

A home fruit garden provides convenient access to tasty and nutritious fruits that may not be available fresh at the local grocery store. Caring for plants offers a relaxing diversion. And with its spring blossoms, colorful fruit, and the screening provided by small trees and trellised vines, a fruit garden adds beauty and function to the landscape. Gardeners should be aware of the challenges associated with fruit gardening. Fruit diseases, insects, birds, and weather can cause disappointment and reduce fruit quality. Fruit gardeners should plant only what they can care for and avoid overplanting, which creates extra work.

Type of fruit

When deciding what fruits to plant, start with fruit your family most enjoys growing and eating. Some families may wish to grow only two or three kinds of fruits such as strawberries and blackberries. Other may decide to grow bush fruits, grapes, and tree fruits. Keep in mind that not all fruits grow well in all Kansas locations so become familiar with the fruits most and least likely to grow well in your area.

Space available

Space may limit what can be grown. For example, a small garden may only have room for a few grape vines, blackberry plants, or a small strawberry bed. A larger space allows for more plants. Some fruit trees are grafted onto dwarfing or semi-dwarfing rootstocks and require less square footage than a standard-size fruit tree.

Planting site

Fruit plants take up oxygen through the roots and grow best in well-drained soil. Saturated soils are not good for growing fruit because they exclude oxygen. Pears can tolerate poorly drained soil better than other fruits. To improve drainage on small sites, elevate the planting area with a retaining wall made out of railroad ties or other materials.

A percolation test should be performed to measure how fast water is absorbed by the soil. Start by digging a small hole at least 12 inches in diameter and 12 inches deep. Presoak the ground by filling the hole with water and letting it sit overnight. The next day, refill the hole and insert a stick to gauge the water level. In an hour, take and record a second measurement. Repeat this every hour as the water level drops until the hole is empty.

Percolation rates should average 1 to 3 inches per hour. A rate of less than 1 inch per hour means the soil needs to be modified. Do this by adding 2 inches of organic matter such as peat moss to the surface of the soil and mixing it in with a garden fork or rototiller. Soils with percolation rates of more than 3 inches per hour can be used with good irrigation practices.

Low temperatures, especially during bloom in early spring, can kill fruit flowers, reducing or eliminating the crop for the season. Cold air from higher elevations settles in lower elevations, and fruit plants grown where cold air accumulates are more likely to suffer blossom injury. Hot winds reduce plant yields, especially in small fruits such as blackberries, raspberries, and strawberries. The fruit garden should be located in an area with natural barriers or buildings for protection from cold north winds and south summer winds.

Fruit plants require full sunlight for growth, fruit development, and maturity. Fruit plants should be located 20 to 30 feet from medium-size shade trees and 40 to 50 feet from large trees to reduce competition for soil moisture and nutrients.

Soil types

Deep, rich, loam soil is best for a fruit garden. In many cases, the garden soil is a heavy clay or a “builder’s fill” of subsoil. Soil can be modified for fruit plants by mixing in organic matter such as compost, aged manure, leaf mold, old silage, rotted hay, or peat throughout the planting area and not just adding it to the planting holes. Add at least two inches of organic matter to the soil surface and mix it in with a garden fork or rototiller. Soil with at least 2 to 3 percent organic matter is recommended for fruit gardens.

Soil preparation

The garden site should be plowed and harrowed or rototilled before planting just as you would for a vegetable garden. Control weeds by working the ground, preferably during the fall before planting and again before setting out fruit plants. Field bindweed and other perennial weeds should be controlled before planting. If the garden area is on a hillside and covers several hundred square feet, grass strips should be left to prevent erosion. Add organic matter to improve clay and sandy soils as outlined in the previous section.

Table 1. Fruit types and description^a

Fruit crop	Approximate space per plant (sq ft)	Minimum spacing (feet)	Average bearing (year)	Yield per plant (years)	Expected life
Small fruits					
Blackberry					
Erect	20-25	7 x 3	2nd	1.5–2 qt.	10–12
Trailing	40-50	8 x 5	2nd	3–5 qt.	10–12
Blueberry					
High bush	40-45	4 x 10	3rd–4th	10 lb.	8-10
Currant	20-30	5 x 5	2nd	3–5 qt.	10–15
Elderberry	75-85	9 x 8	2nd	2–4 qt.	15–20
Gooseberry	20-30	6 x 5	2nd	5–8 qt.	10–15
Grape	60-80	8 x 8	3rd	10–20 lb.	25–30
Raspberry					
Red	15-25	6 x 2.5	2nd	1.5 qt.	8–10
Black and purple	15-25	7 x 2.5	2nd	1.5–2 qt.	8–10
Strawberry					
June bearing	6-8	4 x 2	2nd	1 qt.	3–5
Everbearing	6-8	3 x 2	1st	0.5 qt.	3–5
Tree fruits					
Apple					
Dwarf	40-100	8 x 6	3rd–4th	3–5 bu.	15–20
Semi-dwarf	250-400	20 x 15	4th–5th	5–10 bu.	15–20
Standard	700-900	30 x 25	5th–7th	10–25 bu.	30–40
Apricots	700-900	25 x 25	5th–6th	2–4 bu.	20–30
Sweet cherry	600-900	24 x 25	5th–7th	30–60 qt.	20–30
Tart cherry					
Dwarf	175-225	15 x 15	3rd	10–15 qt.	12–15
Standard	250-400	20 x 20	4th	30–50 qt.	15–20
Peach and nectarine					
Dwarf	40-80	8 x 8	3rd	1–1.5 bu.	8–12
Standard	300-500	20 x 20	4th	3–5 bu.	10–15
Pear					
Dwarf	200-300	15 x 15	3rd–4th	1–3 bu.	10–15
Standard	500-700	25 x 25	5th–7th	4–6 bu.	30-40
Plum					
Dwarf	200-300	15 x 15	3rd–4th	1–2 bu.	10–15
Standard	500-700	25 x 25	4th–5th	3–5 bu.	15–20

^aThe listed values are approximations and may vary with varieties, locations and the care given to the fruit plants. Where space is not limited, plants can be spaced further apart. The suggested spacing is for space between rows and space between plants in the row. For example, blackberries (erect) would be spaced with 7 feet between rows with plants spaced 3 feet apart in the row.

Fertilizing

A soil analysis should be performed to determine soil pH and available nutrients. Your local extension office can provide information on soil sampling procedures and make testing arrangements. The soil analysis should be used as a guide for adjusting soil pH and adding nutrients. In fruit gardens, nutrients should be added and worked into the soil before plants are set out.

Planning the fruit garden

Develop a garden plan to use in selecting and recording the fruit varieties you plan to grow. Before making decisions on what to plant, ask local residents about the kinds and varieties of fruit that grow well in the local area. Ask for a list of recommendations from local extension office, or refer to the K-State publication, Small- and Tree-Fruit Cultivars, MF1028. Local nursery and garden store employees may be able to provide additional information about the performance of particular plants. Buy plants from retailers that sell varieties adapted for your location

and know how to care for plants to keep them in good condition for buyers. Be aware that some fruits require a second variety for pollination and fruit set (self-sterile), while self-fertile varieties need only one. Fruits that are self-fertile, partially self-fertile, and self-sterile are shown in Table 2.

Additional information

- Grapes, MF635
- Raspberries and Blackberries, MF720
- Strawberries, MF598.
- Small- and Tree-Fruit Cultivars, MF1028.
- Pruning Apples and Pears, MF3450
- Pruning Peaches, Plums, Cherries and Other Stone Fruit, MF3451
- Spray Guide for Growing Apples at Home, MF3429
- Spray Guide for Growing Stone Fruit at Home, MF3430
- Fruit Pesticides, Active Ingredients, and Labeled Fruits, MF3431

Table 2. Fruit crop considerations

Fruit crop	Pollination requirement ^a	Bearing season ^b	Cold hardiness of fruit buds ^c
Small fruits			
Blackberry	Self-fruitful	June–August	Moderately hardy
Blueberry	Partially self-fruitful	June–July	Hardy
Currant	Self-fruitful	July	Hardy
Elderberry	Partially self-fruitful	August–September	Hardy
Gooseberry	Self-fruitful	June–July	Hardy
Grape	Self-fruitful	August–September	Moderately hardy
Raspberry	Self-fruitful	July	Hardy
Strawberry			
June bearing	Self-fruitful	May–June	Hardy
Everbearing	Self-fruitful	May–June and September	Hardy
Tree fruits			
Apple	Partially self-fruitful	July–October	Hardy
Apricot	Self-fruitful	July	Extremely sensitive
Sweet cherry	Self-sterile	June	Sensitive
Tart cherry	Self-fruitful	June	Hardy
Nectarine	Self-fruitful	July–September	Very sensitive
Peach	Self-fruitful	July–September	Very sensitive
Pear	Self-sterile	August–September	Hardy
Plum			
European	Partially self-fruitful	August–September	Moderately hardy
Japanese	Self-sterile	August	Very sensitive

^aSelf-fruitful – Only one variety needed for pollination. Self-Sterile – Two varieties are needed for pollination; occasional exceptions with some varieties. Partially self-fruitful – Fruits generally set a heavier fruit crop with two or more varieties planted together. ^bWill vary according to varieties planted. ^cFruits listed as very sensitive to freezing temperatures are less likely to be productive in northern areas. There are varietal differences in cold hardiness.

Garden Planning Summary

- Plant fruit your family enjoys growing and eating.
- Consider the available space.
- Plant only what you have time to care for.
- Plant the fruit garden where water drains and moves down into subsoil.
- Plant where it is convenient to water during dry weather.
- Locate the fruit garden in full sunlight. Blackberries and raspberries will tolerate a limited amount of shade.
- Plant the garden where fruit buds and blossoms are the least likely to be injured by cold.
- Measure the area to determine number of plants required and use this information to draw a planting plan.
- Plan carefully and buy fruit varieties that will grow well in your soil and climate.
- Prepare the ground for planting similar to a bed prepared for vegetable crops or other small seeds.
- Keep plant roots moist and cool from the time they are purchased until you are ready to plant.
- Manage weeds, insects and diseases.
- Prune tree, vine, and bush fruits annually to remove weak wood and provide good sunlight on plant leaf area.

Avoid

- Overplanting because crowding increases stress and reduces yield.
- Planting a large a garden that is neglected and produces low-quality or no fruit.
- Poorly drained sites where water stands after a rain.
- Planting the fruit garden in the shade or close to trees that compete for sunlight, soil moisture, and nutrients.
- Planting the garden in spot lower than the surroundings.
- Bargain plants that are not adapted for your area.
- Planting in grass or uncultivated ground.
- Allowing roots to dry out before planting. Hold plants in a bucket of water during planting.
- Depending on nature to keep plants healthy.
- Delaying pruning so trees develop poor structure. Excess wood shades the inner branches and may result in poor or no fruit set.

First Year

Pre-planting from September to March

- Determine planting area.
- Collect soil samples for analysis. Adjust soil pH as indicated by the soil test.
- Apply organic matter.
- Plow.
- Order plants.

Planting from February to April

- Fertilize the planting area.
- Apply organic matter if not done earlier. Add 2 inches of organic matter, tilling or working it into the soil.
- Prepare soil – rototill, harrow, or disc.
- For strawberries, treat soil for white grubs in grassy areas where grubs were seen when working the soil.
- Hold plants at about 40°F after receiving them if it is not possible to plant immediately.
- Soak plant roots in water for 4 to 5 hours before planting.
- Prune roots that are long or damaged.
- Soil around the roots should be firmed moderately.
- Water after planting, applying about 1 pint for strawberries and 3 to 5 gallons for trees.
- Prune back tops of plants that have not been pruned.

After planting

- Water to maintain soil moisture.
- Control weeds around plants.
- Control insects and diseases.
- Select scaffold branches on trees.
- Tip back ends of blackberries and raspberries. (See Raspberries and Blackberries, MF720.)
- Mulch strawberries in late November.

Dormant period (January to March)

- Prune fruit trees, grape vines, and fruit bushes.
- Apply dormant sprays for pest control.
- Apply mulch and fertilizers.

Second Year

April to December

- Carry out pest control program.
- Remove part of the strawberry mulch as new growth begins or when the top 2 inches of soil reaches 40°F.
- Water as needed throughout the growing season. Keep the soil moist but not waterlogged.
- Renovate strawberries after harvest. (See Strawberries, MF598.)
- Tip back new canes on blackberries and raspberries. (See Raspberries and Blackberries, MF720.)
- Mulch strawberries in December. (See Strawberries, MF598.)

Second dormant period

- Same as first dormant period.

Ward Upham, Horticulturist

Revised from original by Frank Morrison, Extension Fruit Specialist; revised by Sorkel Kadir, Fruit Scientist

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