TOMATO (*Lycopersicon esculentum* 'Mt Fresh')
Powdery mildew; *Oidium lycopersicum*
Septoria leaf spot; *Septoria lycopersici*

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Evaluation of BASF experimental fungicides for powdery mildew in tomato, 2010.

The experiment was conducted at the Long Island Horticultural Research and Extension Center in Riverhead, NY, in a field of Haven loam soil. Fertilizer (N-P-K 10-10-10) at 1000 lb/A was broadcast and incorporated on 10 May. Black plastic mulch and drip tape were laid on 11-13 May. Seeds were sown on 6 May in the greenhouse. Seedlings were transplanted on 14 Jun using a waterwheel transplanter that applied liquid starter fertilizer. Plots consisted of 10 plants in a single row with 24-in plant spacing and 68-in row spacing. There was 8-ft spacing between plots in a row. The experiment was arranged in two blocks separated by a central driveway. Each block had two rows with plots separated by a separator/spreader row. Plants were staked and trellised following standard procedure for fresh-market tomato production. Warrior (3 fl oz/A) was applied regularly to control worm pests. Examining impact of treatment on yield was not an experiment objective; therefore, fruit were periodically removed and discarded in an effort to delay senescence and promote leaf development. Treatment applications were made using a CO_2-pressurized backpack sprayer with a boom that has a single twin-jet 110-degree nozzle (TJ-60 11003) that delivered 38 gpa at 44 psi. Each side of the planted row was treated with the boom held sideways to obtain thorough coverage of foliage mimicking a drop nozzle on a tractor sprayer. A preventive 7-day application schedule was used. Applications were made on 31 Aug; and 7, 13, 22 and 28 Sep. Leaves were examined routinely for symptoms of powdery mildew and other diseases. Symptoms had not started to develop naturally in this experiment when found in other research and commercial plantings, therefore leaves with powdery mildew from commercial fields were placed in the canopy of the spreader plants several times beginning on 26 Sep. Proportion of leaflets with symptoms of powdery mildew and with symptoms of Septoria leaf spot were recorded. Average monthly high and low temperatures (^oF) were 81/64 in Jun, 87/70 in Jul, 83/67 in Aug, 77/62 in Sep, and 66/50 in Oct. Rainfall (in.) was 1.63, 3.46, 2.02, 2.87, and 3.32 for these months, respectively.

Powdery mildew was first observed in this experiment on 22 Sep, which was late in the production season for the region. Symptoms were found in 3 non-treated control plots and only 1 treatment plot then. All treatments provided excellent control. On 7 Oct, powdery mildew was found at a moderately severe level (up to 85% of leaflets affected) in all non-treated plots while symptoms were only found in 3 treatment plots. No significant differences in incidence of Septoria leaf spot were detected among treatments; however, occurrence of this disease in non-treated plots may have been limited due to leaf tissue already being affected by powdery mildew.

	Powdery mildew incidence (%)						Septoria leaf spot incidence (%)	
Treatment	22-Sep		7-Oct		18-Oct		7-Oct	18-Oct
BAS 560 F 10.24 fl oz/A [y]	0.00	b	0.25	b	0.00	b	10.0	4.0
BAS 560 F 15.36 fl oz/A [y]	0.00	b	0.00	b	0.00	b	6.8	4.8
BAS 9150 F 7.0 fl oz/A [y]	0.00	b	0.50	b	0.00	b	4.8	11.5
BAS 9150 F 2.74 fl oz/A [y]	0.00	b	0.00	b	0.00	b	25.5	17.5
BAS 639 F 4.08 fl oz/A	0.00	b	0.00	b	0.00	b	17.0	11.3
BAS 639 F 4.08 fl oz/A [y]	0.00	b	0.00	b	0.00	b	3.3	7.5
BAS 639 F 5.7 fl oz/A [y]	0.00	b	0.00	b	0.00	b	16.8	5.3
BAS 639 F 9.14 fl oz/A [y]	0.00	b	0.00	b	0.00	b	2.8	23.5
Quadris Opti 1.6 pt/A [y]	0.50	b	0.00	b	7.50	b	19.0	7.8
Non-treated Control	31.25	a	62.50	a	93.25	a	8.8	12.5
P-value (treatment)	0.0039		<.0001		<.0001		0.3881	0.2189

[z] Incidence of leaflets with symptoms.

[y] Treatments were applied with Sylgard 309 at 0.125% V/V.

[x] Numbers in each column followed by the same letter are not significantly different from each other according to Tukey's HSD (*P*=0.05).