TOMATO (*Lycopersicon esculentum* 'OH 9242')
Bacterial spot; *Xanthomonas euvesicatoria*
Anthracnose; *Colletotrichum coccodes*

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Evaluation of fungicides and bactericides for the control of foliar and fruit diseases of processing tomatoes, 2007.

The experiment was conducted at the Ohio Agricultural Research and Development Center, Snyder Farm in Wooster, OH on Wooster silt loam. Prior to planting, 300 lb/A 19-19-19 (N-P-K) plus in additional 60 lb of nitrogen were broadcast, top dressed and incorporated into the test field on 10 Jun. 'OH 9242' tomato seeds were hot water-treated (10 min pre-soak at 100ºF, then treatment for 25 min at 122ºF) and sown on 24 Apr into 288-cell plug trays containing Fafard seedling mix. The herbicide Tillam 6E (4 qt/A) was applied on 6 Jun. Tomato seedlings were transplanted on 11 Jun; starter fertilizer (N-P-K 9-45-15; 1.65 lb/55 gal water) was applied to the transplants. Plots were arranged in randomized complete block design with four replications. Each plot consisted of 20 plants spaced 1 ft apart with 5 ft between rows. Treated rows were alternated with untreated border rows. Warrior with Zeon Technology (2.8 fl oz/A) was applied on 19 Jun and 9 Jul for insect pest management. Treatments were applied using a tractor-mounted CO_2-pressurized sprayer (40 psi, 69 gal/A, 3 mph) on a 7 day schedule beginning 10 Jul and ending 5 Sep. Plants were inoculated with approximately 10^{10} CFU/fl oz (1.2×10^9 CFU/ml) *Xanthomonas euvesicatoria* strains 110c and 767 (copper sensitive), in the evening of 12 Jul using a CO_2-pressurized backpack sprayer (40 psi, 69 gal/A). Bravo Ultrex (1 lb/A) was applied in alternation with Quadris 23F (5 fl oz/A) as a cover spray on 8 and 24 Aug and 6 and 21 Sep; 15 and 30 Aug and 13 Sep, respectively to control fungal foliar diseases. Plants were overhead irrigated with 1.0 in. water on 12, 21, and 25 Jun, 2, 9, 12, 13, Jul, and 21 Aug. The field was cultivated, hand weeded and hoed on 10 Aug. Severity of bacterial leaf spot on foliage was evaluated on 6, 13, 21, and 29 Aug and 5 Sep using a scale of 0-100 percent foliage affected. Fruits were harvested from the middle five plants of each treatment row on 17 Sep and weights of marketable fruit, fruit with anthracnose, bacterial spot, "other" rots (minor fungal and oomycete fruit rots) and blossom end rot, and fruit damaged by insects were determined. Average maximum temperatures for 11-30 Jun, Jul, Aug and 1-17 Sep were 82.3, 83.5, 83.7, and 78.5ºF; average minimum temperatures were 56.0, 58.5, 62.8, and 53.7ºF; and rainfall amounts were 0.45, 2.40, 10.03, and 1.71 in., respectively. Data were analyzed by ANOVA using SAS statistical software. Means were separated using Fisher's protected least significant difference test.

Bacterial spot disease pressure was low to moderate and there were no significant differences among treatments or between treatments and the untreated control in the percent foliar bacterial spot, the yield of fruit with bacterial spot or anthracnose or marketable yield, There were no differences among treatments or between treatments and the untreated control in the yield of fruit with other rots, blossom end rot or insect damage (data not shown).

Treatment and rate (application timing[z])	Bacterial spot			Anthracnose (ton/A)	Marketable yield (ton/A)
	% foliar disease[y] (5 Sep)	AUDPC foliar[yx]	Ripe fruit (ton/A)		
Kasumin 1 qt/50 gal H_2O + Kocide 2000 2 lb/A + Activator 90 0.25% v/v (1-9)	13.1 a[w]	205.0 a	6.3 a	1.3 a	16.3 a
Kasumin 1 qt/50 gal H_2O + Activator 90 0.25% v/v (1-9)	15.6 a	267.5 a	5.4 a	1.0 a	15.5 a
Kocide 2000 2 lb/A + Manex 1.6 qt/A (1-9)	12.5 a	209.4 a	5.0 a	1.5 a	19.9 a
Untreated control	21.9 a	375.7 a	6.5 a	1.3 a	15.5 a
P value	0.4420	0.2351	0.8904	0.7908	0.5442

[z]Application dates were: 1= 10 Jul; 2= 17 Jul; 3= 25 Jul; 4= 1 Aug; 5= 8 Aug; 6= 16 Aug; 7= 22 Aug, 8= 29 Aug, 9= 5 Sep.
[y]Disease ratings and area under the disease progress curves (AUDPC) were based on the percent foliar disease.
[x]Area under the disease progress curve calculated according to the formula: $\sum([(x_i+x_{i-1})/2](t_i-t_{i-1}))$ where x_i is the rating at each evaluation time and (t_i-t_{i-1}) is the time between evaluations.
[w]Values are the means of four replicate plots; treatments followed by the same letter within a column are not significantly different at $P \leq 0.05$. Means were separated using Fisher's protected least significant difference test.