

WATERMELON (*Citrullus lanatus* 'Crunchy Red')  
Downy mildew; *Pseudoperonospora cubensis*  
Gummy stem blight; *Didymella bryoniae*  
Cercospora leaf spot; *Cercospora citrullina*

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#### Evaluation of fungicides and Melcast forecasting program for watermelon disease management, 2014.

The experiment was conducted at the University of Maryland's Lower Eastern Shore Research and Education Center, Salisbury facility. The experiment was conducted as a randomized complete block design with five fungicide treatments and four replications. Plots consisted of a single raised bed, 40 ft long, on 8-ft centers using 1.25-mil plastic and 1 tube of drip tape laid down the center. The watermelon 'Crunchy Red' was seeded into plug trays in the greenhouse on 10 May. The beds were shaped and covered with black plastic in a one pass operation on 23 May. Four-week-old greenhouse-grown transplants were removed from the greenhouse to harden off and then transplanted into the field 36 in. apart with a 20-20-20 (N-P-K) starter solution on 4 Jun. To reduce manganese toxicity, a 0-0-25 (N-P-K) solution was injected through the drip system at 2.6 qt/30 gal water on 25 Jul and 8 Aug. Fungicides were applied at weekly intervals or applied according to a weather-based fungicide application model, Melcast, which was modified to recommend fungicide application when 30 environmental favorability index (EFI) units were reached. Fungicide applications began 18 Jun, when the runners met in the row, and ended on 12 Aug. Fungicides were applied with a tractor-mounted sprayer that delivered 45 gal/A at 43 psi through six D4-45 hollow-cone nozzles mounted in a directed pattern. Severity of Cercospora leaf spot was evaluated on 17 Jul and 13 Aug. Percent gummy stem blight and downy mildew were evaluated on 13 Aug. All mature and marketable fruit from each plot were harvested, counted, and weighed and sugar content (% brix) was determined from three representative fruit per plot on 6 Aug. All remaining marketable fruit were counted weighed and evaluated for sugar content on 14 Aug.

Cercospora leaf spot and gummy stem blight disease pressure remained low during the season. However, in Aug downy mildew became severe. Nine sprays were applied under the weekly program and six under the Melcast program. All fungicide programs reduced Cercospora leaf spot compared to non-treated plots on 17 Jul and 13 Aug. On 13 Aug Cercospora leaf spot was significantly lower in plots where Bravo Weather Stik alternated with Folicur was sprayed weekly than either Melcast schedule. All fungicide treatments reduced gummy stem blight compared to non-treated plots on 13 Aug. In addition, the weekly programs with Folicur or Inspire Super alternated with Bravo Weather Stik performed better than the Melcast program using the same respective products. All fungicide programs reduced downy mildew compared to non-treated plots on 13 Aug. There were no significant differences in percent brix (data not shown) or yield among fungicide treatments. No phytotoxicity was observed.

Treatment and rate/A (application schedule) <sup>z</sup>	Cercospora leaf spot (%)		Gummy stem blight (%)	Downy mildew (%)	Yield lb/plot
	17 Jul	13 Aug	13 Aug	13 Aug	
Folicur 430SC 8 fl oz <i>alt</i> Bravo Weather Stik 6SC 32 fl oz (Weekly)	0.4 b <sup>y</sup>	0.8 c	0.9 cd	1.6 b	435 a
Inspire Super 2.82SC 20 fl oz <i>alt</i> Bravo Weather Stik 6SC 32 fl oz (Weekly)	0.4 b	1.1 bc	0.6 d	1.9 b	450 a
Folicur 430SC 8 fl oz <i>alt</i> Bravo Weather Stik 6SC 32 fl oz (Melcast)	1.0 b	1.9 b	2.9 b	4.0 b	430 a
Inspire Super 2.82SC 20 fl oz <i>alt</i> Bravo Weather Stik 6SC 32 fl oz (Melcast)	1.0 b	1.9 b	2.0 bc	3.0 b	442 a
Non-treated	6.1 a	5.7 a	10.1 a	36.7 a	403 a
<i>P</i> value <sup>x</sup>	0.0225	0.0001	0.0001	0.0001	0.3512

<sup>z</sup>Application dates for Weekly = 18 Jun, 25 Jun, 2 Jul, 8 Jul, 15 Jul, 22 Jul, 29 Jul, 5 Aug, and 12 Aug; Melcast = 18 Jun, 2 Jul, 15 Jul, 29 Jul, 5 Aug, and 15 Aug.

<sup>y</sup>Means within a column followed by the same letter are not significantly different according to Fisher's LSD ( $P=0.05$ ).

<sup>x</sup> $P$  values  $\leq 0.05$  indicate significant differences are likely to exist among treatments.