Franklin County Master Gardener Volunteers Vegetable Trials Annual Report 2017

Prepared by

Lorraine Normore

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Executive Summary

The Vegetable Trials project is a research activity of the Ohio State University Extension Service's Franklin County Master Gardener Volunteer Program. The aim of the project is to evaluate vegetables that extend the diversity of backyard and local foods usually grown in Central Ohio and to explore issues that affect home gardeners. This report documents the results of the 2017 growing season, comparing eighteen types of vegetables, including one to five varieties of each type. It reports on productivity data (including germination success, total weight harvested and time available for harvest) and includes evaluative ratings made throughout the growing season.

As always, there were sometimes substantial differences between different cultivars of the type of vegetable, noted in this report. This fact alone demonstrates the utility of collecting comparable data within the Central Ohio growing environment. In 2017, we also explored different types of mulch for weed suppression and began an exploration of extending the season.

In a year of reduced productivity we found fewer than usual recommendations for the home gardener. Overall, 2017 was a poor year for many of the warm season crops, especially for all tomato varieties. The only outstanding producer in the warm season category was the *Autumn's Choice winter squash.* The hot pepper *La Bomba* was healthy throughout the growing season and was the best producer among the pepper cultivars despite its smaller size. It will be included in next year's cultivars. Among the cool weather crops, the kale variety *Red Ursa* did better than usual. Our new crop, turnip, proved to be a good season-long producer.

Introduction

The Vegetable Trials Project is a research activity of the Ohio State University Extension Service's Franklin County Master Gardener Volunteer Program. The aim of the project is to plant vegetable varieties that could extend the diversity of commonly grown backyard and local foods and evaluate their success in Central Ohio. We use good cultural practices that are within the reach of the home gardener. The project gives Master Gardeners the added benefits of developing their own skills and knowledge through working with other Master Gardeners on a shared project. Most of the produce is contributed to food banks in the Central Ohio community. This report documents the results of the 2017 growing season.

Method

The plot used in the 2017 Vegetable Trials is found within the Waterman Farm, a part of the OSU Agricultural Research and Development Center, located at the northwest corner of Kenny Road and Lane Avenue in Columbus, Ohio. The plot is 97' by 87' in size. A diagram of the 2017 plot appears in Appendix A.

The plot is organized into the following four areas:

(1) A raised bed that is 4' by 50' divided into 10 subplots. The vegetables grown in the raised bed in 2017 are shown in Table 1.

(2) Eleven cultivated field rows, 3’ in width and divided by 6’ paths. Ten of the rows were divided into three 20’ segments and one into two 20’ segments. The easternmost row was fashioned into a hill. The types of vegetables grown in the field area are shown in Table 1. Most vegetable varieties occupied one row segment. However, all four squash varieties occupy two row segments adjacent to each other. This year, all tomato varieties and cucumbers were trellised.

(3) Four square foot gardens in a 9’ by 9’ area. The square foot garden included a number of vegetables and surrounding small herb beds that were not included in the data gathered from the raised bed. Some were included in the harvest donated to the food banks or taken home by the Master Gardeners.

(4) At the front of the garden, a “Three Sisters’” bed was planted. This included pole beans, butternut squash, and corn, arranged in the traditional teepee form.

The same number of plants was included in each row segment for each of the regular tomato and pepper varieties. For other varieties, within each type of vegetable (e.g., beets, squash), different varieties occupied the same amount of space in the plot or raised bed which enables us to make a rough comparison of the productivity of the different varieties.

Vegetable cultivars were chosen by subcommittees of Master Gardeners during the winter season and acquired from a variety of sources including Johnny’s Select Seeds, Territorial, Seed Savers Exchange and Steele. White potatoes were started from seed potatoes, and sweet potatoes as slips. The varieties in the raised beds and other greens (chard, kale, collards) grown in the field this year were direct seeded. The warm weather varieties (cucumbers, eggplant, peppers, squash, and tomatoes) were sown as seeds using a germination mix and grown in the OSU greenhouses for approximately six weeks. They were then hardened off by Master Gardener volunteers in the three weeks prior to being transplanted to the field section of the plot. A brief description of the varieties and their sources appears in Appendix B.

Various methods were used to encourage growth and aid maintenance. The plot is tilled after the previous season and composted manure was tilled into the plot. Early in the spring, the field was tilled again. Worm compost was applied as a top layer in the raised bed and added as a top dressing for field crops. A transplant conditioner supplied by the Farm Manager was applied to the warm season crops when they were transplanted in the plot. For a few weeks after transplanting, row covers were used to protect the eggplant, squash and cucumber plants from insect pests. Drip lines were placed in the center of each row in the main plot with two drip lines placed in the sweet potato area. The raised bed, Three Sisters, and square foot gardens were watered using hoses.

The spaces between the rows were covered with single layers of cardboard that had been cleaned of both tape and staples or with three layers of newspaper. Both were covered by straw, providing both additional soil enrichment and functioning to hold the cardboard or newspaper in place. A small experiment was conducted this year to compare the relative effectiveness of cardboard vs. newspaper mulches underlying a straw cover. These data will be included in a separate report, combining the data from the 2017 and 2018 mulch evaluations. Volunteer sunflowers from last year’s plot were moved to the north and south borders of the plot. An attempt was made to create a wildflower bed on the south side of the plot. However, this proved to be unsuccessful because we were not able to separate the

wildflowers from endemic weeds. Zinnias and marigolds were planted at the end of each row segment. The sunflowers and zinnias attracted a wide variety of both birds and pollinator insects.

Table 1 lists the vegetables grown and monitored in the Vegetable Trials plot in the 2017 harvest year. The table gives the common names and species epithet, the location grown in the plot, and indicates the data collected for each cultivar. In mid-summer, beans were planted in the raised bed in the locations of the lettuce and radish crops which had reached their final harvest.

Table 1: Cultivars grown in 2017

Type	Variety	Location	Type of Data (+=germination; #=productivity, *=quality)
Beans	*BSC 825*	Raised bed	#
Beans	*Provider*	Raised bed	#
Beets	*Cylindra*	Raised bed	#
Beets	*Detroit Dark Red*	Raised bed	#
Carrot	*Nutri-red*	Raised bed	#
Carrot	*Romance*	Raised bed	#
Collards	*Flash*	Field	#
Cucumber	*Double Yield*	Field	+,#,*
Cucumber	*Martini*	Field	+,#,*
Eggplant	*Calliope*	Field	+,#,*
Eggplant	*Orient Express*	Field	+,#,*
Kale	*Dazzling Blue*	Field	#
Kale	*Red Ursa*	Field	#
Lettuce	*Olga*	Raised bed	#
Lettuce	*Red Sails*	Raised bed	#
Peppers	*La Bomba*	Field	+,#.*
Peppers	*Nikita*	Field	+,#,*
Peppers	*Tequila Sunrise*	Field	+,#,*
Peppers	*Wonder Bell*	Field	+,#,*
Potatoes, White	*German Butterball*	Field	#,*

Potatoes, White	*Purple Majesty*	Field	#,*
Potatoes, White	*Sangre*	Field	#,*
Radish	*French Breakfast*	Raised bed	#
Radish	*Holmes Royal Red*	Raised bed	#
Spinach	*Escalade*	Raised bed	#
Squash, Summer	*Black Beauty*	Field	+,#,*
Squash, Summer	*Yellowfin*	Field	+,#,*
Squash, Winter	*Autumn's Choice*	Field	+,#,*
Squash, Winter	*Sunshine*	Field	+,#,*
Sweet Potato	*Beauregard*	Field	#,*
Sweet Potato	*Georgia Jets*	Field	#,*
Sweet Potato	*Vardaman*	Field	#,*
Swiss Chard	*Oriole*	Field	#,*
Tomatoes	*Dester*	Field	+,#,*
Tomatoes	*Gold Medal*	Field	+,#,*
Tomatoes	*Martino's Roma*	Field	+,#,*
Tomatoes	*Mountain Fresh Plus*	Field	+,#,*
Tomatoes	*Pink Berkeley Tye Dye*	Field	+,#,*
Tomatoes, Cherry	*Black Cherry*	Field	+,#,*
Tomatoes, Cherry	*Sun Gold*	Field	+,#,*
Turnips	*Purple Top White Globe*	Raised bed	#

In an effort to look in extended season crops, kale, collards and turnips were planted in the raised bed after this year's crops had been removed from the raised bed. To provide them with some protection, they were covered with a row cover in the third week of November. While they struggled through the depth of the winter, they again began to grow in the early spring and were harvested prior to preparing the raised bed for the 2018 crop year.

Results

This section will include data related to crop success and our mulch study, represented by data on germination success, harvest productivity and cultivar evaluation.

Germination Rates

This season we documented the germination rates of those varieties started in the greenhouse. The number of seeds sowed, germinated, and those transplanted into the garden are shown in Table 2.

Table 2: Germination rates

2017 Cultivars		No. of seeds started	No. of viable seedlings	No. of seedlings transplanted
Cucumber	*Double Yield*	20	19	14
Cucumber	*Martini*	20	18	14
Eggplant	*Calliope*	30	9	9
Eggplant	*Orient Express*	20	15	12
Peppers	*La Bomba*	20	13	13
Peppers	*Nikita*	20	19	13
Peppers	*Tequila Sunrise*	20	13	13
Peppers	*Wonder Bell*	20	17	13
Squash, Summer	*Black Beauty*	20	12	12
Squash, Summer	*Yellowfin*	20	15	12
Squash, Winter	*Autumn's Choice*	20	17	14
Squash, Winter	*Sunshine*	20	20	14
Tomatoes	*Dester*	20	15	13
Tomatoes	*Gold Medal*	20	18	13
Tomatoes	*Martino's Roma*	20	13	13
Tomatoes	*Mountain Fresh Plus*	20	19	13
Tomatoes	*Pink Berkeley Tye Dye*	20	14	13
Tomatoes, Cherry	*Sun Gold*	12	12	7
Tomatoes, Cherry	*Black Cherry*	12	12	7

Interestingly enough, there was a fair amount of variability in germination success among the cultivars included in the 2017 trials. We started the warm weather seedlings in a mist room in a greenhouse and promptly moved them to an enhanced light and temperature environment when cotyledons appeared. With one exception (the *Black Beauty* squash), the cucurbits displayed a minimum 75% germination rate which was quite good. There was greater variability among the tomatoes and peppers, with some varieties germinating well and others less successfully.

This year, our eggplant varieties did not do equally well. One cultivar, *Calliope*, showed only a 30% germination rate for the first planting in which 20 seeds were sown. In an effort to have a more equal

number of cultivars for our harvest evaluation, a second planting of 10 *Calliope* seeds was made late in April. However, the germination rate for that planting was also 30%, resulting in only nine viable seedlings transplanted into the plot for this cultivar.

Crop Productivity

Two types of productivity data could be of interest to the home gardener. The first describes the overall quantity (weight) harvested for each cultivar. The second aspect of productivity of interest to a home gardener concerns the length of time between planting/transplanting and harvest and the amount of time available for harvest. For a home gardener, having early access to a vegetable and having harvest spread over a longer time can be advantageous since both expand the time available for use in the home kitchen and do not burden the gardener with the need to preserve as well as to use a given vegetable at a given, short period of time.

Total Harvest

Records of the total weight were kept each time vegetables were harvested during the growing season. The total weights are reported in Table 3.

Table 3: Total harvest weight by cultivar in pounds

2017 Vegetables	Cultivar	Total harvest (lbs.)
Beans	*BSC 825*	16.34
	Provider	23.66
Beets	*Cylindra*	18.88
	Detroit Dark Red	25.54
Carrot	*Nutri-red*	10.97
	Romance	8.00
Collards	*Flash*	23.13
Cucumber	*Double Yield*	12.88
	Martini	16.66
Eggplant	*Calliope*	4.31
	Orient Express	3.59
Kale	*Dazzling Blue*	15.66
	Red Ursa	27.22
Lettuce	*Olga*	10.16
	Red Sails	11.22
Peppers	*La Bomba*	37.25
	Nikita	18.09
	Tequila Sunrise	23.75
	Wonder Bell	25.41
Potatoes, White	*German Butterball*	0.16

	Purple Majesty	0.00
	Sangre	1.63
Radish	*French Breakfast*	9.41
	Holmes Royal Red	5.84
Spinach	*Escalade*	0.44
Squash, Summer	*Black Beauty*	74.03
	Yellowfin	70.94
Squash, Winter	*Autumn's Choice*	343.94
	Sunshine	0.88
Sweet Potato	*Beauregard*	49.94
	Georgia Jets	65.34
	Vardaman	23.28
Swiss Chard	*Oriole*	10.41
Tomatoes	*Dester*	56.25
	Gold Medal	6.31
	Martino's Roma	27.41
	Mountain Fresh Plus	26.79
	Pink Berkeley Tye Dye	24.00
Tomatoes, Cherry	*Sun Gold*	2.20
	Black Cherry	11.28
Turnips	*Purple Top White Globe*	21.39

While some features of these data are to be expected: for example, the total weight of greens is lower than that of larger and more dense vegetables like squash or sweet potatoes, differences within a given type of vegetable will be described in the section that follows. Differences between members of a group are potentially of importance since the number of plants for cultivars of each of the warm weather vegetable varieties were the same, each subplot for the different varieties of tomatoes, squash, peppers, and potatoes was roughly similar in size and subject to roughly comparable cultural practices (water, weeding, etc.) as was the area in the raised beds devoted to different cultivars of greens, carrots, beets and radishes.

Let us look at some vegetables that show differences among cultivars, based on the data in Table 3 above and grouped by plant family.

Cucurbit Family

Cucumbers

The *Martini* cultivar, a "white" cucumber was approximately 30% more productive than *Double Yield* (a standard green cucumber) in terms of weight harvested (16.66 vs. 12.88 pounds).

Squash

Both summer squashes, *Black Beauty*, a dark green zucchini, and *Yellowfin*, a yellow squash, performed equivalently well. The winter squashes, however, differed markedly. *Sunshine* was an indifferent producer, markedly affected by the 2017 weather. *Autumn's Choice*, on the other hand, was a notable success, generating nicely formed and attractive fruit throughout the entire season. It was the best producing winter squash grown in the plot in the data available from 2011 through the present.

Solanaceae (Nightshade) Family

Eggplant

Comparisons of the eggplant cultivars were made more complicated because of the lack of germination success for the *Calliope* cultivar, noted in the previous section of this report. The result was that only nine *Calliope* seedlings were transplanted into the plot while 15 *Orient Express* seedlings were transplanted. Nonetheless, the total harvest of *Calliope* eggplant was marginally greater than that for *Orient Express*. If we prorated the total harvest weight based on harvest per plant, *Calliope* was the more successful variety.

Peppers

The best producer was the jalapeno pepper, *La Bomba,* a relatively small but prolific cultivar. It was followed, at a distance by the 2015 and 2016 high producer, *Wonder Bell* which was closely followed by *Tequila Sunrise*, a medium size frying pepper. The lowest producer, *Nikita*, was a light colored bell pepper that was most effective early in the season but failed to thrive as the season progressed.

Tomatoes

Only one cultivar, *Dester*, exceeded the least productive tomato cultivar in 2016. Even *Mountain Fresh Plus*¸ the high producer at almost 160 pounds in 2016 contributed only 27 pounds of fruit in 2017. *Martino's Roma*, our paste tomato, and *Pink Berkeley Tye Dye*, our heirloom, produced in the same range as *Mountain Fresh Plus*. The lowest producer of the regular tomatoes, *Gold Medal*, only began to produce at the end of the season when the weather was unusually warm. In a similar vein, our cherry tomatoes, *Sun Gold* and *Black Cherry*, failed to produce much fruit during the usual season. *Black Cherry's* more successful harvest began in September after *Sun Gold* had expired.

The Greens

As in the two previous years, the Master Gardener seed selectors were interested in trying to expand the variety of greens grown, in part in response to the expressed interest from the food banks to which we ordinarily give the major part of our produce. This year, we continued this trend and grew greens in both the raised beds and in the field. Because the space allotted for raised bed and for field are roughly equivalent only within each category, our comparisons will be made within those groupings.

The greens grown in the raised bed were primarily cool season crops. They included *Olga* and *Red Sails* lettuces, *Escalade* spinach, and *Purple Top White Globe* turnip that contributed both as greens and a root vegetable to the harvest. Both *Olga* and *Red Sails* produced an approximately equal harvest of just over 10 pounds which were above average for most of the years between 2014 and 2016. The spinach

harvest was minimal. We didn't separate the greens and root contribution of the turnip although both were available early and continued to contribute all season.

The field greens included Swiss chard, collards, and two varieties of kale. We extended the harvest throughout the season by picking the mature leaves and leaving the central parts of the plants to produce throughout the season. Among the varieties, Red *Ursa* kale did best, followed by the *Flash* collards, *Dazzling Blue* kale, and finally the Swiss chard, *Oriole*. The lower harvest for the Swiss chard was due in part to its popularity with the deer who were major predators in the 2017 crop year.

As an experiment suggested by Pat Claeys, one of our volunteers, the remaining seeds for collards and kale and turnip were planted in the raised bed at the end of the season. With the meager protection of a row cover, they persisted through the winter and produced a small harvest in the spring. This experience was interesting enough to try to engage in a more formal study during the next harvest year.

Root Crops

Beets

Cylindra did less well than *Detroit Dark Red* which is the more commonly available and popular variety.

Carrots

The *Nutri-red* cultivar was somewhat more productive than the *Romance*.

Radish

The harvest from the *French Breakfast* radishes was almost 50% greater than that from the *Holmes Royal Red.*

Turnip

As noted previously, the *Purple Top White Globe* turnip contributed both as greens and as a root vegetable. It produced well and continued production throughout both the season and the extended season trial, making a measured contribution of over 20 pounds to the regular harvest.

Potatoes

The potato crop was depressingly small. None of the three varieties, (*German Butterball*, *Sangre*, *and Purple Majesty*) produced more than two pounds, less than the weight of seed potatoes that were planted.

Sweet Potatoes

Georgia Jets out-produced last year's winner, *Beauregard* by about 15 pounds. The third variety, *Vardaman*, showed less than half the harvest of Beauregard.

Legumes

Beans

The data show a clear benefit for the *Provider* bean over *BSC 825*. Both were bush beans but *Provider* was a classic green bean unlike *BSC 825* which was a yellow or wax bean, less commonly available in

grocery stores. It would be interesting to see in future years if the productivity difference between them persists.

Time to Maturity

It is useful to be able to predict how long it will be before vegetables will be available for use. Table 4 gives an overview of data related to this first set of issues. It shows not only information on when seeds were first started in either the plot or greenhouse but also when warm weather crops, started in the greenhouse were moved to the plot.

Table 4: Summary of data on time to first harvest

2016 Cultivars	Varietal Name	Seed plant date	Date in plot	First harvest date	Duration to 1st harvest from seed, slip	Duration to 1st harvest from transplant
Beans	*BSC 825*	7/17/2017	7/17/2017	9/11/2017	56	
Beans	*Provider*	7/17/2017	7/17/2017	9/5/2017	50	
Beets	*Cylindra*	4/25/2017	4/25/2017	6/29/2017	65	
Beets	*Detroit Dark Red*	4/25/2017	4/25/2017	6/29/2017	65	
Carrot	*Nutri-red*	4/25/2017	4/25/2017	8/10/2017	107	
Carrot	*Romance*	4/25/2017	4/25/2017	7/20/2017	86	
Collards	*Flash*	5/15/2017	5/15/2017	7/20/2017	66	
Cucumber	*Double Yield*	4/27/2017	5/25/2017	7/6/2017	70	42
Cucumber	*Martini*	4/27/2017	5/25/2017	7/6/2017	70	42
Eggplant	*Calliope*	3/31/2017	6/1/2017	8/3/2017	125	63
Eggplant	*Orient Express*	3/31/2017	6/1/2017	8/21/2017	143	81
Kale	*Dazzling Blue*	5/15/2017	5/15/2017	8/10/2017	87	
Kale	*Red Ursa*	5/15/2017	5/15/2017	7/20/2017	66	
Lettuce	*Olga*	4/25/2017	4/25/2017	6/22/2017	58	
Lettuce	*Red Sails*	4/25/2017	4/25/2017	6/22/2017	58	
Peppers	*La Bomba*	3/24/2017	5/30/2017	8/3/2017	132	65
Peppers	*Nikita*	3/24/2017	5/30/2017	8/3/2017	132	65
Peppers	*Tequila Sunrise*	3/24/2017	5/30/2017	8/3/2017	132	65
Peppers	*Wonder Bell*	3/24/2017	5/30/2017	8/3/2017	132	65
Potatoes, White	*German Butterball*	5/13/2017	5/13/2017	9/14/2017	124	
Potatoes, White	*Purple Majesty*	5/17/2017	5/17/2017	9/14/2017	120	
Potatoes, White	*Sangre*	5/15/2017	5/15/2017	9/5/2017	113	
Radish	*French Breakfast*	4/25/2017	4/25/2017	6/8/2017	44	
Radish	*Holmes Royal Red*	4/25/2017	4/25/2017	6/8/2017	44	
Spinach	*Escalade*	4/25/2017	4/25/2017	7/6/2017	72	
Squash, Summer	*Black Beauty*	4/19/2017	5/25/2017	7/17/2017	89	53

Squash, Summer	*Yellowfin*	4/19/2017	5/25/2017	7/17/2017	89	53
Squash, Winter	*Autumn's Choice*	4/19/2017	5/25/2017	7/24/2017	96	60
Squash, Winter	*Sunshine*	4/19/2017	5/25/2017	8/3/2017	106	70
Sweet Potato	*Beauregard*	6/8/2017	6/8/2017	10/16/2017	130	
Sweet Potato	*Georgia Jets*	6/8/2017	6/8/2017	10/16/2017	130	
Sweet Potato	*Vardaman*	6/8/2017	6/8/2017	10/16/2017	130	
Swiss Chard	*Oriole*	5/15/2017	5/15/2017	7/20/2017	66	
Tomatoes	*Dester*	3/31/2017	5/30/2017	8/17/2017	139	79
Tomatoes	*Gold Medal*	3/31/2017	5/30/2017	8/24/2017	146	86
Tomatoes	*Martino's Roma*	3/31/2017	5/30/2017	7/27/2017	118	58
Tomatoes	*Mountain Fresh Plus*	3/31/2017	5/30/2017	8/3/2017	125	65
Tomatoes	*Pink Berkeley Tye Dye*	3/31/2017	5/30/2017	8/14/2017	136	76
Tomatoes, Cherry	*Black Cherry*	3/31/2017	5/30/2017	7/24/2017	115	55
Tomatoes, Cherry	*Sun Gold*	3/31/2017	5/30/2017	7/24/2017	115	55
Turnips	*Purple Top White Globe*	4/25/2017	4/25/2017	6/15/2017	51	

The amount of data in this table is somewhat overwhelming. A point to notice is that comparing the last two columns shows the advantages on time to harvest of starting from transplants rather than from direct seeding. More patterns start to emerge when you sort the data in various ways. Table 5 displays the order with which vegetables came to be available for use in the 2017 plot, sorted by the first date at which produce was harvested.

Table 5: Cultivars sorted by first harvest date

2017 Cultivars		Seed plant date	First harvest date	Duration to 1st harvest from seed, slip
Radish	*French Breakfast*	4/25/2017	6/8/2017	44
Radish	*Holmes Royal Red*	4/25/2017	6/8/2017	44
Turnips	*Purple Top White Globe*	4/25/2017	6/15/2017	51
Lettuce	*Olga*	4/25/2017	6/22/2017	58
Lettuce	*Red Sails*	4/25/2017	6/22/2017	58
Beets	*Cylindra*	4/25/2017	6/29/2017	65
Beets	*Detroit Dark Red*	4/25/2017	6/29/2017	65
Cucumber	*Double Yield*	4/27/2017	7/6/2017	70
Cucumber	*Martini*	4/27/2017	7/6/2017	70
Spinach	*Escalade*	4/25/2017	7/6/2017	72
Squash, Summer	*Black Beauty*	4/19/2017	7/17/2017	89
Squash, Summer	*Yellowfin*	4/19/2017	7/17/2017	89

Carrot	*Romance*	4/25/2017	7/20/2017	86
Collards	*Flash*	5/15/2017	7/20/2017	66
Kale	*Red Ursa*	5/15/2017	7/20/2017	66
Swiss Chard	*Oriole*	5/15/2017	7/20/2017	66
Squash, Winter	*Autumn's Choice*	4/19/2017	7/24/2017	96
Tomatoes, Cherry	*Black Cherry*	3/31/2017	7/24/2017	115
Tomatoes, Cherry	*Sun Gold*	3/31/2017	7/24/2017	115
Tomatoes	*Martino's Roma*	3/31/2017	7/27/2017	118
Eggplant	*Calliope*	3/31/2017	8/3/2017	125
Peppers	*La Bomba*	3/24/2017	8/3/2017	132
Peppers	*Nikita*	3/24/2017	8/3/2017	132
Peppers	*Tequila Sunrise*	3/24/2017	8/3/2017	132
Peppers	*Wonder Bell*	3/24/2017	8/3/2017	132
Squash, Winter	*Sunshine*	4/19/2017	8/3/2017	106
Tomatoes	*Mountain Fresh Plus*	3/31/2017	8/3/2017	125
Carrot	*Nutri-red*	4/25/2017	8/10/2017	107
Kale	*Dazzling Blue*	5/15/2017	8/10/2017	87
Tomatoes	*Pink Berkeley Tye Dye*	3/31/2017	8/14/2017	136
Tomatoes	*Dester*	3/31/2017	8/17/2017	139
Eggplant	*Orient Express*	3/31/2017	8/21/2017	143
Tomatoes	*Gold Medal*	3/31/2017	8/24/2017	146
Beans	*Provider*	7/17/2017	9/5/2017	50
Potatoes, White	*Sangre*	5/15/2017	9/5/2017	113
Beans	*BSC 825*	7/17/2017	9/11/2017	56
Potatoes, White	*Purple Majesty*	5/17/2017	9/14/2017	120
Potatoes, White	*German Butterball*	5/13/2017	9/14/2017	124
Sweet Potatoes	*Georgia Jets*	6/8/2017	10/16/2017	130
Sweet Potatoes	*Vardaman*	6/8/2017	10/16/2017	130
Sweet Potatoes	*Beauregard*	6/8/2017	10/16/2017	130

This is somewhat relevant for the home gardener since it shows the succession of vegetable varieties available for the table. This order is affected in part by both the type of vegetable (e.g., cool season vs. warm season) and in part by the pattern of planting in the garden. For example, we chose to plant beans in the raised bed in the space made available by the end of harvest for lettuce and radishes which delayed its possible first harvest date. Additionally, we direct seeded the kale, collards, and Swiss chard in the field area of the plot which somewhat delayed its appearance in table availability.

If you sort the data instead by the length of time it takes to move between sowing the seeds and time to harvest, you will see a somewhat different picture, revealing some of these issues.

Table 6. Cultivars sorted by the number of days to harvest from seed or slip

2017 Cultivars		Seed plant date	Date in plot	First harvest date	Duration to 1st harvest from seed, slip
Radish	*French Breakfast*	4/25/2017	4/25/2017	6/8/2017	44
Radish	*Holmes Royal Red*	4/25/2017	4/25/2017	6/8/2017	44
Beans	*Provider*	7/17/2017	7/17/2017	9/5/2017	50
Turnips	*Purple Top White Globe*	4/25/2017	4/25/2017	6/15/2017	51
Beans	*BSC 825*	7/17/2017	7/17/2017	9/11/2017	56
Lettuce	*Olga*	4/25/2017	4/25/2017	6/22/2017	58
Lettuce	*Red Sails*	4/25/2017	4/25/2017	6/22/2017	58
Beets	*Cylindra*	4/25/2017	4/25/2017	6/29/2017	65
Beets	*Detroit Dark Red*	4/25/2017	4/25/2017	6/29/2017	65
Collards	*Flash*	5/15/2017	5/15/2017	7/20/2017	66
Kale	*Red Ursa*	5/15/2017	5/15/2017	7/20/2017	66
Swiss Chard	*Oriole*	5/15/2017	5/15/2017	7/20/2017	66
Cucumber	*Double Yield*	4/27/2017	5/25/2017	7/6/2017	70
Cucumber	*Martini*	4/27/2017	5/25/2017	7/6/2017	70
Spinach	*Escalade*	4/25/2017	4/25/2017	7/6/2017	72
Carrot	*Romance*	4/25/2017	4/25/2017	7/20/2017	86
Kale	*Dazzling Blue*	5/15/2017	5/15/2017	8/10/2017	87
Squash, Summer	*Black Beauty*	4/19/2017	5/25/2017	7/17/2017	89
Squash, Summer	*Yellowfin*	4/19/2017	5/25/2017	7/17/2017	89
Squash, Winter	*Autumn's Choice*	4/19/2017	5/25/2017	7/24/2017	96
Squash, Winter	*Sunshine*	4/19/2017	5/25/2017	8/3/2017	106
Carrot	*Nutri-red*	4/25/2017	4/25/2017	8/10/2017	107
Potatoes, White	*Sangre*	5/15/2017	5/15/2017	9/5/2017	113
Tomatoes, Cherry	*Black Cherry*	3/31/2017	5/30/2017	7/24/2017	115
Tomatoes, Cherry	*Sun Gold*	3/31/2017	5/30/2017	7/24/2017	115
Tomatoes	*Martino's Roma*	3/31/2017	5/30/2017	7/27/2017	118
Potatoes, White	*Purple Majesty*	5/17/2017	5/17/2017	9/14/2017	120
Potatoes, White	*German Butterball*	5/13/2017	5/13/2017	9/14/2017	124
Eggplant	*Calliope*	3/31/2017	6/1/2017	8/3/2017	125
Tomatoes	*Mountain Fresh Plus*	3/31/2017	5/30/2017	8/3/2017	125
Sweet Potato	*Georgia Jets*	6/8/2017	6/8/2017	10/16/2017	130
Sweet Potato	*Vardaman*	6/8/2017	6/8/2017	10/16/2017	130
Sweet Potatoes	*Beauregard*	6/8/2017	6/8/2017	10/16/2017	130
Peppers	*La Bomba*	3/24/2017	5/30/2017	8/3/2017	132
Peppers	*Nikita*	3/24/2017	5/30/2017	8/3/2017	132

Peppers	*Tequila Sunrise*	3/24/2017	5/30/2017	8/3/2017	132
Peppers	*Wonder Bell*	3/24/2017	5/30/2017	8/3/2017	132
Tomatoes	*Pink Berkeley Tye Dye*	3/31/2017	5/30/2017	8/14/2017	136
Tomatoes	*Dester*	3/31/2017	5/30/2017	8/17/2017	139
Eggplant	*Orient Express*	3/31/2017	6/1/2017	8/21/2017	143
Tomatoes	*Gold Medal*	3/31/2017	5/30/2017	8/24/2017	146

This table more clearly differentiates between the time needed to bring warm and cool season crops to fruition, showing the skew in the data that results from starting the warm weather crops in the greenhouse.

Duration of Harvest

An additional feature of interest is the length of time that vegetables are available for use. When the harvest duration is limited and harvest generous, the home gardener may be overwhelmed by the amount of vegetables available and have to either preserve or give away a substantial proportion of the crop. However, when the harvest duration is lengthy, availability is stretched over a longer period and may be more effectively integrated into the home diet.

Sorting the data provides some additional insight into relationships among cultivars with common timelines. Table 7 gives the harvest duration for the cultivars in the 2017 plot and includes the previous data on the time to first harvest.

Table 7: Harvest duration in days

2017 Cultivars		Duration to 1st harvest from seed, slip	Harvest duration (days)
Turnips	*Purple Top White Globe*	51	147
Beets	*Detroit Dark Red*	65	133
Collards	*Flash*	66	112
Swiss Chard	*Oriole*	66	112
Squash, Summer	*Black Beauty*	89	98
Squash, Summer	*Yellowfin*	89	98
Kale	*Dazzling Blue*	87	91
Squash, Winter	*Autumn's Choice*	96	91
Tomatoes, Cherry	*Black Cherry*	115	91
Tomatoes	*Martino's Roma*	118	88
Kale	*Red Ursa*	66	81
Peppers	*La Bomba*	132	81
Peppers	*Tequila Sunrise*	132	81

Peppers	*Wonder Bell*	132	81
Tomatoes	*Mountain Fresh Plus*	125	81
Peppers	*Nikita*	132	77
Tomatoes	*Dester*	139	67
Tomatoes	*Pink Berkeley Tye Dye*	136	63
Tomatoes	*Gold Medal*	146	60
Eggplant	*Calliope*	125	49
Eggplant	*Orient Express*	143	49
Cucumber	*Double Yield*	70	42
Beans	*Provider*	50	41
Cucumber	*Martini*	70	39
Beans	*BSC 825*	56	35
Beets	*Cylindra*	65	31
Tomatoes, Cherry	*Sun Gold*	115	24
Carrot	*Romance*	86	21
Lettuce	*Olga*	58	21
Lettuce	*Red Sails*	58	21
Radish	*French Breakfast*	44	14
Radish	*Holmes Royal Red*	44	14
Carrot	*Nutri-red*	107	4
Sweet Potato	*Georgia Jets*	130	3
Sweet Potato	*Vardaman*	130	3
Sweet Potatoes	*Beauregard*	130	3
Potatoes, White	*German Butterball*	124	0
Potatoes, White	*Purple Majesty*	120	0
Potatoes, White	*Sangre*	113	0
Spinach	*Escalade*	72	0
Squash, Winter	*Sunshine*	106	0

The shading in Table 7 roughly categorizes the cultivars into four groups. Two of this year's "cool weather" cultivars (turnips and a beet) and two field greens (collards and chard) constitute the longest harvest duration category. This is particularly interesting since both turnips and beets can contribute both greens and root vegetables to the harvest. Similarly, the field greens can extend their availability if the gardener harvests the largest leaves rather than the whole plant. The peppers and kale join the three successful squash to form the next "long harvest" category. Most of the tomatoes and remaining Solanaceae follow. Some of the ordering in this group is likely due to the weather conditions in July and August of 2017. The relatively short harvest duration for the lettuce and radishes is related to the nature of those cool season crops. The last group is composed of two kinds of crops. The short harvest duration for both sweet potatoes and white potatoes is at least in part an artifact of our harvest

practice, since we dig each of those types of vegetables at a fixed time. A home gardener could easily extend their harvest over a longer time. The remaining items in this group were notable cultural failures

This year a detailed view revealed considerable less variation for different cultivars of the same species than was observed in previous years. The major observed difference was largest between beet and tomato cultivars and may well have been attributable to differential sensitivity of the varieties to our relatively cool mid-summer temperatures.

Evaluation of Plant Health

The cultivars listed below were evaluated by the participating Master Gardeners weekly from July 10, 2017 through October 19, 2017 using a Likert scale ranging from 1 ("perfect condition") through 5 ("dead"). Half were evaluated by the group that met on Mondays; the other half by the Thursday gardeners. Once a cultivar was categorized as "dead" (5), the data analysis was discontinued.

To arrive at an overall description, three measures appear in the table below. The first provides an estimate of the value which best describe the condition of the cultivar. The mode (most frequently occurring value) is used in place of the arithmetic mean ("average") because the categorical judgments that we make are qualitative data for which arithmetic means are not appropriate. To give a measure of variability, the second column uses the range of values given for each cultivar over the entire time period.

Table 6: Evaluation of plant health

2017 Cultivars		Mode evaluation	Evaluation range	Number of evaluations
Cucumber	*Double Yield*	3	2-5	7
Cucumber	*Martini*	2	2-5	9
Eggplant	*Calliope*	2	2-5	11
Eggplant	*Orient Express*	3	3-5	13
Peppers	*La Bomba*	1	1-2.5	15
Peppers	*Nikita*	2	1-3	15
Peppers	*Tequila Sunrise*	1	1-2	15
Peppers	*Wonder Bell*	2	1-3	15
Potatoes, White	*German Butterball*	3	2.5-5	11
Potatoes, White	*Purple Majesty*	2	1-5	10
Potatoes, White	*Sangre*	4	4-5	6
Squash, Summer	*Black Beauty*	2	1-3.5	15
Squash, Summer	*Yellowfin*	2	1.5-3.5	15
Squash, Winter	*Autumn's Choice*	1	1-3	15
Squash, Winter	*Sunshine*	4	3-5	10
Sweet Potato	*Beauregard*	2	1-2.5	15
Sweet Potato	*Georgia Jets*	2	1-2	15

Sweet Potato	*Vardaman*	3	1.5-3	15
Tomatoes	*Dester*	2	1-3,5	15
Tomatoes	*Gold Medal*	3	2-4	15
Tomatoes	*Martino's Roma*	3	1-4	15
Tomatoes	*Mountain Fresh Plus*	3	2-3.5	15
Tomatoes	*Pink Berkeley Tye Dye*	2	2-5	15
Tomatoes, Cherry	*Black Cherry*	3	2-4	15
Tomatoes, Cherry	*Sun Gold*	4.5	2-5	6

The 2017 evaluations show good overall subjective assessments for only the peppers. Our usual good performers, the sweet potatoes and tomatoes, had a less than impressive year. While both summer squashes did moderately well, the winter squashes varied greatly. *Autumn's Choice* was a very good producer while *Sunshine* was very poor, with scores never exceeding a "3" out of "5" and a mode of "4".

The final column gives the number of times the cultivar was evaluated, providing a re-statement of the length of harvest data in combination with the rank data. For example, within a type of vegetable, we see that large differences in modal value are reflected in a comparably short harvest period. For example, the cherry tomato varieties show that the more highly rated *Black Cherry* was harvested for a much longer time than the *Sun Gold* variety.

Contributions to the Food Banks

The majority of the produce from the garden were distributed to community food banks, including the Clintonville Community Resource Center, the Broad Street Food Bank, and the Westerville Area Resource Ministry. In addition to our own produce, it included donations from the OSU Zucchini study and some donations from our home gardens. In 2017, this totaled 1,031 pounds.

Summary and Discussion

The major issue for the 2017 harvest was poor productivity. In this section, these data will be presented and probable causes discussed.

Productivity Issues

The broad outline shown in Table 7 reveals that 2017 was a less successful harvest year than many in the last five years.

Table 7. Overall productivity comparisons, 2013 to 2017.

Year	Total weight (lbs.)
2013	2115.31
2014	2022.25
2015	954.69
2016	2145.83
2017	1156.43

Some of the variability is, of necessity, a function of the varieties of vegetable planted in a given year. While this is always true, considerable variability can be best understood by looking at more abstract factors underlying these detail level effects that are clarified by the data in Table 8.

Table 8. Productivity comparisons of major types of vegetables for 2014 through 2017.

	2017 Harvest		2016 Harvest		2015 Harvest		2014 Harvest	
	Total (oz.)	No. varieties	Total (oz.)	No. varieties	Total (oz.)	No. varieties	Total (oz.)	No. varieties
Beans	640	2	0	0	0	0	273	1
Beets	710.7	2	1132.5	2	242	2	1025.5	2
Carrots	303.5	2	707	2	169	1	291.9	1
Collards	370	1	1164	1	0	0	0	0
Cucumber	472.5	2	1016.5	2	1579.5	2	568.6	2
Eggplant	126.5	2	211.5	2	62	2	357	2
Kale	686	2	496.5	2	426.5	3	163	1
Lettuce	342	2	619	2	158	3	378.7	3
Onions	0	0	109.5	1	1075.5	2	612	2
Peppers	1672	4	4119.5	4	792.5	4	1533.8	4
Potatoes, White	28.5	3	656	3	415.5	3	903	3
Radish	244	2	309.5	2	161	2	0	0
Spinach	7	1	0	0	307.5	2	13.5	1
Squash, Summer	2319.5	2	3702.5	2	3655.5	2	10475	2
Squash, Winter	5517	2	4055	2	1178.5	2	2577.4	2
Sweet Potato	2217	3	6562.5	3	2663.5	3	4407.8	3
Swiss Chard	166.5	1	676.3	1	221	1	288.4	1
Tomatoes	2467.8	6	8705.5	5	2078.5	5	7917	5
Totals (oz.)	18290.5		34243.3		15186		31785.6	
Totals (lb.)	1143.2		2140.2		949.1		1986.6	

The data in this table are particularly interesting. They include two years in which productivity was high and two in which productivity was low (2140.2/1986.6 vs. 1143.2/949.1 lbs., respectively). The 2014 harvest was close to the even better 2016 harvest and 2015 and 2017 were correspondingly poor. The data show that there is some variability among different types of vegetables. Carrots, cucumber, kale, lettuce, onions, and even peppers and winter squash are not uniformly less productive in the low productivity years. However, we can see large differences in two of our major producers, sweet potatoes and tomatoes, differences that have a marked effect on total harvest.

In the 2015 report, it was noted that we experienced a “double whammy” of poor fertility resulting from our use of a wood chip mulch that affected the level of nutrients in the soil as well as weather that was both colder than normal and wetter at key points in the growing season. The 2016 crop and our

current mulch practice leads us to the conclusion that it may well be that weather was the culprit in 2017. Let us look at that data more directly.

Weather[1]

A source of reduced productivity in 2015 was the weather which Table 9 reveals was both colder and wetter than normal at key points in the growing season.

Table 9. Temperature and precipitation during the 2015 crop year.[2]

	2015 Temp	2015 Precip	Norm Temp	Norm Precip	Temp dif from norm	Precip dif from norm	
Mar-15	38.3	4.34	41.9	3.02	-3.6	1.32	
Apr-15	53.2	4.7	53.1	3.4	0.1	1.3	
May-15	67.1	3.87	62.5	4.17	4.6	-0.3	
Jun-15	71.2	9.21	71.5	4.01	-0.3	5.2	
Jul-15	72.3	4.98	75.2	4.79	-2.9	0.19	
Aug-15	71.4	2.97	73.9	3.32	-2.5	-0.35	
Sep-15	69.6	3.14	66.8	2.84	2.8	0.3	
Oct-15	55.6	3.01	55	2.61	0.6	0.4	
		36.22		28.16	-0.15	8.06	difference March-October
		27.18		21.74	0.38	5.44	difference May-October

As the table data show, there were a number of differences from normal rates. It was colder than average in March, July and August but warmer in May and September. Additionally, it was somewhat wetter than usual at the start to the growing season at a time that would have affected some of our cold weather crops. It was much wetter in June, at a time when normal to below normal temperatures would lessen the chances that the plants could benefit from that additional water.

There are interesting comparisons in the 2017 growing season, shown in Table 10.

[1] Our thanks to Steve Herminghausen who created all the following weather reports.

[2] Data from NOAA Monthly summaries maps: https://gis.ncdc.noaa.gov/maps/ncei/summaries/monthly. Norm data from NWS: http://w2.weather.gov/climate/index.php?wfo=iln Location for actual: WCMH TV station, Olentangy north of Ackerman. Location for normals: CMH airport - norms are based on 1981-2010. Temps in Fahrenheit. Precip in inches.

Table 10. Temperature and precipitation during the 2017 crop year[3]

2017	Growing Degree Days at end of month	Growing Degree Days in month	2017 Temp (deg. F)	2017 Precip (in inches)	Norm Temp	Norm Precip	Temp dif from norm	Precip dif from norm	
March	158	125	43.1	5.39	41.9	3.02	1.2	2.37	
April	446	288	59.7	2.59	53.1	3.4	6.6	-0.81	
May	825	379	63	5.24	62.5	4.17	0.5	1.07	
June	1437	612	72	4.66	71.5	4.01	0.5	0.65	
July	2161	724	75	8.55	75.2	4.79	-0.2	3.76	
August	2766	605	72.4	2.14	73.9	3.32	-1.5	-1.18	
September	3252	486	67.8	2.58	66.8	2.84	1	-0.26	
October	3560	308	58.6	3.57	55	2.61	3.6	0.96	
				34.72		28.16	1.46	6.56	difference March-October
				26.74		21.74	0.65	5.00	difference May-October

There are some parallels in 2017. We again had high precipitation in March and July (rather than June). This time temperature was notably high in April but close to normal from May through September. The early temperature boost may have supported the early development of our cold weather crops (e.g., lettuce, carrots). Again, we had a higher than normal temperature late in the season, this time in October rather than September. In both cases, the weather conditions during early and mid-summer were such that they did not provide an advantageous environment for two of our high producing warm weather crops, tomatoes and sweet potatoes.

Other project experiments for 2017

1. Using mulch for weed control. In 2016, we had experimented with the use of cardboard as a tool for suppression as an alternative to wood chips which had been used in previous years. It proved to be a learning experience for us, relating to actual implementation details. In 2017 season we compared a single cardboard layer with five or more layers of newspaper as mulch, covering both with straw. While both were somewhat effective, the study was extended into the 2018 crop year to assess differences in the depth of newspaper. These data will be discussed in a separate report.

[3] 2017 Data from NOAA Monthly summaries: http://w2.weather.gov/climate/index.php?wfo=iln. Norm data from NWS: http://w2.weather.gov/climate/index.php?wfo=iln. Location for actual: WCMH TV station, Olentangy north of Ackerman, Location for normals: CMH airport - norms are based on 1981-2010.

2. Improving our disposal of herbaceous detritus. In 2016, problems with predation by rodents were noted that could have been related to the way in which we had disposed of herbaceous waste including diseased vegetables. In 2017, a team composed of Debbie Falter and Mike Heys designed and implemented a system based on plastic trash cans to be used for waste disposal. The cans were perforated to allow for the removal of liquid waste and their lids were attached. We worked with the Waterman Farm crew to have the cans emptied regularly.

Future Directions

The Vegetable Trials project will continue to experiment with interesting new varieties as we move forward. Where practical, we plan to grow the best cultivar in the preceding year among the varieties in the year following to get some comparison data about differences in cultural and climatic conditions across years. In practice, this has been put into effect by including the "winner" in the tomato and pepper categories in the varieties grown in the following year. We may find other data analytic techniques to deepen this analysis in the future. In 2018, we would also like to solidify our learning about effective mulch for our garden plot. As always, we want to continue to contribute to our local food banks, including providing vegetable varieties that may expand the experience of their consumers.

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Finally, we would like to acknowledge the hard work of the FCMG Volunteers listed below who "toiled in the fields," contributing 1,087 hours, according to the Volunteer Management System (VMS) hour tracking system.

Vegetable Trials Volunteers

Special thanks to those indicated by a star (*) in the list below who contributed more than 15 hours to the project in 2017 and to those who contributed 35 hours or more (**) according to VMS records and other sources:

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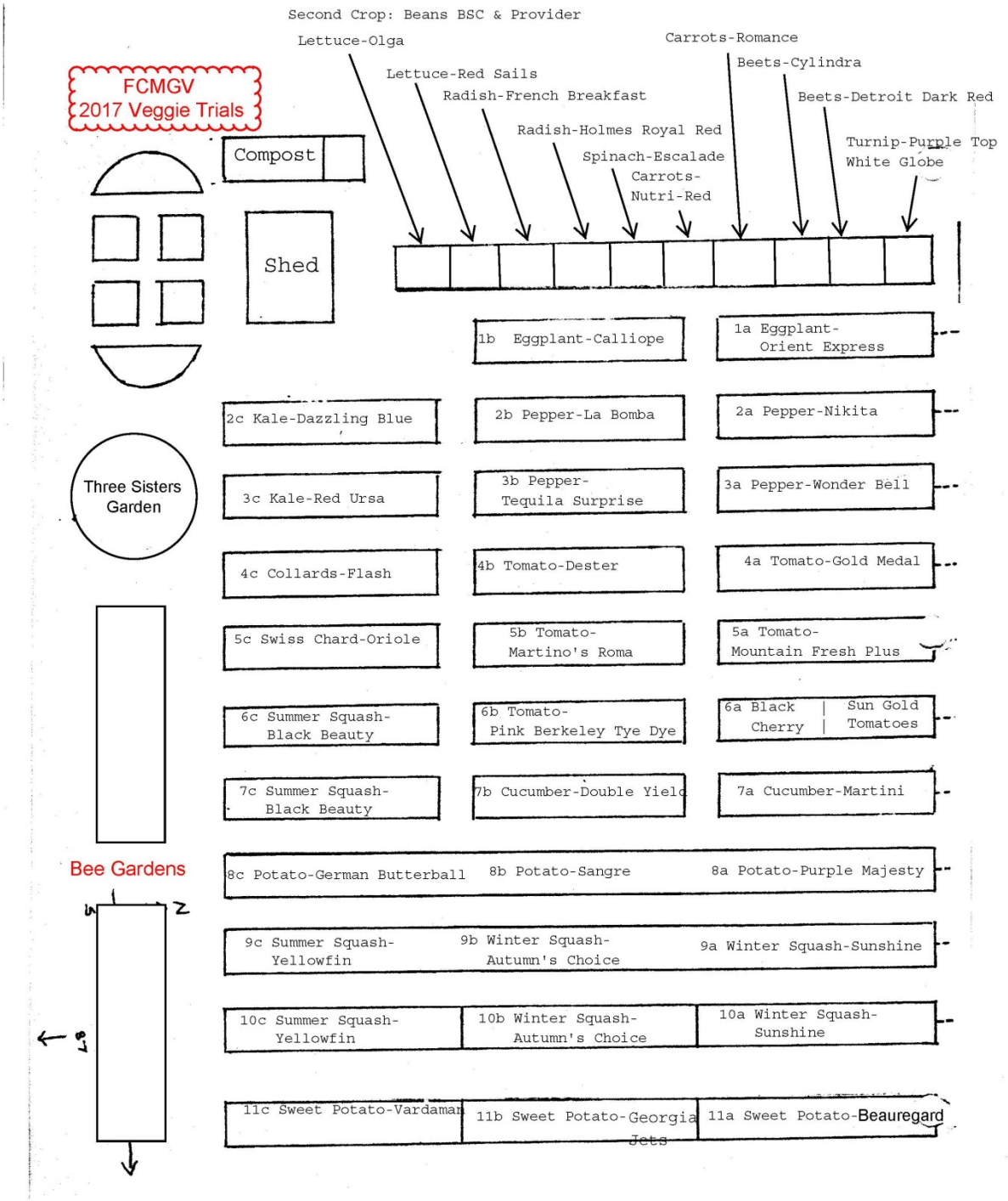
Appendices

A. Plot Layout

B. Brief description of the cultivars grown in 2017

Appendix A: Plot Layout



Appendix B. Brief descriptions of the cultivars grown in 2017

2017 candidate cultivars		Description	Seller	Page	Days to maturity
Beans	*BSC 825*	yellow bean, good DR, 5-6" long	Johnny's		52 days
Beans	*Provider*	(bush type), round pod adaptable to weather	Johnny's	10	50 days
Beets	*Cylindra*	higher yield; easy peel; bold flavor, 6-7 in. long	Territorial	19	60
Beets	*Detroit Dark Red*	historic; 3" red, good keeper	Seed Savers	19	60-65
Carrot	*Nutri-red*	dazzling color; robust flavor; hi lycopene, 9" long; color intensifies in cooking	Territorial	27	70
Carrot	*Romance*	bright orange, 6"; avail. Pelletted	Territorial	29	75
Collards	*Flash*	slow bolt; rep harvest smooth leaves	Johnny's	32	55
Cucumber	*Martini*	Blonde cucumber F1, HY GF; slicer, 5-6"up to 9"; few seeds, prolific when picked	Territorial	39	50-55 days
Cucumber	*Double Yield*	organic; 4-6"; lime; prolific	Territorial	37	52
Eggplant	*Orient Express*	most dependable; slender; 8-10" long, 1.5-2.5" diameter	Johnny's	42	58
Eggplant	*Calliope*	Asian style; hi yield; spineless. Small variegated white & purple	Johnny's	42	64
Kale	*Dazzling Blue*	Puckered, brilliant blue green leaves. Especially cold tolerant, surviving sub freezing temperatures than other Lacinato types	Territorial	46	50 - 60
Kale	*Red Ursa*	5 best new introductions in 1997. This is great	Territorial	47	65 days

		raw, adding both color and flavor to salads			
Lettuce	*Red Sails*	organic; crinkled, fringed leaves; slow bolt or bitter;; burgundy to green; AAS winner	Territorial	53	53
Lettuce	*Olga*	Romaine; large, fleshy' not-bitter in ton summer; uniform	Territorial	54	65
Peppers	*La Bomba*	Hot Pepper; small fruit early; disease resistant; "best tasting jalapeno"	Territorial	76	56
Peppers	*Nikita*	Sweet Bell: colorful (yellow through red); , sweet	Territorial	80	65-70
Peppers	*Tequila Sunrise*	carrot shaped; 5" long; mild peppery; frying or fresh; sweet	Seed Savers	52	60-78 from transplant
Peppers	*Wonder Bell*	2016 winner; productive; green ripens to red	Territorial	80	70
Potatoes, White	*German Butterball*	multi-use; 1st place in Rodale Taste-Off; excellent storage, yield	Seed Savers	54	100 - 120 days
Potatoes, White	*Sangre*	early; organic; creamy; high yield; red skin	Territorial	84	70-90
Potatoes, White	*Purple Majesty*	Potatoes, Purple	Territorial	84	110-135
Radish	*French Breakfast*	red, white blunt bottom; 3-4 long	Territorial	88	25-30
Radish	*Holmes Royal Red*	round, bright red, 1.25" diam	Seed Savers		25-30 days,
Spinach	*Escalade*	multiseason; organic	Territorial	95	43 days,
Swiss Chard	*Oriole*	golden orange stems, moderate savoy	Johnny's	126	30 days baby, 60 bunching
Squash, Summer	*Yellowfin*	yellow; organic; strong disease resistance; vigorous	Territorial	92	50 days
Squash, Summer	*Black Beauty*	best 6-8", dark green straight; organic	Territorial	91	60

Squash, Winter	*Sunshine*	Kabocha style, bright orange, for baking, mashing, pies; 3-5 lbs.; flat round; AAS winner	Johnny's	123	95 days
Squash, Winter	*Autumn's Choice*	moschata, 10" butternut, unusual coloring (speckled bands green & orange), rich flavor, sweet; 12' vines' PM resistant	Territorial	93	85-90 days
Sweet Potatoes	*Beauregard*		Steele		
Sweet Potatoes	*Georgia Jets*		Steele		
Sweet Potatoes	*Vardaman*		Steele		
Tomatoes	*Pink Berkeley Tye Dye*	organic, multicolor, complex flavor, large (8-12 oz.) fruit. Indeterminate. I grew these last year and was very impressed with their taste and their yield!	Territorial	105	65-75 days
Tomatoes	*Mountain Fresh Plus*	big red (8-17 oz.), most grown in East & Midwest; determinate; tolerates cool, wet	Johnny's	130	75
Tomato	*Gold Medal*	bicolor (orange-yellow, red), indeterminate; red streaked flesh; 2008 SSE indeter taste winner	Seed Savers	76	75-90 days
Tomatoes	*Dester*	indeterminate beefsteak; up to 1 lb.	Seed Savers	75	70-80
Tomatoes	*Black Cherry*	sweet, robust; heirloom-like cherry; hi yield	Johnny's	134	64
Tomatoes	*Martino's Roma*	heavy fruit; determinate with trellis; roma; 2-3 oz. fruit	Seed Savers	78	75
Tomatoes	*Sun Gold*	bright tangerine orange cherry toms; early yield; indeterminate	Johnny's	134	57

Turnips	*Purple Top White Globe*	traditional; 3-4 in.; large lobed greens	Johnny's	142	50