Corn Product Response to Fungicide

Trial Objective

- Understanding what input will provide value to the farm operation along with how a corn product will respond to this input is the next level of detail farmers are looking for in order to customize their agronomic practices to bring more value to the farm.
- One input farmers have expressed interest in understanding more is if a fungicide application will consistently increase yields for a corn product regardless of disease pressure.
- The objective of this trial was to assess how 30 corn products respond to a fungicide application in a continuous corn cropping system.

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	Conventional	05/10/18	11/07/18	250	34K

- Thirty corn products (RM 101-120) were evaluated.
- The fungicide treatment included:
  - Delaro® 325 SC fungicide at 10 fl oz/acre applied at the R1 growth stage
  - Check without fungicide
- The study design was a randomized split plot with fungicide treatment as the whole plot and corn product as the sub plot with five replications.
- Irrigation was used to meet crop evapotranspiration demands, which was only two inches for the year.
- Weeds were controlled uniformly across the study and no insecticide was applied during the growing season.
- Volunteer corn from the previous year's corn production did cause more variability in the results than anticipated. The study area was row cultivated but some volunteer corn was in the rows and was not controlled.

Understanding the Results

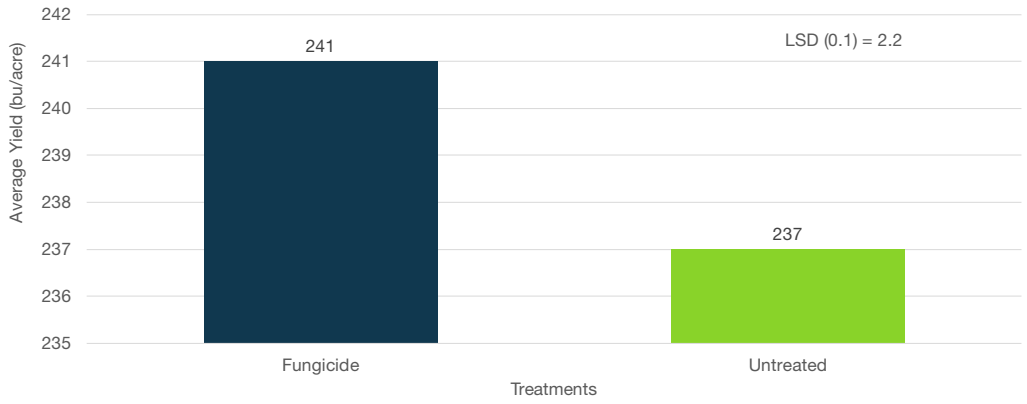

Figure 1. Impact of a fungicide application across all 30 corn products.

Corn Product Response to Fungicide

Table 1. Corn product response to a fungicide application.

Corn Product	Fungicide	Average Yield (bu/acre)	Corn Product	Fungicide	Average Yield (bu/acre)
114RM-A	Yes	252	115RM-A	Yes	256
	No	230		No	232
110RM-B	Yes	240	116RM-A	Yes	255
	No	219		No	244
113RM-B	Yes	242	107RM	Yes	246
	No	231		No	237
112RM-B	Yes	252	113RM-A	Yes	234
	No	244		No	229
120RM	Yes	246	103RM	Yes	237
	No	239		No	234
106RM-B	Yes	236	106RM-A	Yes	218
	No	234		No	218
111RM-A	Yes	234	110RM-A	Yes	244
	No	235		No	244
110RM-C	Yes	225	112RM-A	Yes	224
	No	227		No	225
101RM	Yes	234	109RM-B	Yes	219
	No	238		No	225
108RM-A	Yes	235	109RM-A	Yes	247
	No	239		No	257
105RM-A	Yes	242	114RM-B	Yes	256
	No	251		No	249
116RM-B	Yes	250	106RM-C	Yes	253
	No	259		No	253
111RM-B	Yes	231	108RM-B	Yes	234
	No	216		No	246
115RM-B	Yes	249	115RM-C	Yes	259
	No	237		No	246
112RM-C	Yes	245	105RM-B	Yes	229
	No	236		No	230

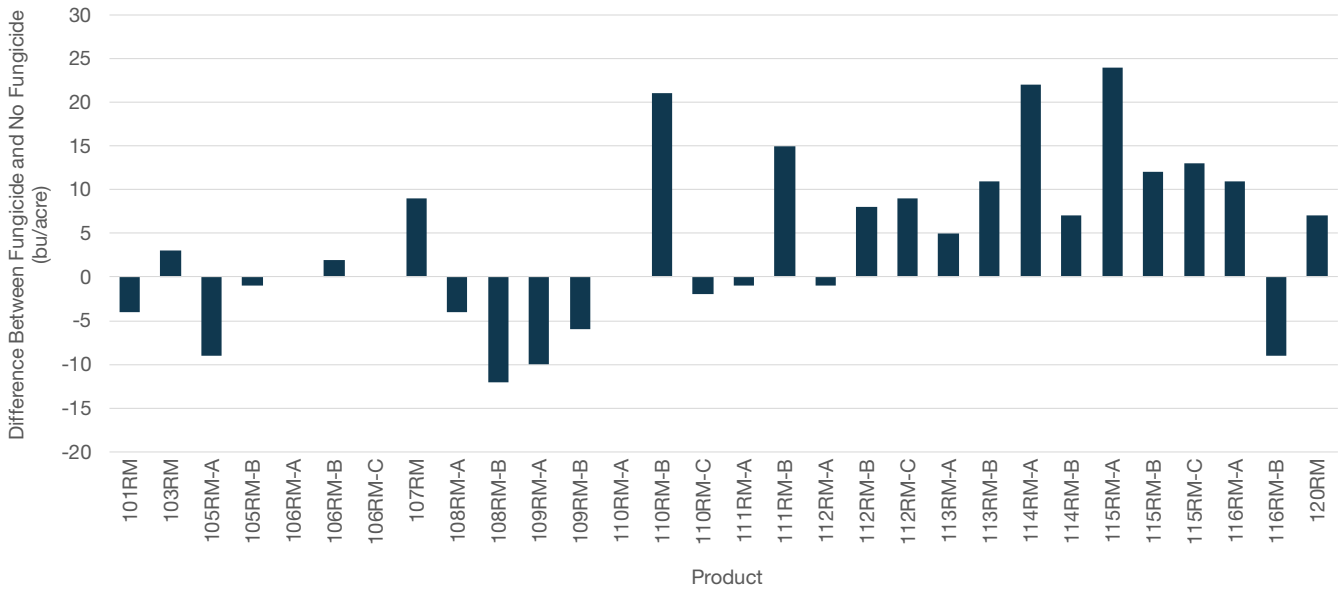

Figure 2. Difference between the response to fungicide and no fungicide for a corn product.

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Figure 3. Low disease pressure (grey leaf spot or northern corn leaf blight) was present in the study at the end of the growing season.

- The response of each individual corn product to a fungicide application was numerically different but not significantly different so the response to the fungicide application across all corn products is reported in Figure 1.
- These numerical differences were fairly large (-12 bu/acre to 24 bu/acre) and it is surprising that a corn product by fungicide interaction was not statistically relevant. One reason for this could be due to the volunteer corn in the study area, which likely increased variability in the yield data. This variability likely overwhelmed the statistical power to pick up a significant interaction of corn response to a fungicide application for an individual corn product, which is reported in Table 1.
  - The difference between the fungicide and no fungicide application for a corn product is shown in Figure 2. The general trend in this figure would indicate that the longer-season corn products responded more favorably to the fungicide application compared to the shorter-season products.

What Does This Mean for Your Farm?

- Producers should consider field history, disease pressure, crop growth stage, and yield potential when deciding on a fungicide application.
- Understanding a corn product's tolerance to individual diseases and how it will respond to a fungicide application is important to the fungicide decision making process.
- Your local seed sales team will be able to provide product specific information to assist in the fungicide decision making process.

Legal Statements