

Evaluation of fungicides for control of *Leveillula* powdery mildew on fresh market tomato, 2018. Brenna Aegerter, UCCE San Joaquin County

This study was conducted in a commercial fresh market tomato field (cv. 'Valleycat') located SE of Stockton, CA. The site is located off of S. Austin Rd.; GPS coordinates are 37.9027, -121.1789, and the soil type is Jacktane clay. The closest CIMIS weather station is #70 Manteca. The field was transplanted July 6th and was furrow-irrigated. Each plot consisted of a single plant row per bed with 20-inch spacing within the row and 60-inch spacing between rows; plots measured 35 feet long. The experimental design was a randomized complete block design with four replications. The trial area was managed by the grower similarly to the rest of the field except that no sulfur or mildew fungicides were applied to the test area. Experimental fungicide applications were initiated early in the progression of the disease, however there were symptoms present on a few leaves per plot when applications began. The first application was on August 21st, the second application following 13 days later on September 3rd, and the third application following 10 days later on September 13th. All fungicides were applied in a water volume equivalent to 25 GPA (treatment timing A) or 45 GPA (treatment timings B and C). Applications were made with a CO₂ backpack sprayer (operating at 34 psi at the boom) and a handheld boom with four nozzles (hollow cone TXVS-18 nozzles), two of which were on drops. A non-ionic surfactant was added to all treatments (0.25% Latron B-1956). No phytotoxicity symptoms were observed on foliage or fruit. Plots were rated for the percentage of the foliage that was affected by powdery mildew (exhibiting mildew symptoms, sporulation or mildew-induced necrosis). Disease pressure was low during the first few weeks of the trial, but by the last two weeks the pressure ramped up fairly quickly, reaching an average of 61% of the foliage affected in the non-treated plots. Most products performed well, limiting the damage to 10% or less of the foliage affected. On October 1st, five feet of row from each plot were hand-harvested and sorted for defects (sunburn and other culls). Fruit yield and cull rates were statistically similar between treatments. Our great appreciation is extended to Mike Carr (Pacific Triple E), PCA Bill Vignolo (Simplot), and the grower/landowner for their generous cooperation

Table 1. Impact of fungicide programs on powdery mildew severity, fruit yield and quality.

Product(s), rates and timings*	Active ingredient(s)	Powdery mildew severity (%)						Fruit biomass (tons/acre)	Market yield (boxes/acre)	Sunburn (% fruit by weight)	Rots
		14-Sep		25-Sep		1-Oct					
Fontelis 24 fl oz + Rally 4 oz (AC) alt. Torino 3.4 fl oz (B)	6 oz penthiopyrad + 1.6 oz myclobutanil alt. 0.36 oz fenazaquin	2.5	d	2.5	g	2.5	f	36.7 a	2,466 a	15.5 a	1.0 a
Rally 4 oz (ABC)	1.6 oz myclobutanil	2.5	d	2.5	g	2.5	f	35.2 a	2,355 a	15.6 a	0.8 a
Rhyme 7 fl oz (ABC)	1.8 oz flutriafol	2.5	d	2.5	g	2.5	f	41.3 a	2,870 a	11.9 a	0.9 a
Rhyme 7 fl oz (AC) alt. Priaxor 8 fl oz (B)	1.8 oz flutriafol alt. 1.4 oz fluxapyroxad + 2.8 oz pyraclostrobin	2.5	d	2.5	g	2.5	f	43.6 a	2,766 a	17.6 a	2.8 a
Torino 3.4 fl oz (AC) alt. Quadris Top 8 fl oz (B)	0.36 oz cyflufenamid alt. 1.67 oz azoxystrobin + 1.05 oz difenoconazole	2.5	d	2.5	g	2.5	f	41.2 a	2,618 a	18.5 a	1.7 a
Quadris Top 8 fl oz (AC) alt. Rally 4 oz (B)	1.67 oz azoxystrobin + 1.05 oz difenoconazole alt. 1.6 oz myclobutanil	2.5	d	2.5	g	4.4	f	42.4 a	2,876 a	11.8 a	2.5 a
Luna Sensation 7.6 fl oz (ABC)	2 oz fluopyram + 2 oz trifloxystrobin	2.5	d	2.6	g	4.4	f	43.4 a	3,118 a	9.5 a	0.8 a
Priaxor 8 fl oz + Serifel 4 oz (ABC)	1.4 oz fluxapyroxad + 2.8 oz pyraclostrobin + 0.4 oz <i>Bacillus amyloliquefaciens</i> strain MBI600	2.5	d	4.4	fg	4.4	f	42.2 a	2,997 a	11.1 a	0.3 a
Priaxor 8 fl oz (ABC)	1.4 oz fluxapyroxad + 2.8 oz pyraclostrobin	2.5	d	4.4	fg	4.4	f	42.8 a	3,003 a	11.6 a	1.1 a
Torino 3.4 fl oz (AC) alt. Rally 4 oz (B)	0.36 oz cyflufenamid alt. 1.6 oz myclobutanil	2.5	d	2.5	g	6.3	ef	44.2 a	2,996 a	13.3 a	2.1 a
Priaxor 8 fl oz (AC) alt. Rally 4 oz (B)	1.4 oz fluxapyroxad + 2.8 oz pyraclostrobin alt. 1.6 oz myclobutanil	2.5	d	4.4	fg	6.3	ef	39.3 a	2,683 a	13.5 a	1.4 a
Quadris Top 8 fl oz (AC) alt. Torino 3.4 fl oz (B)	1.67 oz azoxystrobin + 1.05 oz difenoconazole alt. 0.36 oz cyflufenamid	4.4	cd	4.4	fg	6.3	ef	41.4 a	2,779 a	15.2 a	1.1 a
Fontelis 24 fl oz + Rally 4 oz (AC) alt. Vivando 15.4 fl oz (B)	6 oz penthiopyrad + 1.6 oz myclobutanil alt. 4.8 oz metrafenone	2.5	d	6.3	efg	8.1	ef	45.0 a	3,037 a	15.6 a	0.8 a
Fontelis 24 fl oz (AC) alt. Priaxor 8 oz (B)	6 oz pethiopyrad alt. 1.4 oz fluxapyroxad + 2.8 oz pyraclostrobin	4.5	cd	8.1	defg	9.0	ef	42.5 a	3,015 a	9.4 a	2.0 a
Quadris Top 8 fl oz (ABC)	1.67 oz azoxystrobin + 1.05 oz difenoconazole	2.5	d	6.3	efg	10.0	def	38.7 a	2,580 a	15.7 a	0.9 a
Vivando 15.4 fl oz (ABC)	4.8 oz metrafenone	2.5	d	8.1	defg	10.0	def	39.9 a	2,811 a	9.5 a	2.4 a
Aprovia Top 13.4 fl oz (ABC)	1.6 oz difenoconazole + 1.09 oz benzovindiflupyr	6.3	bc	10.9	cdef	17.1	cde	38.2 a	2,658 a	11.4 a	2.1 a
Fontelis 24 fl oz (ABC)	6 oz pethiopyrad	4.4	cd	12.8	cde	21.8	bcd	41.9 a	2,810 a	14.2 a	1.9 a
Miravis Prime 11.4 fl oz (ABC)	1.78 oz pydiflumetofen + 3 oz fludioxonil	6.3	bc	15.5	c	31.5	b	41.6 a	2,916 a	10.5 a	2.0 a
Magister 24 fl oz (ABC)	4.8 oz fenazaquin	8.1	b	28.0	b	32.8	b	38.6 a	2,778 a	9.9 a	0.9 a
non-treated control	---	12.8	a	42.5	a	61.0	a	44.7 a	2,892 a	16.8 a	2.2 a
	Mean	4.0		8.7		12.4		41.1	2,804	13.2	1.5
	LSD	3.43		7.08		11.80		NS	NS	NS	NS
	CV (%)	60.73		57.87		67.11		14.79	17.13	46.80	92.17

* 1st application (A) on August 21st, 2nd application (B) on September 3rd, and 3rd application (C) on September 13th.

Values represent the means of four observations; means in the same column followed by the same letter are not statistically different, according to Fisher's protected least significant difference test ($P = 0.05$).