Carrot (*Daucus carota* 'Enterprise')
Alternaria leaf blight (*Alternaria dauci*)
Cercospora leaf blight (*Cercospora carotae*)

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Evaluation of fungicide treatments and application schedule on foliar blight of carrot, 2012.

A carrot field trial was conducted at the Hancock Research Station in central WI to evaluate fungicides and their timing for control of Alternaria leaf blight and Cercospora leaf spot, common foliar diseases of carrot in the Midwestern United States. 'Enterprise' seeds were sown at approximately 250,000 seed/A with a standard commercial planter on 11 May 2012. The experimental design consisted of 4 replicates arranged in a randomized complete block design. Each treatment plot consisted of 4.5-ft-wide beds with three 18-ft-long seeding rows, 19 in between rows on bed with 17 in from row edge to bed edge. Twelve-ft fallow breaks were maintained between plots in the same row. Insecticide, herbicide, and fertility applications were made according to standard production practices for the region. Naturally occurring inocula of pathogens were present from nearby agricultural production fields and a neighboring carrot variety trial with no fungicides applied. Experimental plots were sprayed with fungicides using a CO_2 backpack sprayer equipped with four Tee Jet 8002VS nozzles spaced 19-in. apart and calibrated to deliver 35 gal/A at a boom pressure of 40 psi. All treatments were applied at a rate with a calculated equivalence to 20 gal/A. Fungicide applications were applied approximately every 2 weeks beginning 25 Jul with subsequent applications 8 Aug, 22 Aug, 5 Sept, and 19 Sept. Disease assessments took place on 25 Jul, 20 Aug, 10 Sep, and 5 Oct, and utilized the Horsfall-Barratt scale (1-11) to assess foliar symptoms in the center row of each experimental plot. Foliar disease severity was combined for all pathogens present at each rating. On 5 Oct, a center 10-ft section was hand harvested from each plot, tops were removed, and roots were weighed to determine yield. Precipitation in Hancock during the production season was 8.19 in. Weather conditions in Hancock during the production season were atypically hot and dry, requiring 51 irrigation events totaling an additional 27.65 in of water. In response to drought and heat conditions, disease pressure was low early- and mid-season.

Foliar symptoms progressed slowly until the third rating date on 10 Sep. Moderate disease pressure was observed on the untreated control by the final rating date of 5 Oct, which had the highest AUDPC rating, significantly greater than all but 2 of the two-application chlorothalonil treatments, (Bravo 1,3 and Bravo 3,5). Four treatments resulted in significantly greater yields than the untreated control, and included: Bravo Weather Stik for 5 applications, Quadris for applications 1, 2, 4, 5 + Bravo Weather Stik at application 3, Quadris Top for applications 1, 2, 4, 5 + Bravo Weather Stik at application 3, and Omega for applications 1, 2, 4, 5 + Bravo Weather Stik at application 3. All of the significantly highest yielding programs included a fungicide treatment in each of the 5 bi-weekly applications. There were no phytotoxic symptoms observed with any of the fungicide programs throughout the duration of the trial.

Table 1. Effect of foliar-applied fungicides on seasonal disease progression and yield.

Treatments and rate/A	Application schedule[z]	AUDPC[y]	Total Yield (ton/A)[x]
Untreated…….....	NA	128.1 e[w]	38.2 ab
Bravo Weather Stik 6 SC 2.0pt…….....	1, 2, 3, 4, 5	103.1 abcd	43.5 cd
Bravo Weather Stik 6 SC 2.0 pt…….....	1, 3, 5	106.3 bcd	38.9 ab
Quadris 2.08 SC 9.0 fl oz…….....	1, 2, 3, 4, 5	93.8 abcd	40.8 abcd
Quadris 2.08 SC 9.0 fl oz…….....	1, 3, 5	93.8 abcd	42.1 bcd
Quadris 2.08 SC 9.0 fl oz Bravo Weather Stik 6 SC 2.0 pt…….....	1, 2, 4, 5 3	90.6 abc	43.4 cd
Quadris Top 2.71 SC 12.0 fl oz Bravo Weather Stik 6 SC 2.0 pt……	1, 2, 4, 5 3	93.8 abcd	44.4 d
Inspire XT 4.17 EC 7.0 fl oz Bravo Weather Stik 6 SC 2.0 pt…….....	1, 2, 4, 5 3	87.5 ab	40.8 abcd
Omega 4 SC 1.0 pt Bravo Weather Stik 6 SC 2.0 pt…….....	1, 2, 4, 5 3	100.0 abcd	39.8 abc
Omega 4 SC 1.5 pt Bravo Weather Stik 6 SC 2.0 pt…….....	1, 2, 4, 5 3	90.6 abc	44.1 d
A16976 550 SC 1.5 pt Bravo Weather Stik 6 SC 2.0 pt……...	1, 2, 4, 5 3	84.4 a	42.0 abcd
Bravo Weather Stik 6 SC 2.0 pt Quadris 2.08 SC 9.0 fl oz……..	1,5 3	100.0 abcd	39.8 abc
Bravo Weather Stik 6 SC 2.0 pt ……..	1,3	112.5 de	38.1 a
Bravo Weather Stik 6 SC 2.0 pt…….....	2,4	103.1 abcd	39.2 ab
Bravo Weather Stik 6 SC 2.0 pt…….....	3,5	109.4 cde	39.9 abcd

[z] Fungicides were applied every 2 weeks for a total of 5 applications. Application 1: 26 Jul; 2: 8 Aug; 3:22 Aug; 4:5 Sep; and 5:19 Sep.

[y] Disease intensity over time of combined leaf blight symptoms are presented as the Area Under the Disease Progress Curve (AUDPC).

[x] One 10-ft-long section of row was hand harvested from the center of each plot and yield was converted to tons/A.

[w] Column means with a letter in common or with no letter are not significantly different (Fisher's LSD, *P=0.05*).