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Report of a deviating mildew strain
June 24, 2009

An isolate of the spinach downy mildew pathogen was recovered from spinach in May of 2009 from the Salinas Valley and designated UA2209. The isolate was recovered from the cultivar Mississippi and amplified on the cultivar Lazio.

The isolate was examined on a set of differentials and on a wide range of contemporary spinach germplasm. Based on disease reactions on a set of differential lines, the isolate was distinct from those previously reported. The isolate also was able to infect many of the newer cultivars that have reported resistance to races 1-11 (see **Table 1** below). However, it appears that lines or hybrids that have the *Pfs-3* resistance locus (Califlay type resistance to race 1,3,5,8,9, and 11) are resistant to strain UA2209. More work is underway to examine a wider set of germplasm to this deviating strain. A second strain, that gave the same disease reactions on the international set of differentials as UA2209, also has been identified.

The work reported was supported by the California Leafy Greens Research Board and the California Spinach Research Committee.

Table 1. Disease responses of spinach germplasm to downy mildew race 11 and a novel strain (UA2209 - recovered from the cv. Mississippi) in May/June 2009.

Entry	Cultivar	Race 11	UA2209	Entry	Cultivar	Race 11	UA2209
12	Amazon	-	+	83	Grandi	+	+
13	Carmel	-	+	84	Marabu	+	+
14	Hunter	-	+	85	Missouri	-	+
15	Misano	+	+	86	Ohio	+	+
16	Mississippi	-	+	87	Ottowa	+	+
17	Missouri	-	+	88	Pelican	+	+
18	Tasman	-*	-*	89	Pol. Bear	+	+
19	Thames	-*	-*	90	Slv. Whale	-	-
20	Waitiki	-	-	91	Squirrel	-	+
23	El Patriot	-	-	92	Whale	-	-
24	Tbird	-	+	93	Yabi	+	+
25	Corvette	-*	+	107	Indurain	-	-
27	Cook	-	+	111	Amazon	-	+
28	Bahamas	-	+	112	Missouri	-	+
29	Tonga	-	+	113	Mississippi	-	+
30	Wallis	-	+	123	Fallgreen	+	+
31	Squirrel	-	+	124	97-154	+	+
54	Bahamas	-	+	125	04-103	+	+
55	Bonbini	+	+	126	03-316	+	+
56	Corfu	+	+	127	91-227	+	+
57	Emu	+	+	128	88-310	+	+
58	El Forte	+	+	129	88-212	+	+
59	El Grinta	+	+	130	88-130	+	+
64	Grandi	+	+	131	Viroflay	+	+
65	Ibiza	+	+	132	Resistoflay	+	+
66	Marabu	+	+	133	Califlay	-*	-
67	Squirrel	-	+	134	Clermont	+	+
68	Swan	-	+	135	Campania	-*	+
69	Tonga	-	+	136	Boeing	-	+
70	Yabi	+	+	137	Lion	-	-
71	Flamingo	-	-	138	Lazio	+	+
72	Amazon	-	+	139	Whale	-	-
74	Bonbini	+	+	141	Rebris	-	+
75	Corfu	+	+	142	Resistoflay	+	+
76	Dolphin	-	+	143	Califlay	-	-
77	Eagle	-	+	144	Bolero	+	+
78	Ebro	+	+	145	Campania	-	+
79	El Forte	+	+	146	Avenger	-	+
80	Emilia	+	+	147	Lion	-	-
81	Emu	+	+	148	Lazio	+	+
82	Giraffe	-	+	149	Dolphin	-	+
				150	Polka	-	-

“+” = susceptible response.

“-” = resistance response.

“-*” = susceptible plants observed in resistant lines.

Note that the reactions do not include or imply disease reactions to races 1 through 10.