

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

K. L. Everts and R. C. Korir
 University of Maryland, 27664 Nanticoke Road,
 Salisbury, MD 21801; and University of
 Delaware, 16483 County Seat Hwy, Georgetown,
 DE 19947

Evaluation of fungicides for management of foliar diseases on watermelon, 2014.

The experiment was conducted at the University of Maryland's Lower Eastern Shore Research and Education Center, Salisbury. The experiment was conducted as a randomized complete block design with eight fungicide treatments and four replications. Plots consisted of one raised bed, 40 ft long, on 7-ft centers using 1.25-mil plastic and one line of 8-in. emitter spaced drip tape. The beds were shaped and covered with plastic in a one pass operation on 8 May. Four-week-old seedlings were removed from the greenhouse to begin hardening off on 15 May. They were transplanted into the field 36 in. apart with a 20-20-20 (N-P-K) (2.5 lb/150 gal water) starter solution on 21 May. On 25 July and 8 Aug 0-0-25 (N-P-K) (2.6 qt/30 gal water) solution was injected through drip irrigation for a Mn toxicity problem. Soil moisture was maintained by drip and overhead sprinkler irrigation as needed. Fungicide applications began 19 Jun, when the vines met in the row and were applied weekly until 14 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. The percentage of foliage that had phytotoxicity symptoms of leaf margin necrosis was rated on a whole plot basis on 21 Jul. The percent severity of Cercospora leaf spot was evaluated on 21 Jul and 5 Aug; and gummy stem blight severity was evaluated on the whole plot on 5 Aug. Defoliation due to all diseases, including downy mildew, was evaluated as the percent necrotic tissue on a whole plot basis on 22 Aug. All mature and marketable fruit from each plot were harvested, counted, and weighed on 29 Jul and 5 Aug. A final harvest was made on 19 Aug by removing all remaining marketable and nonmarketable fruit, which were counted and weighed. Percent brix was evaluated for three random fruit per plot on each harvest date.

Cercospora, gummy stem blight and downy mildew were observed in all plots at variable levels. Phytotoxicity was significantly greater in the plots treated weekly with Proline on 21 Jul. All fungicide schedules reduced Cercospora leaf spot compared to the non-treated plots on 21 Jul. Two-weeks later, Cercospora leaf spot disease severity was lowest in plots where Bravo Weather Stik was alternated with Proline, Folicur, A19334, and Inspire Super, and where Proline was applied alone; and highest in the plots treated with Luna Experience and the non-treated plots. Gummy stem blight was significantly reduced in all fungicide treated plots on 5 Aug compared to the non-treated plots. By 22 Aug, downy mildew was widespread and lesions had coalesced. Foliar necrosis was significantly reduced in plots sprayed with Bravo Weather Stik in alternation with Proline, Folicur, Inspire Super and A19334 compared to all other treatments. Bravo Weather Stik alternated with A19334 at 10.5 fl oz reduced foliar necrosis the greatest and was significantly lower than all other treatments except Proline alternated with Bravo Weather Stik. There were no significant differences in % brix (data not shown) or yield among treatments.

Treatment and rate/A	Application dates ^z	Phytotoxicity	Cercospora leaf spot		Gummy stem	Foliar necrosis	Yield lb/plot
		(%) 21 Jul	(%) 21 Jul	(%) 5 Aug	blight (%) 5 Aug	(%) 22 Aug	
Luna Experience 400SC 10.0 oz	1-9	0.0 b ^y	1.0 bc	4.3 a	1.4 bc	60.3 a	368 a
Proline 480SC 5.7 oz	1-9	7.8 a	0.2 c	1.0 bc	2.4 b	39.9 b	322 a
Bravo Weather Stik 6SC 2 pt ; A19334 EC 10.5 fl oz	1,2,3,6,8 4,5,7,9	0.0 b	0.4 bc	0.9 bc	1.3 bc	9.2 d	369 a
Bravo Weather Stik 6SC 2 pt ; A19334 EC 13.5 fl oz	1,2,3,6,8 4,5,7,9	0.0 b	0.5 bc	1.4 bc	1.2 bc	14.4 c	304 a
Bravo Weather Stik 6SC 2 pt ; Inspire Super 2.82SC 20 fl oz	1,2,3,6,8 4,5,7,9	0.0 b	1.0 b	1.4 bc	1.6 bc	16.4 c	362 a
Bravo Weather Stik 6SC 2 pt ; Folicur 430SC 8 fl oz	2,4,6,8 1,3,5,7,9	0.0 b	0.3 bc	1.6 b	0.9 c	16.4 c	346 a
Proline 480SC 5.7 fl oz ; Bravo Weather Stik 6SC 2 pt	1,3,5,7,9 2,4,6,8	1.0 b	0.3 bc	0.6 c	1.9 bc	12.7 cd	322 a
Non-treated		0.0 b	5.5 a	7.0 a	8.5 a	66.2 a	371 a
<i>P</i> value ^x		0.0001	0.0001	0.0001	0.0001	0.0001	0.3932

^z Application dates were 1=19 Jun, 2=26 Jun, 3=3 Jul, 4=9 Jul, 5=17 Jul, 6=23 Jul, 7=30 Jul, 8=6 Aug, and 9=14 Aug.

^y Mean values in each column followed by the same letter do not significantly differ according to Fisher's protected LSD ($P = 0.05$).

^x P values ≤ 0.05 indicate significant differences are likely to exist among treatments.