

Comparison of copper-based pesticide and biopesticide alternatives for controlling bacterial spot on bell peppers, fall 2012.

On 18 Sep 2012, plots were established at the University of Florida's Gulf Coast Research and Education Center in Balm, FL to assess the effect of several plant defense activators and bactericides on the control of bacterial spot of pepper. 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. Pepper seedlings (cv. Aristotle) were transplanted at 18-in spacing along beds skipping a 4-ft alley between plots as a buffer. Treatments, including a water-treated and a non-treated control, were arranged in a completely randomized design with each treatment repeated four times. The treatments were applied every 7 days for 6 weeks beginning 27 Sept. Foliar treatments were applied with a CO₂ back pack sprayer calibrated to deliver 60 and 90 gal/A (apps. 4-8) at 40 psi. Plots were inoculated on 28 Sep with a suspension (10⁶ cfu/ml) of races 4, 5, and 6 of *Xanthomonas euvesicatoria* using a backpack sprayer. Plots were monitored regularly for bacterial spot, and rated on 29 Oct, 5 Nov, and 13 Nov as disease developed. Marketable yield was assessed from a single hand harvests on 8 Nov. Heavy rains in September and early October kept the field saturated which delayed plant establishment and reduced yields; below average temperatures and low humidity in October through November inhibited disease development.

Treatment (application), rate/A	Bacterial Spot Severity (%):			
	29-Oct	5-Nov	13-Nov	AUDPC
Actigard (7 day), 0.25 oz.....	9.0	10.8	10.8	303
Actinovate (7 day), 6 oz.....	9.0	12.9	12.9	329
Actinovate (7 day), 6 oz; Actigard (7 day), 0.25 oz.....	7.6	9.0	10.8	266
Actinovate (7 day), 6 oz; Kocide 3000 (7 day), 1 lb.....	9.0	12.9	15.5	340
Serenade Max (7 day), 2 lb.....	9.0	15.5	15.5	357
Serenade Max (7 day), 2 lb; Kocide 3000 (7 day), 1 lb.....	10.8	12.9	15.5	375
Phyton (7 day), 35 floz/100 gal.....	10.8	12.9	12.9	363
Kocide 3000 (7 day), 1 lb.....	9.0	15.5	18.4	374
Kocide 3000 (7 day), 1 lb; Penncozeb (7 day), 1.25 lb.....	10.8	12.9	15.5	375
Water-treated control.....	10.8	15.5	22.1	425
42PhiCuMaxx (7 day), 1 pt.....	10.8	12.9	12.9	363
42PhiCuMaxx (7 day), 2 pt.....	7.6	10.8	12.9	285
42PhiCuMaxx (7 day), 4 pt.....	10.8	10.8	10.8	334
P =	0.5489	0.6952	0.3424	0.5071

Treatment (application), rate/A	Marketable Fruit		Diseased Fruit		Total Yield	
	No.	Weight (lbs)	No.	Weight (lbs)	No.	Weight (lbs)
Actigard (7 day), 0.25 oz.....	44.7	16.2	0.3	0.8	45.3	16.6
Actinovate (7 day), 6 oz.....	41.1	14.3	0.7	1.1	42.2	15.2
Actinovate (7 day), 6 oz; Actigard (7 day), 0.25 oz.....	47.1	16.4	0.6	1.3	48.3	17.1
Actinovate (7 day), 6 oz; Kocide 3000 (7 day), 1 lb.....	39.7	13.8	1.3	1.0	41.3	14.4
Serenade Max (7 day), 2 lb.....	46.2	15.2	2.4	1.7	49.7	16.9
Serenade Max (7 day), 2 lb; Kocide 3000 (7 day), 1 lb.....	37.6	12.9	0.8	1.0	38.7	13.7
Phyton (7 day), 35 floz/100 gal.....	34.6	13.0	1.3	1.4	36.5	14.2
Kocide 3000 (7 day), 1 lb.....	41.4	15.7	2.0	2.0	44.2	17.0
Kocide 3000 (7 day), 1 lb; Penncozeb (7 day), 1.25 lb.....	37.5	14.3	3.0	1.5	40.9	16.1
Water-treated control.....	40.0	14.4	1.1	0.8	41.4	15.1
42PhiCuMaxx (7 day), 1 pt.....	38.1	12.1	1.7	1.0	39.9	13.1
42PhiCuMaxx (7 day), 2 pt.....	41.4	14.2	3.4	1.6	45.0	15.9
42PhiCuMaxx (7 day), 4 pt.....	35.7	12.3	1.5	1.3	37.9	13.3
<i>P</i> =	0.6006	0.6117	0.5083	0.2391	0.6341	0.6304

