CORN (*Zea mays* 'DynaGro D52VC63RIB')
Gray leaf spot; *Cercospora zeae-maydis*
"Other"; *Unidentified fungus*

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Evaluation of fungicide efficacy for the control of gray leaf spot in grain corn, Painter 2022.

This study was conducted at the Virginia Tech Eastern Shore Agriculture Research and Extension Center located in Painter, VA. Corn 'DynaGro D52VC63RIB' seeds were drilled (27,900 seeds/A) in rows spaced 30 in. apart on 19 May in a field of Bojac sandy loam soil previously planted to grain corn. Treatment plots were 30 ft long and four rows wide, separated by a 6-ft buffer between replicates within a row and arranged in a randomized complete block design with four replicates. One guard row bordered each plot. Nitrogen was applied prior to emergence on 22 May and plots received a foliar application of urea + boron on 2 Jun and urea sidedress on 13 Jul. Weeds were managed with a post-emergence herbicide application glyphosate on 2 Jun and 13 Jul. A pyrethroid insecticide was applied on 2 Jun to manage cut worms and Billbugs. Xyway fungicide treatments were applied as a 13.5 in. band to soil surface after planting on 19 May using a four-nozzle boom with TT10015 cone spray tips and calibrated to deliver 20 gal/A at 30 psi. Foliar fungicide treatments were applied using a CO_2 backpack sprayer between VT and R1 using an 8-nozzle boom with XR80015 flat fan spray tips and calibrated to deliver 20 gal/A at 38 psi. Disease severity was assessed visually on a scale of 0 to 100% at the ear leaf level on 31 Aug. Treatment plots were harvested with a plot combine on 13 Oct. Corn yields were calculated with a 15.5% moisture and 56 pounds per bushel standard. Statistical analysis was conducted with SAS software (v9.3) and a generalized linear mixed model; blocks were considered random effects. Disease severity for gray leaf spot (GLS) was log transformed to meet assumptions of equal variances; back-transformed data are presented in tables. Fisher's protected least significant differences (LSD) at $P = 0.05$ were used to determine significant pair-wise comparisons among treatment means.

Overall disease pressure for GLS was low, reaching only 3.5% in untreated plots. All fungicides reduced GLS disease severity compared to the untreated control except Folicur. Overall disease pressure for the "other" disease, associated with the recovery of an unidentified fungus, was also low reaching only 4.3% in untreated plots. All fungicides reduced the "other" disease severity compared to the untreated control except Folicur. There was no difference in yield between the fungicide treated plots and the untreated control. No phytotoxicity was observed for any of the fungicide treatments.

		Severity (0-100 %)[z]		
Treatment and amount/A	Timing	GLS	"Other"	Yield (bu/A)[y]
Untreated control	…	3.5 a[x]	4.3 a	171.0
Headline AMP 10.0 fl oz	VT-R1	1.6 bcd	1.0 c	167.4
Veltyma 7.0 fl oz	VT-R1	1.0 d	1.0 c	169.0
Headline 12.0 fl oz	VT-R1	1.4 bcd	1.5 bc	178.8
Proline 5.7 fl oz	VT-R1	1.4 bcd	2.0 bc	174.7
Folicur 6.0 fl oz	VT-R1	2.4 ab	4.3 a	173.8
Quadris 15.5 fl oz	VT-R1	1.6 bcd	2.3 bc	171.9
Domark 6.0 fl oz	VT-R1	1.0 d	1.3 bc	174.7
Xyway LFR 15.2 fl oz	At planting	1.0 d	2.8 ab	164.6
Xyway LFR 9.5 fl oz *-alt-* Adastrio 7.0 fl oz	At planting VT-R1	1.4 bcd	1.5 bc	169.8
Xyway LFR 15.2 fl oz *-alt-* Veltyma 7.0 fl oz	At planting VT-R1	1.2 cd	1.0 c	170.9
Adastrio 8.0 fl oz	VT-R1	1.9 bc	1.8 bc	173.9
ANOVA *P*-value	…	0.0008	0.0004	0.9558

[z] Disease severity taken at the ear-leaf level; GLS = Gray Leaf Spot; "Other" = symptoms associated with the recovery of an unidentified fungus.
[y] Corn yields were calculated from the middle two rows per treatment plot with a 15.5% moisture and 56 pounds per bushel standard.
[x] Column means with a letter in common are not significantly different (LSD t-test; P=0.05).