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## 2011 Vegetable Variety Report

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## **The 2011 Growing Season**

Overall the 2011 growing season was warm and wet. The winter of 2011 was atypically snowy, with continuous snowcover from December until the beginning of April. April was wet, with a total of 6.07 inches of rain and measurable rainfall on 19 days. May rainfall was slightly below normal, while June rainfall was slightly above. June temperatures were highly variable, with 3-5 days of highs in the 80s alternating with similar periods of highs in the low 70s. July was hot and dry, with 24 days above 85 degrees and only 1.93 inches of rain. August was hot and humid. The July drought broke August 7 when a storm dumped 2.35 inches of rain over 4 days. A second storm on August 15-16 brought another 3.72 inches of rain. Tropical storm Irene blew through August 27-28, bringing an additional 1.37 inches of rain. The pattern of heavy rain every 7-10 days continued into November, with 6.94 inches of rain in September, 8.39 in October, and 5.5 in November. Between storms the fall was very mild, with highs in the 60s and even low 70s continuing into January. The first frost was October 24. The growing season was marked by fungal diseases, particularly in August and September. Cucumber beetles were a major problem as the snow cover increased overwintering survival.

## **Acknowledgements**

The variety trials are a group effort. Our farm manager, Carl Sawyer, and his assistant, Tim Sherman, keep everything running and supervise the student crew. Students responsible for the various trials were as follows: Mina Vescera and Jackie Iacobbo - melons; Noah LeClaire-Conway – cherry tomatoes and basil; Hannah Sherman – potatoes, and Elena Krajeski – summer squash. Jeff Pieper and Emily Cotter assisted with all the trials.

## Tomato Trial

The 2011 tomato trial focused on cherry and grape tomatoes; it also included plum and cocktail types. Each of the 26 entries was represented by 18 plants grouped into 3 plots. Most entries were seeded in the greenhouse on April 5; the trial was transplanted to the field on May 25. Plants were trellised; water and fertilizer were provided through the drip irrigation system. The alleys were seeded to perennial ryegrass and white clover and mowed to control weeds. Weeds within the rows were removed by hand. Harvest began on July 21; fruit was harvested 2-3 times per week. The last harvest was August 30 for all entries except Toronjina (August 16) and Camelia (August 26). Harvest ended when cracking and disease had become so severe that there was no marketable fruit remaining. Data was collected on harvest period, yield, fruit size, cracking, and brix, and notes were taken on fruit traits (table 1).

'Babycakes' had the highest yield with 20.3 kg of fruit. Similar varieties were Mountain Magic and JTO 115. Both Babycakes and Mountain Magic are red cocktail tomatoes; Babycakes fruit is smaller. JTO 115 is a small plum tomato with fruit just a few grams larger than Mountain Magic. 'Amarillo' had the best yield among the cherry tomatoes and 'Montesino' was the most productive grape tomato. In general the round-fruited tomatoes had more problems with fruit cracking and splitting on the vine and with splitting at harvest. Toronjina was the worst in this regard, with nearly complete fruit splitting on the vine following the first heavy rain in August. Indigo Rose also suffered severely from fruit cracking, developing deep circular cracks on the shoulders. The cracking in Indigo Rose appeared to be a result of rapidly changing moisture levels, as it was less severe on fruit ripening later in August, and fruit on plants in the high tunnel did not crack at all. JTO 113, Mini Charm, and Amarillo had only moderate splitting on the vine, but were essentially impossible to harvest without severe fruit splitting. The varieties JTO 113, 105 TSX, and Sweet Treats were our favorites for flavor. Red Pearl did extremely well in the high tunnel, producing flavorful fruit until late October.

Disease ratings were taken on bacterial speck, early blight, septoria leafspot, and powdery mildew (table 2). A 0-9 scale with 0 indicating no disease was used on all diseases. The trial was sprayed with copper and Serenade Max on June 22 to limit the spread of bacterial speck and as prevention against late blight, which had been found on Long Island. No other fungicides were applied until August 20, when chlorothalonil was applied as protection against the late blight outbreak at a neighboring farm. Hornworm damage was noted on July 26, and the trial was sprayed with Bt on July 28.

Bacterial Speck damage was rated on June 29. Hy-brix was the most susceptible variety, followed by Five Star. Damage was present throughout the trial, but was not severe. Severity was limited by the copper spray applied June 22 and by the weather changing to hot and dry. Septoria leafspot was rated twice, on July 21 and August 2. Aligote and Jolly Girl had the most damage on July 21. JTO 113 had the most damage on August 2, although any variety with a score above 2.7 is statistically similar. Indigo Rose and Chocolate Cherry remained clean, with scores of 0 and 0.3, respectively. Powdery mildew was first observed in the Toronjina plants in the border rows on August 1. Indigo Rose had the most mildew, followed by Toronjina, Monica, and Sakura Honey. The other varieties were essentially free of powdery mildew. Indigo Rose is very susceptible to mildew, but infected leaves do not become chlorotic, so it actually tolerated infection better than the other varieties. Early blight moved in with the August rains, and damage was rated August 22. Monica was the most severely damaged, with nearly complete loss of foliage, but the fruit remained clean. The other large plum tomatoes, Grenadaro and Sakura Honey, had less foliar damage but significant fruit infection. All three varieties also had problems with blossom end rot. Any variety with an early blight score above 6.3 was statistically similar to Monica. Indigo Rose showed the best resistance to early blight, with a score of 2.5. This variety showed good resistance in 2010 also. Similarly resistant varieties were Uva Roja, Mini Charm, Aligote, JTO 111, Hy-Brix, JTO 113, Jolly Elf, and Red Pearl. These varieties showed some damage to lower leaves, but neither the fruit nor the leaves adjacent to the fruiting trusses were affected. Overall Mini Charm was the most disease resistant cherry tomato, Indigo Rose and Mountain Magic were the most resistant cocktail tomatoes, Uva Roja was the most resistant grape tomato, and JTO 111 and JTO 115 were the most resistant plum tomatoes.

Table 1. Yield and fruit characteristics.

Variety	Type	Color	Yield (Kg) <sup>b</sup>	Fruit Size (g)	Brix <sup>c</sup>	Cracking <sup>d</sup>	First Harvest	Peak	Notes
Toronjina	cherry	orange	6.1	13.3	5.00	5.00	21-Jul	16-Aug	poor flavor; severe splitting
Mini Charm <sup>a</sup>	cherry	red	5.9	7.8	5.00	2.00	1-Aug	22-Aug	Poor flavor. Splits when handled.
JTO113 <sup>a</sup>	cherry	red	8.8	7.6	5.00	2.00	28-Jul	22-Aug	Fruit is extremely uniform but split badly during harvest. Excellent, unique flavor
Chocolate Cherry	cherry	brown	6.7	15.7	5.50	2.33	21-Jul	26-Aug	green shoulders
Amarillo <sup>a</sup>	cherry	yellow	10.7	14.9	4.00	2.00	25-Jul	22-Aug	splits at harvest
105 TSX	cherry	red	8.2	10.4	5.00	2.67	21-Jul	22-Aug	sweet
Sweet Treats	cocktail	pink	12.4	23.3	5.50	1.33	21-Jul	22-Aug	One of the sweetest in the trial. Handled well.
Mt. Magic	cocktail	red	18.9	41.2	4.00	0.00	21-Jul	22-Aug	holds well in packing
Indigo Rose	cocktail	purple	7.4	47.4	4.00	4.00	3-Aug	24-Aug	severe problems with circular cracking
Camelia	cocktail	reddish-pink	9.7	25.6	4.50	3.00	25-Jul	24-Aug	
Babycakes <sup>a</sup>	cocktail	red	20.3	30.6	4.00		3-Aug	22-Aug	
Uva Roja <sup>a</sup>	grape	red	7.2	15.5	5.00	0.00	28-Jul	26-Aug	
Sweet Hearts	grape	red	10.2	12.7	3.50	0.67	21-Jul	22-Aug	size and shape variable
Red Pearl	grape	red	11.5	12.2	3.00	0.00	21-Jul	22-Aug	very productive in high tunnel
Montesino	grape	red	14.2	12.1	5.00	0.33	21-Jul	22-Aug	
Jolly Girl	grape	red	13.4	13.4	3.00	0.00	21-Jul	22-Aug	great uniformity of fruit
Jolly Elf HOV+100	grape	red	9.7	14.7	4.00	0.67	21-Jul	22-Aug	mixed pink and red grape. Some splitting at harvest
Jolly Elf	grape	red	12.9	14.9	4.00	0.33	21-Jul	22-Aug	mixed red and pink fruits
Hy-Brix <sup>a</sup>	grape	red	7.8	16.5	4.00	1.33	3-Aug	22-Aug	durable skin
Five Star	grape	red	10.3	12.1	4.00	0.00	25-Jul	22-Aug	
Aligote	grape	red	8.1	11.1	3.00	0.00	25-Jul	22-Aug	stem remains on fruit at harvest
Sakura Honey	plum	red	10.9	67.7	3.00	0.00	3-Aug	22-Aug	Leaves curl up.
Monica	plum	red	15.1	151.8	3.50	0.00	1-Aug	24-Aug	fruit size highly variable
JTO115 <sup>a</sup>	plum	red	16.4	45.0	5.50	0.33	5-Aug	26-Aug	fruit size more variable than JTO 111
JTO111 <sup>a</sup>	plum	red	11.4	46.2	4.00	0.33	3-Aug	22-Aug	
Granadero	plum	red	13.0	76.7	5.00	0.00	1-Aug	30-Aug	
			LSD 5.1			LSD 1.3			

<sup>a</sup> These varieties were planted on April 25, significantly later than the bulk of the trial.

<sup>b</sup> Yield was adjusted to 6 plants per plot for all plots

<sup>c</sup> Brix was measured on a bulk sample from 5 fruits per variety

<sup>d</sup> cracking was visually rated on the plants using a 0-5 scale where 0 indicates no cracking.

Table 2. Disease occurrence and severity on tomato varieties. Ratings used a 0-9 scale where 0 indicates no disease.

Variety	Type	Bacterial Speck	Early Blight	Septoria 1	Septoria 2	Powdery Mildew	Notes
105 TSX	cherry	0.0	4.7	0.7	3.7	0.0	
Amarillo	cherry	0.0	6.0	0.3	3.3	0.7	
Chocolate Cherry	cherry	0.0	5.7	0.0	0.3	1.0	
JTO113	cherry	0.0	4.0	1.3	5.7	0.0	
Mini Charm	cherry	0.0	3.7	0.7	2.7	0.0	
Toronjina	cherry	0.0	7.7	1.3	4.3	4.7	
Babycakes	cocktail	0.5	7.0	0.5	1.5	0.0	
Camelia	cocktail	0.0	7.0	1.0	3.3	0.7	
Indigo Rose	cocktail	0.5	2.5	0.0	0.0	6.5	no chlorosis
Mt. Magic	cocktail	0.0	5.7	0.3	2.7	0.0	
Sweet Treats	cocktail	0.0	7.3	1.3	2.7	0.0	
Aligote	grape	0.3	3.7	2.7	4.7	0.0	
Five Star	grape	1.3	4.7	1.7	3.3	0.0	
Hy-Brix	grape	3.3	4.0	0.7	2.3	0.0	
Jolly Elf	grape	0.3	4.3	1.7	2.7	0.0	
Jolly Elf HOV+100	grape	0.3	4.7	2.0	4.3	0.0	
Jolly Girl	grape	0.3	5.7	2.7	4.3	0.0	
Montesino	grape	0.3	5.7	1.3	4.3	1.3	
Red Pearl	grape	0.0	4.3	2.0	4.7	0.0	
Sweet Hearts	grape	0.3	4.7	2.0	5.3	0.0	
Uva Roja	grape	0.7	3.7	1.0	2.3	0.0	
Granadero	plum	1.0	6.3	2.0	4.3	1.0	EB on fruit
JTO111	plum	0.0	4.0	0.7	2.0	0.0	
JTO115	plum	0.0	5.3	0.3	1.0	0.0	
Monica	plum	0.0	8.3	0.0	4.3	3.3	
Sakura Honey	plum	0.3	7.3	1.0	4.7	2.7	EB on fruit
	LSD 1.0	LSD 2.0	LSD 1.7	LSD 2.8	LSD 1.3		

## Basil Trial

We trialed seven varieties of Genovese-type basil and nine specialty varieties. Yield data was collected only on the Genovese-type varieties. The basil varieties were seeded into the greenhouse on April 5, and transplanted to the field May 25. The trial was planted in raised beds covered with black BioTelo biodegradable plastic mulch, with 2 rows per bed and 24 plants per plot. The only major pest problem was Japanese beetles, which attacked in mid-July. The plants were sprayed with Pyganic to reduce beetle populations, and damaged foliage was cut off. The Genovese-type basils were harvested July 18-27 and August 30-September 1. Flowers were removed as needed to keep the plants productive. Specialty basils were only lightly harvested, and no yield data was collected. There were no significant differences in yield among the Genovese types.

Attractiveness to Japanese Beetles varied significantly among the varieties. The beetles showed no interest in the lemon, little leaf, or Thai basils, and only a passing interest in the purple basils. However, all of the green Genovese basils were attacked. Preference for the green Genovese basils was further shown in that an extra plot of Aroma 2, planted at one end of the specialty basil row, had 100% damage, while the Aroma 2 plots planted in among the other Genovese varieties had only 26% damage. Nufar was the beetles' favorite Genovese-type variety, followed by Genovese and Italian Large-Leaf.

Table 1. Basil variety trial results.

Variety	Type	%JB <sup>a</sup>	Yield (lbs)	Comments
Aroma 2	Genovese	26	27.9	Tall, bushy plant with large undulating leaves
Aton	Genovese	54	23.2	Short, compact plant with large undulating leaves and small flower cluster
Genovese	Genovese	76	35.0	Tall, bushy plant with large undulating leaves
Genovese Compact Improved	Genovese	45	30.7	Medium height compact, bushy plant with large undulating leaves
Italian Large-Leaf	Genovese	61	25.5	Short and compact plant with showy, large leaves
Nufar	Genovese	96	29.1	Medium sized plant with medium to large sized leaves
Superbo	Genovese	49	37.3	Medium sized plant with large, smooth leaves
Mrs. Burns Lemon	Lemon	0		Very susceptible to downy mildew. Tall, bushy, light yellow-green, overwhelming lemon aroma.
Pistou	Little leaf	0		Short, compact, globular bush. Very uniform. Would be an excellent ornamental.
Spicy Bush	Little leaf	0		Poor uniformity in plant appearance
Amythest Improved	Purple	0		Medium height with medium sized genovese-type leaves. No JB but some feeding damage
Red Rubin	Purple	0		Similar to Amythest but less aroma and smaller leaves
Rosie	Purple	8		Better aroma and bush habit than other purple types. Large leaves.
Christmas	Thai	0		Green leaves on purple stems, short, compact, bushy. Very uniform
Cinnamon	Thai	0		Poor uniformity in plant appearance; segregating for leaf and stem colors
Sweet Thai	Thai	0		Short and leggy with small leaves and purple stems
		LSD 36	NS	

<sup>a</sup> Japanese beetle damage was calculated by recording the number of plants with beetles present, expressed as a percentage of the total number of plants in the plot. Values for the Genovese-type varieties are means across three replications.

## Melon Trial

The melon variety trial featured 21 varieties in the main trial, and an additional 6 varieties in an adjacent trial. The melons were seeded into 38-cell plug trays in the greenhouse May 10. The trial was transplanted to the field on June 3. Plants were grown on raised beds covered with BioTelo biodegradable plastic mulch with 2 feet between plants and 5 feet between rows. The Biotelo was effective in warming the soil and controlling weeds, but did not prevent bottom rot on the fruit. Rather, the weight of the fruit caused the BioTelo to biodegrade. The space between the beds was seeded to perennial ryegrass and mowed to control weeds; weeds in the beds were controlled by hand pulling. The beds were covered with summer-weight Agribon row cover for protection from cucumber beetles and bacterial wilt until the plants began flowering. The trial was also sprayed once with Pyganic to control beetles after the covers were removed. A honeybee hive was placed at one end of the field to ensure sufficient bees for pollination. Each variety in the main trial was represented by 3 plots with 8 plants per plot. The 6 varieties in the smaller trial were each represented by 6 plots with 5 plants per plot. Fruit was harvested at half or full slip, as appropriate for the variety. Harvest began July 25 and continued until August 29. Brix data was collected on one fruit from each plot; brix was measured at 4 locations on each fruit.

In the main trial (table 1) Electra had the best yield, averaging 26.4 kg per plot. It was also the sweetest variety, with a Brix of 11.4, but was watery and bland, without good aromatics. Other varieties with similar sugar levels but better flavor were Riviera Sweet, Victoria, and Halona. Arava and Ariel were crew favorites. Neither was extremely sweet, but they had nicely complex flavor. Maverick produced the most fruit, averaging 20.1 per plot, but had slightly lower yield than Electra because the fruit were smaller. Maverick was also a favorite of the cucumber beetles, with heavy fruit damage. Fruit size ranged from 0.9 kg for Pixie to 2.3 kg for Avatar. Pixie, PMR Delicious 51, Napoli, Visa, and Ein Dor produced mostly unmarketable fruit.

Cucumber beetles were the only major insect pest, and gummy stem blight was the only major disease problem. A few plants were lost to bacterial wilt despite our efforts to prevent it, but there were no significant differences in disease incidence among varieties. All of the varieties except Sweet Granite were powdery mildew resistant, and the resistance held despite severe mildew on the Sweet Granite. Gummy stem blight severity was rated on August 1 and August 17 using a 0-9 scale where 9 indicates severe disease, with all plants wilted and dying, and 5 indicates all plants with foliar spots but no wilting. On August 1 PMR Delicious 51 had the most severe gummy stem blight in the main trial. Edonis, Ein Dor, Visa, and Pixie were also severely damaged. No varieties were resistant, but Sugar Cube and Riviera Sweet were only lightly infected on August 1. Entries with a damage score below 4.5 were statistically similar. By August 17 the varieties that had been severely infected on August 1 had completely collapsed. Electra had the least disease, with a score of 4.0. Riviera Sweet, Sugar Cube, Ariel, Grand Slam, Orange Sherbet, and Earlichamp were similarly healthy.

In the smaller trial (table 2) Athena had the most yield and the largest fruit, followed by Sarah's Choice. Both varieties produced mostly marketable fruit, with few culls. Sweet Granite and Tasty Bites produced the most fruit, but both varieties were severely damaged by gummy stem blight. Sweet Granite produced no marketable fruit, and only 32% of the Tasty Bites fruit was marketable.

Table 1. Melon data from main trial. Yield is based on 8 plants per plot, averaged across 3 replications.

Variety	1st Hvst	GSB Aug. 1	GSB Aug. 17	fruit size	Brix	fruit (no.)	yield (kg)	Flavor Notes	Other Notes
Edonis	3-Aug	5.3	8.7	1.1	6.3	16.3	17.9	mushy and flavorless	
Tirreno	1-Aug	4.3	7.3	1.4	6.7	13.2	17.9	Orange flesh is sweet but not fruity. Good.	beetle damage on foliage
PMR Delicious 51	3-Aug	7.3	8.7	1.1	7.3	14.6	15.9	watery, bad aftertaste	low vigor, severe beetle damage, most fruit not marketable
Grand Slam	3-Aug	3.0	5.3	2.0	7.6	12.6	25.1	very bland, mushy	
Arava	1-Aug	4.3	7.0	1.3	7.8	14.1	18.4	excellent flavor. Flesh green with pink at seed cavity, slightly crisp and sweet.	
Napoli	12-Aug	4.0	7.3	1.7	7.8	11.3	18.6	OK flavor.	lots of beetle damage and black rot on fruit
Goddess	3-Aug	3.0	6.7	1.9	8.1	11.0	20.5	no data	
Carribbean Gold	8-Aug	4.3	7.0	1.3	8.3	13.0	16.6	mild flaver, very firm	
Avatar	1-Aug	4.3	6.3	2.3	8.5	9.7	22.3	extra juicy, sweet,	beautiful color
Earlichamp	29-Jul	5.0	5.3	1.2	8.6	17.3	20.1	juicy, firm, nicely sweet.	Beetle damage to foliage
Ariel	3-Aug	3.0	5.3	1.9	9.0	9.5	17.9	excellet flavor, sweet and musky, almost perfect	
Orange Sherbet	1-Aug	3.3	5.3	2.1	9.2	11.2	22.6	mild melon flavor, juicy	
Ein Dor	3-Aug	5.7	7.7	1.2	9.5	5.4	5.8	Flesh sweet but firm with no musky flavor.	Fruit splits
Maverick	1-Aug	4.0	6.3	1.1	9.8	20.1	21.8	soft flesh is fruity but not sweet	beetle damage on fruit
Pixie	5-Aug	7.0	8.7	0.9	10.4	5.4	4.7	Sweet but no flavor.	vines died before most fruit ripened.
Halona	29-Jul	5.0	5.7	1.3	10.6	16.7	20.1	pale salmon flesh is soft and sweet; very good.	
Victoria	1-Aug	3.7	6.0	1.3	10.6	12.2	16.7	juicy, sweet	
Riviera Sweet	8-Aug	2.7	4.7	1.1	11.0	5.3	5.9	crisp, great melon flavor	problems with fruit cracking;
Sugar Cube	12-Aug	2.3	5.3	1.0	11.3	6.7	6.5	very sweet and juicy, not much flavor	
Electra	3-Aug	3.3	4.0	1.6	11.4	16.3	26.4	sweet but watery and bland	
Visa	29-Jul	6.3	9.0	1.1		15.0	16.8	Pale green flesh is mushy and bland.	Most fruit did not ripen due to GSB. Fruit tends to crack
		LSD 2.2	LSD 1.7	LSD 0.4	LSD 2.5	LSD 6.3	LSD 8.9		



Table 2. Melon data from 6 varieties in ancillary trial. Conditions were the same as for the main trial except that there were 6 replications with 5 plants per plot.

<b>Variety</b>	<b>fruit (no.)</b>	<b>Yield (Kg)</b>	<b>Fruit Size (Kg)</b>	<b>Comments</b>
Athena	10	15.82	1.57	
Lil Loupe	16	13.26	0.84	moderate GSB
Sarah's Choice	10	14.65	1.50	excellent quality
Sivan	11	8.42	0.76	
Sweet Granite	17	14.62	0.88	severe GSB and PM; fruit unmarketable
Tasty Bites	17	9.91	0.60	severe GSB; 68% cull fruit
	LSD 4.0	LSD 2.9	LSD 0.14	

## Potato Trial

We trialed 27 potato varieties in 2011. Most of the varieties were specialty freshmarket types, but we also tested general performance of some varieties shown to be highly tolerant or resistant to late blight. The potatoes were grown in 10-foot plots, with four plots of each variety. The trial was planted in mid April. Stand establishment was rated on May 25 using a 0-10 scale where 0 indicates no stand. Colorado Potato Beetle showed up in the trial on June 6. Levels exceeded the action threshold on June 20 and the plants were sprayed with Entrust. A second spray of Pyganic was made on July 6. Beetle damage was rated June 20 using a 1-9 scale where 9 indicates no damage or larvae present. Early blight damage was rated July 25 and August 3 using a 1-5 scale where 1 indicates severe damage. Early-maturing varieties had the vines cut July 26. A second cutting was made August 4. All remaining vines were mowed off on August 20. Data was also collected on flowering date, height at flowering, yield and tuber size.

New York 150 had the best stand establishment, scoring a perfect 10. Rose Finn Apple, La Ratte, G4-2, Banana, and French had similarly strong establishment. Island Sunshine had very poor establishment; Red Maria, Purple Pelisse, King Harry, Elba, and Chieftan were better, but not significantly so. The Terra Rosa seed arrived late, so that variety was not included in the establishment ratings.

King Harry lived up to its reputation as resistant to Colorado Potato Beetle, with a score of 9. However, any variety with a score above 6.4 is statistically similar. The beetles seemed to seek out Ozzette and Rose Finn Apple. They were also fond of Romanze, Purple Peruvian, and Purple Pelisse. Elba, Terra Rosa, and Blossom showed the best resistance to early blight on both dates, and the vines were still green when the trial was mowed down on August 20. Rose Finn Apple and Red Thumb were the most susceptible varieties. Terra Rosa and Blossom had the least early blight of the red-fleshed varieties. Elba was the best of the white-fleshed varieties. La Ratte and Nicola were the best of the yellow-fleshed varieties. Neither of the two purple-fleshed varieties had any early blight resistance.

Tuber size was determined by taking the weight of 10 randomly selected tubers from each plot after harvest. Red Maria and Elba had the largest tubers, with weights of 1950 g and 1927 g, respectively. Ozzette had the smallest tubers, followed by Purple Pelisse and Peanut. Chieftan was the highest yielding variety, closely followed by Purple Viking, Red Maria, and New York 140. All four varieties exceeded 15 kg of marketable tubers from 10 feet of row. The lowest yielding variety was Purple Peruvian, which grew beautiful tops but averaged only 2.1 Kg of potatoes per plot, all of them quite small. Ozzette and King Harry also had low yields. French and Peanut had the highest yields of any of the fingerling varieties. La Ratte yielded slightly less than Peanut but had larger tubers, better establishment, and better resistance to early blight. Nicola was the highest yielding yellow-flesh potato with 14.1 kg per plot.

This year's trial included several new releases and experimental varieties. Purple Pelisse is a new purple-fleshed fingerling from the Northwest Potato Variety Development Program. It has better color than All Blue. Yields in this trial were moderate, although much superior to Purple Peruvian. However, Purple Pelisse appears to be quite susceptible to Early Blight and Colorado Potato Beetle. Terra Rosa is another variety from the Northwest Potato Variety Development Program. It is a red-fleshed oblong potato, and is very attractive. The tubers are shallow, and suffered heavy vole damage in our trial. Yields were good, and Terra Rosa appears to be resistant to early blight. New York 150 is a white potato that produces an abundance of small, round tubers. It is not preferred by Colorado Potato Beetles, but is susceptible to early blight. Yields were comparable to the best of the fingerling varieties. G4-2 is an experimental variety from Cornell that has white flesh and yellow skin with pink splotches. It is very pretty, and the tubers are an excellent size for roasting whole. Yields were excellent – G4-2 second only to Nicola among the small tuber varieties.

Potato Variety Trial Data

Variety	Shape	Skin	Flesh	Establish.	Flowering	Height (in.)	CPB	EB 7/25	EB 8/3	10-Tuber Weight (g)	Yield (Kg)
French	fingerling	red	pink	8.7	12-Jun	27.8	6.7	4.0	2.7	702.5	13.6
Peanut	fingerling	brown	yellow	6.3	15-Jun	23.1	7.0	2.3		388.3	13.0
La Ratte	fingerling	yellow	yellow	8.8	20-Jun	26.3	7.0	4.0	2.0	645.0	11.9
Red Thumb	fingerling	red	pink	8.3	15-Jun	22.6	7.0	1.8		481.5	11.8
Banana	fingerling	brown	yellow	8.7	20-Jun	25.0	7.0	3.7		621.3	10.2
Purple Pelisse	fingerling	purple	purple	3.5	never		4.0	2.0	1.0	384.0	10.2
Rose Finn Apple	fingerling	pink	yellow	9.0	20-Jun	29.2	3.5	1.8	1.0	621.0	10.1
Blossom	fingerling	red	pink	6.0	15-Jun	18.4	8.0	4.5	4.3	637.5	8.3
Ozzette	fingerling	yellow	yellow	4.8	never		3.3	2.0	1.0	375.0	4.4
Purple Peruvian	fingerling	purple	purple	6.5	20-Jun	25.3	3.8	2.5	2.3		2.1
Terra Rosa	oblong	red	red				6.0	5.0	5.0	1660.0	11.4
Chieftan	round	pink	white	4.0	19-Jun	27.76	7.00	3.75		1062.8	15.87
Purple Viking	round	purple	white	4.8	23-Jun	23.75	8.00	2.75		1231.5	15.80
Red Maria	round	red	white	3.3	26-Jun	27.67	8.67	4.00	2.00	1950.0	15.69
New York 140	oblong	white	white	7.8	12-Jun	22.29	6.50	4.00	3.25	1312.8	15.28
Elba	round	brown	white	4.0	20-Jun	26.22	7.50	5.00	4.75	1927.5	14.51
G4-2	small round	yellow with pink	white	8.8	25-Jun	26.25	8.50	3.50	1.75	892.5	13.87
New York 150	small round	white	white	10.0	20-Jun	25.12	8.00	3.00		465.5	12.38
Kennebec	oblong	brown	white	7.8	26-Jun	25.67	8.25	4.00	3.50	1389.0	12.35
King Harry	round	yellow	white	4.0	20-Jun	23.25	9.00	4.00	3.00	1777.5	5.35
Nicola	small oblong	yellow	yellow	6.5	20-Jun	24.5	6.5	4.0	2.5	937.5	14.1
Romanze	oblong	red	yellow	4.5	15-Jun	27.24	4.50	3.25	2.25	1297.5	13.52
Yellow Finn	oblong	yellow	yellow	6.3	13-Jun	21.25	7.00	3.00		1152.5	12.67
Desiree	round	pink	yellow	7.0	15-Jun	27.01	7.00	2.75	2.25	1460.0	11.19
Blue Gold	small round	blue	yellow	5.8	14-Jun	19.51	6.50	3.25		982.5	11.16
German Butterball	oblong	yellow	yellow	4.8	20-Jun	31.42	6.75	2.50	2.50	1012.5	9.83
Island Sunshine	round	yellow	yellow	2.5	26-Jun	26.45	6.00	3.25	3.00	1017.5	7.84
LSD				1.7		3.4	2.6	1	1.1	292	4.5

## Broccoli Trial

We evaluated broccoli varieties for fall harvest in a non-replicated observational trial. The trial was established by direct seeding on June 15 and was harvested in September. Plots were 50 feet long, with 12 inches between plants and 30 inches between rows. Fertility was provided by organic fertilizer incorporated pre-plant and liquid fish emulsion applied through the drip irrigation system. We sprayed as needed for flea beetles and caterpillars. No fungicides or herbicides were applied. The biggest pest problem was woodchucks, which severely damaged the eastern half of the trial. The varieties TX-1, Belstar, Emerald Isle, and Emerald crown were seeded closest to the woodchuck burrows and were a complete loss. Due to the woodchuck damage we will be repeating the trial in 2012.

Castle Dome established well, but had very poor quality. The centers of florets failed to develop, leading to concave heads and yellowing. Hurdle had the same problem, although less severely. Lieutenant was one of the best of the early varieties, and continued to yield throughout the harvest period. Hot Bro also did well except in the first harvest, when it was very wormy. Greenbelt was the highest yielding variety overall, reflecting strong establishment and its location at the west end of the field. Rosalind was the only purple broccoli in the trial. It established well but was very late, heading after all the other varieties had stopped producing.

Variety	First Harvest	Mkt Yield (kg)	% Mkt Yield	Avg. Head Wt. (kg)	Color	head type	Sideshoots	Notes
Castle Dome	2-Sep	4.35	51	0.19	yellow-green	segmented	no	larger heads concave with immature centers; loose and yellow, unmarketable. Some worms.
Diplomat	2-Sep	3.89	95	0.24	dark green	smooth		tight, holds color well, no worms
Batavia	2-Sep	4.73	83	0.17	medium green	large rice		tight, no worms; limited seed
Lieutenant	2-Sep	7.01	98	0.26	grey-green	smooth, medium rice	yes	tight, holds well
Hot Bro	2-Sep	7.13	100	0.71	grey-green	segmented; large rice	yes	very wormy
Everest	2-Sep	4.49	92	0.19	blue-green	segmented	yes	looks like freezing type. No worms.
Hurdle	12-Sep	2.76	72	0.34	dark green	tight		concave heads, scattered yellow florets
Greenbelt	12-Sep	8.35	100	0.27	blue-green	segmented, rough		nice small heads
Baton	12-Sep	2.54	100	0.25	dark green	segmented		slightly rough
Arcadia	12-Sep	3.03	100	0.22	dark green		yes	nice
Bay Meadows	12-Sep	2.94	92		blue-green	loose		small heads but nice
Fiesta	29-Sep	2.62	100		dark green	tight		large heads; only 25 seeds and poor stand
Blue Wind	29-Sep	0.26	100		blue-green	very tight		woodchuck damage
Green Goliath	29-Sep	0.42	100		medium green	tight		poor establishment
Gypsy	29-Sep	0.4	100		medium green			woodchuck damage
Amero	29-Sep	2.99	100		dark green	tight		very nice heads; woodchuck damage reduced yield
Rosalind	12-Oct				purple	tight		very late - first heads in mid October

## Summer Squash

The summer squash was direct-seeded June 13 in a field that had been planted to tomatoes in 2010. The rows were on 5-foot centers with the alleys planted to an established living mulch of perennial ryegrass and white clover. The 1-foot planting rows were prepared by zone tilling. The living mulch was mowed to control height; weeds within the rows were controlled by hand weeding. Each variety was represented by three plots with 10 plants per plot.

The 2011 summer squash trial performed very poorly and there were no significant differences in yield among varieties. The seedlings were attacked by striped cucumber beetle at the one-leaf stage, and even the varieties that did not suffer losses to bacterial wilt were stunted. Slow establishment and low vigor led to severe competition from the living mulch and from crabgrass that emerged in the rows. The trial was also attacked by squash vine borer. Many of the fruit that did set were not properly pollinated, despite an abundance of bees. Cucumber beetles were a continuing problem despite pesticide applications, and powdery mildew and plectosporium blight finished off the trial by the end of August. We intend to repeat the trial in 2012.

We collected data on stand establishment, seedling vigor, vegetative growth, bacterial wilt damage, vine borer infestation, and occurrence of powdery mildew and plectosporium blight. Severity data was not collected for the fungal diseases because we sprayed the trial with chlorothalonil to prevent the plectosporium from spreading to our winter squash fields. Seed establishment was recorded as the number of plants (out of 10) present at the one true leaf stage. Seedling vigor was rated 17 days after planting using a scale of 1-5 where 5 indicated highly vigorous plants. Vegetative growth was rated 2 weeks later using a scale of 1-3 where 3 indicated good growth. Vine borer and bacterial wilt were recorded as percent affected plants. For powdery mildew and plectosporium blight the score indicates how many plots of each variety had the disease present (0-3).

Quirinal had the best seedling vigor, followed by Magnum. It also had the best vegetative growth, along with the heirloom variety Costata Romanesco, which is known for its very large plant. Bacterial wilt damage was variable between reps, resulting in an LSD of 18%, but 4524 and Butta still had infection levels significantly above 0. These two varieties were also generally weak, and severely damaged by vine borer. The vine borer data was not significant due to much more severe infestation in rep 1 than in the other 2 reps. The average across all varieties was 46% infestation for rep 1, compared to 17% and 20% for reps 2 and 3, respectively. However, it is worth noting the varieties with no infestation: Costata Romanesco, and Golden Glory. The varieties 1212 RSQ, Cheetah, Conquerer III, Prelude III, and Superpick had less than 10% infestation. Superpick also fared well against bacterial wilt, powdery, mildew, and plectosporium, and had the highest yield despite very small plants. Sligo had the second highest yield despite being severely impacted by vine borer, powdery mildew, and plectosporium.

Variety	Emergence	Seedling Vigor	Vegetative growth	First Flower	First Harvest	Bacterial Wilt (%)	vine borer (%)	pm	Plecto-sporium	adjusted yield
4524	7.0	1.3	1.3	7/22	8/1	49.8	33.3	1	0	12.7
1212 RSQ	9.7	2.7	2.0	7/23	8/3	9.7	19.2	1	0	11.0
Butta	10.0	2.7	2.0	7/20	8/1	20.0	45.8	0	0	19.3
Cheetah	10.0	3.3	2.7	7/22	8/5	3.3	27.0	1	0	20.3
Conquerer III	8.3	1.7	2.0	7/27	8/5	3.3	3.3	1	0	16.2
Costata Romanesco	4.3	1.7	3.0	7/27	8/3	0.0	0.0	1	0	12.5
Dunga	10.0	3.3	2.0	7/22	8/3	7.9	34.9	1	0	13.5
Dunja	9.7	3.0	1.7	7/21	8/1	3.3	20.7	1	1	17.1
Emerald Desire	9.3	2.0	2.3	7/22	8/3	7.5	14.3	1	0	14.5
Endeavor	10.0	3.0	1.7	7/22	8/1	0.0	10.0	1	0	14.1
Enterprise	9.7	2.3	2.0	7/22	8/3	0.0	32.2	1	0	14.7
Envy	9.7	2.7	2.7	7/20	8/1	5.6	40.1	2	1	13.7
Gentry	10.0	1.7	2.0	7/27	8/8	7.0	38.9	0	0	14.7
Gold Prize	4.3	1.0	1.7	7/23	8/5	0.0	12.5	0	0	16.5
Gold Star	7.7	1.3	2.3	7/24	8/1	9.3	22.2	1	0	17.0
Golden Glory	9.3	1.7	1.7	7/23	8/1	5.6	0.0	1	0	10.7
Green Eclipse	9.7	3.3	2.0	7/21	8/1	4.8	54.4	1	1	16.8
Judgement III	10.0	2.7	2.7	7/22	8/1	7.9	12.9	0	0	17.2
Justice III	10.0	2.7	1.7	7/22	8/5	0.0	34.1	1	0	13.3
Lazor	8.7	2.3	2.3	7/21	8/1	14.3	37.0	2	1	18.6
Magnum	10.0	4.0	1.7	7/21	8/3	6.7	46.3	1	0	13.0
Paycheck	9.7	2.7	2.0	7/23	8/1	7.5	20.6	2	1	16.1
Prelude II	8.7	1.7	2.3	7/21	8/5	3.7	6.7	1	0	17.2
Quirinal	9.7	4.3	3.0	7/21	8/1	8.3	53.3	2	0	17.0
Reward	7.0	2.0	2.0	7/20	8/1	0.0	43.1	1	1	14.3
Sebring	9.7	2.7	1.0	7/23	8/8	9.3	20.0	0	0	9.6
Sligo	9.7	3.7	2.7	7/20	8/1	0.0	50.0	3	2	21.6
Spineless Beauty	9.7	3.0	2.0	7/21	8/1	0.0	26.7	2	1	14.0
Spineless King	8.0	2.7	2.7	7/22	8/1	0.0	53.3	1	1	17.6
Spineless Perfection	10.0	3.0	2.3	7/22	8/1	3.3	28.2	2	1	17.0
Superpick	6.3	1.0	1.7	7/23	8/1	4.8	5.6	1	0	23.4
	LSD 1.9	LSD 1.1	LSD 1.0			LSD 18.5	NS	NS		NS