



# **Managing the Uncertainties in Growing and Marketing Fruits and Vegetables**

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## New Products and Strategies for Disease Control

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Purple blotch is typically a yearly problem for Michigan onion growers. As new products become available to the vegetable industry, it is important to determine whether they are effective, and ensure that there are no negative side effects to plant growth and yields. Testing products that are not yet registered for onions can help determine whether they might have a fit in current disease programs. Eleven fungicides were included in the new product test that was conducted at the Michigan State University Muck Soils Experimental Farm (see table, below).

**Table 1.** Products included in 2002 onion trial.

Chemical	Active ingredient	Company	Registered
Cabrio 20WG	pyraclostrobin	BASF Ag Products	yes
BAS 510 70WDG	-	BASF Ag Products	no
BAS 516 38WDG	pyraclostrobin + BAS 510	BASF Ag Products	no
Bravo Weather Stik 6SC	chlorothalonil	Syngenta Crop Protection	yes
Elevate 50WDG	fenhexamid	Arvesta Corp USA	no
Scholar 50WP	fludioxonil	Syngenta Crop Protection	no
Messenger 3WDG	harpin protein	Eden Bioscience Corp	yes
Quadris 2.08 SC	azoxystrobin	Syngenta Crop Protection	yes
Rovral 50WP	iprodione	BASF Ag Products	yes
Serenade 10WP	<i>Bacillus subtilis</i> QST 713	AgraQuest, Inc	yes
Switch 62.5WDG	cyprodinil + fludioxonil	Syngenta Crop Protection	yes

In the 2002 new product study, when plants were not treated, they became severely diseased with the purple blotch pathogen, and received a rating of 7.5 (10=defoliation and death) (Table 2). While many of the fungicide programs limited purple blotch to a disease rating of #3.0, others allowed the disease to progress seemingly unchecked. Among the programs that appeared to be most effective were those using Quadris 2.08SC, Switch, Scholar, Rovral 50WP, Cabrio 20WG, BAS 510 70WDG, and BAS 516 38WDG. While Bravo was an effective product when used in alternation, it was less effective when used alone. The Serenade 10WP and Elevate 50WG products

were better than not doing anything, but they were not as effective as the other products tested. Some spray programs resulted in enhanced yields compared to the untreated control and included Quadris 2.08SC alternated with either Scholar or Switch. Yield was also enhanced when Cabrio was used in alternation with Bravo Weather Stik 6SC.

**Table 2.** Standard fungicides and new products for control of foliar blights on onion.

Treatment and rate/A, applied at 7-day intervals except where noted	Foliar purple blotch rating*	Bulb yield per 22' of row			
		Total (lb)	<2" (%)	2-3" (%)	>3" (%)
Untreated . . . . .	7.5 e**	45.8 cdef	13.7	78.3	8.1
Bravo Weather Stik 6SC 1.5 pt, alternated Quadris 2.08SC 9.2 fl oz . . . . .	1.6 a	51.5 abcd	8.6	78.8	12.6
BAS 516 38WDG 1.2 lb . . . . .	2 ab	50.6 abcde	11.3	80.5	8.2
Quadris 2.08SC 9.2 fl oz, apps. 1-3, 7-8 Scholar 50WP 7.0 oz . . . . .	2 ab	46.2 bcdef	9.8	78.8	11.4
Quadris 2.08SC 9.2 fl oz, apps. 1-3, 7-8 Scholar 50WP 5.4 oz . . . . .	2.3 ab	55.4 a	11.6	77	11.4
Quadris 2.08SC 9.2 fl oz, alternated Switch 62.5WDG 11.0 oz . . . . .	2.3 ab	54.2 a	9.6	78.4	12
BAS 510 70WDG 11.2 oz . . . . .	2.3 ab	47.8 abcdef	8.2	78.3	13.5
Rovral 50WP 1.0 lb + Bravo Weather Stik 6SC 1.0 pt . . . . .	2.4 ab	52.6 abc	10.6	79.7	9.6
Quadris 2.08SC 9.2 fl oz, apps. 1-3, 7-8 Switch 62.5WDG 14.0 oz, apps. 4-6 . . . . .	2.8 abc	52.9 abc	12.1	77.9	10
Cabrio 20WG 1.0 lb, alternated Bravo Weather Stik 6SC 1.5 pt . . . . .	3 abc	53.5 ab	9.6	82.7	7.7
Quadris 2.08SC 9.2 fl oz, apps. 1-3, 7-8 Switch 62.5WDG 11.0 oz, apps. 4-6 . . . . .	3 abc	52.3 abc	9.3	81.5	9.2
Bravo Weather Stik 6SC 1.5 pt . . . . .	3.5 bc	43.9 ef	12.7	77.7	9.6
Bravo Weather Stik 6SC 1.5 pt, Tom-Cast 15 DSV . . . . .	4.3 cd	44.6 def	9.5	78.4	12.1
Elevate 50WDG 1.0 lb . . . . .	5.8 d	44.1 def	10.8	80.3	8.9
Serenade 10WP 6.0 lb . . . . .	5.8 d	40.4 f	10.3	81.2	8.5
Messenger 3WDG 9.0 oz . . . . .	7.8 e	45.4 cdef	11.3	81.4	7.2

\*Based on a rating of 1 to 10 where 1=0% to trace of disease to 10=defoliation and death.

\*\*Column means with a letter in common or with no letter are not significantly different (Fisher LSD; P=0.05).

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