



Managing the Uncertainties in Growing and Marketing Fruits and Vegetables

**Education Session Abstracts
December 10 - 12, 2002**

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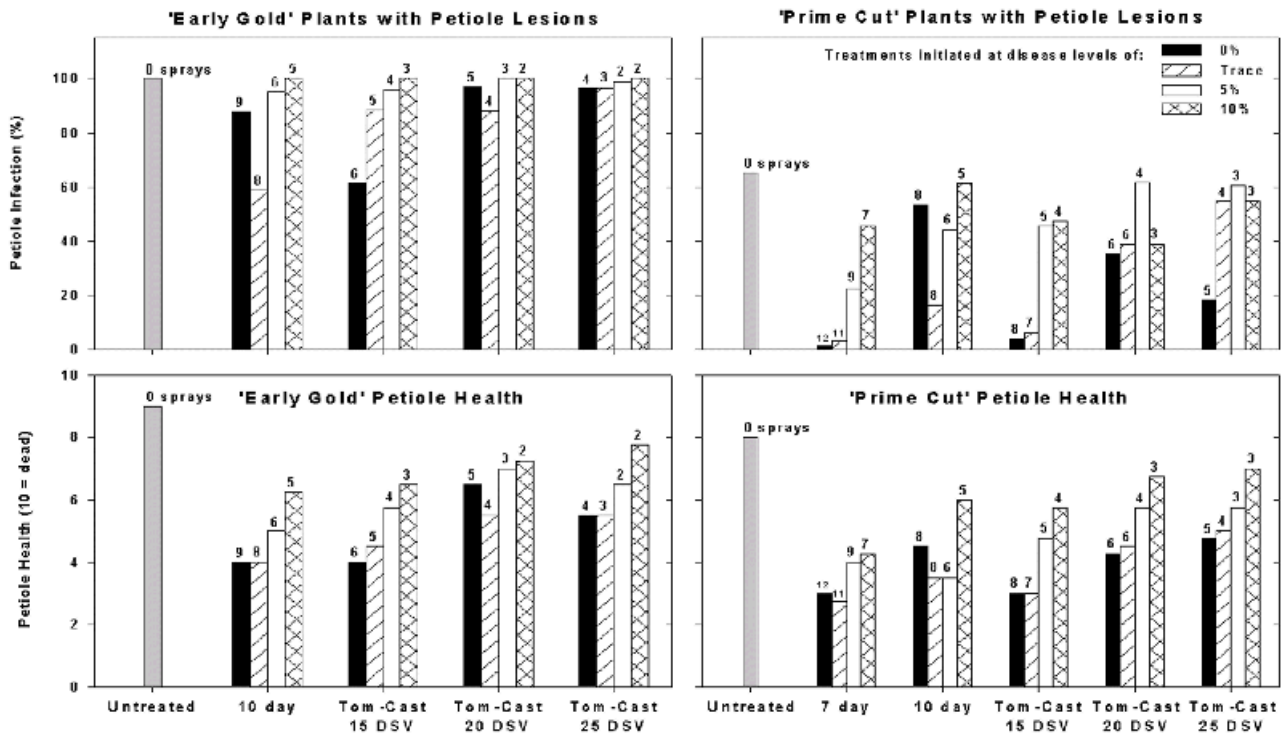
Compiled by:
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How to Use Scouting and Forecasters for Blight Control

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Studies were conducted in 2002 to explore the use of field scouting and the disease forecaster Tom-Cast to time fungicide applications to control *Alternaria* and *Cercospora* blights on carrots. For each 24-hour period (11:00 AM to 11:00 AM), Tom-Cast uses the hours of leaf wetness and the average temperature during the wetness periods to calculate a Disease Severity Value (DSV) ranging from 0 to 4, corresponding to environmental conditions unfavorable to highly favorable for disease development. Daily DSV values are summed and accumulate until a threshold value is reached, a fungicide spray is applied, and the DSV total is reset to zero.

One study was located at the Michigan State University Muck Soils Experimental Farm. Carrot 'Early Gold' seeds were planted on 21 May (plant population of 169,476/A). Another study located in Fremont, MI was established with a grower cooperator using 'Prime Cut' seeds planted on 6 June 2002 (plant population of 508,522/A). Bravo Ultrex 80WG (1.4 lb/A) alternated with Quadris 2.08F (6.2 fl oz/A) were applied to all treatment plots, excluding the control. Initial sprays were applied before disease symptom development (0%), or when disease was evident on a trace amount, 5%, or 10% of the foliage. Subsequent sprays were applied every 7 days (commercial field only), 10 days or according to Tom-Cast with a threshold of 15, 20, or 25 DSVs.



Spray programs initiated when a trace amount of the foliage was diseased often provided control comparable to the program that started before blight developed (see graphs below). Prolonging the initial application until disease appeared on 5% or 10% of the foliage reduced the number of sprays but did not provide acceptable disease control. Results suggest that reducing carrot production costs can be achieved by utilizing Tom-Cast (15 DSV) coupled with field scouting to time fungicide sprays.

An additional study was conducted to determine whether Tom-Cast could be used to time sprays for foliar blight using Quadris 2.08SC, Bravo Ultrex 82.5WDG, and Kocide 2000. The cultivar Heritage was grown in a 3-row raised bed. Initial sprays were applied before disease symptoms and subsequent sprays were applied every 7 days or according to Tom-Cast with a threshold of 10, 15 or 20 DSVs. Disease pressure occurred early and progressed within the treatment blocks. When this same trial was conducted in 2001, disease occurred late in the season. In both years, using Tom-Cast 15 DSV with a 3-way alternation of Quadris 2.08SC, Bravo Ultrex 82.5WDG, and Kocide 2000 was as effective as the 7-day application while saving 6 sprays. In 2002, more disease developed on the petioles when using Tom-Cast 15 DSV compared to the same treatments in 2001. However, the petiole health rating indicated that most of the fungicide programs were effective enough to keep the tops intact for pulling. An exception to this was Kocide used alone every 15 DSVs where the health rating was 5 (1=healthy, 10=dead). Overall, Tom-Cast at 20DSV appeared to allow too much disease to develop.

Treatment and rate/A	No. of sprays	Plants with infected petioles (%)	Health*	Foliar evaluation (%)
Untreated	-	100	7.3	33
Kocide 2000 53.8 DF 1.5 lb				
7-day	13	44	2.8	5
10-DSV	10	47	3.5	9
15-DSV	7	77	5	23
20-DSV	5	79	6	25
Quadris 2.08SC 6.2 fl oz alternate Kocide 2000 53.8 DF 1.5 lb				
7-day	13	28	1.5	3
10-DSV	10	25	2.3	4
15-DSV	7	53	2.8	5
20-DSV	5	64	3.8	13
Bravo Ultrex 82.5WDG 1.8 lb alternate Kocide 2000 53.8 DF 1.5 lb				
7-day	13	30	1.8	6
10-DSV	10	44	2.3	4
15-DSV	7	69	4	14
20-DSV	5	68	4.3	10
Quadris 2.08SC 6.2 fl oz alternate Bravo Ultrex 82.5WDG 1.8 lb				
7-day	13	8	1.8	2
10-DSV	10	11	2.5	2
15-DSV	7	50	4	4
20-DSV	5	50	5.3	16
Bravo Ultrex 82.5WDG 1.8 lb				
7-day	13	18	1.8	3
10-DSV	10	12	1.3	1
15-DSV	7	32	2.8	11
20-DSV	5	64	4.8	30
Quadris 2.08SC 6.2 fl oz alternate Bravo Ultrex 82.5WDG 1.8 lb alternate Kocide 2000 53.8 DF 1.5 lb				
7-day	13	27	2.3	6
10-DSV	10	16	1.5	3
15-DSV	7	12	1.8	2
20-DSV	5	67	3.5	9

*Petioles rated on a scale of 1-10, where 1=healthy to 10=dead.

This research was supported in part by GREEN (www.green.msu.edu), USDA CSREES Risk Avoidance and Mitigation Program project, and the Gerber Products Company.