

Table 18. 2013 Race 4 Fusarium wilt infested field evaluation of RBTN entries in Tulare county near Tipton<sup>1</sup>, CA., conducted by Univ. of California and USDA/ARS (Hutmacher, et al). Site is a naturally infested field where presence of the race 4 fusarium pathogen had been confirmed in prior pathology studies. Averages and standard deviations ( $\sigma$ ) are shown.

Cultivar	Number of Plants Evaluated	Foliar Disease Severity Index <sup>†</sup>		Vascular Root Staining <sup>‡</sup>		Number of Main Stem Nodes			Plant Height		Plant Percent Survival <sup>§</sup>	$\sigma$
	#	0-5	$\sigma$	0-5	$\sigma$	$\sigma$	cm	$\sigma$	PS	$\sigma$		
0504-4	15	0.53	0.76	1.33	0.76	15.9	1.5	29.1	4.9	50.5	7.2	
0502-37	15	0.27	0.46	1.33	0.70	17.2	2.3	27.6	5.4	66.7	8.7	
0517-54	15	0.67	0.83	1.80	0.69	15.1	1.1	28.0	5.3	76.2	10.0	
0506-47	15	0.13	0.23	1.93	1.03	15.9	1.2	30.2	4.9	79.0	15.7	
PD 05064	15	0.60	1.04	1.73	0.42	14.5	1.1	24.3	4.2	67.6	15.7	
PD 06078	15	0.47	0.12	1.93	0.90	14.9	2.5	21.9	4.9	61.9	6.0	
PD05069	15	0.73	0.76	1.40	0.72	15.5	1.5	25.0	3.2	72.6	2.9	
PD07092	15	0.60	0.53	1.80	1.20	16.2	1.6	25.6	3.8	60.0	12.5	
GA 2009100	15	0.53	0.61	1.73	0.81	15.5	0.8	25.0	3.0	50.5	3.3	
GA 2010098	15	0.53	0.76	1.53	1.33	14.8	1.9	21.5	6.1	37.1	22.7	
GA 2009037	15	0.40	0.40	1.33	1.17	14.9	1.8	24.3	5.5	52.4	4.5	
GA 2008016	15	0.80	0.87	1.40	1.20	14.9	1.9	20.3	6.0	46.7	9.2	
MD 10-6	15	0.53	0.23	1.47	0.81	15.7	1.4	27.3	6.1	58.1	9.2	
MD 10-5	15	0.52	0.92	1.40	1.25	14.3	1.3	22.9	7.8	38.1	20.7	
MD 25-26ne	15	0.13	0.23	0.93	0.81	15.5	1.0	28.9	5.9	85.7	2.9	
MD-DC	15	0.73	0.31	1.60	1.22	14.8	1.3	22.9	8.2	60.0	7.6	
LA 09309116	15	0.33	0.12	1.13	0.42	14.5	1.9	23.1	7.5	52.4	1.7	
LA 10307140	15	0.33	0.58	1.33	0.83	14.5	0.1	24.7	1.1	51.4	2.9	
LA 10307108	15	0.53	0.61	1.20	0.87	15.6	0.9	23.7	4.4	68.6	2.9	
LA 10307021	15	0.40	0.40	1.47	0.81	15.3	0.6	23.1	2.0	56.2	12.9	
OA-33	15	0.33	0.31	1.20	1.00	15.7	0.6	27.3	2.9	82.9	12.5	
PX 06520-42-2-1	15	0.40	0.69	1.67	1.10	15.9	1.5	26.3	3.8	60.0	12.5	
PX 06520-42-2-3	15	0.33	0.42	1.13	0.61	15.7	1.3	26.9	4.2	69.5	8.3	
AU 10090	15	0.27	0.46	1.40	0.92	14.9	0.8	23.1	2.0	32.4	1.7	
AU 51038	15	0.33	0.42	1.13	1.10	15.3	2.9	26.1	9.5	53.3	14.4	
AU 68036	15	0.60	1.04	1.33	1.10	15.3	1.7	24.1	5.0	51.4	14.9	
AU 55052	15	0.13	0.23	1.53	0.12	16.3	1.4	28.0	5.0	74.3	7.6	
NM 1301	15	0.13	0.25	1.07	0.83	15.3	1.6	25.8	6.1	73.3	14.7	
NM 1302	15	0.53	0.61	1.53	0.12	16.5	3.2	27.3	10.7	85.7	15.1	
Acala 1517-08	15	0.67	1.15	2.27	0.31	15.5	1.2	27.1	5.2	54.3	10.3	
NM 1303	15	0.13	0.23	0.67	0.61	16.4	1.9	28.1	8.6	68.6	22.3	
<b>DP 393 ck</b>	15	0.33	0.58	1.67	0.12	13.5	1.1	21.6	3.7	52.4	18.2	
<b>FM 958 ck</b>	15	0.60	0.60	1.53	0.50	15.5	1.4	20.4	4.3	70.5	7.2	
<b>SG 105 ck</b>	15	0.07	0.12	0.60	0.53	14.7	1.9	20.6	5.4	61.0	13.5	
<b>Daytona RF*</b>	15	0.40	0.69	1.60	0.53	15.2	1.5	26.5	5.8	48.6	7.6	
<b>Phytogen 725RF*</b>	15	0.60	0.53	2.00	0.80	16.0	1.1	25.3	4.1	55.2	11.6	
<b>Phy-802RF**</b>	15	0.20	0.35	0.67	0.23	15.1	1.8	26.8	3.7	78.1	14.4	
<b>Phy-811RF**</b>	15	0.13	0.23	0.67	0.46	16.1	1.8	27.7	4.6	84.8	4.4	

\*Daytona RF and Phytogen 725RF - Moderately-Susceptible to Fusarium Race-4 (Acala Checks)

\*\*Phy-802RF & Phy-811RF - Resistant to Fusarium Race-4 (Pima Checks)

<sup>1</sup>Tulare County Fusarium wilt (FOV) race 4 field evaluation planted on May 23 and evaluated July 19-29 (approximately 7-8 weeks post emergence)

<sup>†</sup>Foliar disease severity index scale: 0 = no symptoms; 1 = epinasty and slight dwarfing; 2 = 1 to 30% of leaves chlorotic; 3 = 31 to 80% of leaves chlorotic and severe stunting; 4 = 81 to 100% of leaves chlorotic; and 5 = plant death.

<sup>‡</sup>Vascular Root Staining: 0 = no vascular root staining evident, 1 = light vascular root staining evident as spotty areas, 2 = more continuous than 1, but light colored staining covering an area between one quarter and one half of the stem cross-section, 3 = moderate brown/black staining evident in a band encircling most of the stem cross section, 4 = brown/black staining evident across most vascular tissue in stem cross section, and 5 = plant severely damaged or plant death with staining evident throughout a cross-section of root tissue (Ulloa et al. 2006, 2009a).

<sup>§</sup>The percentage of plant survival (PS) was calculated by dividing the total number of surviving plants on sample date by the initial plant count after plant establishment, and multiplying by 100.