GUEST COLUMN

Improve Your Alfalfa Yields with Headline® Fungicide

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he goal of today's alfalfa grower includes getting more out of every acre by maintaining a healthy stand while maximizing yield and quality of each harvest. In the upper Midwest, alfalfa leaf diseases (i.e., lepto leaf spot and spring black stem) can cause a loss of precious lower leaves reducing both yield and quality.

Since Headline[®] fungicide was first labeled for alfalfa in 2010, progressive growers using this practice have reported improvements in alfalfa yield, as well as qualitative improvements, including increased retention of lower leaves, quicker green up following a cutting, and higher stem counts.

Extensive research trials were conducted at three universities and on numerous farms across Minnesota and Wisconsin to evaluate Headline fungicide effects on alfalfa yields over three-years.

Most applications were applied at $\sim 6^{\circ}$ of alfalfa regrowth and at 16-30 days prior to cutting, as the minimum treatment to harvest interval required by the label is 14 days. The use rate in these trials ranged from 6-9 fluid ounces of Headline fungicide per acre. All results reported alfalfa yield in dry weight tons per acre comparing an untreated check to a Headline fungicide treatment.

University-Replicated Research 2011-2013

Thirty-six replicated trials were conducted at the University of Minnesota, the University of Wisconsin, and Iowa State University from 2011-2013. Results showed alfalfa yields of the Headline fungicide treatment, the untreated check, as well as the net increase in yield. Looking at the entire set of data from these replicated trials, yields were numerically greater in the Headline fungicide treatment in 33 of the 36 trials. In applying the statistical paired t-test to the 36 university trial means, Headline fungicide use on alfalfa increased yields by 0.16 tons DM/ac with a 95% confidence level compared to the untreated check. This represents just over an 11% increase in yield with the use of Headline fungicide in alfalfa. (*Results are archived in the MFA Member's Only database: www.midwestforage.org/membersOnly.php; search by company and/or author.*)

On-Farm Research Trial Results 2012

Thirty three on-farm trials were conducted in Minnesota and Wisconsin in 2012 to evaluate the yield benefit of applying Headline fungicide on alfalfa. Results from 23 trials where Headline fungicide was applied prior to the first cutting showed an average of 0.25 tons DM (+13.5%) yield increase. In the four second-cutting comparisons, the yield increase was 0.31 tons DM (+18.6%), while the six third-cutting comparisons showed an increase of 0.15 tons DM (+13.3%).

Economics of Applying Headline Fungicide to Alfalfa

With current alfalfa prices around \$250 per ton of dry weight, yield increases in the range of 0.15-0.31 tons DM/ ac would represent an increase of \$37.50-\$77.50 per acre gain. A Headline fungicide treatment plus application would average around \$23-\$25 per acre, resulting in a 2:1-3:1 return on investment. Also, when considering the economics of treating alfalfa with Headline fungicide, keep in mind application cost prior to the second cutting is often shared with an insecticide application.

Univ /l ocation	Year	Cutting	Dry Weight Yield (tons/ac)			
oniv./Eocation			Headline	Check	Gain	
UMN-Waseca	2011	1st	2.40	2.00	0.40	
ISU-Nashua Var A 3"	2011	1st	1.06	0.99	0.07	
ISU-Nashua Var B 3"	2011	1st	1.06	0.93	0.13	
ISU-Nashua Var A 8"	2011	1st	1.08	0.99	0.09	
ISU-Nashua Var B 8"	2011	1st	1.09	0.93	0.16	
UW-Arlington	2012	1st	2.08	1.90	0.18	
UMN-Waseca	2012	1st	2.03	2.06	-0.03	
UW-Waupaca	2012	1st	2.02	1.85	0.17	
UW-Tomah	2012	1st	2.17	1.94	0.23	
UMN-Rosemount	2012	1st	2.40	2.21	0.19	
UW-Cashton	2013	1st	1.30	1.38	-0.08	
UW-Waupaca	2013	1st	1.52	1.34	0.18	
UMN-Rochester D	2013	1st	1.49	1.42	0.07	
UMN-Rochester B	2013	1st	1.99	1.77	0.22	
				Avg	0.14	
UW-Arlington	2011	2nd	1.61	1.55	0.06	
UMN-Waseca	2011	2nd	2.10	1.80	0.30	
ISU-Nashua Var A 3"	2011	2nd	1.55	1.43	0.12	
ISU-Nashua Var B 3"	2011	2nd	1.57	1.38	0.19	
ISU-Nashua Var A 8"	2011	2nd	1.56	1.43	0.13	
ISU-Nashua Var B 8"	2011	2nd	1.6	1.38	0.22	
UW-Arlington	2012	2nd	1.85	1.68	0.17	
UMN-Waseca	2012	2nd	2.37	2.17	0.20	
UW-Waupaca	2012	2nd	1.51	1.49	0.02	
UW-Tomah	2012	2nd	1.49	1.26	0.23	
UMN-Rosemount	2012	2nd	1.93	1.65	0.28	
				Avg	0.17	
UW-Arlington	2011	3rd	2.18	2.07	0.11	
UMN-Waseca	2011	3rd	1.60	1.40	0.20	
UW-Arlington	2013	3rd	0.88	0.95	-0.07	
UW-Waupaca	2013	3rd	1.69	1.10	0.59	
UW-Tomah	2013	3rd	1.83	1.12	0.71	
				Avg	0.31	
UW-Arlington	2012	4th	0.91	0.89	0.02	
UMN-Waseca	2012	4th	1.38	1.34	0.04	
UW-Waupaca	2012	4th	0.76	0.66	0.10	
UMN-Rosemount	2012	4th	1.76	1.61	0.15	
UMN-Waseca	2013	4th	0.86	0.77	0.09	
UW-Waupaca	2013	4th	1.05	1.01	0.04	
				Avg	0.07	
Avg of locations, years, &	cutting	s (36 trials)	1.60	1.44	0.16	

Table 1. Three Year Summary of the Headline on Alfalfa Replicated Trials at UMN, UW, and ISU.

*Statistically significant increase using a paired t-test.

Which Cutting Will Benefit Most?

The primary recommendation for Headline fungicide use in alfalfa is to apply prior to the first and/or second cutting. This is supported by the data from the university-replicated trials, where yields were increased in 23 of the 25 first- and second-cutting trials. While there is merit to treating prior to the third or fourth cuttings as shown with fewer comparisons, generally higher yields, as well as more disease pressure in the first- and second-cutting, make the early season applications the primary recommendation. Please note: the label also states "do not make more than three applications per year," which peeds to be forward in when deciding y

Table 2.1	Three Year	On-Farm	Alfalfa Tria	I Summar	y in MM	and WI.
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Cutting	# Trials	Dry Weight Yield (tons/ac)					
		Headline	Check	Gain	% Increase		
1st	23	2.07	1.82	0.25	13.5		
2nd	4	1.98	1.67	0.31	18.6		
3rd	6	1.29	1.14	0.15	13.3		
ł	verage:	1.78	1.54	0.24	15.13		

applications per year," which needs to be figured in when deciding when to apply.

In summary, customers reported the benefits of Headline fungicide to include disease control, improved stand counts, better winter survival and stand longevity, and ultimately, greater yield. Both the replicated university trials and on-farm side-by-side comparisons clearly show the yield benefits from applying Headline fungicide to alfalfa. These benefits can lead to maximized profitability of the alfalfa production system.

To learn more about how to best utilize Headline on your alfalfa, talk to your BASF Authorized Retailer for more information.

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