Tomato (*Solanum lycopersicum*)
Powdery mildew; *Leveillula taurica*

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Response of processing tomato varieties to powdery mildew, 2009

The study was conducted at the University of California West Side Research and Extension Center. On 22 May. The field was sprinkler irrigated for 10 days and irrigated with buried drip. Each plot consisted of one 66-in. bed 13 ft long. The experimental design was a randomized complete block with four replications. Powdery mildew was first documented in this field on 20 July at which time less than 1% of leaves had sporulation. On 3 and 28 Aug, powdery mildew severity was rated on each of ten leaves per plot using a scale of 0 to 10 based on percentage of the leaf with powdery mildew signs or symptoms. Leaves rated 0 had no visible powdery mildew; leaves rated 10 were covered. On 20 Aug and 1Sep, the leaf death severity due to powdery mildew was estimated in each plot. Arcsine transformed data was subjected to analysis of variance. Student-Newman-Keul's Multiple Range Test on arcsine-transformed data ($P \leq 0.05$) was used for mean separation. Non-transformed means are presented as a percentage of the leaf surface covered with powdery mildew symptoms for foliar ratings and the necrosis rating is presented to reflect leaf death severity.

Disease severity was extremely high and no fungicides were applied. By mid-Aug, all varieties were showing symptoms of the disease that were beyond the level that would be commercially acceptable. However, differences in susceptibility to this disease were apparent. Among the entries that were among those with the lowest disease severity on 28 Aug were the following: H 9780, HMX 7885, CXD 255, H 4007, PX 650, H 8504, HMX 7883, HMX 6903 and PX 002.

Entries[z]	Leaf surface with evidence of powdery mildew (%)[y]		Necrosis rating[x]	
	3 Aug	28 Aug	20 Aug	1 Sep
H 9780 (STD)[w]	4.0 abc[v]	31.0 e	3.1 abcd	3.3 abc
HMX 7885	4.0 abc	31.0 e	1.8 d	2.5 c
CXD 255	4.0 bc	41.0 de	1.5 d	3.0 abc
H 4007	6.0 abc	42.0 de	3.3 abcd	4.0 abc
PX 650	7.0 abc	45.0 cde	2.3 bcd	4.0 abc
H 8504	6.0 abc	45.0 cde	3.3 abcd	4.0 abc
HMX 7883	5.0 abc	49.0 bcde	3.0 abcd	4.3 abc
HMX 6903	2.0 c	50.0 bcde	2.0 cd	3.3 abc
PX 002	5.0 abc	52.0 bcde	2.8 bcd	3.3 abc
HM 6898	6.0 abc	62.0 abcd	4.0 abcd	6.5 a
AB 2 (STD)	11.0 a	68.0 abcd	3.3 abcd	5.0 abc
N 6390	5.0 abc	69.0 abc	3.3 abcd	3.5 abc
H 8004 (STD)	10.0 ab	73.0 ab	4.8 ab	5.8 ab
H 2601 (STD)	6.0 abc	75.0 ab	4.0 abcd	4.5 abc
SUN 6366 (STD)	9.0 ab	78.0 ab	5.8 a	6.3 ab
SUN 6368 (STD)	7.0 abc	88.0 a	4.5 abc	6.0 ab

[z] All entries were hand transplanted on 22 May.

[y] On 3, 19 and 28 Aug, powdery mildew severity was rated on each of ten leaves per plot using a scale of 0 to 10. Means are presented as a percentage the leaf affected.

[x] On 20 Aug and 1 Sep, the severity of necrosis due ot powdery mildew was rated on a scale of 0 to 10; 0 was unaffected and 10 was totally necrotic.

[W] ("(STD)" appears next to the entries that are current mid-season commercial standards in California processing tomato production areas.

[v] Means within a column followed by the same letter did not differ significantly according to Student-Newman-Keul's Multiple Range Test on arcsine transformed data P=0.05.