split applying nitrogen had no consistent response on yield across the corn products. In the past, the addition of sulfur and zinc has provided value about 50% of the time while the split application of nitrogen has been less impactful.
- Surprisingly, the fungicide application did not consistently increase yield across the corn products.
 - This is somewhat in contrast to previous research where fungicide has been an input that increases yield in years where disease is pervasive and sometimes in years where disease is present at low levels. In 2018, pressure from diseases, such as grey leaf spot, was low.
 - In 2017, a large positive response to fungicide was recorded, but yield was taken during a high wind event that caused increased stalk lodging compared to what was seen in 2018. This possibly led to the higher yields where fungicide was applied.

What Does This Mean for Your Farm?

- High yields were recorded across the board for all treatments with no one management treatment increasing yield by 20+ bu/acre. Instead, incremental yield increases were observed for a specific corn product for a given management treatment.
- Farmers should work with their local seed sales team representative to select corn products that have the best opportunity to respond to the management techniques they use in their operation.

Legal Statements

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

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