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1999 Vegetable Cultivar Evaluations

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Introduction

Franklin County Extension and its Master Gardener volunteers undertook a vegetable cultivar trial project to gather plant performance and yield information to benefit home vegetable gardeners. 1999 was the fourth year for the evaluation project.

The trial plot was 80' by 125' in size, and was located at the O.S.U. Waterman Farm in Columbus, Ohio, near the main campus. The garden is located on typical clay soil of neutral pH and is in full sun. The farm manager worked with the plot to till the soil initially, including incorporation of cow manure, and assisted volunteers in preparing raised planting beds for the cool season vegetables and the square foot gardens. In addition, he supplied irrigation upon request, and controlled insect pests, as needed. He also donated top soil and compost for the container portion of this evaluation.

Because this is a research farm with numerous and experimental plots, the insect pest populations were sometimes overwhelming, and could have affected our results. Striped cucumber beetle, squash bugs, squash borers, aphids, and whitefly were all prevalent in the plot, as well as large populations of Japanese beetles and bean leaf beetles. Racoons, woodchucks, and mice all caused some injury to crops and affected our yield data.

Method

In 1999, the trials included not only vegetables grown in ground beds, but also vegetables grown in containers. The cultivar trials this season consisted of six groups of vegetables that gardeners were likely to grow at home: Tomatoes, peppers, beans, squash, potatoes, and sweet potatoes. Three to four cultivars of each were selected, including at least one cultivar of each suitable for container culture. A few vegetables were also planted in a cool season garden and in four square foot gardens; however, evaluation data was not recorded on these vegetables.

Vegetables were chosen by the volunteers based on the appeal presented in catalogs and horticultural newsletters, previous interest or knowledge, and on plant size that is suitable for smaller spaces. Each of these cultivars is discussed separately under evaluation results.

Tomato and pepper seeds were sown on March 31 in the O.S.U. horticulture greenhouse to produce transplants. The rest of the crops were direct seeded in the plots on May 17, along with planting the transplants. Rows were 4' wide with 8' between rows to allow space for tillage equipment during the season, and were slightly raised. The number of each plant grown for evaluation is discussed under each vegetable section.

In addition, all rows were covered with black plastic for weed management and conservation of moisture. Fertilizer was not applied to the rows before planting or during the season, though starter fertilizer was applied to the transplants at planting. The last harvest and cleanup of the plots took place on September 20. However, final harvest of the sweet potatoes took place on October 27 after a killing frost.

The plots were maintained and evaluated three times weekly by Master Gardeners, except on occasion when the plot was too wet from rain or irrigation. Maintenance by the volunteers consisted of weeding, pruning, harvesting, roguing, etc. Irrigation, roto-tilling, and pest control were taken care of by the farm crew upon request.

Plants were rated on a scale of 1-4 for overall appearance. The rating scale was:

1 = Perfect condition
2 = Slight; less than 15% of foliage or fruit affected
3 = Moderate; between 16% = 40% of foliage or fruit affected
4 = Extreme; over 41% of foliage or fruit affected

Plant damage from insects, animals, and weather was noted on evaluation forms and accounted for on the above rating scale, as well as additional comments made on the forms.

Yield data was also recorded three times weekly, and included total weight of a particular crop and the number of fruits harvested. Volunteers used some of the vegetables and distributed some to the farm crew and local food pantries. Vegetables were also distributed to the county Extension Expanded Food and Nutrition Education Program.

An informal taste evaluation was conducted on August 25 for all vegetables, except the potatoes and sweet potatoes. Each vegetable was rated on a scale of 1-5 for flavor.

Container Evaluation

Only a few of the volunteers grew plants in containers, and because the season was so hot and dry, results were not good. Overall, production was low on the tomatoes, peppers, and sweet potatoes in containers, and was much lower than plants in the evaluation plot at the farm. Results are not worth reporting.

Weather Report

In general, Columbus weather during the 1999 growing season was warmer and drier than normal. June was the beginning of a drought period that later took Columbus and Franklin County into an "extreme drought" category by August. However, irrigation was available for the plot upon request, and the plot did not usually lack for water. Following is the summary of weather, May through September.

Month	Average High Temp. °F	Departure from Normal °F[1]	Rainfall Total	Departure from Normal Rainfall
May	76.7°F	+3.6°F	1.80"	-2.13"
June	85.1°F	+5.3°F	0.65"	-3.39"
July	91.1°F	+7.0°F	3.02"	-1.29"
August	83.5°F	+1.5°F	2.40"	-1.32"
September	80.2°F	+2.3°F	1.91"	-1.05"

[1]The "departure from normal °F" is an average of both daily high and low temperatures for the month.

Vegetable Evaluation Data

A discussion for each group of vegetables follows, including a description of each cultivar, seed source, overall rating for the season, yield data, comments regarding pest and other problems encountered, and taste rating. Again, taste rating was subjective and not equivalent across all crops, but may provide useful information to the reader.

In the tables below, "overall rating" refers to the 1-4 scale described above, and "harvest date" refers to date of first significant harvest that included more than only one or two fruits.

Tomatoes

Four tomato cultivars were chosen this season, including three hybrids and an heirloom. Eight plants of each were planted at a 48" spacing. Support stakes were driven into the soil at planting, and plants were tied up as needed. Plants were not suckered or pruned through the season.

Weather was against the tomato crop this season. High temperatures in June and July caused some flowers to abort and reduced early fruit set.

June was well below normal in rainfall, and at the same time, the irrigation system at the evaluation plots was not working properly, so plants were exposed to periods of extreme dry and wet soil conditions. This lead to physiological leaf roll as early as June 18 on most of the tomatoes, some of which was severe. By July 14, rodents (mice and groundhogs) were damaging some of the ripening fruits.

By August 24 many of the tomatoes were cracking radially (from the stem end). Environmental conditions that caused this were: periods of fast fruit growth with high temperatures and high moisture levels; initial fruit growth during a dry period followed by heavy rain or irrigation during ripening; and wide differences in day and night temperatures.

In the taste evaluation, 'Bush Early Girl' was rated highest, followed by 'Caspian Pink,' 'Mountain Gold;' and 'Celebrity.'

In the following descriptions of tomatoes, these letters stand for various resistance to disease:

V = Verticillium wilt
FF = Fusarium wilt, Races 1&2
N = Nematodes
T = Tobacco mosaic virus

'Bush Early Girl'

Hybrid. 54 - 65 days. Extra large, extra early tomatoes that grow on a true bush. The tasty red fruits are much bigger than Early Girl, nearly 4" across, and it ripens only two days later. The plants are amazingly compact, yet productive. Only 18" tall and self-supporting. Determinate. Multiple disease resistant, VFFNT. Burpee.

'Caspian Pink'

80 days. In this seed company's California taste trials, Caspian Pink has beaten Brandywine for three straight years. Originally grown in Russia in the area between the Caspian and Black Seas. Heirloom, indeterminate. Vermont Bean and Seed Company.

'Celebrity'

72 days. All-America winner in 1984. Medium-large, 7-8 oz. flavorful, globe-shaped, firm red fruits ripen mid-season. Vigorous vines. Widely adapted. Vigorous semi-determinate. VFFNT. Johnny's Selected Seeds.

'Mountain Gold'

71 days. Fruit is uniform, deep yellow-orange, and very large. Firmness allows for a better shelf life than other yellow tomatoes. Mild flavor and crack-resistant. Determinate. VFF. Tomato Growers Supply.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds	Total Fruit Quality	Average weight per fruit (oz)
Bush Early Girl	2.1	July 21	77.1	225	5.5
Caspian Pink	1.5	August 9	52.5	93	9.0
Celebrity	1.9	July 21	69.9	199	5.6
Mountain Gold	2.1	July 30	29.3	76	6.2

Beans

'Anellino Mix' was a pole bean that was trellised in the plots, while the other two cultivars were bush beans that were planted in 20' long wide rows.

The beans did not do well this season and essentially finished producing by the end of July. Bean leaf beetles attacked the plants as early as June 14, with extensive damage done by July 12. No beans were available for our taste evaluation on August 25.

'Anellino Mix'

Green and yellow Italian heirlooms that are small and crescent shaped with a rich, Romano flavor. Anellino beans are very much in demand by chefs for their flavor and unique curlique shape.

Heirloom. Cook's Garden (No maturity date given).

'Benchmark'

55 days. Heavy pod set and is heat and drought resistant. Upright plants are noted for heavy yields of very straight, smooth and shiny 6-inch pods. Set is concentrated for easy picking. Gurney's.

'Tenderpick'

54 days. Great flavor, similar to 'Tenderpod' with improved germination. Vigorous plants produce heavy yields of straight, 5 1/2" dark green, tender pods with curved tips and white seeds. Superb for fresh eating, canning and freezing. Burpee.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds
Anellino Mix	1.8	—	—
Benchmark	2.1	July 12	8.1
Tenderpick	1.9	July 12	7.6

Note: Beans were not counted after harvest; only weight was recorded. The Anellino Mix were heavily attacked by bean beetle and there was no harvest.

Squash

Squash were planted in hills spaced 36" apart, with 4 seeds sown per hill. Six hills of each cultivar were planted initially. By July 16, two 'Whitaker' hills were in decline, and two hills of 'Zephyr' were already lost. Squash vine borers were found in three plants by July 23. By August 9, only one 'Whitaker' hill was left. Squash bugs attacked the entire planting beginning on August 16, and the plants declined from there.

Though 'Table Gold' could be harvested as a summer squash or left on the vine to ripen and have the rind harden for winter storage, virtually all of them were harvested as summer squash, and not left on the vine late in the season.

In the taste evaluation, 'Zephyr' was rated highest, which met our expectations from the description given in seed catalogs. 'Zephyr' was followed in our taste evaluation by 'Table Gold' and 'Whitaker.'

'Table Gold'

90 days. A dual-purpose squash. Harvest in just 65 days as a bright yellow summer squash or let it mature to golden-orange, 4 1/2" acorn type winter squash. Flesh has a rich, nutty flavor. Space-saving, semi-bush plants. J.W. Jung Seed Co.

'Whitaker'

65 days. Whitaker is an open-pollinated summer squash that has great disease resistance. Compact bush plants are erect and hold fruits up off the ground for less loss and easier picking. Fruits are a medium-green with dark green stripes, and straight with blocky ends. The white, firm flesh cooks up firmer than other varieties. Whitaker also sets fruit without pollination, for earlier and better fruit set if bees are scarce. Whitaker is resistant to four of the most devastating squash diseases: zucchini yellow mosaic virus, papaya ringspot virus, cucumber mosaic virus, and powdery mildew. Territorial Seed Co.

'Zephyr'

54 days. New for 1999. A breakthrough in summer squash flavor. Distinctive, slender fruits, yellow with faint white stripes and light green blossom ends. Harvest young at 4"-6" for unusually delicious nutty taste and firm texture. Unique appearance for easy identification in the garden and kitchen. High yielding. Johnny's Selected Seeds.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds	Total Fruit Quality	Average weight per fruit (oz)
Table Gold	1.6	July 9	107.2	141	12.2
Whitaker	2.1	July 9	25.5	74	5.5
Zephyr	1.7	June 28	133.6	229	9.3

Peppers

Four peppers were selected for this season's evaluation. Only one was a bell-type pepper, 'Crispy', while the rest were banana-types. With the exception of 'Crispy' the peppers seemed to thrive in the hot, dry weather and were quite productive. With high temperatures during flowering, 'Crispy' did not have good fruit set, had some misshapen fruits, and did not get very large, which is true of most of the bell-types.

The rest of the peppers seemed to thrive in the heat. Plants looked good throughout the season, were sizeable, and were very productive. 'Sweet Pickle' also had ornamental value as plants were covered with various colored fruits all at the same time.

In the taste evaluation, 'Sweet Pickle' was rated highest, followed by 'Sugarchile,' 'Hungarian Semi-hot,' and 'Cripsy.'

'Crispy'

70 days. Exceptionally crisp, delicious peppers with heavy yields all season. Thick-walled fruits, 2 3/4" across and 3 1/2" long, have 3-4 lobes and ripen quickly from green to red. Burpee.

'Hungarian Semi-Hot'

60 days. Hybrid. This is a new class of peppers for most home gardeners. Tapered 4 1/2" fruits are light green turning yellow-orange when mature. Flavor is an appealing gentle spiciness. The most common use is as a stuffed pepper. Delicious in sautes, ratatouilles or any of the many ways you'll find to use a tender, zesty pepper. Nichols Garden Nursery.

'Sugarchile'

60 days. Thick, very sweet, deep red flesh, sweeter than most "sweet peppers." Awesome in salads and a great pepper for roasting on a grill or wood fire. The pungency is in the interior ribs — just pare them away to reduce heat. Medium-long, tapered, pointed, thick-fleshed fruit, average 5-6" long, 2 1/2" wide. Medium size plant with a heavy fruit set. Johnny's Selected Seeds.

'Sweet Pickle'

65 days. Plants are covered with dense clusters of 2" tapered oval fruits in a kaleidoscope of colors: yellow, orange, red, and purple, all on the plant at the same time. Fruit is thick-walled, sweet and tasty, especially in the orange and red stages. Perfect for salads or pickled peppers. 12 - 15" plants. Park Seed.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds	Total Fruit Quality	Average weight per fruit (oz)
Crispy	1.4	June 30	38.3	237	2.6
Hungarian Semi-hot	1.3	June 16	47.3	537	1.4
Sugarchile	1.3	June 30	37.3	472	1.3
Sweet Pickle	1.3	July 12	28.9	626	0.7

Potatoes

Thirty seed eyes of each potato cultivar were planted. All got off to a slow start, and didn't look very vigorous until about July 9. By July 23, all were infested with Japanese beetles, and by August 2, all were showing signs of heat stress. Potatoes were not part of the taste evaluation, since harvest took place after the evaluation date.

The potato harvest was disappointing, with few tubers actually harvested. The potatoes were planted late, probably too late for good development.

'Kennebec'

Champion late potato is thin-skinned, so young tubers are tasty for creaming. Good for baking, too — smooth with shallow eyes. Very resistant to early and late blight and mosaic virus. Stores well. Gurney's.

'Red Pontiac'

Top-notch boiling potato. Produces solid tubers with thin red skin, shallow eyes, and crisp white flesh. Midseason to late maturity. A good keeper — has long-lasting quality. Does extremely well in heavy soils. Gurney's.

'Yukon Gold'

This is touted as the best eating potato available on the market today. Golden skinned, yellow fleshed potatoes that look buttery and taste great. Early. Sprout-resistant tubers are excellent for storage. Gurney's.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds	Total Fruit Quality	Average weight per fruit (oz)
Kennebec	1.3	Sept 13	1.4	7	3.3
Red Pontiac	1.4	Sept 10	4.8	15	5.2
Yukon Gold	1.4	Sept 10	6.1	32	3.0

Sweet Potatoes

Four cultivars of sweet potatoes were selected for evaluation. Twelve slips of each were planted at a 12" spacing in rows covered by black plastic. By June 14, one plant of 'Centennial' was dead, and three 'Jewell' plants were dead. By July 9, the remaining plants were growing well. From about July 14 to 30, they were under attack by Japanese beetles, which fed heavily on the foliage. Though damage was heavy, the plants did well and continued growing up to frost. Since harvest was delayed until after a killing frost, sweet potatoes were not included in the taste evaluation.

'Centennials'

The most widely recognized sweet potato. Carrot color inside with copper to orange outside skin. "Baby bakers" in about 90 days. This variety has been used in many bake-off contests. Steele Plant Co.

'Georgia Jets'

A new variety with fast growth and higher than average yields. Ideal for northern gardens, even New England. Five years of testing in New York state shows that Georgia Jets produce 2 1/2 times the yield of standard varieties. Yields in other sections of the country are also exceptional. Jets have deep orange inside color with moist flesh and marvelous taste. Outside skin is red/purple. Steele Plant Co.

'Jewell'

An improved Centennial. Rosy red outside skin, deep orange flesh. Bakes quickly with a soft texture. Steele Plant Co.

'Vardaman'

Bush variety. Golden yellow outside skin that darkens soon after digging. Deepest, brightest orange flesh. Steele Plant Co.

Cultivar	Overall Rating	Harvest Date	Total Yield in Pounds	Total Root Quality	Average weight per root (oz)
Centennials	1.4	Oct 27	27.5	40	11.0
Georgia Jets	1.3	Oct 27	46.5	56	13.3
Jewell	1.4	Oct 27	66.5	90	11.8
Vardeman	1.3	Oct 27	31.5	86	5.8

Master Gardener Volunteers

All volunteers in the 1999 evaluation project were members of the O.S.U. Extension - Franklin County Master Gardener volunteer program. Annette Swanberg provided leadership to this project from planning to final evaluation. Some volunteers were very experienced gardeners, while others were sill learning about vegetable gardening.

Thanks to these Master Gardeners for their tireless efforts in planning, planting, maintaining, evaluating, and harvesting the plot through this hot and dry season:

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