Effectiveness of Foliar Fungicides by Timing on Foliar Diseases on Hybrid Corn

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Objectives

1) Assess the effect of timing of application of fungicides on foliar disease,
2) Evaluate the yield response of hybrid corn to foliar fungicide application, and
3) Discern differences in disease control or yield response, if any, between fungicide products.

	NWRF[a]	NRF	NERF	AEA	SWRF	SERF
Soil type	Galva Loam	Nicollet and Webster clay loam	Kenyon loam	Nicolet Clarion Canisteo	Marshall silty clay loam	Mahaska
Previous crop	Soybeans	Soybeans	Soybeans	Corn	Soybeans	Soybeans
Hybrid	Wyffels 5778	P0421Q	P0404AM	P0924Q	P1197AM	P1185Q
Planting date	5/2/23	5/21/23	5/4/23	6/5/23	5/9/23	5/3/23
Row spacing	30 in.					
Seeding rate	34K/acre	34.5K/acre	33.6K/acre	34K/acre	34K/acre	36K/acre
Tillage	conventional	Field Cultivate	Field cultivate	Deep Rip Cultivate 2x	No-till	Field cultivate
P and K Fertilizer	150lbs DAP 150lbs POTASH	187 lbs/ac P205&223 lbs/ac K20	70 lbs/ac P205&160 lbs/ac K20	none	none	142 lbs/ac P2O5 & 120 lbs/ac K2O
Nitrogen	150lbs N/acre	184 lbs N/acre	200 lbs N/acre	200lbs N/acre Urea	__lbs N/acre	170 lbs N/acre
Fungicide V12-date 1	7/10/23	7/6/23	7/5/23	7/24/23	7/10/23	7/2/23
Fungicide R1-date 2	7/20/23	7/31/23	7/25/23	8/25/23	7/17/23	7/14/23
Harvest Date	10/19/23	10/11/23	10/9/23	11/9/23	10/27/23	9/29/23
Experimental design	Randomized complete block design					
Replications	6	6	6	6	4	6
Treatments	Non sprayed check; Headline Amp (10 oz/ac) at V12; Headline Amp (10 oz/ac) at R1; Veltyma (7oz/A) at V12; Veltyma (7oz/A) at R1; Regev (8.5 oz/ac) at V12; Regev (8.5 oz/ac) at R1; Delaro Complete (8oz/ac) at V12; Delaro Complete (8oz/ac) at R1; Adastrio (8 oz/ac) at V12; Adastrio (8 oz/ac) at R1; Miravis Neo (13.7 oz/ac) at V12; Miravis Neo (13.7 oz/ac) at R1; Aproach Prima (6.8 oz/ac) at V12; Aproach Prima (6.8 oz/ac) at R1; Lucento (5 oz/ac) at V12; Lucento (5 oz/ac) at R1; Xyway LFR (15.2 oz/ac) at planting; Xyway LFR (9.5 oz/ac) at planting + Adastrio (7 oz/ac) at R1.					

[a] NWRF, Iowa State University (ISU) Northwest Research and Demonstration Farm; NRF, ISU Northern Research and Demonstration Farm; NERF, ISU Northeast Research and Demonstration Farm; AEA, ISU Agronomy and Ag Engineering Farm; SWRF, ISU Southwest Research and Demonstration Farm; SERF, ISU Southeast Research and Demonstration Farm.

Results

At all locations, fungal foliar disease severity (tar spot, GLS, and NCLB) was less than 1% on the ear leaf of check plots, therefore treatment plots were not assessed. Goss's wilt and bacterial leaf streak were observed at SWRF, and data were collected on a plot basis. No treatment effects (P>0.1) were detected on Goss's wilt or bacterial leaf streak. No effects on treatment on yield were detected (Table 1).

Table 1. Mean yields[a] and P-values for foliar fungicide treatments applied to hybrid corn at each ISU Research Farm

Fungicide (rate oz/ac), time of application	NWRF[c]	NRF	NERF	AEA	SWRF	SERF
Non-sprayed check 1	239.0	246.8	182.1	260.8	218.0	232.0
Headline AMP (10), V12[b]	238.2	243.5	181.6	259.2	193.0	238.2
Veltyma (7), V12	228.4	244.2	191.9	259.5	204.8	239.1
Regev (8.5), V12	240.9	242.7	182.0	250.1	213.0	238.6
Delaro Complete (8), V12	244.8	244.3	186.7	253.6	223.3	236.4
Adastrio (8), V12	240.6	244.7	183.3	259.3	223.5	234.7
Miravis Neo (13.7), V12	239.2	244.6	180.1	271.9	212.0	237.0
Aproach Prima (6.8), V12	237.6	246.1	182.2	256.7	206.5	242.4
Non-treated control 2	242.3	232.5	180.7	246.1	209.0	249.2
Headline AMP (10), R1	249.7	242.8	181.7	243.8	193.0	238.5
Veltyma (7), R1	246.7	245.6	180.0	252.0	205.0	245.0
Regev (8.5), R1	229.6	242.3	183.2	264.9	204.3	241.5
Delaro Complete (8), R1	242.1	234.2	186.3	261.4	219.8	236.4
Lucento (5), R1	245.8	238.2	187.1	266.6	217.5	242.1
Miravis Neo (13.7), R1	246.3	238.6	184.6	263.9	221.3	240.2
Aproach Prima (6.8), R1	241.1	241.5	188.0	256.2	206.8	247.4
Adastrio (8), R1	245.7	238.5	186.3	260.2	209.8	231.9
Xyway LFR (15.2)	252.6	249.8	182.1	261.7	209.5	234.8
Xyway LFR (9.5) at plant + Adastrio (7), R1	247.2	241.5	180.1	266.9	208.0	235.9
P-value	0.8723	0.8754	0.9584	0.8794	0.9057	0.4285

[a] Corrected to 15.0% moisture content; [b] V12=12-leaf stage, R1=silking; [c] NWRF, Iowa State University (ISU) Northwest Research and Demonstration Farm; NRF, ISU Northern Research and Demonstration Farm; NERF, ISU Northeast Research and Demonstration Farm; AEA, ISU Agronomy and Ag Engineering Farm; SWRF, ISU Southwest Research and Demonstration Farm; SERF, ISU Southeast Research and Demonstration Farm.