2009 Corn Silage Foliar Fungicide Research Trial

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Project Description: There has been a significant increase in the promotion of foliar fungicide use for corn grain and silage production over the last three years by fungicide manufacturers with claims of large yield and quality increases. There has not been any third party unbiased research data to support the use of foliar fungicides in corn grain or silage production. To evaluate foliar fungicide use in corn silage production the University of Wisconsin Extension Service and the University of Minnesota Extension Service cooperated on conducting a trial near La Crescent, Minnesota where Minnesota has one of the locations for their corn silage variety trials.

Materials and methods: The trial included two hybrids (Pioneer P34A89 and De Kalb DKC 57-79) which were selected based on their performance in the 2008 Minnesota and Wisconsin corn silage hybrid trials, three fungicides (Headline @ 6oz/a, Stratego @ 10 oz/a and Quilt @ 14 oz./a), and an untreated check treatment. The trial was set up in a randomized complete block design, with four replications. Each treatment bed was four 30” rows, thirty feet long. Fungicide was applied with a back-pack sprayer using an extended boom equipped with 11003XR flat fan nozzles at 40 psi delivering a total volume of 20.6 gallons per acre.

The plot was rated for foliar disease pressure based on percentage of leaf area infected at the time of fungicide application and at harvest. The fungicide treatments were applied 6 August 2009 when the corn was at R1 maturity. The plot was harvested 18 September 2009, when the corn was approximately 70% moisture to replicate approximate moisture when farmers typically harvest corn silage. 2009 was a cooler than normal year and corn growth and maturity were running about 2 weeks behind average. Silage samples were collected at harvest and analyzed at UW forage testing labs and quality was determined using the MILK 2006 equation for calculating corn silage quality. Only the center two rows of each treatment replication were harvested, measured for yield, and sampled for quality.

Results and Discussion: At application time there was no significant difference between any of the treatments with the percentage of leaf showing disease at 0.5% or less. At the time of harvest there was also no significant difference between any treatments with the percentage of leaf with disease pressure showing 1.25 to 2.25% across the trial. Rust was the foliar disease that was found in the plot. The untreated check treatments did not yield less than any of the fungicide treatments, nor did they have lower quality, based on milk per ton, than any of the fungicide treatments. The following table shows the results of the trials.

Treatment	Disease rating 8/6	Disease Rating 9/18	% DM	Adjusted DM Yield (T/A)	CP	NDF	NDFd	Starch	Fat	Milk/T	Milk/A
DeKalb DKC57-79	0.25 a	2.25 a	29.86 ab	10.55 ab	7.67 bc	41.53 a	59.09 c	30.08 ab	2.60 ab	3281.8 a	34014 ab
DeKalb DKC57-79 Headline, 6 fl oz/a	0.0 a	1.25 a	31.26 a	10.90 a	7.72 abc	45.02 a	58.99 c	34.58 ab	2.89 a	3392.8 a	35222 a
DeKalb DKC57-79 Quilt 14 fl. oz/a	0.25 a	2.25 a	30.14 ab	10.13 ab	7.48 c	37.5 a	60.20 bc	36.15 a	2.92 a	3481 3 a	32726 ab
DeKalb DKC57-79 Stratego 10 fl. oz/a	0.50 a	1.75 a	29.12 ab	10.63 ab	7.90 abc	40.64 a	60.21 bc	30.37 ab	2.75 ab	3298.8 a	34293 ab
Pioneer P34A89	0.25 a	1.25 a	30.32 ab	10.83 ab	8.11 a	38.64 a	61.13 ab	34.56 ab	2.77 ab	3411.5 a	35003 a
Pioneer P34A89 Headline 6 fl oz/a	0.0 a	1.75 a	29.61 ab	10.2 ab	7.65 bc	40.92 a	62.26 a	33.11 ab	2.60 ab	3384.3 a	32891 ab
PioneerP34A89 Quilt 14 fl. oz/a	0.0 a	1.75 a	28.58 b	9.62 ab	7.95 ab	40.97 a	62.16 a	33.68 ab	2.69 ab	3407.8 a	31169 ab
Pioneer P34A89 Stratego 10 fl. oz/a	0.0 a	1.75 a	29.05 ab	9.22 b	7.83 abc	42.49 a	62.04 a	28.63 b	2.56 b	3285.3 a	29766 b