

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, 2017.

An onion fungicide evaluation trial was established in a commercial production field on muck soil in Markesan, Wisconsin 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. Fungicide treatments were applied on 28, Jun, 5 Jul, 12 Jul, 19 Jul, 26 Jul, 2 Aug, 9 Aug, and 16 Aug for a total of 8 applications using a CO<sub>2</sub> 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 3 Jul, 20 Jul, 3 Aug, 17 Aug, and 29 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 7 Sep, onions in the center five feet of the two center rows were pulled, hand-topped, and weighed. Data were analyzed using ANOVA ( $\alpha=0.05$ ) and Fisher's LSD at  $\alpha=0.05$ .

Disease pressure was initially low in the earlier part of the growing season but increased rapidly in August. While there was no significant treatment effect on yield, the non-treated control had the second lowest yield and the treatment that consisted of a single base protectant application (Dithane 75DF alternating with Bravo WS 6SC every other week) had the lowest yield, numerically. All fungicide treatments had significantly better disease control when compared to the non-treated control. The treatments that included Switch, Luna Tranquility, and Viathon as unique chemistries tended to have the best disease control, but were not statistically different. There was no visible phytotoxicity with any treatment.

Fungicide and Rate/A	Application Timing <sup>z</sup>	Yield (cwt/A)	RAUDPC <sup>y</sup>
Non-treated Control	-	374.9	0.359
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Endura 70WG 5.0 oz + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	396.8	0.268 ab <sup>x</sup>
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Scala 606SC 18.0 fl oz + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	414.1	0.244 ab
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Switch 62.5WG 14.0 oz + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	394.9	0.234 a
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Rovral 4F 1.0 pt + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	391.0	0.283 bc
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Luna Tranquility 500SC 16.4 fl oz + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	400.4	0.237 a
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Viathon 2.0 pt + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	396.1	0.240 a
Bravo WS 720SC 2.0 pt + Dithane 75DF 2.0 lb	1		
Quadris Top 2.71SC 12.0 fl oz + Bravo WS 720SC 1.0 pt	2,4,6		
Phostrol 2.5 pt + Dithane 75DF 2.0 lb	3,5		
Dithane 75DF 2.0 lb	7,8	393.8	0.270 ab
Dithane 75DF 2.0 lb	4,8		
Bravo WS 720SC 2.0 pt	2,6	340.7	0.314 c
Dithane 75DF 2.0 lb	1,3,5,7		
Bravo WS 720SC 2.0 pt	2,4,6,8	399.0	0.267 ab

<sup>z</sup>Fungicide application dates: 1=28 Jun, 2=5 Jul, 3 = 16 Jul, 4= 19 Jul, 5 = 26 Jul, 6 = 2 Aug, 7 = 9 Aug, 8 = 16 Aug

<sup>y</sup>RAUDPC= Relative Area Under the Disease Progress Curve.

<sup>x</sup>Column numbers followed by the same letter are not significantly different at P=0.05 as determined by Fisher's Least Significant Difference (LSD) test.