

EVALUATION OF FUNGICIDES FOR POWDERY MILDEW IN STAKED TOMATOES, 2000: An experiment was conducted at the Long Island Horticultural Research and Extension Center in Riverhead, NY, in a field of Haven loam soil. Fertilizer (1000 lb/A of 10-10-10) was broadcast and incorporated on 5 Jun. Six-wk-old seedlings were transplanted at 24-in. plant spacing on 19 Jun into five 300-ft rows on raised beds with black plastic mulch. Plants were watered using drip irrigation as needed based on irrometer readings (on 7 Jul, 21 Jul, 29 Aug and 11 Sep). The outer and center rows were left unstaked as guard rows and the remaining 2 rows were staked. Staked rows were divided into 20-ft plots of 10 plants each for 28 plots total, in a blocked design with 7 treatments and 4 replications. Weeds were controlled with Gramoxone (4 pt/A) applied on 7 Jul and with hand-weeding. Average monthly high and low temperatures (F) were, 81/61 in June, 81/64 in Jul, 81/65 in Aug, and 76/59 in Sep. Rainfall (in.) was 4.24, 4.70, 2.42, and 3.92 for these months, respectively. Treatments were applied starting on 24 Aug. Flint 50WG, Flint plus Actigard 50WG, A12325 (Flint plus Actigard Prepack), Quadris F (with 6 fl oz/A Nu Film P), BAS 500 20WG (0.75 lb/A or 1.0 lb/A) were applied to foliage biweekly on 24 Aug, 7 Sep and 20 Sep using a CO₂-pressurized backpack sprayer that delivered 50 gpa at 55 psi and was equipped with three TJ110-8003 nozzles per row with one nozzle over the row and one drop nozzle on each side. Each treatment was alternated with Bravo Ultrex (1.5 lb/A on 31 Aug and 2.75 lb/A on 14 Sep and 29 Sep). Data were collected from the middle 8 of 10 plants in each plot. Severity of powdery mildew was recorded weekly from 4 Sep to 5 Oct as percent of green leaf tissue with symptoms (one leaf/plant at a given height rated). Leaf death (% defoliation) was also recorded. Ripe fruit were harvested weekly 12 Sep through 17 Oct.. Fruit were categorized by size into five groups, then counted. Fruit were considered culls when their diameter was less than 2 inches or they had developed rot.

Powdery mildew developed naturally. Symptoms were first observed on 1 Aug in a spreader row and incidence on staked plants was low and fairly uniform on 4 Sep and 11 Sep. From 18 Sep on, disease was significantly more severe on untreated plots than on treated plots. Significant defoliation was observed in nontreated plots beginning Sep 29. BAS 500 at the lower rate was somewhat less effective than other treatments. Many of the fruit from nontreated plots were of poor quality (yellowish red color, some sunburning); this was not quantified. Data in the table are for the last two harvest dates (4 and 17 Oct) when powdery mildew significantly affected yield. Total number reported includes small and cull fruit. Plants treated with Flint or BAS 500 at the higher rate had statistically more fruit than those in untreated controls.

Treatment*	Powdery mildew (%)**									Ripe fruit/plant (#)**										
	Upper leaf surface			Lower leaf surface			Defoliation		Large Fruit	Total Fruit										
	18 Sep	29 Sep	5 Oct	18 Sep	29 Sep	5 Oct	29 Sep	5 Oct	(>3 in)											
Nontreated control.....	13.80	a	31.10	a	42.10	a	13.90	a	26.40	a	22.00	a	30.5	a	24.0	a	1.62	a	3.53	a
Flint (2.5 oz/A)	0.23	bc	0.50	b	0.20	b	0.38	c	0.07	bc	0.01	b	1.0	b	3.0	bc	5.67	d	8.32	c
Flint(2.5 oz/A) Actigard (1 oz/A).....	0.55	bc	1.17	b	0.39	b	1.19	bc	0.09	bc	0.05	b	2.5	b	5.5	b	3.91	bc	5.50	ab
Flint + Actigard Prepack (2.66 oz/A).....	0.26	c	0.26	b	0.16	b	0.18	c	0.33	bc	0.01	b	2.0	b	3.0	bc	4.22	bcd	6.84	bc
Quadris (6.2 fl oz/A)	0.30	bc	1.19	b	0.29	b	0.93	bc	0.11	c	0.01	b	3.2	b	2.0	c	3.47	bc	5.00	ab
BAS 500 (0.75 lb/A)	2.28	b	3.50	b	1.70	b	3.40	b	2.06	b	0.21	b	4.2	b	4.0	b	3.06	ab	5.31	ab
BAS 500 (1.0 lb/A)	1.03	bc	0.60	b	0.33	b	0.60	bc	0.49	bc	0.18	b	1.5	b	3.0	bc	4.69	cd	6.09	bc
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P-value	0.004		0.0001		0.001		0.005		0.005		0.004		0.012		0.004		0.012		0.004	
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*Treatments were applied in alternation with Bravo Ultrex at 1.5 lb/A (31 Aug), at 2.75 lb/A (14 Sep and 29 Sep).

**Numbers in a column with a letter in common are not significantly different according to Fisher's Protected LSD (P=0.05).