Home Gardening

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KENTUCKY NEEDS MORE GARDENS

A well planned vegetable garden, properly cared for, will supply your family's needs and can greatly reduce your food budget. This publication will help you plan your garden so that it will best serve your requirements and will help you to plant and care for the crops you choose to raise. Follow these steps:

1. Outline on paper your family's needs.
2. Draw a garden plan to serve as your planting guide.
3. Plant to take advantage of your available space and to have a continuous supply of vegetables from early spring to late fall.
4. Plan to have a surplus of vegetables for freezing, canning and storing.
5. Keep the soil fertile, well supplied with humus, and irrigate during dry periods.
6. Control weeds, insects and diseases.

HOME GARDENING

By CLYDE C. SINGLETARY

The home garden is a means of supplying the vegetable needs of a family. Dietitians recommend that one's daily diet include at least two vegetables other than potatoes. The garden, when properly planned and cared for, will produce vegetables from early spring to late fall, with a surplus for freezing, canning and storing. Too often the neighborhood grocery cannot supply these needs. Certainly there would be more fresh vegetables consumed if more were grown in the garden. In addition, many vegetables are highest in quality when picked fresh and prepared immediately for the table.

Besides supplying the vegetable needs of the family, the garden may return more than $1 an hour for each hour of labor. Thus, gardening may become one of the most profitable enterprises on the farm and, similarly, reduce the food expenditure of urban families.

GARDEN SITE

In many cases, there is little choice of location; however, the following points should be considered whenever possible. The site should be near the kitchen and close to a water source. The garden should not be near large trees because their limbs will shade the plants and their roots will rob the soil of water and minerals. Some roots, such as those of the walnut, poison certain vegetables, particularly tomatoes, causing them to wilt suddenly, even though the trees may have been cut down for several years. Frequently, the home garden is included in the landscape plan of the home property.

SIZE

The size of the garden is determined from a study of the family needs. A list of the kind and quantity of vegetables should be based on those vegetables that members of the family prefer and those that add variety to the diet.

Table 1 includes a sample list of vegetables generally grown, with the quantity of each needed for a family of five. The gardener

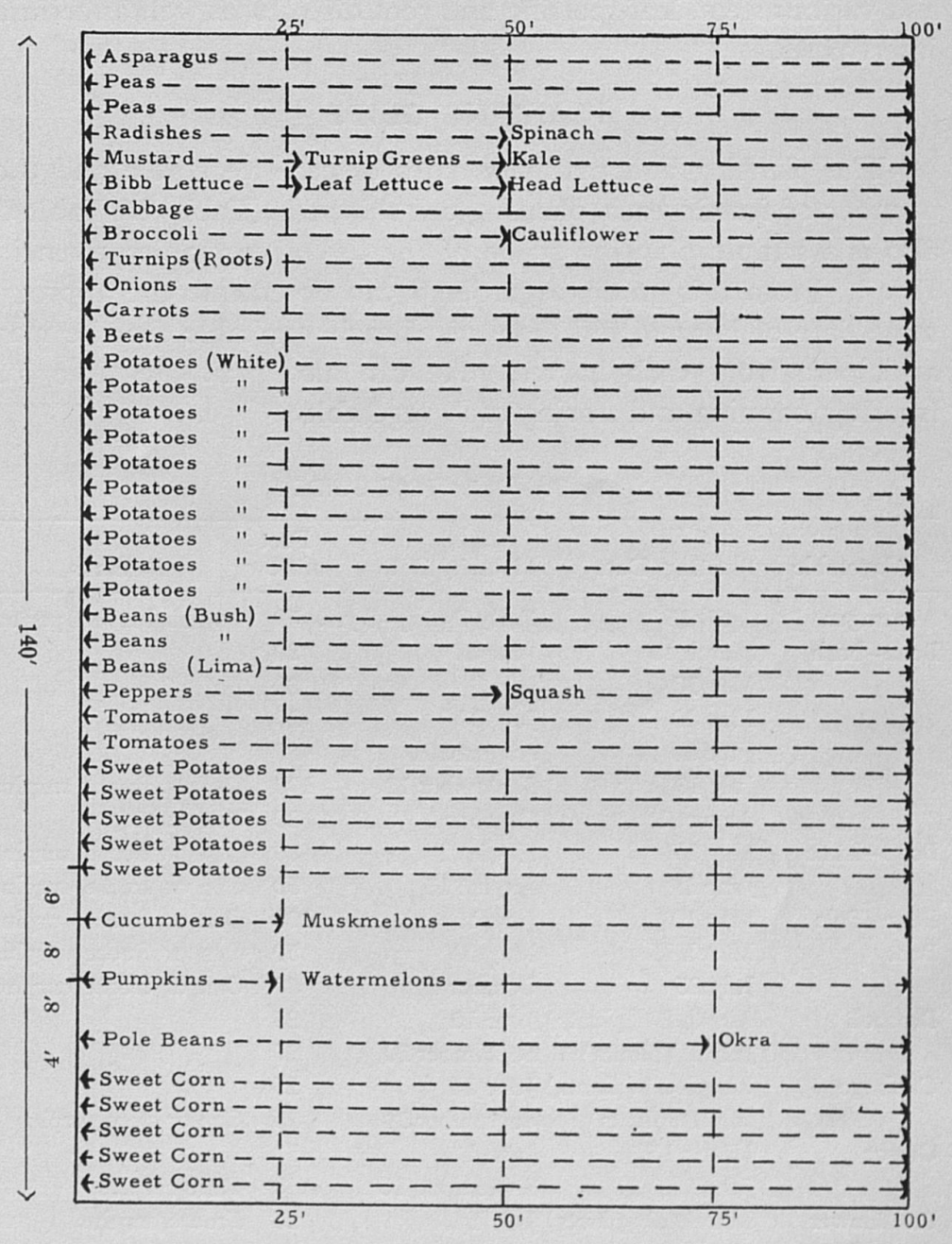
may use this list as a guide for determining the kind and quantity of vegetables for his garden. A garden containing the complete list of vegetables in Table 2, that is to be cultivated with a tractor or horse would be 100 feet long and 140 feet wide. Where weeding is done by hand tools, the width of the garden may be reduced by spacing rows of small vegetables 18 inches apart.

Table 1.— VEGETABLE PLAN FOR A FAMILY OF FIVE

Vegetable	Fresh	Frozen, canned or stored	Total Ft. of Row	Amount of seed or plants	Distance Between plants in row
Asparagus	15 lb	10 lb	50	16 roots	3 ft
Bean—Bush	50 lb	50 lb	200	2 lb seed	2-3 in.
Pole	25 lb	25 lb	80	1 lb seed	6-8 in.
Lima	8 qt	8 qt	100	1 lb seed	3 in.
Beet	1 bu	1 bu	100	1 oz seed	2 in.
Broccoli	30 lb	20 lb	50	⅛ oz " (30 plants)	1½ ft
Cabbage	40 heads	20 heads	100	⅛ oz " (60 plants)	1½ ft
Carrot	1½ bu	½ bu	100	¼ oz "	2 in.
Cauliflower	20 heads	10 heads	50	⅛ oz " (30 plants)	1½ ft
Cucumber	10 lb	15 lb	25	⅛ oz " (8 plants)	3 ft
Kale	75 lb	25 lb	50	⅛ oz "	6-8 in.
Lettuce—Bibb	15 lb		30	⅛ oz " (50 plants)	6 in.
Leaf	20 lb		25	⅛ oz " (30 plants)	8 in.
Head	30 lb		45	⅛ oz " (60 plants)	8 in.
Mustard	1 bu		25	⅛ oz "	4-6 in.
Muskmelon	30 fruits		75	¼ oz " (10 plants)	7 ft
Okra	100 pods	50 pods	20	¼ oz " (15 plants)	1½ ft
Pea	8 qt	8 qt	200	2 lb "	1 in.
Onion	30 bunches	1½ bunches	100	2 lb sets	3 in.
Pepper	½ bu		50	⅛ oz seed (33 plants)	1½ ft
Potato (White)	5 bu	15 bu	1000	75 lb tubers	12 in.
Potato (Sweet)	10 bu	10 bu	500	500 plants	12 in.
Pumpkins		15 fruits	25	⅛ oz seed	5 ft
Radish	50 bunches		50	¼ oz seed	1 in.
Rhubarb	75 stalks	75 stalks	50	15 roots	3 ft
Spinach	1 bu	½ bu	50	½ oz seed	3 in.
Squash (bush)	50 fruits	50 fruits	50	½ oz "	4 ft.
Sweet Corn	25 doz ears	25 doz ears	600	½ lb "	6 in.
Tomato	2 bu	100 qt	200	¼ oz " (50 plants)	4 ft
Turnip (Green)	1 bu		25	⅛ oz "	3 in.
Turnip (Root)	½ bu	½ bu	50	⅛ oz "	3 ft.
Watermelon	20 fruits		75	¼ oz " (9 plants)	8 ft.

PLANTING PLAN

Figure 1 shows the location of each vegetable in the garden area. It groups the vegetables in the garden according to maturity



(3' rows except where indicated otherwise)

Fig. 1. Garden planting plan.

date, planting date, and plant growth habit. Grouping vegetables having approximately the same maturity dates makes available the maximum area for replanting. Having small vegetables separate from tall kinds prevents shading of the small vegetables and makes the garden more attractive. This plan is a permanent record of where each vegetable was planted each year.

If possible, the position of each kind of vegetable should be changed each year. Rotation of crops helps to control nematodes

and various stem, leaf-spotting and root diseases, as well as certain insect pests.

PLANTING GUIDE

The planting and maturity dates of each vegetable and the number of feet in each planting are shown in Table 2. Table 2 also is a sample planting guide of the list of vegetables given in Fig. 1. From this guide, a gardener can determine the approximate date of harvest and amount of each vegetable that he may anticipate from each harvest. He can also plan the time for freezing, canning and storing each vegetable.

Table 2.— PLANTING GUIDE

Vegetable	Planting Date	Maturity Date	Feet of Row	Remarks
Asparagus	April 15	Early Spring—3 yrs.	50	3-week harvest period
Bean—bush	March 15	June 20	20	
	May 10	July 8	20	
	May 30	July 30	20	
	June 20	August 20	20	
	July 10	September 12	100	Can or freeze surplus
	August 1	October 1	20	Ten servings
Bean—Lima	May 15	August 1	50	Can or freeze surplus
	June 1	August 15	50	Can or freeze surplus
Bean—Pole	May 10	July 15	100	Can or freeze surplus
Beet	March 15	May 20	50	Can or freeze surplus
	July 25	October 1	50	Can or freeze surplus
Broccoli	March 20 (plants)	June 10	25	
	July 1 (plants)	September 20	25	
Cabbage	March 20 (plants)	June 15	25	
	July 1 (plants)	September 24	25	Can or store surplus
Carrot	March 15	June 1	50	
	July 1	September 15	50	Store surplus
Cauliflower	March 20 (plants)	July 1	25	Freeze surplus
Cucumber	May 10	July 25	50	Can surplus
Kale	March 15	May 25	24	
	August 1	October 10	25	Freeze surplus
Lettuce—Bibb	March 20 (plants)	April 20	10	
Bibb	April 1 (plants)	May 1	10	
Bibb	August 10 (seed)	October 1	10	
Head	March 20 (plants)	May 15	30	
Head	August 1 (seed)	October 15	15	
Leaf	March 20 (plants)	May 10	15	
Leaf	August 1 (seed)	October 10	10	
Muskmelon	May 10	August 15	75	
Mustard	March 15	May 15	15	
	August 15	October 15	10	

Table 2.— Continued

Okra	May 10	August 1	20	Can or freeze surplus
Onion	March 15 (sets)	May 15 (green)	100	Store surplus
		July 15 (dry bulbs)	100	Store surplus
Pea	March 1-15	May 1	200	Can or freeze surplus
Potato (White)	March 15	July 20	300	
Potato (Sweet)	May 15	October 15	500	Store surplus
Pumpkins	May 10	August 20	25	Store surplus
Radish	March 15	April 10	10	
	April 1	April 25	10	
	April 20	May 10	10	
	August 15	September 10	10	
	September 1	September 25	10	
Rhubarb	March 15	E. Spring—2 yrs.	50	Can or freeze surplus
Spinach	March 15	May 1	25	
	August 15	October 1	25	Can or freeze surplus
Squash (Early)	May 10	July 15	25	
(Late)	May 10	August 15	25	
Sw Corn (Early)	April 15	June 15	50	
(Late)	April 15	July 5	50	
(Late)	April 30	July 20	50	
(Late)	May 15	August 5	150	Can or freeze surplus
(Late)	June 1	August 20	100	Can or freeze surplus
(Late)	June15	September 5	50	
(Late)	July 1	September 20	50	
(Late)	July 15	October 5	50	
Tomato	May 1 (plants)	July 5	150	Can surplus
Tomato	May 15 (seed)	September 1	50	Can surplus
Turnip (Green)	March 15	May 1	15	
Turnip	August 15	October 1	10	
Turnip (Root)	March 15	June 15	25	
(Root)	July 15	October 15	25	
Watermelon	May 10	August 15	75	

SEED LIST

Table 3 shows a sample seed list using only the first six vegetable varieties mentioned in Fig. 1. A mimeographed sheet of vegetable varieties prepared by the Horticulture Department may be used as a guide for variety selection. This publication, which is revised each year, may be obtained by writing to the Bulletin Room, Agricultural Experiment Station, Lexington, Kentucky, or from your county agent. When you have completed the seed list, the gardener may obtain a seed catalog from a reliable seedsman for mail order or he may take the list to a retail seedsman. A new seed list must be made each year, since variety selections of some vegetables change each year. Gardeners should purchase the best

seed available. If infested soil must be used, resistant varieties are the only means of controlling such diseases as wilt. Seed should not be saved and planted the following year. The climate of Kentucky is not suitable for the production of vegetable seed. It pays to purchase certified seed of crops such as potatoes, peas, and beans.

The gardener who buys transplants of such crops as tomatoes, peppers, cabbage, and others should make a list of these with the number of plants required. Arrangements to get these plants should be made in advance of the planting date.

Those gardeners who wish to grow their own transplants may obtain Circular 276 "Hotbeds and Cold Frames" by writing to the Agricultural Experiment Station, University of Kentucky, or by contacting their county agent.

Table 3.— SAMPLE SEED LIST

Kind	Variety	Amount
Asparagus	Martha Washington	16 roots
Bean—Bush	Top Crop	2 lb
" Pole	Kentucky Wonder	1 lb seed
" Lima	Fordhook 242	1 lb seed
Beet	Detroit—Red Dark	1 oz seed
Broccoli	Calabrese	⅛ oz seed
etc.		

Note: Continue the seed list for all vegetables in your vegetable plan.

SOIL MANAGEMENT

A fertile soil well supplied with humus produces the highest yield of quality vegetables. The desired level of fertility of each vegetable should be maintained. Vigorously growing plants can withstand and overcome disease and insect damage better than unhealthy plants. Humus or organic matter may be supplied by adding stable manure or turning under a cover crop. If stable manure is available, a 2-inch thick application over the garden area is equivalent to 10 tons to the acre. This amount should be added each year to maintain the humus needs. The manure should be added in the late fall and plowed under immediately so that it is well rotted before seedbed preparation in the spring.

Cover crops should be planted as soon as the vegetables are harvested and if the area is to remain vacant. Such crops as rye, wheat and barley are suitable as cover crops. These should be

plowed under when 6 to 8 inches high and several weeks before seedbed preparation in the spring.

Compost may be used to add humus to the soil. Leaves and other plant parts may be piled in a heap and when well rotted may be returned to the garden. Garden vegetables should not be put in the compost heap, because many disease-causing organisms overwinter and reproduce on dying and dead plants.

The plants, including the roots, should be removed and burned after the harvest of each crop. Sanitation is particularly important for controlling root-knot nematodes and certain insect pests. These measures will increase the effectiveness of other insect and disease control procedures.

The fertility of garden soils may be improved by adding commercial fertilizers. It is not possible to give a specific recommendation for each garden; however, about 500 pounds per acre of a 5-10-10 analysis fertilizer is sufficient on soils where stable manure is added each year. About 1000 pounds per acre of 5-10-10 is needed if manure is not added. Commercial fertilizers such as 6-12-12, 3-12-12 or their equivalents in higher analysis fertilizers may be substituted in the same quantity as 5-10-10. This fertilizer application should be broadcast at the time of seedbed preparation in the spring. To determine the fertilizer needs of a garden area less than one acre the number of square feet should be determined by multiplying the length by the width. This figure is then divided into 43,560 (the square feet in an acre) to determine the approximate portion of an acre. If you calculate the portion of an acre of the sample garden shown in Fig. 1, you will find that it has 14,000 square feet, or is approximately one-third of an acre.

Many vegetables require nitrogen in addition to the fertilizer mentioned in the foregoing recommendation. A safe rule in side-dressing with a nitrogen fertilizer is to apply it at a rate of 1 pound to each 100 foot of row when the vegetable has reached its half-way point of maturity from time of seeding or transplanting to harvest. Nitrogen fertilizers such as ammonium nitrate (33 percent N.), ammonium sulfate (20 percent N.), or nitrate of soda (20 percent N.) are suitable.

WATERING

Most vegetables contain from 70 to 99 percent moisture. This moisture must come from the soil. Lack of soil moisture is one of the most common causes of garden failures. To insure the largest yields of high quality vegetables, the garden should have at

least 1 inch of water each week throughout the growing season. The gardener should irrigate to bring the amount of water to 1 inch during periods of little rainfall. He should not attempt by visual signs to determine when the garden should be irrigated. When visual signs indicate a need for moisture, the plants have already suffered. Weather reports giving the daily rainfall should be checked.

MULCHING

Straw and sawdust are the common materials used for mulching vegetables. They aid in conserving and maintaining a more even supply of moisture during dry weather. Mulching does not eliminate the need for irrigation during dry weather, but helps to make better use of the additional water.

PLANTING

The date for planting is determined by a guide similar to Table 2. The planting plan (Fig. 1), should be followed for the location of each vegetable in the garden. A measuring stick should be used for correct spacing between rows, and a string should be pulled tight the length of the garden for making straight rows. The depth of planting depends on the crop. Plant small-seeded vegetables such as mustard ½ inch deep, large-seeded kinds such as beans 1 inch deep, potato pieces 4 inches deep, asparagus roots 6 inches deep, and rhubarb 4 inches deep. Transplants should be planted 1 inch deeper than they were growing in the plant bed. When there is not an abundant supply of soil moisture at planting time, the area should be irrigated following planting. A pint of water should be poured around the roots of each plant when it is transplanted.

Following harvest of crops such as peas, early potatoes, early beans, and others, the gardener may wish to replant the area with a cover crop or with some vegetable that he particularly likes. The area should never be allowed to grow up in weeds.

CULTIVATING

The garden should be cultivated to control weeds while the weeds are small. Weeds compete with vegetables for moisture and minerals. It may be necessary to cultivate before irrigating to break a hard crust. Cultivation should be as shallow as possible to prevent any injury to vegetable roots.

SPRAYING TO CONTROL DISEASES AND INSECTS

Leaf, fruit and stem diseases and chewing and sucking insects may be controlled by spraying. Although some chemicals may control certain diseases and insects better than others, some will provide adequate control of the more frequently occurring diseases and insects. This list of chemicals may serve as a helpful guide when purchasing spray materials.

Fungicides (Disease Control)	*Insecticides (Insect Control)*
1. Zineb	1. Rotennone
2. Maneb	2. Methoxychlor
3. Captan	3. Malathion
4. Fixed Coppers	4. DDT

Manufacturers sometime include combinations of one of the above-mentioned fungicides and one or more of the insecticides in a single package plan for controlling garden insects and diseases. However, the fungicide and insecticide may be purchased separately and mixed at home. The manufacturers' directions in using the spray chemicals *must be* followed. These directions are found on the label of the package. Some insecticide chemicals leave a poisonous residue for several weeks after application. The label on the package gives the length of time to wait from spraying to harvesting of the vegetables.

The fungicides and insecticides may be obtained as dusts but sprays are preferable. Sprays give better coverage, stick to the plants better, and can be applied in windy weather.

Experience and observation are the best guides for determining which crops need to be sprayed. Proper application is most important for successful control. Most fungicides and insecticides are protective and need to be applied before the diseases or insects become severe. Most diseases that can be controlled by spraying are dependent upon ample moisture and moderate temperatures for their spread. Under such conditions, spraying should be thorough and frequent (7 to 10-day intervals between applications). In hot dry weather, the interval may be lengthened.

During some seasons, strains of certain insects such as aphids, as well as mites, may become resistant to a particular insecticide. Under these conditions, the gardener may wish to purchase an insecticide specifically for the control of that insect.

Potato tubers, roots of some vegetables, and transplants are frequently damaged by mole crickets, wireworms, flea bettle larvae or grubs. These pests may be controlled by soil applications, be-

fore planting time, of either chlordane, aldrin or heptachlor. The material can be broadcast or applied in bands using a weed spray broom, or it may be mixed with the fertilizer. The recommended dosage is 6 pounds of actual aldrin or heptachlor per acre. The material must be worked well into the top 3 or 4 inches of soil.

A disease may become serious during some seasons despite the use of the control measures listed in this circular or because some of them were neglected. In such cases, identification of the disease is necessary before a specific remedy can be applied. Because "drowning" of the plants, lightning, low fertility, chemicals and other factors produce symptoms that can be confused with diseases caused by parasitic organisms, and since the identification of the parasite is usually necessary for determining the disease, specimens should be sent to a plant pathologist at the Agricultural Experiment Station for diagnosis. Specimens should be representative of the disease and arrive at the Experiment Station in as good a condition as possible. Plants or plant parts showing active disease symptoms are preferable. It is often impossible to diagnose diseases from dead, decayed or dried up material because secondary organisms have destroyed the evidence of the original cause. Specimens should be packed loosely in waxed paper, metal foil or plastic bags without moisture added to them. Roots and soil should be included unless the disease is obviously confined to leaves and stems.

If specimens of plants or insects are sent through the mails, they should be packed in a rigid container and mailed early in the week in order to avoid weekend lay-overs in post offices. For more complete information on insect control, see Kentucky Extension Circular 479 (revised 1955).

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