

Corn response to foliar fungicide—2018: NWROC, Crookston, MN

Nearest Town: Crookston, MN

Soil Type: Wheatville very fine sandy loam and Gunclub silty clay

Row Width: 22 inches

Experimental Design: Randomized complete block design with 4 replications

Three corn hybrids

Three foliar fungicide treatments: Untreated control (UTC), Headline® (pyraclostrobin (2.09 lb/gal) at 6 oz/A) or Delaro™ (prothioconazole (1.49 lb/gal) + trifloxystrobin (1.27 lb/gal) at 8 oz/A)

Treatments were applied at 15 gal/A at tasseling

Purpose of Study:

In recent years corn grown for grain has become an established component of some cropping systems in in northwest Minnesota. With different cropping systems, environmental conditions and hybrids than the rest of the state, it is not yet known how often or under what conditions foliar fungicides may provide a positive return on investment. This experiment was designed to evaluate how different hybrids and fungicide treatments would affect both disease incidence and yield.

Results:

Similar to what would occur in a farm field, this experiment relied on naturally occurring inoculum and weather conditions. Final disease incidence was observed at the dent (R5) growth stage. Overall foliar disease incidence was very low, with Goss's blight and Physoderma brown spot symptoms observed on too few plants to affect yield. No differences in disease incidence was observed among hybrids or fungicide treatments (Table 1).

Stalk rot incidence was indirectly assessed using a push test. Individual plots had between 2 to 38 percent incidence, with no differences observed among hybrids or fungicide treatments (Table 1).

Grain yield (corrected to 15 percent moisture), moisture and test weight were estimated at harvest. Dry weather during grain-fill led to low yields overall and no yield differences were observed among hybrids or fungicide treatments (Table 2).

Harvest moisture differences were detected among hybrids (Table 2). The differences may have been related to corn relative maturity (RM) as the hybrid with the most moisture at harvest (Hybrid 3) was also the latest maturing hybrid (86 day RM) and the hybrid with the least moisture was the earliest (Hybrid 2, 81 day RM).

Test weights also differed among hybrids (Table 2).

For Additional Information:
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Table 1. Summary of the effects of corn hybrid and fungicide treatment on incidence of Goss's blight (GB), Physoderma brown spot (PBS) and Stalk rot at the NWROC in Crookston in 2018

	GB	PBS	Stalk rot
	-----%-----		
Hybrid 1	0.2	0.2	10.4
Hybrid 2	0.4	0.0	15.3
Hybrid 3	0.3	1.1	16.2
	Statistical significance		
<i>P>F</i>	0.77	0.09	0.08
	-----%-----		
UTC ^z	0.6	0.5	13.8
Headline®	0.1	0.8	11.8
Delaro™	0.2	0.1	16.4
	Statistical significance		
<i>P>F</i>	0.19	0.31	0.17

^z Neither endorsement nor criticism is intended of any product mentioned or unmentioned.

Table 2. Summary of the effects of corn hybrid and fungicide treatment on grain yield (15% moisture), moisture and test weight at the NWROC in Crookston in 2018

	Yield	Moisture	Test weight
	(bu/A)	(%)	(lb/bu)
Hybrid 1	124.2	13.5 ab ^y	55.5 a
Hybrid 2	131.4	13.2 b	53.2 b
Hybrid 3	135.0	15.8 a	54.5 ab
	Statistical significance		
<i>P>F</i>	0.38	0.01	0.04
	-----%-----		
UTC ^z	135.3	13.7	54.1
Headline®	122.9	15.1	55.5
Delaro™	132.4	13.8	53.7
	Statistical significance		
<i>P>F</i>	0.22	0.26	0.09

^y Values followed by the same letter are statistically similar at $P \leq 0.05$.

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