

Tomato (*Lycopersicon esculentum* 'FL 47')  
Bacterial spot; *Xanthomonas* spp.

P. D. Roberts, R.M. Muchovej & R.E. Systma  
Department of Plant Pathology  
University of Florida/IFAS  
SWFREC  
Immokalee, FL 34142

### **Evaluation of compounds for control of foliar diseases in tomato, fall 2007.**

Tomato seedlings were transplanted on 24 Sep into Immokalee fine sand at the Southwest Florida Research and Education Center, Immokalee, FL. Treatments were arranged in a randomized complete block design with four replications. Each plot consisted of fifteen plants spaced 18 in. apart within a 21 ft row with 10 ft between each plot and 6 ft between each row. Guidelines established by the University of Florida/IFAS were followed for land preparation, fertility, irrigation, weed management and insect control. Sprays were applied with a high clearance sprayer designed specifically for applications in staked tomato plots at 2 mph and at 200 psi. A double drop boom equipped with 6 nozzles delivered a spray volume of 66 gal/A. A suspension of the bacterial spot pathogens (*Xanthomonas euvesicatoria* race 1 and *Xanthomonas perforans* race 3 at  $1 \times 10^8$  CFU/ml) was inoculated onto plots on 17 Oct, 31 Oct and 13 Nov. at approximately 15 ml/plant using a hand pump sprayer. Disease ratings as disease severity (percentage symptomatic tissue) were estimated for bacterial spot at 7 to 14 day intervals. Disease severity ratings were subject to one-way ANOVA and AUDPC was calculated and subjected to GLM. Significant differences between means were separated using LSD. Average monthly high and low temperatures (°F) were 89 and 74 in Sep, 84 and 66 in Oct, and 78 and 52 in Nov. Rainfall totals for Sep, Oct, and Nov were 5.4, 2.9, and 0.4, respectively.

Despite repeated artificial inoculations, the disease refused to be aggressive in this trial. The untreated control plant disease levels were similar to most of the other plants treated for control of bacterial spot throughout most of the trial. Disease ratings taken prior to 18 Oct are not presented as most values were less than 1% and no differences among treatments were observed. Only the ratings taken on 21 Nov for all treatments were significantly reduced compare to untreated plants and although not among the treatments; but overall the level of bacterial spot was low. Readings were not continued into December as differences between plots remained indistinguishable nor did AUDPC values reflect significant differences among treatments.

Treatment/(Rate per A)	Application Dates <sup>z</sup>	Disease Severity <sup>y</sup>			AUDPC <sup>x</sup>
		18 Oct	10 Nov	21 Nov	
1 Untreated.....		8.8 <sup>v</sup>	10.0	15 a	357.5
2 Kocide 2000 (2 lb).....	1,2,3,4,5,6,7,8,9	5.5	4.1	5 d	165.7
Manzate Pro-Stick 75DG (2 lb)	1,2,3,4,5,6,7,8,9				
3 Experimental.....	1,2,3,4,5,6,7,8,9	4.0	5.8	8.8 bcd	196.8
4 Experimental.....	1,2,3,4,5,6,7,8,9	6.5	8.3	8.8 bcd	270.5
5 Experimental.....	1,2,3,4,5,6,7,8,9	4.0	5.1	10 bc	205.4
6 Experimental.....	1,2,3,4,5,6,7,8,9	5.5	7.8	7.5 bcd	242.9
7 Experimental.....	1,2,3,4,5,6,7,8,9	5.5	6.4	5 d	205.1
8 Experimental.....	1,2,3,4,5,6,7,8,9	2.0	6.9	6.5 bcd	180.1
9 Serenade Max (1 lb).....	1,2,3,4,5,6,7,8,9	1.8	9.0	6.7 bcd	222.2
Kocide 2000 (1.5 lb)	1,2,3,4,5,6,7,8,9				
10 Serenade Max (1 lb).....	1,2,3,4,5,6,7,8,9	6.0	6.3	6.7 bcd	163.5
Quint (1.5 lb)	1,2,3,4,5,6,7,8,9				
Surf 30 ml / lb	1,2,3,4,5,6,7,8,9				
11 QRD 146 (0.5 lb).....	1,2,3,4,5,6,7,8,9	1.3	6.1	8.8 bcd	170.3
12 Quint (2.2 lb).....	1,2,3,4,5,6,7,8,9	3.8	5.9	8.8 bcd	196
Surf 30 ml / lb	1,2,3,4,5,6,7,8,9				
13 Quint (1.1 lb).....	1,2,3,4,5,6,7,8,9	3.3	6.0	4.3 d	182.7
Surf (30 ml / lb)	1,2,3,4,5,6,7,8,9				
14 Kocide 2000 (1.5 lb).....	1,2,3,4,5,6,7,8,9	3.0	7.3	8.8 bcd	211
Serenade Max (0.5 lb)	1,2,3,4,5,6,7,8,9				
15 Kocide 2000 (1.5 lb).....	1,2,3,4,5,6,7,8,9	3.5	5.8	6.3 cd	177
QRD 146 (0.5 lb)	1,2,3,4,5,6,7,8,9				
16 Actinovate AG (5 oz).....	1,2,3,4,5,6,7,8,9	5.3	7.8	11.3 ab	262.7
17 Kasumin 2L (64 fl oz/100 gal).....	1,2,3,4,5,6,7,8,9	2.5	8.1	8.3 bcd	205.1
18 Kasumin 2L (64 fl oz/100 gal).....	1,2,3,4,5,6,7,8,9	1.3	8.9	5.8 cd	202
Kocide 2000 (2 lb)	1,2,3,4,5,6,7,8,9				
19 Kasumin 2L (64 fl oz/100 gal).....	1,2,3,4,5,6,7,8,9	2.0	6.6	8.8 bcd	188.1
Captan 50WP (3 lb)	1,2,3,4,5,6,7,8,9				
20 Actinovate AG (3 oz).....	1,3,5,7,9	2.8	4.5	6.3 cd	146.1
Kocide 2000 (2 lb)	2,4,6,8				
Manzate Pro-Stick 75DG (2 lb)	2,4,6,8				
21 Kocide 2000 (2 lb).....	2,4,6,8	5.0	4.8	8.3 bcd	190.4
Manzate Pro-Stick 75DG (2 lb)	2,4,6,8				
Kasumin 2L (64 fl oz/100 gal)	1,3,5,7,9				
Kocide 2000 (0.5 lb)	1,3,5,7,9				
22 Kasumin 2L (64 fl oz/100 gal).....	1,2,3,4,5,6,7,8,9	4.8	8.1	8.8 bcd	247.3
Transfix (6 fl oz/100 gal)	1,2,3,4,5,6,7,8,9				
23 Oxidate (1/400 dilution).....	1,2,3,4,5,6,7,8,9	2.0	6.8	8.3 bcd	185.4

	CAF 06 (0.4 oz/gal)	1,2,3,4,5,6,7,8,9				
	Kocide 3000 (1.75 lb)	1,2,3,4,5,6,7,8,9				
	Manzate Pro-Stick 75DG ( 2 lb)	1,2,3,4,5,6,7,8,9				
24	Oxidate (1/300 dilution).....	1,2,3,4,5,6,7,8,9	3.0	7.9	5.8 cd	205.5
	CAF 06 (0.4 oz/gal)	1,2,3,4,5,6,7,8,9				
	Kocide 3000 (1.5 lb)	1,2,3,4,5,6,7,8,9				
	Manzate Pro-Stick 75DG ( 1.5 lb)	1,2,3,4,5,6,7,8,9				
			<i>P</i> =	0.32	0.77	0.067
						0.41

<sup>z</sup> Application made on 1= 13 Oct: 2 = 20 Oct: 3 = 27 Oct: 4 = 3 Nov; 5=10 Nov; 6=17 Nov;7 = 24 Nov; 8 = 1 Dec; 9 = 8 Dec.

<sup>y</sup> Disease severity: estimate of percentage of leaf tissue exhibiting symptoms

<sup>x</sup> Area under the disease progress curve.

<sup>v</sup> Numbers in each column with the same letter or no letter are not significantly different according LSD at the P value in the table.