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PLANNING FOR THE GARDEN

Why Have A Garden?

Vegetables constitute an important part of the human diet. Millions of Americans produce vegetables through home gardening activities each season. With a small amount of land, a few basic tools and supplies, and a desire to assist nature in plant growth, the gardener can realize many benefits from gardening activities. A well planned and a properly cared for garden can provide considerable food for family use from a small plot of land. Most home gardeners agree that "home grown" vegetables, freshly harvested, prepared, and eaten are the ultimate in fine vegetable flavor.

Surplus vegetables not used as fresh products can be preserved by freezing, canning, or storing for later use. Regardless of how you use them – fresh or preserved – homegrown vegetables can help reduce family expenditures for food and make a valuable contribution to family nutrition.

Since many different vegetables are grown in Ohio, vegetable gardening can be an educational activity for all members of the family. Youth find vegetable gardening an excellent 4-H Club project. Older, more experienced gardeners enjoy comparing new cultivars with older, proven cultivars and they like to try new ways of growing and using among neighbors in such activities as harvesting the first ripe tomato, growing the largest tomato, squash, head of cabbage or having the most unusual vegetable in the garden.

Good gardening results can be shared with others through vegetable exhibits at local or state fairs. Gardeners find this activity exciting and challenging.

The potential benefits of home vegetable gardening are numerous. Successful gardens are the result of good planning, management, and careful workmanship. This bulletin will assist the gardener in learning more about the various activities required for a successful home vegetable garden.

Location

One important way to promote better plant growth is to select a good location for the garden. Such a location provides adequate plant exposure to sunlight, fertile and well-drained soil, a nearby source of water, is close to the house, and is appropriate to the service area of the home landscape.

Vegetable plants make best growth when exposed to direct sunlight for at least 8 to 10 hours a day. Plants growing in heavily shaded areas tend to grow tall and spindly with weak stems and small leaves and produce very little harvest. Plants that receive adequate exposure to sunlight are stocky and sturdy with strong stems and leaves when other growing conditions are favorable for growth. So, it is very important to locate the garden away from heavily shaded areas even though the soil in a sunny area may be poorer than the soil in the shaded area. Modern fertilizers and soil conditioners enable the gardener to improve soil and take advantage of the desirable sunny location.

If at all possible, locate the garden close to the house. Then the gardener can check it often as well as get in a few minutes of work as they become available during the day.

Once you have established the garden in a good location, keep it there for a period of years to permit soil improvement in tilth and fertility. However, the location of the various crops in the garden should be changed from year to year. If

enough land is available, the garden crops may be alternated between two plots. Soil improving crops such as rye or rye grass can be grown in alternate years to increase the supply of soil organic matter and improve the tilth or workability of the soil.

Soil fertility cannot be maintained where erosion is severe. Since gardens are cultivated intensively every year, there is little opportunity for protection against soil losses. If possible, avoid slopes where erosion is a problem.

Since soil moisture is often a limiting factor in vegetable production, locate the garden near a source of water. An available source of moisture is necessary for fast seed germination, quick establishment of transplanted crops, and the continuous growth of the plants during dry periods.

Be sure that the garden is located away from trees or shrubs whose roots will compete with the vegetable plants for water and plant nutrients. It is also important to locate the garden away from walnut trees, because these trees secrete a substance through the roots which is injurious to certain vegetables, especially tomatoes.

Soils

Vegetable plants grow best in a fertile, well-drained soil of loamy texture. Sandy loam soils well supplied with organic matter are easily worked. However, most gardeners do not have such soil. Very coarse, sandy soils dry out rapidly and are difficult to keep fertile. Clay soils are difficult to work and usually remain wet until late in the spring. These soils are most often yellow in color and very sticky when wet. They tend to form a hard crust after a heavy rain and become compacted to an extent that the plant's root system is deprived of the essential air required for healthy growth. Clay soils and sand must be modified with soil conditioners such as peat moss, compost, sawdust, or other available organic materials. This aspect of garden preparation must not be overlooked.

Garden Size

The size of the vegetable garden depends upon individual circumstances. The garden should not be so large that the crops fail to receive proper care. Often times more high quality vegetables are obtained from small, well cared for plots than from large, neglected gardens.

In a recent Ohio State University garden study, 210 pounds of produce (1.4 pounds per square foot) were obtained from an intensively cropped 10 by 15 foot garden. Beets, summer squash and tomatoes were the most productive vegetables in the garden. In general, vegetables grown for their roots, tubers and bulbs make excellent use of available land.

Large gardens can supply plenty of vegetables of all kinds for fresh, frozen or canned use. Larger gardens are particularly well suited to the production of crops like cucumber, pumpkin, squash and melons, sweet corn and sweet potatoes. These crops require considerable space to produce satisfactory crops.

Those living in apartments, mobile homes or residences not having available land for gardening can grow vegetables in containers. Containers or mini-gardening has become quite popular in urban areas. Excellent quality vegetables can be produced in large flowerpots, window boxes, pails, baskets or similar containers. The containers are filled with potting or synthetic soil as available form local garden supply centers. Leaf lettuce, chives, patio type tomatoes, peppers, eggplant and green onions, parsley and Swiss chard are particularly well suited for container gardening. Good drainage and moisture control is necessary for growing vegetables in containers. Cultural practices for container gardening are similar to those for outdoor gardens and are described in the following sections.

Those without available land who want to grow more vegetables than container gardening allows, may be able to rent a small or large garden through a community or rent-a-garden. Such garden shave become popular in many areas and are operated either by city parks and recreation personnel, the Cooperative Extension Service, private individuals or various service organizations. Consult local newspapers or contact your local Cooperative Extension Service about rent-a-garden opportunities in your locality.

What to Grow

More than 40 different vegetable crops can be grown in Ohio, See Tables 1 and 2. The choice of crops depends largely upon the needs and tastes of the family and the amount of available growing space. If space is limited, consider for planting those crops that will be most productive.

Balanced plantings include:

1. Two leafy, green or yellow vegetables such as leaf lettuce, spinach, Swiss chard, kale, squash, etc.
2. Two pod vegetables such as peas, snap beans or lima beans.
3. Two root crops such as carrots, beets, turnips, parsnips, radishes and salsify.
4. Tomatoes and cabbage
5. Additional vegetables as family tastes may indicate.

Make special plantings to provide the necessary vegetables for home canning and freezing. To depend upon garden surpluses not used as fresh vegetables may result in insufficient supplies for preservation. Also, by the time the vegetables have becomes "surplus" their quality has usually deteriorated. The information in Tables 3 and 4 provides information for determining family requirements for vegetables.

Garden Arrangement

Plant perennial crops such as asparagus and rhubarb along one side of the garden where they will not interfere with the soil preparation and cultural practices used for growing annual vegetables. These crops may remain in the garden from 5 to 20 years.

Tall growing crops should be planted at one side of the garden where they will not shade lower growing crops. Grouping crops that mature early helps plant later crops that require more growing space. Allow plenty of space between rows for easy cultivation and harvest.

Sweet corn should be planted in blocks of short rows, rather than a long, single row. This planting arrangement make for better pollination and ear fill.

Succession Planting

Gardeners can get the greatest use and production from available growing space by making companion and succession plantings. **Companion cropping** consists of raising two vegetables in the same area at the same time. One crop matures and is removed from the garden by the time the other companion is ready for harvest. An example of companion cropping is planting lettuce and cabbage alternately in the same row. The lettuce matures first and is harvested before it interferes with the growth of the cabbage. Radishes can be seeded between rows of cabbage, broccoli, and cauliflower. Early beans, lettuce, radishes, or spinach can be planted between tomato, eggplant, pepper, and late cabbage row.

Succession plantings help insure a continuous supply of fresh vegetables from early spring to late autumn. Succession plantings may be done in a variety of ways. One way is to make three or four plantings of a vegetable such as radishes or leaf lettuce every 7 to 10 days. Radishes, for example, may be planted on April 15, April 25, and again May 4. The crop matures rather quickly and should be harvested in each case before the arrival of the long hot days of summer. Radishes grow best when the temperatures are cool during days of early spring.

A second type of succession planting is making a single planting of several vegetable cultivars having different maturity dates. An example of this type planting is seeding Spring Gold, an early maturing sweet corn cultivar; Gold Cup, a midseason cultivar; and Golden Queen, a late cultivar, on the same day. This planting procedure provides sweet corn over a period of several weeks.

A third type of succession planting is the harvesting of one crop that has matured and replacing it with a completely different crop. An example is the following of early sweet corn with a crop such as turnips or Chinese cabbage.

The Fall Garden

Late summer or early fall plantings or vegetables that make rapid growth and mature crops before extremely cold weather of fall sets in will enable the home gardener to extend the gardening season and get best use of the garden area. The gardener can produce fresh, high quality vegetables at a minimum cost for family meals in the early fall and also have vegetables for storage and use during the late fall and early winter period.

During the fall season, days become shorter and temperatures cooler. These conditions plus favorable soil moisture conditions provide an excellent growing environment for the development of high quality vegetables, especially those vegetables that tend to "go to seed" during the long hot days of summer, or fail to develop best eating quality when grown at high temperatures for a prolonged period of time.

Vegetables for the fall garden should be promptly seeded using high quality seed at the time indicated in Table 5. Prepare soil well to free it of weed growth and previous crop residues. Additional fertilizer may not be required if the spring and summer crops were heavily fertilized. If fertilizer is used, 1-2 pounds of fertilizer such as 8-16-16 per 100 square feet should be adequate. Mix fertilizer thoroughly with the soil, if a broadcast application is made. Apply row applications so that the fertilizer is sprinkled in a light band three inches to the side of and three inches below the seed.

If the soil is dry at planting time, apply water to promote rapid seed germination and assist the transplants in making new growth. Slightly deeper planting is advisable during warm weather when soils are more likely to be dry. The crops should be kept free of weeds, insects and diseases.

Root crops such as beets, carrots, parsnips and salsify, maturing in the fall garden, can be stored for late fall and early winter use. The parsnips and salsify can be left in the soil over winter if desired. Carrots and beets should be dug and stored in moist sand or peat in a cool area such as a basement.

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From: Home Vegetable Gardening, OSU Extension Publication 287, 1991.

Table 1: Vegetables Seeded Directly in Garden

Vegetables	When to Sow or Plant	Depth In Inches	Seed per 100 feet	Days to Maturity	Planting Distance In Inches In the Rows	Planting Distance In Inches Between Rows*	Estimated Yield Per 100 feet of Row
Asparagus, crowns	March-April	6-8**	60 crowns	No harvest first year	18	48-60	30 lbs
Beans, bush snap	May 15 to August 1	½-1	1 lb.	50-60	4	24	50 lbs
Beans, green shell	May 15 to July 1	½-1	1 ½ lbs	60-100	4	24	
Beans, dry shell	May 15 to June 1	½-1	1 lb	90-100	4	24	50 lbs
Beans, bush lima	May 20 to June 10	½-1	1 lb	65-85	6	24-30	50 lbs
Beans, pole snap	May 15 to June 1	½-1	½ lb	65-90	24	36	
Beans, pole limas	May 20 to June 1	½-1	¾ lb	70-100	24	36	
Beets	April 15 to July 15	½	½ oz	50-70	3	18	100 lbs
Cabbage, Chinese	August 1	¼	1 pkt	80-90	15	24	80 heads
Carrots	April1 to July 15	¼	½ oz	55-75	3	18	100 lbs
Chard, Swiss	April 1 to April 10	½	½ oz	50-60	8	24	50 lbs
Collards	April 1 to August 15	¼	1 pkt	65	15	24	50 lbs
Corn, Sweet	May 1 to July 1	1-2	4 oz	64-90	9	24	100 ears
Cucumber	May 10 to June 1	1-2	½ oz	50-70	15	60	12-15 fruit/plant
Endive	August 1	½	1 pkt	90-100	15	24	50 lbs
Kale	April 1 to August 1	½	1 pkt	50-70	18	24	75 lbs
Kohlrabi	April 1 to August 1	½	¼ oz	50-70	4	18	100 lbs
Lettuce, leaf	April 1 to August 1	¼	1 pkt	40-50	6	18	50 lbs
Lettuce, head	August 1	¼	1 pkt	60	12	24	50 lbs
Mustard	April 1 to August 15	¼	1 pkt	40	8	24	50 lbs
Muskmelon	May 15	1-2	½ oz	70-100	30	60	50 fruit
Okra	May 1	½	½ oz	65	15	30	
Onions, seed	April 1	½	1 oz	110-150	2	18	50-100 lbs
Onions, sets	April 1	1-2	2 lbs	100-140	3	18	
Onions, Winter	Sept 1 to October 1	1-2	3 lbs		2	18	
Parsley	April 1 to April 10	1/8 – ¼	1 pkt	55-60	6	18	50 lbs
Parsnips	April 1	½	½ oz	130-140	3	24	100 lbs
Peas	April 1	½	1 lb	50-60	1	18	40 lbs (pods)
Potatoes, early	April 1	3-4	10 lbs	90-110	9	24	100 lbs
Potatoes, late	May 15	3-4	9 lbs	110-140	12	24	

Vegetables	When to Sow or Plant	Depth In Inches	Seed per 100 feet	Days to Maturity	Planting Distance In Inches In the Rows	Planting Distance In Inches Between Rows*	Estimated Yield Per 100 feet of Row
Pumpkin	May 20	102	½ oz	90-110	60	84	75 fruits
Radish	April 1 to August 1	½	1 oz	25-35	1	18	25 lbs
Rhubarb	April	2-3	50 crowns	365	30	36	
Rutabaga	July 1 to July 15	½	¼ oz	100-120	6	24	150 lbs
Salsify	April 1 to April 10	½	½ oz	140-150	2-3	18	75 lbs
Spinach	April 1 and Sept 1	½	½ oz	40-50	6	18	50 lbs
Spinach, N. Zealand	April 10 to May 1	½	½ oz	60-80	15-18	30	
Squash Bush	May 1 to June 1	1-2	½ oz	50-65	36	84	
Squash Summer Vine	May 1 to June 1	1-2	½ oz	50-65	60	84	
Squash Winter	June 1 to June 15	1-2	½ oz	60-110	60	84	100 fruits
Turnips	April 1 to June 1 and Aug 15	½	½ oz	50-60	3	18	100 lbs
Watermelon	May 20	1-2	½ oz	110-130	96	96	

* Adjust row spacing as necessary to accommodate equipment used for cultivation.
** Two inches of soil cover at planting. Gradually fill trench 6-8" deep with soil.

Table 2: Vegetables Started from Plants

Vegetables	Start	Move Plants To Coldframe	Set Plants In Garden	Days to Maturity From Setting Plants	Planting Distance In inches In the Rows	Planting Distance In inches Between Rows*	Estimated Yields Per 100 feet or Row
Broccoli	Feb 20	March	April 1	80	18	24	50 lbs
Brussels Sprouts	June 1-10	None	July 1	120	24	24	50 lbs
Cabbage, early	Feb 20	March 15	April 1	50	15	24	180-240 lbs
Cabbage, Late	May 15-June 1	None	July 15	75-80	18	30	
Cauliflower	June 1-10	None	July 15	100	24	30	45 heads
Celery, early	Feb 1	None	April 20	90	6	24	200 stalks
Celery, late	April 15	May 15	July 1	110	6	24	
Eggplant	March 20	April 15-20	May 15**	80-90	24	36	150 fruit
Lettuce, head	Feb 20	March 1	April 1	60	12	24	50 lbs
Tomatoes	April 1	April 20	May 15	50	24	36	250 lbs
Peppers	March 20	April 10	May 15	70	18	24	300 peppers
Sweet Potato	April 10	None	May 20	120	12	30-36	

Note: The planting dates are for normal seasons in central Ohio. Spring planting dates will be about 2 weeks earlier for southern Ohio, and 2 weeks later for northern Ohio.

* Adjust row spacing as necessary to accommodate equipment used for cultivation.

** Or after danger of frost in passed.

Table 3: Vegetable Needs for Family Members

Sex-Age Group	Kinds of Vegetables and Amounts Per Person for 1 Year Dried Beans, Peas, Nuts (lbs)	Potatoes (lbs)	Dark Green and Deep Yellow (lbs)	Tomatoes and Citrus Fruit (lbs)	Other Vegetables and Fruits (lbs)
Children					
7 months to 1 year	0	26	13	78	78
1 to 3 years	3 ¼	39	13	78	143
3 to 6 years	3 ¼	52	13	104	208
6 to 9 years	6 ½	91	26	117	247
Girls					
9 to 12 years	13	104	39	130	286
12 to 15 years	13	117	52	130	299
15 to 20 years	13	104	65	130	286
Boys					
9 to 12 years	13	117	39	117	286
12 to 15 years	13	156	39	117	312
15 to 20 years	19 ½	208	39	130	338
Women					
20 to 35 years	13	78	78	117	299
35 to 55 years	13	65	78	117	260
55 to 75 years	6 ½	65	39	117	221
75 years and over	6 ½	52	39	117	195
Men					
20 to 35 years	13	156	39	117	338
35 to 55 years	13	130	39	117	299
55 to 75 years	6 ½	117	39	117	286
75 years and over	6 ½	104	39	117	273

Table 4: As a Guide, the Following Is an Approximate Yield In Canned or Frozen Vegetables from Fresh

Beans, lima (in pods)	1 bu (32 lbs)	12-16 pts.
Beans, Snap, green and wax	1 bu (30 lbs)	30-45 pts.
Beets (without tops	1 bu (52 lbs)	35-42 pts.
Broccoli	1 crate (25 lbs)	24 pts.
Brussels sprouts	4 qt. Boxes	6 pts.
Cauliflower	2 med. Heads	3 pts.
Corn, sweet in husks	1 bu (35 lbs)	14-17 pts.
Kale	1 bu (18 lbs)	12-18 pts.
Peas	1 bu (30 lbs)	12-15 pts.
Peppers, green	2/3 lb (3 peppers)	1 pt.
Pumpkin	3 lbs	2 pts.
Spinach	1 bu (18 lbs)	12-18 pts.
Squash, summer	1 bu (40 lbs)	35-40 pts.
Squash, winter	3 lbs	2 pts.
Sweet potatoes	2/3 lb.	1 pt.

Table 5: Vegetables Direct Seeded and Transplanted for a Fall Garden

Vegetables	Seeding or Planting Time	Planting Depth (inches)
Direct Seeded		
Snap Beans	August 1	1-1 ½
Chinese cabbage	August 1	¼
Collards	August 1-15	¼
Endive	August 1	½
Kale	August 1-15	½
Kohlrabi	August 1	½
Leaf lettuce	August 1	¼
Winter onions	Sept 1-Oct 1	1-2
Radish	August 1-15	½
Spinach	Sept 1	½
Turnip	August 1-15	½
Transplanted		
Brussels sprouts	June 1-10	Set plants July 1
Cabbage	May 15-June 1	Set plants July 15
Cauliflower	June 1-10	Set plants July 1

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