TOMATO (*Lycopersicon esculentum*)
    Bacterial spot; *Xanthomonas perforans*

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Evaluation of bactericides and Actigard for management of bacterial speck and spot of tomato, spring 2012.

On 26 Mar 2012, plots were established at the University of Florida's Gulf Coast Research and Education Center in Balm, FL to assess the effect of various copper alternatives on the control of bacterial spot of tomato. Plots consisted of 25 ft-long bed sections within 300 ft-long, raised beds with 5 ft center-to-center bed spacing. Beds were covered with black virtually impermeable mulch and irrigated with a drip system. Tomato seedlings (cv SecuriTY 28) were transplanted at 18-in spacing along beds skipping a 4-ft alley between plots as a buffer. Foliar treatments including a water-treated control, were arranged in a completely randomized design with each treatment repeated four times. The treatments were applied on 10 Apr, 18 Apr, 25 Apr, 4 May, 15 May, 22 May, 29 May, and 4 Jun (corresponding with applications 1 to 8 below). Foliar treatments were applied with a CO_2 back pack sprayer calibrated to deliver 60, 90, and 120 gal/A at 40 psi. Plots were inoculated on 20 and 27 Apr with a suspension (10^6 cfu/ml) of *Xanthomonas perforans* race 4 using a backpack sprayer. Plots were monitored regularly for bacterial spot, and rated on 3 May, 11 May, and 21 May after disease reached appreciable levels. Marketable yield was assessed from two separate hand harvests on 31 May and 14 Jun. A preventative program that included alternating applications of Revus Top (7.7 fl oz/A), Endura (12.5 oz/A)-Bravo WeatherStik (1 pt/A), and Quadris Top (8 fl oz/A) was established across the trial to minimize the impact of early blight, target blight, or late blight.

Treatment, rate/A (application)[z]	Disease severity (%)[y]			AUDPC[x]	Diseased fruit number	Marketable fruit yield (Boxes/A)[w]
	3 May	11 May	21 May			
AN-77V2, 1 lb (1-8)	50.0 ab[v]	72.0 ab	67.3	1184 abc	8.00	913
AN-77V2, 2 lb (1-8)	50.0 ab	67.3 ab	67.3	1142 a-d	11.5	951
AN-77V2, 3 lb (1-8)	37.5 bc	62.5 b	62.5	1025 cd	9.50	811
AN-77V2, 4 lb (1-8)	50.0 ab	67.3 ab	67.3	1142 a-d	6.50	1224
AN-77V2, 1 lb (1-8); Chelator, 1lb (1-8)	32.8 bcd	62.5 b	62.5	1006 de	8.75	904
AN-77V2, 2 lb (1-8); Chelator, 1lb (1-8)	32.8 bcd	62.5 b	62.5	1006 de	9.25	832
Chelator, 1lb (1-8)	56.3 a	62.5 b	72.0	1148 a-d	10.5	753
AN-77V2, 0.16 oz/gal (1-8); Chelator, 0.33 oz/gal (1-8); Kocide, 0.07 oz/gal (1-8)	50.0 ab	67.3 ab	67.3	1142 a-d	10.3	819
AN-77V2, 0.32 oz/gal (1-8); Chelator, 0.33 oz/gal (1-8); Kocide, 0.07 oz/gal (1-8)	43.8 abc	62.5 b	67.3	1074 bcd	12.5	722
Procidic, 25 fl oz/100 gal (1-8)	43.8 abc	67.3 ab	67.3	1117 a-d	10.5	918
Procidic, 25 fl oz/100 gal (2x/wk; 1-8)	43.8 abc	62.5 b	62.5	1050 bcd	12.8	835
Synbiont, 24 fl oz/100 gal (1-8)	32.8 bcd	67.3 ab	67.3	1073 bcd	11.0	800
Synbiont, 48 fl oz/100 gal (1-8)	43.8 abc	62.5 b	62.5	1050 bcd	14.0	1023
Synbiont, 24 fl oz/100 gal (2x/wk; 1-8)	43.8 abc	67.3 ab	67.3	1117 a-d	12.0	987
Synbiont, 48 fl oz/100 gal (2x/wk; 1-8)	56.3 a	67.3 ab	67.3	1167 a-d	16.0	945
Kocide 3000, 1.75 lb (1-8); Penncozeb, 1 lb (1-8)	50.0 ab	72.0 ab	72.0	1208 ab	5.50	1040
42PHI Cu, 3 qt (1-8)	50.0 ab	67.3 ab	67.3	1142 a-d	11.0	1113
42PHI Cu, 3 qt (2x/wk; 1-8)	39.0 abc	62.5 b	67.3	1055 bcd	14.5	955
Optiva, 0.5 lb (1-8); Kocide 3000, 1.75 lb (1-8)	28.0 cd	67.3 ab	67.3	1054 bcd	7.50	1015
Non-treated control	43.8 abc	62.5 b	76.8	1121 a-d	11.3	952
Actigard, 0.5 oz/100 gal (1-8)	18.5 d	50.0 c	62.5	837 e	8.50	1442
Water-treated control	50.0 ab	76.8 a	76.8	1275 a	11.8	1054
P > F	*0.0054*	*0.0470*	*0.4692*	*0.0084*	*0.7920*	*0.5822*

[z] Listed treatment rates are on a per acre basis unless noted otherwise.

[y] The severity of bacterial spot was assessed as the percentage of canopy affected. The Horsfall-Barratt scale was used for all ratings, but values were converted to mid-percentages prior to statistical analyses.

[x] Area under the disease progress curves (AUDPC) was calculated using the formula: $\Sigma([(x_i+x_{i-1})/2](t_i-t_{i-1}))$ where x_i is the rating at each evaluation time and (t_i-t_{i-1}) is the time between evaluations.

[w] Marketable yield is based on a hand harvest on 31 May and 14 Jun , assumes 4356 plants/A and 20 lb/box, and includes medium, large, and extra-large fruits.

[v] Values followed by the same letter are not statistically significant ($P = 0.05$) according to Fisher's LSD test.