TOMATO (*Lycopersicon esculentum*)
Bacterial specl; *Pseudomonas syringae pv. tomato*

G. E. Vallad and C. -H. Huang
Department of Plant Pathology
University of Florida, GCREC
Wimauma, FL 33598

Evaluation of bactericides, Agriphage and Actigard for the management of bacterial speck of tomato, fall 2011.

On 16 Sept 2011, plots were established at the University of Florida's Gulf Coast Research and Education Center in Balm, FL to assess the effect of copper-based bactericides, Agriphage, and Actigard on the control of bacterial speck of tomato. Plots consisted of single 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 cv. SecuriTY28 seedlings were transplanted at 18-in. spacing along beds skipping a 4 ft alley between plots as a buffer. Treatments were applied on 3 Nov, 15 Nov, 1 Dec, 9 Dec, 15 Dec, and 21 Dec (corresponding with applications 1 to 6 below) with a backpack CO_2 sprayer calibrated to deliver 90 (apps. 1,2,3), and 120 gal/A (apps. 4,5,6) at 40 psi. Twelve treatments, including a non-treated and water only control, were arranged in a randomized complete block design with each treatment repeated 6 times. The outer bed of each plot was inoculated 30 Nov with a suspension (10^7 cfu/ml) of *Pseudomonas syringae pv. tomato* using a backpack sprayer. Plots were monitored regularly for bacterial spot, and rated on 20 Dec and 27 Dec after disease reached appreciable levels. Marketable yield was not assessed.

On Dec 20, all treatments reduced bacterial speck severity relative to the non-treated and water-only controls with the exception of those treatments consisting of AgriPhage alone or AgriPhage applied twice a week with Actigard. By Dec 27, those Agriphage treatments applied twice weekly, all three treatments with Actigard, Kocide 3000 alone and Nordox 75W + Penncozeb statistically reduced bacterial speck severity relative to the two control treatments. All copper-based treatments were statistically equivalent on 20 Dec, but Nordox 75W + Penncozeb gave statistically superior control by 27 Dec. Of the four solo AgriPhage treatments, the 2 pt twice a week treatment was superior on 20Dec; while both biweekly applications were statistically superior to their equivalent once weekly rates. Overall, those treatments containing Actigard outperformed the other treatments; although efficacy was reduced when combined with AgriPhage.

		Disease Severity (% foliage)[x]:					
Trt	**Chemical, rate /A[z]**	**20-Dec**		**27-Dec**		**AUDPC[w]**	
1	Agriphage (once/wk), 1pt	30.7	a[y]	58.4	b	641	ab
2	Agriphage (twice/wk), 1pt	21.4	abc	45.8	cd	464	bcd
3	Agriphage (once/wk), 2pt	24.4	ab	54.2	bc	537	abc
4	Agriphage (twice/wk), 2pt	19.5	bcd	37.5	de	412	cde
5	Agriphage (once/wk), 1pt; Actigard (8 weekly apps), 0.75oz	11.8	def	21.4	fg	246	f
6	Agriphage (twice/wk), 1pt; Actigard (8 apps), 0.75oz	19.5	bcd	27.5	ef	379	cdef
7	Actigard (8 apps), 0.75oz	6.6	f	13.4	g	143	g
8	Kocide 3000, 1.75lbs	10.9	ef	45.8	cd	320	def
9	Kocide 3000, 1.75lbs; Penncozeb, 1lb	8.6	ef	54.2	bc	317	def
10	Nordox 75W, 3lb; Penncozeb, 1lb	13.4	cde	34.1	e	313	ef
11	Water Only Control	30.7	a	75.6	a	699	a
12	Non-treated Control	27.5	ab	57.8	b	552	ab
	P > F	*< 0.0001*		*< 0.0001*		*< 0.0001*	

[z] Listed treatment rates are on a per acre basis unless noted otherwise.
[y] Values followed by the same letter are not statistically significant ($P = 0.05$) according to Fisher's LSD test.
[x] The severity of bacterial speck 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.
[w] 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.