



# 2019 Corn Fungicide Field Trials Summary

## **2019 Field Plot Summaries for Corn: Fungicide Trials**

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### **SUMMARY**

The 2019 growing season was characterized by late planting due to waterlogging conditions in our fields, a scenario that most growers faced in SD. The corn field trials aimed at evaluating commercially available and new foliar fungicide products to manage various corn diseases. The research studies were located at Volga and Southeast Research Farms. Weather conditions at the two research farms are normally dissimilar, therefore, affect crop performance differently. As such, results between the two locations may vary and interpretation should be within the confines of the particular study and location.

While some of the products used in these studies were registered for use in SD at the time of the study, new chemical products were tested on strictly experimental purposes to compare their efficacies in controlling various fungal diseases of corn. In addition, some of the application protocols listed on the product labels were altered to test other possible application rates and times or both. Please note that results from these studies should not be regarded recommendations until the experiments are closed at which point new or alternative recommendations will be disseminated. Therefore, growers are urged to continue consulting product label and/or specialists in their locality for recommended product use.

Similar to previous seasons, disease pressure was low which made it difficult to detect significant statistical differences between treatments. Although yield and disease severity differences were not statistically significant, the numerical differences were large enough to influence growers' decisions. Further research is needed to investigate efficacy of these products in varying environments between seasons.

### **ACKNOWLEDGEMENT**

These studies were accomplished with assistance and collaborations from several programs in the Agronomy, Horticultural and Plant Science Department at SDSU that included Entomology, Volga and Southeast Research Farms.

## **2019 Field Plot Summaries for Corn Foliar Disease Management Trials**

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### **1.0 Foliar Fungicide Study (FF I)**

Volga

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The FF I trial was conducted to assess the efficacy of several products for corn foliar disease management. Disease severity at this location was too low to affect yield, therefore, no statistically significant differences were observed for yield ([Table 1.1](#)).

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### **2.0 Foliar Fungicide Study (FF II)**

SERF & Volga

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Study plots were free of foliar diseases during the critical crop growth stages. As such, no significant statistical differences among treatments were observed at SERF ([Table 2.1](#)). Similar results were observed at Volga ([Table 2.2](#)). However, the quantitative differences in yield at both locations were not attributable to product or fungicide effect.

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### **3.0 Foliar Fungicide Study (FF III)**

Volga

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The low disease incidence and severity experienced at this location presented no impact on yield and therefore no statistically significant differences were observed ([Table 3.1](#)).

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### **4.0 Uniform Foliar Fungicide Study**

Volga

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This trial was conducted to determine the efficacy of several fungicides in managing corn foliar diseases. As disease severity was very low, no statically significant differences for yield were observed ([Table 4.1](#)).

SUMMARY TABLES

1.0 Foliar Fungicide Study I

Volga

**Hybrid:** DKC31-10RIB

**Previous Crop:** Corn

**Planted:** 6/4/2019

**Table 1.1** Corn Foliar Fungicide I: The efficacy of various fungicides for corn foliar disease management at Volga research farm, SD

Product†	Rate (fl oz/ac)	Yield (bu/ac)		Eye spot severity (%)		Stalk rot (%)	
Untreated	-	147.90	<i>a</i> ‡	1.92	<i>a</i>	5.42	ab
Headline AMP	10.0	161.44	<i>a</i>	0.62	<i>b</i>	4.03	ab
Exp-A	7.0	155.48	<i>a</i>	0.72	<i>ab</i>	6.42	a
Lucento	5.5	152.75	<i>a</i>	0.47	<i>b</i>	3.97	ab
Delaro	8.0	153.56	<i>a</i>	0.40	<i>b</i>	3.02	b
Trivapro	13.7	150.27	<i>a</i>	0.62	<i>b</i>	1.98	b
Miravis NEO	13.7	158.33	<i>a</i>	0.23	<i>b</i>	5.37	ab
Priaxor	4.0	154.04	<i>a</i>	1.20	<i>ab</i>	5.30	ab

†Exp-A = Experimental product A

‡Means followed by the same letter are not significantly different,  $p \leq 0.05$

**Hybrid:** DKC31-10RIB

**Previous Crop:** Soybean (SERF), Corn (Volga)

**Planted:** 5/15/2019 (SERF); 6/4/2019 (Volga)

**Table 2.1.** Corn Foliar Fungicide II: The efficacy of experimental and commercial products for corn foliar disease management applied at silking (R1) growth stage at Southeast research farm, SD

Product†	Rate	Unit	Yield (bu/ac)		Eyespot (%)		Stalk rot (%)	
Untreated Check			166.91	<i>a</i>	0.350	<i>a‡</i>	12.25	<i>a</i>
Exp-A	8	fl oz/ac	191.44	<i>a</i>	0.231	<i>a</i>	13.75	<i>a</i>
Delaro	8	fl oz/ac	184.08	<i>a</i>	0.456	<i>a</i>	13.00	<i>a</i>
Delaro	8	fl oz/ac	166.69	<i>a</i>	0.256	<i>a</i>	12.00	<i>a</i>
Exp-B	2.08	fl oz/ac						
Delaro	12	fl oz/ac	187.36	<i>a</i>	0.125	<i>a</i>	10.25	<i>a</i>
Exp-B	3.08	fl oz/ac						
Exp-C	8	fl oz/ac	198.48	<i>a</i>	0.131	<i>a</i>	8.25	<i>a</i>
Exp-C	12	fl oz/ac	150.02	<i>a</i>	0.013	<i>a</i>	12.00	<i>a</i>
Headline AMP	10	fl oz/ac	168.31	<i>a</i>	0.175	<i>a</i>	8.75	<i>a</i>
Miravis Neo	13.7	fl oz/ac	158.83	<i>a</i>	0.363	<i>a</i>	13.50	<i>a</i>
Trivapro Fungicide	13.7	fl oz/ac	176.48	<i>a</i>	0.056	<i>a</i>	11.50	<i>a</i>
Propulse	13.7	fl oz/ac	191.18	<i>a</i>	0.150	<i>a</i>	10.50	<i>a</i>

†Exp = Experimental products A, B, C.

‡Means followed by the same letter are not significantly different,  $p \leq 0.05$

**Table 2.2.** Corn Foliar Fungicide II: The efficacy of experimental and commercial products for corn foliar disease management applied at silking (R1) growth stage at Volga research farm, SD

Product†	Rate Unit	Yield (bu/ac)	Eyespot (%)	Stalkrot (%)
Untreated Check		144.44 <i>a</i> ‡	1.40 <i>a</i>	2.53 <i>a</i>
Exp-A	8 fl oz/ac	147.91 <i>a</i>	0.30 <i>a</i>	1.78 <i>a</i>
Delaro	8 fl oz/ac	163.75 <i>a</i>	0.43 <i>a</i>	2.45 <i>a</i>
Delaro	8 fl oz/ac	143.82 <i>a</i>	1.03 <i>a</i>	2.40 <i>a</i>
Exp-B	2.08 fl oz/ac			
Delaro	12 fl oz/ac	158.09 <i>a</i>	0.50 <i>a</i>	0.48 <i>a</i>
Exp-B	3.08 fl oz/ac			
Exp-C	8 fl oz/ac	146.89 <i>a</i>	0.53 <i>a</i>	2.83 <i>a</i>
Exp-C	12 fl oz/ac	146.98 <i>a</i>	0.10 <i>a</i>	1.40 <i>a</i>
Headline AMP	10 fl oz/ac	158.72 <i>a</i>	0.70 <i>a</i>	0.53 <i>a</i>
Miravis Neo	13.7 fl oz/ac	150.16 <i>a</i>	1.45 <i>a</i>	1.48 <i>a</i>
Trivapro Fungicide	13.7 fl oz/ac	163.84 <i>a</i>	0.23 <i>a</i>	2.73 <i>a</i>
Propulse	13.7 fl oz/ac	153.34 <i>a</i>	0.60 <i>a</i>	1.90 <i>a</i>
Exp-A	8 fl oz/ac	141.95 <i>a</i>	2.28 <i>a</i>	1.95 <i>a</i>

†Exp = Experimental products A, B, C.

‡Means followed by the same letter are not significantly different,  $p \leq 0.05$

**Hybrid:** DKC31-10RIB**Previous Crop:** Corn**Planted:** 6/5/2019**Table 3.1.** Corn Foliar Fungicide III: The efficacy of different products for corn foliar disease management at Volga Research Farm.

Product†	Rate Unit	Time	Yield (bu/ac)	Rust (%) (plot mean)	Rust (whole plot)	Eyespot (%)	Stalkrot (%)
Exp-A	5.8 fl oz/ac	Infurrow	176.78 a‡	3.50 a	0.88 ab	0.3 b	1.42 ab
Exp-B	11.8 fl oz/ac	Infurrow	180.02 a	0.25 ab	0.25 b	1.1 b	1.38 ab
Exp-C	15.2 fl oz/ac	Infurrow	162.96 a	1.50 b	0.75 b	0.3 b	1.33 ab
Exp-B	5.8 fl oz/ac	Infurrow	166.88 a	0.50 b	1.25 ab	0.0 b	2.28 b
Lucento	5.0 fl oz/ac	R1					
Topguard EQ	5.0 fl oz/ac	V5	177.52 a	1.50 ab	0.00 b	1.5 b	0.85 a
Lucento	5.0 fl oz/ac	R1					
Lucento	5.0 fl oz/ac	R1	167.08 a	1.00 ab	0.25 b	2.8 ab	2.36 b
Headline AMP	14.4 fl oz/ac	R1	166.39 a	0.25 ab	0.75 b	0.0 b	1.44 ab
Untreated			171.57 a	6.75 a	7.88 a	0.8 a	2.33 b

†Exp = Experimental products A, B, C.

‡Means followed by the same letter are not significantly different,  $p \leq 0.05$

**Hybrid:** DKC31-10RIB**Previous Crop:** Soybean**Planted:** 6/7/2019**Table 4.1.** Corn Uniform Fungicide: The efficacy of different products for corn disease management at Volga Research Farm.

Product	Rate	Unit	Time	Yield (bu/ac)	Rust		Stalkrot (%)	Lodging (%)
					(%)	(%)		
Untreated Check				158.95 <i>a</i> †	1.78 <i>a</i>	2.43 <i>a</i>	0.00 <i>a</i>	3.76 <i>ab</i>
Trivapro	13.7	fl oz/ac	R1 (Silking)	185.05 <i>A</i>	0.33 <i>a</i>	0.08 <i>a</i>	2.50 <i>a</i>	1.50 <i>ab</i>
Quilt Xcel	10.5	fl oz/ac	R1 (Silking)	181.68 <i>A</i>	0.30 <i>a</i>	0.30 <i>a</i>	3.75 <i>a</i>	0.88 <i>ab</i>
Miravis Neo	13.7	fl oz/ac	R1 (Silking)	167.44 <i>A</i>	0.35 <i>a</i>	0.33 <i>a</i>	0.00 <i>a</i>	0.00 <i>b</i>
Veltyma	7	fl oz/ac	R1 (Silking)	145.98 <i>a</i>	3.33 <i>a</i>	3.50 <i>a</i>	2.50 <i>a</i>	5.13 <i>ab</i>
Delaro	8	fl oz/ac	R1 (Silking)	163.98 <i>a</i>	1.18 <i>a</i>	0.35 <i>a</i>	2.50 <i>a</i>	0.53 <i>ab</i>
Headline AMP	10	fl oz/ac	R1 (Silking)	177.67 <i>a</i>	0.63 <i>a</i>	0.98 <i>a</i>	2.50 <i>a</i>	3.07 <i>ab</i>
Trivapro	13.7	fl oz/ac	R3 (Milk)	185.66 <i>a</i>	1.05 <i>a</i>	0.70 <i>a</i>	2.50 <i>a</i>	0.00 <i>b</i>
Quilt Xcel	10.5	fl oz/ac	R3 (Milk)	182.61 <i>a</i>	1.73 <i>a</i>	1.60 <i>a</i>	0.00 <i>a</i>	3.90 <i>ab</i>
Miravis Neo	13.7	fl oz/ac	R3 (Milk)	173.91 <i>a</i>	0.78 <i>a</i>	0.38 <i>a</i>	0.00 <i>a</i>	0.00 <i>b</i>
Veltyma	7	fl oz/ac	R3 (Milk)	184.01 <i>a</i>	1.80 <i>a</i>	2.68 <i>a</i>	2.50 <i>a</i>	0.46 <i>ab</i>
Delaro	8	fl oz/ac	R3 (Milk)	161.56 <i>a</i>	0.48 <i>a</i>	0.43 <i>a</i>	0.00 <i>a</i>	11.22 <i>a</i>
Headline AMP	10	fl oz/ac	R3 (Milk)	139.2 <i>a</i>	0.78 <i>a</i>	0.20 <i>a</i>	0.00 <i>a</i>	0.00 <i>b</i>

†Means followed by the same letter are not significantly different,  $p \leq 0.05$