

TOMATO (*Solanum lycopersicum*)
 Anthracnose; *Colletotrichum coccodes*
 Early blight; *Alternaria solani*
 Rhizoctonia fruit rot; *Rhizoctonia solani*

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Evaluation of fungicide programs for the control of fungal diseases of tomato, 2019.

The experiment was conducted at the Michigan State University Plant Pathology Research Farm located in Lansing, MI in a field of Capac Loam soil previously planted to tomato. The field was prepared by plowing and disking on 28 May and disking and fertilizing (Urea 46-0-0 100 lb/A) on 4 Jun. Plastic was laid on 6 Jun. Fields were fertilized weekly through drip tape using a 20-20-20 fertilizer at 5 lb/A. Plants were transplanted and spaced 18 in. apart on 18 Jun. Treatments were arranged in a randomized complete block design with four replicates each. Each treatment replicate consisted of 13 plants on a 20-ft plot with a 3-ft buffer between replicates within a row. Beds were spaced 8 ft apart. Six field treatments were applied on 15, 23, 30 Aug; and 9, 18, 26 Sep using a CO₂ backpack sprayer and a broadcast boom equipped with four XR8003 flat-fan nozzles, calibrated at 50 psi and delivering 50 gal/A. Foliar necrosis (%) due to early blight was evaluated on 6, 11, and 19 Sep. Fruit were harvested from the full 20-ft plot on 13, 27 Sep and 18 Oct and held five days before sorting and weighing for healthy and infected fruit. Weeds were managed through mechanical cultivation.

Foliar necrosis progressed from 20% (6 Sep) to 40% (19 Sep) in the untreated control plants. The treatment program of Bravo WeatherStik SC alternated with Quadris SC alternated with Miravis Prime SC resulted in significantly lower foliar necrosis on 6 and 11 Sep and significant yield of healthy tomato fruit compared to the untreated control. Significant disease differences among the treatments were not observed during the last rating date.

Treatment ^z and rate/A, application schedule, applied at approximately weekly intervals	Foliar necrosis (%) ^y				Yield of tomato fruit (lb)			
	6 Sep	11 Sep	19 Sep	AUDPC ^w	Total	Healthy	% of total	
							Anthracnose	Rhizoctonia rot
Untreated control	20.0 b ^x	20.0 b	40.0	340.0	43.8	13.2 a	30.6	34.5
Bravo WeatherStik SC 2 pt, apps A,D -alt- Quadris SC 6.2 fl oz, apps B,E -alt- Miravis Prime SC 11.4 fl oz, apps C,F	7.8 a	9.0 a	23.8	173.2	104.5	41.5 b	23.4	35
Bravo WeatherStik SC 2 pt, apps A,D -alt- Quadris SC 6.2 fl oz, apps B,E -alt- Luna Tranquility SC 11.2 fl oz, apps C,F	11.0 ab	14.3 ab	30.0	240.5	80.9	30.9 ab	36.3	22.7
Bravo WeatherStik SC 2 pt, apps A,C,E -alt- Koverall DG 3 lb, apps B,D,F	16.5 ab	16.5 ab	30.0	268.5	61.8	19.0 ab	40.0	25.9
Bravo WeatherStik SC 2 pt, apps A,D -alt- Cabrio EG 12 oz, apps B,E -alt- Quadris SC 6.2 fl oz, apps C,F	11.5 ab	11.5 ab	32.5	233.5	88.9	31.5 ab	37.3	24.3
Zing! SC 36 fl oz, apps A-F	12.5 ab	16.3 ab	31.3	262.4	70.3	21.9 ab	32.7	33.3
Bravo WeatherStik SC 2 pt, apps A,D -alt- Quadris SC 6.2 fl oz, apps B,E -alt- Fontelis SC 24 fl oz, apps C,F	15.0 ab	17.5 ab	36.3	296.5	69.4	24.4 ab	37.5	24.6
Bravo WeatherStik SC 2 pt, apps A,C,E -alt- Quadris SC 6.2 fl oz, apps B,D,F	11.5 ab	13.3 ab	28.8	230.4	75.7	25.8 ab	41.0	21.5

^zapps = applications. -alt- = alternate.

^yBased on a visual estimation of the percentage of foliage infected.

^xColumn means with a letter in common or no letter are not significantly different. Data were analyzed using SAS PROC GLM and statistical differences were compared using the Fisher's Protected Least Significant Differences test (P=0.05).

^wArea under the disease progress curve.