

ONION, YELLOW (*Allium cepa* 'Safrane')
 Stemphylium Leaf Blight; *Stemphylium vesicarium*
 Purple Blotch; *Alternaria porri*
 Botrytis Leaf Blight; *Botrytis squamosa*

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Evaluation of fungicide treatments for control of foliar diseases in onion in Wisconsin, 2015.

An onion fungicide efficacy trial was established in a commercial field on muck soil in Markesan, Wisconsin on 25 May with 'Safrane' onion using a standard commercial planter. The experimental design consisted of 4 replicates arranged in a randomized complete block design. Each treatment plot consisted of 5-ft-wide beds with four 10-ft-long rows spaced 15 in. apart with 2-ft non-sprayed buffer alleys between plots in the same row. Insect, weed, and fertility management was carried out as per commercial standards for the production region and were applied by the grower/cooperator. Naturally occurring inocula of all three pathogens were present from nearby agricultural production fields. The first fungicide application was applied by the grower-cooperator on 18 June and consisted of 1.5 lb/A of Echo 90DF to all trial plots using a commercial fungicide applicator. Subsequent fungicide treatments were applied on 1 Jul, 8 Jul, 15 Jul, 22 Jul, 29 Jul, 5 Aug, and 12 Aug using a CO2 backpack sprayer equipped with four TeeJet 8002VS nozzles spaced 19-in. apart and calibrated to deliver 35 gal/A at a boom pressure of 40 psi. The severity of total, combined foliar disease of the two center rows was rated on 28 Jul, 12 Aug, and 25 Aug using the Horsfall-Barratt rating scale (0-11 rating with 0=no disease, 11=100% disease severity). The Area Under the Disease Progress Curve (AUDPC) was determined by trapezoidal integration and then converted into Relative AUDPC (RAUDPC), i.e. percentage of the maximum possible AUDPC for the whole period of the experiment. On 31 Aug, onions in the center five feet of the two center rows were pulled, hand-topped, weighed, and graded. Data were analyzed using ANOVA ($\alpha=0.05$) and Fisher's LSD at $\alpha=0.05$. The experimental plots relied exclusively upon natural precipitation for water, with 10.2 in total during the production season.

Disease pressure was very high in this trial. There were significant differences among treatments in grade (data not shown) and yield. All fungicide treatments significantly reduced foliar disease compared to treatment 1, which was a single application of Echo 90DF. Numerically, the treatment that included Luna Tranquility (treatment 6) provided the greatest disease control compared to all other fungicide treatments.

Treatment Number, Fungicide and rate/A	Application Timing ^z	Yield (cwt/A)	RAUDPC ^{xy}
1 Echo 90DF 1.5 lb	1	669.8	0.266 c
Echo 90DF 1.5 lb	1		
2 Endura 70WG 5.0 oz + Dithane 75DF 2.0 lb	2,4		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	3,5		
Dithane 75DF 2.0 lb	6,7	673.4	0.169 ab
Echo 90DF 1.5 lb	1		
3 Scala 606SC 18.0 fl oz + Dithane 75DF 2.0 lb	2,4		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	3,5		
Dithane 75DF 2.0 lb	6,7	698.8	0.176 ab
Echo 90DF 1.5 lb	1		
4 Switch 62.5WG 14.0 oz + Dithane 75DF 2.0 lb	2,4		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	3,5		
Dithane 75DF 2.0 lb	6,7	695.6	0.188 ab
Echo 90DF 1.5 lb	1		
5 Rovral 4F 1.0 pt + Dithane 75DF 2.0 lb	2,4		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	3,5		
Dithane 75DF 2.0 lb	6,7	725.6	0.185 ab
Echo 90DF 1.5 lb	1		
6 Luna Tranquility 500SC 16.4 fl oz + Dithane 75DF 2.0 lb	2,4		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	3,5		
Dithane 75DF 2.0 lb	6,7	751.0	0.150 a
Echo 90DF 1.5 lb	1		
7 Dithane 75DF 2.0 lb	3,7		
Bravo WS 720SC 2.0 pt	5	720.1	0.203 b

^zFungicide application dates: 1=18 Jun, 2 = 8 Jul, 3= 15 Jul, 4 = 22 Jul, 5 = 29 Jul, 6 = 5 Aug, 7 = 12 Aug.

^yColumn numbers followed by the same letter are not significantly different at P=0.05 as determined by Fisher's Least Significant Difference (LSD) test.

^xRAUDPC= Relative Area Under the Disease Progress Curve.