

Evaluation of Thyme Guard against Bacterial diseases of tomato. 2017

A trial was conducted in Phelps NY to evaluate Thyme Guard for efficacy against bacterial diseases on tomato.

Tomato transplants CV ‘New Yorker’ were planted on July 8, 2017. Plants were 2 ft apart in rows and rows were 8 ft apart. Four replicates of 10 plants were used in this study. Plants were tied up on a twine “trellis”. In this trial, there were duplicate plantings, which were about 25 ft apart from each other. One planting was for tomato Leaf spot (= *Xanthomonas campestris* pv *vesicatoria*), and the other trial was for Tomato Leaf Speck (= *Pseudomonas syringae*, PV tomato). After planting and trellising the plants, a misting system was set up so that the plants could be wetted at time of inoculation with each disease causing organism.

Applications of the treatments were made using a CO2 backpack sprayer that was calibrated to deliver 40 Gallons per acre. The sprayer operated at 42PSI and had 2 hollow cone nozzles (TeeJet TXVK 18). Applications were made on the following dates (along with weather info):

Sept 22, 2017 F = 81 RH = 80, Wind = NW 1, Cloud = 100%, Next rain = Sept 31, 0.12”

Sept 29 2017, F = 71, RH = 70, Wind = 1 W, Cloud = 50%, Next rain = Sept 31, 0.12”

Oct 5 2017, F = 72, RH = 90, Wind = 0, Cloud = 100%, Next rain = Oct 6, 0.14”

After 2 applications of Thyme Guard, each plot area was inoculated with a bacterial suspension of either *Xanthomonas campestris* pv *vesicatoria*, or *Pseudomonas syringae* PV tomato. Inoculum was obtained from the NYS Agricultural Experiment Station in the form of Petri dishes of each bacterium. Inoculations were planned on Sept 29, so that 2 day old cultures of bacteria were prepared for the inoculation. For inoculation the bacteria were removed from the petri dishes using “rubber policeman” and suspended into 500 ml of water. The inoculum was atomized onto plants using a one-quart hand pumped plant mister. Plants were wetted prior to inoculation using the misting system, then the misting system was operated for approximately one hour prior to darkness, at which time the plants remained moist overnight.

The percent leaf area of each bacterial disease was recorded on 5 plants within each replicate October 9. The percent leaf area with typical symptoms of each disease was estimated per plant, and the data represents severity. No other fungicides or insecticides were applied to the plants in this trial. Bacterial diseases were recorded only on the foliage, as Anthracnose lesions had developed on the fruit.

Data in the following table represents the data collected from this trial

				BACTERIAL SPECK	BACTERIAL SPOT		PHYTO	
				Pseudomonas infection on foliage	Xanthomonas infection on foliage		% Leaf area with atypical symptoms.	

				% leaf area		% leaf area			
				(SEVERITY)		(SEVERITY)			
Trt	Treatment		Rate						
No.	Name	Rate	Unit	Oct. 9, 2017		Oct. 9, 2017		Oct. 9, 2017	
1	Check			3.08	A	2.92	A	0	A
2	Thyme Guard	1	pt/a	0.17	B	1.42	B	0	A
3	Thyme Guard	2	qt/a	0	B	0.67	B	0	A
LSD P=.10				1.071		1.165			
Standard Deviation				0.78		0.848			

Means followed by same letter or symbol do not significantly differ (P=.10, Student-Newman-Keuls)

The data collected in this trial showed moderate levels of each bacterial disease. (Once at least 1% of the leaf area has black lesions, each disease becomes extremely noticeable by growers. In this trial, the Thyme Guard treatments had significantly less of each bacterial disease, compared to the non-treated Control. These data indicate that Thyme Guard has very good efficacy against each bacterial disease. While the rate of Thyme Guard did not appear to provide significant differences in control of each disease, there were numerical differences between the rates. The 2 quart rate of Thyme Guard provided increased numerical efficacy compared to the 1 pint rate.

There were no atypical symptoms on the foliage treated with Thyme Guard.

Weather data from a weather station 200 feet from the trial site are a separate Excel document.

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