

PEPPER, BELL (*Capsicum annuum*)  
Phytophthora blight, *Phytophthora capsici*

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### **Evaluation of pepper breeding lines and cultivars for Phytophthora-tolerance and skin separation, 2007.**

These experiments, arranged as a randomized complete block design with 4 replications, were conducted in a field naturally- and artificially-infested with *Phytophthora capsici* at the Rutgers Agricultural Research and Extension Center (RAREC), Bridgeton, New Jersey and in a field naturally-infested with Phytophthora at the Martino farm in Vineland, New Jersey. Bell pepper seeds were obtained from cooperating agencies, treated on 3 April with a solution of 4 parts water to 1 part Clorox and seeded on 4 April. On 15 May at the on-farm site, twenty one bell pepper breeding lines or cultivars were transplanted by hand with into single rows (18" apart in row) on one-foot high, bare-soil beds (9 plants per plot) on 3 ft centers. On 15 May at RAREC, nine bell pepper breeding lines or cultivars were hand transplanted into double rows (18" in row) on black plastic mulch on 5 ft centers (18 plants per plot) with drip irrigation. At both sites, all treatment plots were 15 ft long, with guard rows of Phytophthora-susceptible bell pepper 'Camelot' planted on the outside of plots at RAREC. Fertility schedule and management of insect and weeds were done according to local recommendation guidelines. Each week, the number of Phytophthora-infected plants (out of a total number of 18) were counted and recorded from each plot. On 31 Aug, ten randomly selected fruit from all breeding lines or cultivars were rated for shoulder recess, fruit color, fruit shape, fruit smoothness, fruit gloss, uniformity, number of lobes, fruit length and width, and fruit wall thickness. All mature pepper fruit from 15 ft of each treatment row were harvested on 13 July, 25 July, 9 Aug, 30 Aug, 21 Sept, and 23 Oct at RAREC and on 24 July, 10 Aug, 24 Aug, 14 Sept, and 8 Oct at the Martino farm. All fruit were graded, separated and weighed for statistical analysis. Rainfall (inches) for the months of June, July, August and September were 2.34, 2.02, 3.13, and 0.53 in. at RAREC and 2.77, 3.74, 3.73 and 3.73 in. at the on-farm site.

At RAREC, percent of Phytophthora-infected plants at last harvest ranged from 1.4% to 97.2% depending on breeding line or cultivar. Percent silvering for combined harvest data ranged from 1 to 33% depending on breeding line or cultivar. Of all breeding lines evaluated at RAREC, Syngenta 18655 performed the least in phytophthora-tolerance (97% infected) and boxes/A (225 total). Total percent silvering was lowest in Seminis 0994-3089 at 1% compared to 33% in Syngenta 18659. Marketable yield (total boxes/A) varied significantly depending on breeding line and cultivar. Yield was highest in Seminis 994-3084 at 507 boxes/A, followed by Seminis 994-1819 at 414, Syngenta 18654 at 388 and Seminis 994-3089 at 360. Yield was significantly lower in breeding line Syngenta 18655 at 225 boxes/A.

At the on-farm site, percent of Phytophthora-infected plants at last harvest ranged from 0 to 100% depending on breeding line or cultivar. Percent silvering for combined harvest data ranged from 0.4 to 24% depending on breeding line or cultivar. The lowest percentage of phytophthora-infected plants included Syngenta breeding lines 18660, Paladin and 18658 at 0, 3 and 14%. Percent phytophthora-infected plants were highest in Camelot at 100%, Alliance at 91%, Syngenta 18659 at 86%, Harris Moran HMX-6646 at 81% and Syngenta 18655 at 69%. Total percent silvering was lowest in Harris Moran Alliance at 0.4% compared to 3% in phytophthora-tolerant cultivar Paladin. Marketable yield (total boxes/A) varied significantly depending on breeding line and cultivar. Highest yielding breeding lines included Harris Moran Revolution, Syngenta 18660, Seminis 994-3089, Seminis 993-1126B, and Syngenta Paladin. Lowest yielding was Syngenta 18653.

As noted from previous research trials and in this study, the more tolerance a bell pepper cultivar or breeding line has to the crown rot phase of phytophthora blight, the more likely skin separation, or 'silvering', is to develop in its fruit.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	19.5	7.0	269.0	0.3	0.1	1.1	24.5	7.8
Aristotle (X3R)	13.8	5.5	209.4	0.3	0.1	5.0	16.3	5.7
Camelot	17.5	7.2	274.8	0.0	0.0	0.0	23.3	8.2
Revolution	19.3	8.0	307.4	0.3	0.2	1.1	28.5	10.0
Paladin	22.8	8.9	342.0	1.0	0.4	4.2	26.3	9.7
E41-1855 (2002d)	13.5	4.2	159.5	0.5	0.2	16.7	18.8	5.1
0994-3089	19.0	7.4	284.4	0.0	0.0	0.0	20.3	7.7
0993-1126B	18.8	7.7	294.0	1.3	0.5	5.9	21.0	8.4
0994-3084	20.3	7.9	303.6	0.0	0.0	0.0	26.8	9.1
0994-1819	16.3	6.9	263.2	1.3	0.4	7.2	18.0	7.5
18651	12.8	5.2	197.9	1.0	0.5	5.2	14.5	5.8
18652	16.8	6.0	228.7	1.0	0.2	8.3	20.3	6.5
18653	15.0	6.1	234.4	0.3	0.2	2.1	22.8	8.0
18654	9.5	4.4	167.2	1.0	0.4	7.9	20.5	6.7
18655	18.8	7.4	284.4	1.0	0.4	6.5	23.3	8.3
18656	12.0	4.8	184.5	0.8	0.2	4.8	20.8	6.9
18658	11.5	4.8	182.5	0.3	0.1	1.8	15.3	5.3
18659	17.3	7.4	284.4	1.0	0.3	5.1	25.0	9.8
18660	20.5	9.2	353.5	0.3	0.1	2.1	24.8	10.2
HMX-6646	16.0	6.5	249.8	0.0	0.0	0.0	22.8	8.0
Declaration (HMX-7648)	15.0	5.7	217.1	0.0	0.0	0.0	17.5	6.3
P-value	NS	NS	NS	NS	NS	NS	NS	NS

Table 1. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 1 at Martino in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	8.3	3.6	136.4	0.0	0.0	0.0	12.5	5.0
Aristotle (X3R)	13.0	6.3	242.7	0.0	0.0	0.0	16.3	7.4
Camelot	8.0	4.2	161.0	0.0	0.0	0.0	9.8	4.7
Revolution	12.8	6.1	236.0	0.0	0.0	0.0	16.3	7.0
Paladin	8.8	3.2	121.5	0.5	0.2	2.9	10.3	3.5
E41-1855 (2002d)	17.8	6.7	255.6	0.0	0.0	0.0	25.5	8.2
0994-3089	17.0	8.0	307.1	0.0	0.0	0.0	20.3	8.7
0993-1126B	9.5	5.0	192.2	1.0	0.5	7.2	12.0	5.9
0994-3084	7.3	3.6	138.9	0.0	0.0	0.0	13.3	5.2
0994-1819	17.8	8.6	329.5	0.5	0.3	1.7	25.5	10.9
18651	17.8	7.9	303.6	0.8	0.3	4.5	22.5	9.4
18652	11.8	4.4	167.5	0.3	0.1	1.1	17.0	5.6
18653	10.8	4.8	183.3	0.5	0.2	5.5	15.8	6.0
18654	14.5	6.8	260.2	1.0	0.5	6.1	23.8	8.9
18655	4.5	1.8	70.2	1.5	0.8	21.4	8.3	3.3
18656	8.8	4.0	154.2	1.0	0.5	10.0	15.0	5.5
18658	12.3	5.8	221.2	1.0	0.5	5.8	21.3	8.7
18659	8.5	4.3	163.4	0.0	0.0	0.0	12.3	5.3
18660	8.8	4.3	165.3	2.3	1.1	18.7	13.0	5.8
HMX-6646	8.3	3.3	126.6	0.3	0.1	2.1	15.0	5.0
Declaration (HMX-7648)	10.8	5.4	209.2	0.3	0.1	1.1	14.3	6.2
P-value	NS	NS	NS	NS	NS	NS	NS	NS

Table 2. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 2 at Martino in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	7.0	2.5	94.2	0.0	0.0	0.0	9.5	2.8
Aristotle (X3R)	6.8	2.5	96.1	0.5	0.2	7.5	9.0	3.1
Camelot	1.8	0.5	19.2	0.5	0.1	33.3	3.0	0.7
Revolution	4.3	1.6	59.6	1.5	0.5	21.9	6.5	2.2
Paladin	3.8	1.4	53.8	4.0	1.1	51.8	9.0	2.6
E41-1855 (2002d)	10.0	3.0	113.4	1.5	0.4	14.0	16.0	3.8
0994-3089	5.3	2.1	80.7	0.0	0.0	0.0	5.8	2.2
0993-1126B	6.0	2.4	90.3	2.5	0.9	23.2	9.5	3.4
0994-3084	3.8	1.5	55.7	3.5	1.2	47.7	9.5	3.0
0994-1819	3.8	1.7	65.3	4.3	1.5	32.6	9.5	3.7
18651	3.0	1.0	36.5	2.3	0.7	43.3	6.0	1.8
18652	4.5	1.4	53.8	1.8	0.6	26.8	6.8	2.1
18653	6.0	2.7	101.8	3.0	1.1	19.4	14.3	4.5
18654	5.0	1.7	63.4	0.8	0.2	5.8	9.5	2.4
18655	5.3	1.8	69.2	2.8	0.7	34.4	9.3	3.0
18656	4.3	1.6	59.6	2.8	1.3	43.1	8.8	3.1
18658	4.8	1.7	63.4	2.3	0.8	25.4	9.5	2.9
18659	3.5	1.1	40.4	5.3	1.8	53.2	11.0	3.4
18660	3.5	1.4	51.9	3.3	1.0	49.7	8.5	2.7
HMX-6646	6.8	2.5	94.2	1.3	0.4	20.8	10.8	3.5
Declaration (HMX-7648)	3.8	1.4	53.8	0.3	0.2	4.2	7.5	2.2
P-value	NS	NS	NS	NS	NS	0.0142	NS	NS

Table 3. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 3 at Martino in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	26.0	9.1	349.7	0.5	0.2	1.2	39.8	12.3
Aristotle (X3R)	16.3	5.6	213.3	7.8	2.9	34.0	30.0	9.7
Camelot	11.3	3.7	140.3	0.5	0.2	3.8	35.8	6.4
Revolution	40.0	14.7	564.9	2.8	1.0	5.8	57.0	19.3
Paladin	34.5	10.1	388.1	16.5	5.7	32.5	61.0	17.6
E41-1855 (2002d)	20.3	6.2	236.3	1.8	0.5	8.3	40.0	9.7
0994-3089	25.0	8.4	322.8	0.3	0.1	0.9	39.8	10.7
0993-1126B	34.8	11.8	453.5	9.5	3.7	21.0	57.8	18.3
0994-3084	34.5	12.3	472.7	3.3	1.2	9.9	61.5	17.3
0994-1819	20.0	7.1	272.8	9.3	3.1	31.6	39.5	12.1
18651	15.3	4.8	184.5	9.0	2.8	36.6	36.5	9.7
18652	17.0	5.0	192.1	6.8	2.2	30.1	29.0	8.2
18653	13.8	4.1	157.6	7.0	2.1	31.3	35.8	8.6
18654	16.0	5.2	197.9	7.3	2.3	30.6	35.3	9.4
18655	18.0	5.5	209.4	6.8	2.2	25.4	36.0	10.0
18656	19.5	7.3	278.6	6.8	2.2	26.6	39.5	11.3
18658	21.0	7.0	269.0	8.8	3.4	30.6	44.3	12.9
18659	18.5	6.3	242.1	11.5	4.1	38.7	39.8	12.2
18660	37.8	13.0	497.7	14.8	5.7	28.1	65.3	21.6
HMX-6646	22.3	7.7	295.9	5.3	2.2	18.6	44.5	13.7
Declaration (HMX-7648)	26.5	9.4	361.2	1.3	0.4	4.9	39.3	11.8
P-value	0.0019	0.0004	0.0004	<0.0001	<0.0001	<0.0001	0.0024	<0.0001

Table 4. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 4 at Martino in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>2</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	2.3	0.7	27.9	0.0	0.0	0.0	14.8	2.9
Aristotle (X3R)	30.3	10.0	382.4	9.8	3.8	26.3	56.3	17.7
Camelot	13.3	5.1	196.0	1.0	0.4	2.0	28.3	7.6
Revolution	24.3	8.6	330.5	2.3	1.1	6.6	47.8	15.1
Paladin	28.8	9.6	368.9	13.0	5.5	29.2	51.0	17.2
E41-1855 (2002d)	18.8	5.5	211.4	1.0	0.4	3.6	40.3	8.3
0994-3089	27.8	11.5	441.0	1.0	0.5	4.2	47.8	15.1
0993-1126B	20.3	7.5	288.2	4.8	2.0	13.3	35.3	11.4
0994-3084	19.5	7.2	276.7	3.0	1.2	14.5	36.5	11.3
0994-1819	13.5	5.2	197.9	11.5	5.6	38.9	42.0	15.0
18651	25.3	8.2	315.1	10.3	3.9	32.8	46.5	13.3
18652	31.5	11.0	422.7	12.3	5.1	28.8	60.0	19.5
18653	6.5	2.0	75.9	3.5	1.3	30.2	22.5	6.1
18654	13.8	4.3	163.3	6.0	2.4	41.9	27.8	7.9
18655	18.3	6.7	255.6	5.3	2.3	26.2	39.8	12.2
18656	11.3	3.8	144.1	5.5	2.2	28.9	35.3	10.2
18658	34.3	12.4	474.6	6.8	2.7	16.7	49.8	16.5
18659	7.8	3.1	117.2	5.8	1.1	47.4	32.0	6.3
18660	27.5	10.8	415.0	5.3	2.4	17.3	40.8	15.2
HMX-6646	12.5	4.4	167.2	1.5	0.6	5.9	26.8	6.3
Declaration (HMX-7648)	21.8	8.1	309.4	2.5	1.2	11.4	38.0	13.5
P-value	NS	NS	NS	0.0067	0.0064	0.0023	NS	NS

Table 5. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 5 at Martino in 2007.

<sup>2</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.3
Aristotle (X3R)	0.0	0.0	0.0	0.0	0.0	0.0	11.5	1.2
Camelot	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.3
Revolution	1.3	0.6	21.1	0.0	0.0	0.0	14.8	2.2
Paladin	3.0	1.0	36.5	1.5	0.5	26.3	16.3	3.4
E41-1855 (2002d)	2.0	0.5	17.3	0.0	0.0	0.0	22.3	3.0
0994-3089	1.5	0.4	15.4	0.0	0.0	0.0	10.5	3.0
0993-1126B	2.3	0.7	26.9	0.3	0.1	2.5	12.0	2.4
0994-3084	0.8	0.2	7.7	0.0	0.0	0.0	8.0	1.1
0994-1819	1.0	0.3	11.5	0.3	0.1	25.0	18.0	2.4
18651	2.8	0.7	25.0	1.0	0.3	15.3	20.8	2.0
18652	1.3	0.3	11.5	0.0	0.0	0.0	17.5	3.0
18653	0.5	0.2	5.8	0.3	0.1	12.5	13.0	1.1
18654	4.5	1.5	57.6	1.0	0.3	4.8	16.5	4.0
18655	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.3
18656	0.0	0.0	0.0	0.0	0.0	0.0	8.5	1.3
18658	3.5	1.0	37.5	0.3	0.1	2.5	19.0	4.0
18659	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.2
18660	2.5	0.7	25.0	0.0	0.0	0.0	18.3	3.4
HMX-6646	1.8	0.6	21.1	0.0	0.0	0.0	6.5	1.3
Declaration (HMX-7648)	1.3	0.4	15.4	0.0	0.0	0.0	14.8	2.3
P-value	NS	NS	NS	NS	NS	NS	NS	NS

Table 6. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 6 at Martino in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.

Cultivar <sup>2</sup>	Marketable			Silvering			Total		Total % Phyto
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)	
Alliance	10.5	3.8	146.2	0.1	0.0	0.4	17.8	5.2	97.2
Aristotle (X3R)	13.3	5.0	190.6	3.0	1.1	12.1	23.2	7.4	33.3
Camelot	8.6	3.4	131.9	0.3	0.1	6.5	17.7	4.6	100.0
Revolution	17.0	6.6	253.2	1.1	0.5	5.9	28.0	9.3	27.8
Paladin	17.0	5.7	218.5	6.1	2.2	24.4	29.0	9.0	2.8
E41-1855 (2002d)	13.7	4.3	165.6	0.8	0.2	7.1	27.1	6.3	44.4
0994-3089	15.9	6.3	241.9	0.2	0.1	0.8	24.0	7.9	47.2
0993-1126B	15.3	5.8	224.2	3.2	1.3	12.2	24.6	8.3	22.2
0994-3084	14.3	5.4	209.2	1.6	0.6	12.0	25.9	7.8	44.4
0994-1819	12.0	5.0	190.1	4.5	1.8	22.8	25.4	8.6	25.0
18651	12.8	4.6	177.1	4.0	1.4	22.9	24.5	7.0	55.6
18652	13.8	4.7	179.4	3.7	1.4	15.8	25.1	7.5	27.8
18653	8.8	3.3	126.5	2.4	0.8	16.8	20.7	5.7	58.3
18654	10.5	3.9	151.6	2.8	1.0	16.2	22.2	6.5	44.4
18655	10.8	3.9	148.1	2.9	1.0	19.0	20.0	6.1	69.4
18656	9.3	3.6	136.8	2.8	1.0	18.9	21.3	6.4	55.6
18658	14.5	5.4	208.0	3.2	1.2	13.8	26.5	8.4	13.9
18659	9.3	3.7	141.2	3.9	1.2	24.1	20.3	6.2	86.1
18660	16.8	6.5	251.4	4.3	1.7	19.3	28.4	9.7	0.0
HMX-6646	11.3	4.1	159.1	1.4	0.5	7.9	21.0	6.3	80.6
Declaration (HMX-7648)	13.2	5.1	194.3	0.7	0.3	3.6	21.9	7.0	50.0
P-value	0.0017	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

Table 7. Number, weight, and yield of marketable fruit; number, weight and percentage of silvered fruit; number and weight of total fruit; and percentage of phytophthora-infected plants for combined harvests at Martino in 2007.

<sup>2</sup>Twenty one breeding lines or cultivars were planted at Martino in 2007.



Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	41.8	14.3	547.6	0.0	0.0	0.0	50.5	15.4
Aristotle (X3R)	15.8	5.2	199.8	0.3	0.1	1.1	17.0	5.5
Camelot	17.0	5.8	221.0	1.5	0.3	9.2	23.5	7.0
Revolution	27.5	10.3	395.8	0.3	0.1	0.7	32.0	11.1
Paladin	31.3	9.7	370.8	6.5	2.1	17.1	43.5	12.9
E41-1855 (2002d)	15.3	5.3	201.8	3.5	1.1	13.8	23.5	7.5
0994-3089	24.8	9.1	349.7	0.0	0.0	0.0	28.8	9.4
0993-1126B	27.0	10.3	393.9	5.5	1.9	15.2	36.0	13.1
0994-3084	30.0	9.8	376.6	0.8	0.2	2.5	32.5	10.3
0994-1819	22.5	7.0	269.0	1.8	0.6	5.6	31.0	8.8
18651	30.0	10.0	382.4	6.3	2.1	20.6	42.8	13.6
18652	23.0	7.4	282.5	7.0	2.2	18.3	35.5	10.7
18653	18.0	6.5	247.9	3.5	1.1	22.2	26.8	8.9
18654	28.5	9.9	380.4	4.8	1.7	14.5	38.8	12.8
18655	19.0	6.8	259.4	1.8	0.6	6.4	25.8	8.0
18656	29.5	9.8	376.6	8.0	2.4	21.1	42.8	13.3
18658	22.3	7.7	2934.0	3.0	0.8	9.8	26.5	8.6
18659	24.8	8.6	330.5	6.3	2.0	20.3	33.8	11.3
18660	9.0	3.3	126.8	2.5	1.0	16.8	13.5	4.7
HMX-6646	18.0	6.5	249.8	1.3	0.5	7.4	23.8	7.9
Declaration (HMX-7648)	30.3	12.0	461.1	0.3	0.2	0.9	37.3	14.1
P-value	0.0277	0.0138	0.0138	0.0003	0.0014	0.0031	0.0094	0.007

Table 8. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 1 at RAREC in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	45.5	19.7	757.0	0.0	0.0	0.0	54.8	20.9
Aristotle (X3R)	53.5	20.0	766.7	4.5	1.9	7.5	63.0	22.8
Camelot	42.5	15.2	582.2	1.5	0.7	3.2	56.8	17.4
Revolution	46.0	17.8	682.1	0.3	0.1	0.7	51.8	19.3
Paladin	36.8	14.1	539.9	11.5	4.4	24.2	51.8	19.2
E41-1855 (2002d)	41.8	14.4	551.5	5.8	2.2	12.1	54.5	17.8
0994-3089	52.8	22.5	862.7	0.3	0.1	0.5	58.0	23.7
0993-1126B	24.5	10.4	399.7	12.5	5.6	25.7	40.8	16.7
0994-3084	51.5	19.7	755.1	2.5	0.9	4.4	57.3	21.3
0994-1819	47.0	19.2	735.9	4.3	2.0	8.2	57.0	22.3
18651	36.8	14.1	539.9	11.3	4.9	20.0	52.3	19.6
18652	23.8	9.5	365.1	9.5	3.8	21.3	35.3	13.8
18653	42.0	16.4	630.2	4.3	1.7	10.0	54.3	20.0
18654	47.0	18.8	722.5	7.0	3.1	13.3	62.5	24.3
18655	47.8	17.6	674.4	7.0	2.8	12.2	69.8	22.5
18656	23.5	10.5	401.6	6.3	2.9	15.7	36.5	14.8
18658	40.0	16.8	643.7	11.5	4.9	22.6	56.8	22.9
18659	23.0	10.0	382.4	9.8	4.0	23.2	40.5	15.6
18660	39.8	16.6	637.9	5.8	2.3	10.7	48.3	19.4
HMX-6646	44.3	17.1	655.2	5.8	2.6	10.8	59.5	20.8
Declaration (HMX-7648)	43.8	16.4	630.2	0.5	0.2	1.0	48.5	17.7
P-value	0.0009	0.0019	0.0019	0.0007	0.0007	0.0003	NS	NS

Table 9. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 2 at RAREC in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	25.8	9.6	367.0	0.3	0.1	1.4	43.5	14.0
Aristotle (X3R)	38.5	14.5	555.3	2.3	0.9	5.2	52.0	17.9
Camelot	26.8	10.0	384.3	0.5	0.3	3.6	44.8	13.3
Revolution	28.8	10.4	397.7	0.0	0.0	0.0	49.0	14.8
Paladin	27.5	11.1	424.6	6.5	2.4	18.1	45.8	16.2
E41-1855 (2002d)	32.0	9.2	354.5	1.8	0.6	4.3	44.5	11.7
0994-3089	32.8	11.8	453.5	0.0	0.0	0.0	46.0	15.5
0993-1126B	26.8	11.1	426.6	8.3	3.6	23.1	42.0	16.8
0994-3084	48.8	18.3	703.2	0.5	0.2	1.1	58.8	20.8
0994-1819	38.3	14.7	563.0	2.3	1.1	6.7	49.3	18.4
18651	23.3	8.1	309.4	7.0	2.6	24.2	36.8	11.9
18652	31.8	9.9	378.5	7.8	1.4	19.7	49.3	13.1
18653	33.0	10.1	387.2	3.0	1.2	13.2	52.5	14.9
18654	22.5	9.8	374.4	4.5	2.1	15.7	32.3	13.6
18655	14.8	4.8	184.5	2.0	0.8	16.7	29.8	7.7
18656	21.8	8.1	309.4	5.3	1.9	19.3	37.8	12.1
18658	20.8	8.2	313.2	6.3	2.7	21.8	35.8	13.5
18659	28.8	12.2	468.8	4.8	1.9	14.0	42.5	16.5
18660	36.8	13.1	503.4	2.8	1.1	7.3	49.8	16.8
HMX-6646	33.8	13.7	524.6	0.3	0.1	1.1	47.3	17.3
Declaration (HMX-7648)	32.0	11.4	437.7	0.3	0.1	0.7	45.0	15.0
P-value	0.0059	0.0147	0.0147	<.0001	<.0001	<.0001	NS	NS

Table 10. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 3 at RAREC in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>2</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	3.8	1.3	48.0	0.3	0.1	12.5	22.0	3.6
Aristotle (X3R)	2.3	0.5	19.2	1.8	0.5	45.4	24.5	2.9
Camelot	4.5	1.5	55.7	0.5	0.2	10.4	22.8	4.3
Revolution	6.3	2.0	76.9	0.5	0.1	6.9	28.5	4.8
Paladin	4.3	1.4	53.8	3.3	1.4	51.9	27.8	5.1
E41-1855 (2002d)	11.0	2.9	111.4	0.3	0.1	25.0	50.0	7.5
0994-3089	8.0	2.9	109.5	0.0	0.0	0.0	39.3	6.8
0993-1126B	7.3	2.5	96.1	5.0	1.7	40.6	31.3	6.8
0994-3084	25.5	9.2	351.6	3.3	1.0	12.5	50.8	13.6
0994-1819	7.0	2.4	92.2	1.0	0.2	12.3	19.0	4.2
18651	14.5	4.9	186.4	7.8	2.4	30.3	43.5	10.1
18652	6.0	2.0	76.9	3.5	0.9	29.0	34.0	5.7
18653	15.0	5.1	194.1	2.8	0.9	16.7	41.0	9.9
18654	7.0	2.2	84.5	6.5	2.2	47.3	36.8	8.3
18655	5.8	1.9	71.1	3.8	1.0	21.6	41.5	6.0
18656	5.8	2.0	76.9	5.3	1.6	49.1	29.3	5.2
18658	10.3	3.0	113.4	5.5	1.6	39.3	50.0	9.3
18659	6.0	2.1	78.8	6.0	2.0	59.6	34.8	7.7
18660	9.5	3.2	123.0	6.3	1.9	37.8	32.0	7.7
HMX-6646	10.8	4.0	153.7	2.5	0.9	27.9	28.8	7.8
Declaration (HMX-7648)	17.8	5.4	207.5	0.3	0.1	1.0	60.3	11.4
P-value	0.0006	0.0001	0.0001	0.0002	0.0009	0.0035	0.0013	0.0002

Table 11. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 4 at RAREC in 2007.

<sup>2</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>2</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	21.5	6.5	249.8	2.0	0.6	6.1	23.5	11.1
Aristotle (X3R)	8.5	2.6	98.0	15.5	4.6	47.0	24.0	9.9
Camelot	10.0	3.1	119.1	1.3	0.5	9.4	11.3	6.7
Revolution	24.8	7.1	272.8	5.5	1.6	13.2	30.3	13.8
Paladin	26.0	6.6	251.7	34.5	10.1	56.5	60.5	23.9
E41-1855 (2002d)	17.5	3.8	146.0	2.5	0.6	9.8	20.0	8.8
0994-3089	21.8	6.7	257.5	1.8	0.6	4.9	23.5	13.8
0993-1126B	29.8	7.5	286.3	24.8	7.4	43.9	54.5	20.2
0994-3084	45.5	14.5	555.3	7.5	2.4	15.0	53.0	22.4
0994-1819	37.5	11.7	447.7	18.3	6.1	31.8	55.8	21.1
18651	31.8	9.6	368.9	13.8	4.2	38.3	45.5	19.9
18652	37.3	11.5	441.9	20.8	6.9	34.8	58.0	25.8
18653	12.0	3.2	123.0	5.3	1.6	33.1	17.3	9.0
18654	31.0	10.3	393.9	27.8	8.1	45.8	58.8	23.6
18655	14.5	3.7	140.3	6.5	1.9	15.1	21.0	9.0
18656	25.8	7.5	288.2	22.5	7.2	44.6	48.3	18.7
18658	29.8	9.5	363.2	22.0	6.7	44.4	51.8	21.5
18659	11.8	3.5	132.6	19.3	5.7	71.9	31.0	14.4
18660	24.5	7.3	280.5	24.3	8.0	49.8	48.8	19.4
HMX-6646	26.0	8.0	305.5	5.5	1.6	15.6	31.5	12.5
Declaration (HMX-7648)	23.5	6.9	263.2	5.8	1.7	25.4	29.3	15.9
P-value	NS	NS	NS	<.0001	<.0001	<.0001	0.0423	0.0256

Table 12. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 5 at RAREC in 2007.

<sup>2</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>2</sup>	Marketable			Silvering			Total	
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)
Alliance	9.0	2.8	107.6	5.8	0.0	0.0	9.5	2.9
Aristotle (X3R)	4.5	1.5	55.7	0.3	0.1	1.6	5.5	1.7
Camelot	4.8	1.4	51.9	0.0	0.0	0.0	6.8	1.8
Revolution	14.8	4.8	184.5	0.0	0.0	0.0	16.0	5.1
Paladin	35.0	9.7	372.8	0.0	1.8	9.4	44.3	12.0
E41-1855 (2002d)	7.3	1.7	63.4	0.0	0.0	0.0	8.3	1.8
0994-3089	9.0	3.3	126.8	0.0	0.0	0.0	11.3	3.8
0993-1126B	26.0	9.0	343.9	5.3	2.1	11.4	34.0	11.6
0994-3084	26.0	7.8	297.8	0.8	0.3	3.2	29.0	8.6
0994-1819	28.0	9.9	378.5	4.8	1.9	14.4	38.5	12.7
18651	18.8	5.7	217.1	0.0	0.0	0.0	20.3	6.0
18652	16.5	5.2	199.8	1.3	0.4	5.2	19.8	6.0
18653	4.3	1.0	38.4	0.8	0.2	12.8	8.0	1.6
18654	31.5	9.7	372.8	4.0	1.4	13.6	37.0	11.4
18655	1.5	0.5	19.2	0.0	0.0	0.0	2.8	0.7
18656	10.3	3.0	113.4	1.3	0.5	5.8	15.5	3.8
18658	22.0	6.1	232.5	0.5	0.2	1.7	26.3	6.8
18659	9.5	3.0	113.4	1.5	0.7	6.9	12.5	4.0
18660	30.5	10.6	407.3	5.3	2.2	11.7	38.0	13.4
HMX-6646	15.8	4.7	180.6	0.3	0.1	0.5	18.0	5.1
Declaration (HMX-7648)	7.8	2.5	94.2	0.0	0.0	0.0	8.5	2.6
P-value	0.0233	0.0307	0.0307	0.0029	0.0069	0.0032	0.0158	0.0131

Table 13. Number, weight, and yield of marketable fruit, number, weight and percentage of silvered fruit, and number and weight of total fruit for harvest 6 at RAREC in 2007.

<sup>2</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar <sup>z</sup>	Marketable			Silvering			Total		
	No. Fruit	Wt. Fruit (lb)	Boxes/acre	No. Fruit	Wt. Fruit (lb)	Percent	No. Fruit	Wt. Fruit (lb)	Total %Phyto
Alliance	24.5	9.0	346.2	0.4	0.1	3.3	34.0	11.3	73.6
Aristotle (X3R)	20.5	7.4	282.5	4.1	1.3	18.0	31.0	10.1	27.8
Camelot	17.6	6.1	235.7	0.9	0.3	6.0	27.6	8.4	83.3
Revolution	24.7	8.7	335.0	1.1	0.3	3.6	34.6	11.5	44.4
Paladin	26.8	8.7	335.6	11.3	3.7	29.5	45.6	14.9	1.4
E41-1855 (2002d)	20.8	6.2	238.1	2.3	0.7	10.8	34.5	9.2	45.9
0994-3089	24.8	9.4	359.9	0.3	0.1	0.9	34.5	12.2	31.9
0993-1126B	23.5	8.4	324.4	10.2	3.7	26.6	39.8	14.2	22.2
0994-3084	37.9	13.2	506.6	2.5	0.8	6.5	46.8	16.2	8.3
0994-1819	30.0	10.8	414.4	5.4	2.0	13.2	41.8	14.6	11.1
18651	25.8	8.7	334.0	7.7	2.7	22.2	40.2	13.5	27.2
18652	23.0	7.6	290.8	8.3	2.6	21.4	38.6	12.5	21.8
18653	20.7	7.0	270.1	3.3	1.1	18.0	33.3	10.7	95.8
18654	27.9	10.1	388.1	9.1	3.1	25.0	44.3	15.6	5.6
18655	17.2	5.9	224.8	3.5	1.2	12.0	31.8	9.0	97.2
18656	19.4	6.8	261.0	8.1	2.7	25.9	35.0	11.3	60.8
18658	24.2	8.5	326.6	8.1	2.8	23.3	41.2	13.7	6.9
18659	17.3	6.5	251.0	7.9	2.7	32.7	32.5	11.6	5.6
18660	25.0	9.0	346.5	7.8	2.7	22.4	38.4	13.5	16.7
HMX-6646	24.8	9.0	344.9	2.6	1.0	10.6	34.8	11.9	63.9
Declaration (HMX-7648)	25.8	9.1	349.0	1.2	0.4	4.8	38.1	12.8	31.9
P-value	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0112	<.0001	<0.0001

Table 14. Number, weight, and yield of marketable fruit; number, weight and percentage of silvered fruit; number and weight of total fruit; and percentage of phytophthora-infected plants for combined harvests at RAREC in 2007.

<sup>z</sup>Twenty one breeding lines or cultivars were planted at RAREC in 2007.

Cultivar	Color <sup>z</sup>	Shape <sup>y</sup>	Smoothness <sup>x</sup>	Gloss <sup>w</sup>	Uniformity <sup>v</sup>	Length and width <sup>u</sup>	Shoulder recess <sup>t</sup>	No. silver <sup>s</sup>	No. lobes <sup>f</sup>
Alliance	5	5	4	5	8	0.84	4	0	3.4
Aristotle (X3R)	5	5	3	5	5	1.13	3	5	3.5
Camelot	5	6	5	5	4	1.10	5	1	3.3
Revolution	7	4	5	5	7	0.92	6	1	3.5
Paladin	6	5	4	5	4	0.96	2	3	3.6
E41-1855 (2002d)	8	5	4	5	4	1.00	1	0	3.3
0994-3089	1	6	4	7	5	1.11	8	0	3.3
0993-1126B	4	6	5	7	5	1.16	1	3	3.3
0994-3084	1	5	5	8	6	1.02	4	0	3.1
0994-1819	1	6	4	7	6	1.03	3	0	3.4
18651	1	5	6	8	7	1.02	2	0	3.7
18652	3	5	6	5	8	0.96	1	6	3.4
18653	4	5	5	5	6	1.00	2	0	3.5
18654	3	6	6	5	8	1.08	1	6	3.3
18655	3	6	7	5	5	1.09	2	2	3.6
18656	4	6	6	5	4	1.11	3	5	3.5
18658	4	6	5	5	4	1.07	3	5	3.1
18659	4	6	6	5	5	1.10	5	5	3.3
18660	5	6	5	5	5	1.04	3	4	3.7
HMX-6646	3	4	6	5	8	1.05	4	1	3.7
Declaration (HMX-7648)	4	4	4	5	6	0.90	3	0	3.1

<sup>z</sup>fruit color ratings: 1 = dark green, 3 = medium dark green, 5 = medium green, 7 = medium light green, 9 = slight green

<sup>y</sup>fruit shape ratings: 1 = linear, 2 = round, 3 = oblate, 4 = blocky, 5 = conical blunt, 6 = conical elongated

<sup>x</sup>fruit smoothness ratings: 1 = rough, 9 = smooth

<sup>w</sup>fruit gloss ratings: 1 = dull, 9 = shiny

<sup>v</sup>uniformity ratings: 1 = not uniform, 5 = medium uniform, 9 = uniform

<sup>u</sup>length and width is a ratio calculated as an average of four length ratings (in cm) from each replication divided by four width ratings (in cm) from each replication

<sup>t</sup>shoulder recess ratings: 1 = none, 5 = medium, 9 = deep

<sup>s</sup>the number of fruit out of ten that had silvering

<sup>f</sup>the number of lobes when fruit is cut in half

Table 15. Pepper characteristics of ten randomly selected fruit from twenty one breeding lines or cultivars at RAREC in 2007.



CV/BL	12-Jun	18-Jun	25-Jun	2-Jul	9-Jul	16-Jul	23-Jul	30-Jul	7-Aug	14-Aug	22-Aug	27-Aug	3-Sep	10-Sep	18-Sep	25-Sep	5-Oct	9-Oct	23-Oct
Alliance	1.4	1.4	1.4	5.6	11.1	11.1	11.1	12.5	23.6	27.8	31.9	47.2	54.2	58.3	62.5	65.3	68.1	68.1	73.6
Aristotle (X3R)	1.4	0.0	0.0	1.4	2.8	2.8	2.8	2.8	4.2	6.9	9.7	20.8	22.2	25.0	25.0	26.4	27.8	27.8	27.8
Camelot	1.4	1.4	1.4	9.7	12.5	16.7	18.1	22.2	30.6	34.7	38.9	52.8	56.9	63.9	68.1	70.8	73.6	75.0	83.3
Revolution	0.0	1.5	1.5	2.8	2.8	2.8	4.2	5.6	9.7	13.9	15.3	23.6	25.0	27.8	34.7	36.1	37.5	38.9	44.4
Paladin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	1.4	1.4	1.4	1.4
E41-1855 (2002d)	0.0	0.0	0.0	1.5	4.2	5.6	5.6	9.7	6.9	11.1	9.7	15.3	18.1	27.8	27.8	32.0	32.0	33.4	45.9
0994-3089	1.4	1.4	1.4	1.4	2.8	4.2	4.2	8.3	8.3	8.3	9.7	12.5	15.3	16.7	20.8	25.0	26.4	27.8	31.9
0993-1126B	0.0	0.0	0.0	0.0	0.0	0.0	1.5	5.6	8.3	6.9	6.9	8.3	16.7	12.5	12.5	11.1	12.5	12.5	22.2
0994-3084	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	1.4	2.8	2.8	4.2	4.2	4.2	8.3
0994-1819	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	1.4	4.2	4.2	6.9	6.9	8.3	8.3	9.7	9.7	9.7	11.1
18651	1.4	0.0	0.0	0.0	1.4	1.4	2.8	4.2	5.6	6.9	5.6	8.3	12.5	16.7	22.2	23.6	25.0	26.4	27.2
18652	2.8	2.8	0.0	0.0	1.4	1.4	1.4	1.4	1.4	1.4	2.8	4.3	4.3	13.2	14.6	16.0	16.0	16.0	21.8
18653	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	18.1	37.5	45.8	55.6	63.9	70.8	76.4	95.8
18654	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	1.4	1.4	0.0	1.4	4.2	6.9	5.6	4.2	5.6	5.6	5.6
18655	2.8	0.0	0.0	2.8	8.4	12.7	20.8	22.2	23.6	33.3	37.5	48.6	56.9	61.1	7.8	83.3	88.9	88.9	97.2
18656	1.4	1.4	0.0	1.4	1.4	1.4	2.8	2.8	4.2	6.9	18.1	26.4	17.3	39.6	44.0	44.0	48.3	51.1	60.8
18658	1.4	2.8	0.0	0.0	0.0	0.0	1.4	2.9	5.6	5.6	5.6	1.4	1.4	4.2	8.5	7.0	7.0	7.0	6.9
18659	0.0	0.0	0.0	0.0	0.0	0.0	1.4	4.2	4.2	9.7	9.7	25.0	26.4	38.9	40.3	45.8	47.2	47.2	5.6
18660	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	4.2	4.2	4.2	6.9	12.5	12.5	12.5	16.7
HMX-6646	2.8	0.0	1.5	1.4	2.9	5.9	8.3	8.3	15.3	16.7	19.4	36.1	38.9	43.1	43.1	44.4	51.4	54.2	63.9
Declaration	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	1.4	1.4	1.4	4.2	18.1	6.9	11.1	11.1	11.1	16.7	31.9
P-value	NS	NS	NS	0.026	0.014	0.001	<0.0001	0.0006	<0.0001	0.0001	<0.0001	0.0018	0.0029	0.0013	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Table 16. The percentage of dead plants for each cultivar or breeding line on nineteen rating dates at RAREC in 2007.

CV/BL	8-Jun	15-Jun	22-Jun	29-Jun	6-Jul	13-Jul	23-Jul	27-Jul	3-Aug	10-Aug	17-Aug	24-Aug	31-Aug	6-Sep	14-Sep	21-Sep	28-Sep	4-Oct	12-Oct	25-Oct
Alliance	0.0	0.0	0.0	2.8	5.6	5.6	5.6	5.6	5.6	5.6	8.3	8.3	19.4	22.2	27.8	33.3	44.4	69.4	94.4	91.2
Aristotle (X3R)	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	5.6	5.6	5.6	5.6	33.3
Camelot	0.0	0.0	0.0	0.0	13.9	19.4	22.2	22.2	22.2	27.8	36.1	36.1	44.4	50.0	61.1	66.7	72.2	88.9	94.4	100.0
Revolution	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	16.7	27.8
Paladin	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	0.0	2.8
E41-1855 (2002d)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	8.3	8.3	8.3	8.3	11.1	13.9	13.9	25.0	33.3	44.4
0994-3089	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	2.8	2.8	5.6	5.6	8.3	13.9	19.4	19.4	27.8	38.9	44.4	47.2
0993-1126B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	8.3	8.3	8.3	22.2	22.2
0994-3084	0.0	2.8	2.8	2.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	8.3	8.3	8.3	19.4	19.4	16.7	19.4	41.7	44.4
0994-1819	0.0	0.0	0.0	0.0	2.8	2.8	2.8	2.8	2.8	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	13.9	19.4	25.0
18651	0.0	0.0	0.0	0.0	2.8	2.8	5.6	5.6	5.6	5.6	5.6	5.6	13.9	16.7	25.0	27.8	36.1	41.7	50.0	55.6
18652	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	5.6	5.6	5.6	5.6	5.6	5.6	5.6	8.3	8.3	11.1	27.8
18653	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.6	5.6	5.6	13.9	19.4	22.2	25.0	36.1	50.0	58.3
18654	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	2.8	2.8	5.6	5.6	8.3	8.3	8.3	11.1	30.6	38.9	44.4
18655	0.0	0.0	0.0	2.8	13.9	13.9	16.7	16.7	16.7	16.7	22.2	22.2	25.0	30.6	30.6	30.6	25.0	33.3	52.8	69.4
18656	0.0	0.0	0.0	0.0	5.6	5.6	5.6	5.6	8.3	11.1	13.9	13.9	13.9	19.4	22.2	25.0	41.7	44.4	47.2	55.6
18658	8.3	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	11.1	13.9
18659	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	16.7	22.2	25.0	27.8	30.6	58.3	58.3	86.1
18660	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	0.0	0.0	0.0	0.0
HMX-6646	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	5.6	5.6	8.3	11.1	19.4	27.8	33.3	52.8	75.0	80.6
Declaration	0.0	0.0	0.0	0.0	8.3	8.3	8.3	8.3	8.3	11.1	11.1	11.1	16.7	19.4	19.4	22.2	22.2	22.2	30.6	50.0
P-value	NS	NS	NS	NS	0.0307	0.0116	0.0094	0.0094	0.0174	0.0222	0.0014	0.0025	0.0075	0.0222	0.0419	0.0165	0.0141	0.0001	0.0002	<.0001

Table 17. The percentage of dead plants for each cultivar or breeding line on weekly rating dates at Martino in 2007.