Corn Fungicide Application Strategies

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A comprehensive corn fungicide evaluation occurred in 2013 at three locations across North Dakota: Carrington, Minot, and Prosper. These areas represent areas that have established corn acreage and areas with growing interest in corn. These trials were conducted to investigate many of the different products and application timings available to producers. Four treatments included in-furrow applications, while 11 fungicides were tested with both mid-season and late season applications. The trials were established with 30” rows and included four replications of each treatment at each location. The same 79-day hybrid was used at all locations in an attempt to limit data variability across the locations.

Disease presence in the field was monitored, but at each location this year the disease infestations were negligible (<2%). Not all treatments were conducted at each location, as indicated by a period in Table 1. Yield varied by as much as 80 bu/ac depending on the location, so to clarify the results across locations the data was converted to a percentage, based on the plots that received no fungicide application (e.x. treatments less than 1 had a lower yield than the check plots and treatments greater than 1 had yields that were higher than the check plots). Values that are highlighted indicate that the treatment was statistically greater than the check plot for that location. As a general note, the corn yield at Carrington this year was well below average due to very dry conditions in the summer; this may have led to increased opportunities for fungicides to positively influence yield.

Table 1. Fungicide application time and product performance on corn yield at three locations in central and eastern North Dakota.

Treatment Name	Rate	Growth Stage	Treatment #	Carrington	Minot	Prosper
	fl oz/a			%	%	%
non treated check			1	1.000	1.000	1.000
Quadris	7	In-furrow	2	1.271	.	0.883
Evito	2.8	In-furrow	3	1.205	.	0.904
Vertizan	12.2	In-furrow	4	1.216	.	0.878
Quadris	6	V6	5	1.056	1.155	1.093
Evito	2	V6	6	1.088	0.933	0.962
Evito-T	5	V6	7	1.082	0.939	0.970
Headline	6	V6	8	1.065	1.061	1.158
HeadlineAMP	10	V6	9	1.056	0.835	1.042
Stratego	10	V6	10	1.139	0.905	1.012
StrategoYLD	4	V6	11	1.071	0.993	1.012
Quilt	7	V6	12	1.104	0.839	1.051
Priaxor	4	V6	13	1.134	0.993	1.060
Vertizan	10	V6	14	1.168	1.033	0.977
Aproach	3	V6	15	1.224	0.946	1.032
Quadris	6	VT	16	1.090	0.996	1.033
Evito	2	VT	17	1.193	0.915	0.968
Evito-T	5	VT	18	1.144	1.072	1.014
Headline	6	VT	19	1.190	0.993	1.059
HeadlineAMP	10	VT	20	1.132	1.064	1.029
Stratego	10	VT	21	1.046	1.053	0.993
StrategoYLD	4	VT	22	1.054	0.942	1.071
Quilt	7	VT	23	1.253	1.113	1.094
Priaxor	4	VT	24	1.172	1.045	0.893
Vertizan	10	VT	25	1.346	1.077	1.042
Aproach	6	VT	26	1.078	0.952	0.987
Headline fb HeadlineAMP	6 fb 10	V6 fb VT	27	1.128	0.844	.
Headline fb Priaxor fb Hea	6 fb 4 fb 10	In-furrow fb V6 fb VT	28	1.234	.	.
Mean (bu/ac)				112.4	132.9	202.4
C.V. (%)				15.5	10.8	5.1
LSD (0.05)				0.186	0.127	0.155

At each location there was a single V6 treatment that out-performed the check; unfortunately it was different at each location. Aproach (Carrington), Headline (Prosper), and Quadris (Minot) provided at least a 15 percent increase to corn yield, a marked increase compared to other V6 options at their respective location. In Carrington, all in-furrow applications provided at least a 20 percent boost to yield. This response was not observed in Prosper, where nearly antagonistic results were seen. The in-furrow application of Headline in Carrington (treatment 28) resulted in a loss of vigor during and immediately after emergence, but was not noticeable three weeks after emergence. Some of the in-furrow success in Carrington could be related to anti-fungal and/or plant health benefits following the cool, wet planting

conditions in the spring of 2013. Even though treatment 28 included two other application times, it is believed that the yield increase of this treatment is largely due to the in-furrow application component. When evaluating VT applications, four products performed well in Carrington providing a 19 to 35 percent increase in yield.

Overall, there was no single consistent fungicide product and application time that was superior to the other treatments or check plots. There were instances where certain products provided a large benefit within a single environment but, there was no clear resolution regarding the risk management associated with plant health fungicide applications.