



STRAWBERRIES IN HOME GARDENS

COOPERATIVE EXTENSION SERVICE MICHIGAN STATE UNIVERSITY

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THIS BULLETIN IS INTENDED for home gardeners desiring to produce a small amount of high-quality fruit. Commercial growers should obtain a copy of Extension Bulletin 356, Commercial Strawberry Growing in Michigan.

The strawberry is adapted to all sections of Michigan and should be considered the number one fruit crop for home plantings. Plants are hardy and easier to grow than most other fruit crops. They produce good crops in less time than any other fruit, about a year after planting. A small plot of land will produce plenty of berries for family use. A row 100 feet long should produce ample fresh fruit for a family of four—with additional fruit to be frozen or preserved. Berries ripen early in the season ahead of other home grown fruits.

The success of the planting will depend greatly upon the consideration given to the factors listed below. Follow each of these carefully for highest yields and quality.

SITE AND SOIL:

When a choice of site and soils exists, consider the following:

- (1) Select a site with sufficient slope to insure water and air drainage; a slope of 2 feet in 100 is about ideal.
- (2) Select a site open to direct sunlight. Avoid shady areas. You will not need much area so pick the best possible spot.

(3) Sandy to gravelly loam soils are ideal for strawberries.

(4) Plant on well drained soil. Avoid an area where water drains off slowly.

(5) Soil should be well supplied with organic matter.

SOIL PREPARATION:

Strawberries grow best when placed in a rotation program with other crops. "Rotate" your strawberry planting from one spot to another in your garden each time you make a new planting. Always place your new planting where strawberries have not been grown in the past 4 years. Keep strawberries off areas for at least 3 years following tomatoes, peppers, eggplants, and potatoes. These crops often cause the soil to become infested with a fungus disease, *Verticillium* wilt, causing the strawberry plants to wilt and die.

Choose an area cultivated during the past year and free of weeds and grass. Wait at least a year before planting strawberries in ground that is in grass sod. Work the sod down and keep the area cultivated for at least a year before planting strawberries. Freshly worked sod ground may contain many white grubs and root weevils that badly damage strawberries.

Growing several cultivated crops on the site before planting strawberries helps eliminate weeds and grubs.

Build up the organic matter content of the soil either by adding organic residues or by growing green manure crops. Generally it is more practical to add

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available organic residues as manure, lawn clippings, sawdust or other similar products than to grow green manure crops.

Additional nitrogen will probably be required if organic residues are added. Consult your county agricultural agent or your local fertilizer dealer. Do not add more than 10 pounds of the organic residues per square yard of the soil surface.

Plow or spade deeply as early in the spring as the soil can be worked. Cultivate several times until the soil is thoroughly pulverized and in a fine mellow condition.

TIME OF PLANTING:

Plant as soon as the soil can be properly prepared in the spring. This results in the best growth and yield with the least effort. For best yields, make a new planting every year. Everbearing varieties give best crops in the year they are set whereas June bearers will produce best crops the following year.

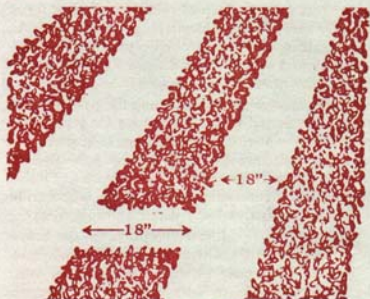
PLANTS:

Purchase only inspected and certified plants. Under Michigan law only certified plants may be sold or given away. Virus-free strawberry plants will out-yield non-virus-free plants. Generally fruit size will also be superior. The cost of good plants is only a minor factor in developing a good strawberry bed, and buying good plants is an excellent method to avoid serious disease problems.

The plants should have medium to large crowns and large, light colored, healthy roots. Plants with black roots are old plants; they will fail to grow or will grow very poorly and should not be planted.

SYSTEMS OF TRAINING:

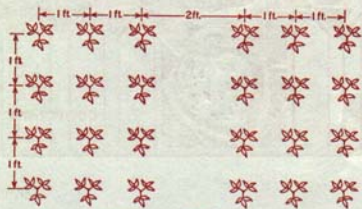
The matted row system is most commonly used in home gardens for June bearing types. Set plants 22 to 24 inches apart in the row with rows spaced 3 to 4 feet apart.



Matted-row systems.

Allow runners to form a mat 15 to 18 inches wide with runner plants spaced 4 to 6 inches apart. Maintain at least 18 inches between matted rows. Allowing plants to mat too closely together results in small and inferior berries.

The best training system for most everbearers is the hill system. Plants are set 12 to 15 inches apart in double or triple rows. Runners are removed as they appear. Some varieties that make runners readily often perform well using a spaced runner system.

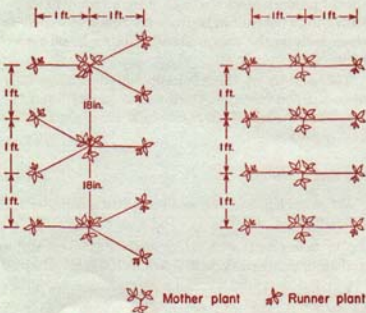


Triple row hill system.

The training system you use will greatly affect yields. The matted row system is least productive, but easiest method to follow. A double row hill system may produce twice as much fruit from the same amount of land. Spaced runner systems range between the hill and matted row system in production.

TRANSPLANTING:

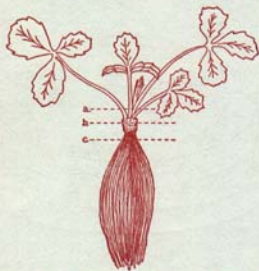
Unpack the plants and either plant or heel them in as soon as they are received from the nursery. Otherwise, they may be killed or seriously damaged by several hours of high temperatures. Set the plants at



Two systems for spacing runners.

crown level with the soil surface. Plants set at incorrect depth may start growth but will lack vigor and will likely die. The plant crown is the thick fleshy part of the plant from which the leaves and roots originate.

The plant roots should extend vertically into the soil spreading out like a fan. Pack the soil firmly about the roots so that when a leaf is grasped and pulled suddenly it breaks without moving the plant.



Strawberry plant planting depths. Broken line "b" illustrates proper depth; line "a"—set too deeply; and line "c"—not deeply enough

FERTILIZERS:

Apply fertilizer during the first growing season for best yields the following spring. Well rotted manure is good fertilizer for strawberries. Apply one-half bushel per square yard before plants are set. Sidedress (spread on the soil surface near the plant) 10 days after setting with 2 to 3 pounds of a good complete* garden fertilizer per 100 feet of row. Repeat again in 4 to 6 weeks if necessary. When sidedressing strawberries, the fertilizer should not come in contact with damp foliage or be placed more than 4 inches from plant crowns. When foliage is dry, broadcast fertilizer over the plants and then remove excess from the leaves by brushing gently with a broom or rake.

When plants make unsatisfactory growth, it may be helpful to have the soil tested.

CARE DURING THE FIRST SEASON:

Remove all flower clusters as they appear up to the first of July. The production of fruit on newly set plants limits vegetative growth and results in low yields.

Shallow cultivation and hand hoeing are necessary, primarily for weed control. Start early and repeat

*A "complete" fertilizer is one containing nitrogen, phosphate, and potassium. Example: 12-12-12.

every 10 days or two weeks as long as weeds appear. Sesone or dacthal, chemical weed sprays, may aid in weed control. Follow manufacturer's directions for using these materials.

Drought stunts plant growth. Water your planting during dry spells, applying sufficient water to wet the soil 6 to 8 inches deep. Repeat as necessary.

Thin or space plants grown in matted rows 4 to 6 inches apart. Allow early runners to root and remove those developing later in the season. Many home gardeners allow plants to grow too closely together in a matted row. This results in small berries, poor quality, and more disease problems.

MULCHING:

Mulching protects the plants from winter injury, eliminates dirty berries, retards time of blossoming, suppresses weed growth, conserves moisture, and decreases fruit rot. Apply mulch in November as soon as the temperature has fallen to approximately 20°F. Plants may be damaged by mulching too early and/or too late. Plants mulched early may be injured by warm fall days after the mulch is applied. If plants are mulched late, winter injury may have already occurred to the plant crown.

Mulch with a loose organic material such as straw, hay, or shavings which are free of weeds and grain seed. Cover the plants to a depth of 2 to 3 inches. Sawdust may be used but the depth of the sawdust should be only one inch.

Some frost protection and late fruiting may be obtained by leaving the mulch over the plants as late as possible in the spring. Examine the bed every few days during warm weather. Remove only a portion of the mulch when the leaves turn a faint yellowish green. If the mulch is loose and thin, the plants will grow up through it. To obtain early fruiting remove all the mulch as soon as growth starts in the spring. However, this usually increases the risk of late spring frost damage to the blossoms.

SPRING TILLAGE:

Cultivation may be necessary in the spring if the bed becomes weedy. Cultivate very shallow because it is easy to damage strawberry roots by deep cultivation at this time.

Do not fertilize in the spring prior to harvest. Fertilizing at this time increases foliage growth, delays fruit ripening, and increases berry softness and fruit rot.

Water the planting liberally during and immediately following bloom. This is very important during the early period of fruit formation and development for large yields.

HARVESTING:

Strawberry harvest generally begins in late May-early June in southern Michigan and extends through June and early July in northern Michigan. The harvest season length varies with the season and varieties grown. The picking season is short if hot weather occurs, but with cool weather and abundant rainfall it will continue over a longer period of time. Generally the first mature berries appear about 30 days after the first blossoms have opened.

Not all the berries ripen at the same time. Pick only those berries that are red. Leave berries showing white for next harvest. Pick all the ripe fruit during each harvest. Leave fruit for freezing on the plant until fully mature. Removing berries damaged by diseases and insects reduces the amount of fruit rot.

Harvesting every other day is the customary practice. Fruit ripens more rapidly during hot weather and it may become necessary to pick every day. Pick berries early in the morning while they are cool. Keep harvested fruit in a cool place until used.

RENEWING THE PLANTING:

Strawberry plantings may bear fruit more than one season, although yields will generally decrease. A planting, properly handled, will produce about two-thirds as much fruit the second year of harvest and about one-third as much the following year.

Do not attempt renewal unless the plants are vigorous and relatively free from weeds, insects, and diseases.

To renew a bed in the matted row system, mow the foliage one-half inch above plant crown, narrow the rows with a cultivator or hoe to a strip 10 to 12 inches wide. Thin the plants, leaving only the most healthy and vigorous. Do this immediately after harvest. Then handle the remainder of the season as you would a new planting.

Many insect, disease, and weed problems can be avoided by fruiting the bed only two seasons and then starting a new one.

SPRING FROST CONTROL:

When a frost is forecast, replace the mulch or some other form of covering over the tops of the plants just before dark and remove it the next morning.

Sometimes a sprinkler may protect a small area. Turn on the sprinkler when the temperature at ground level drops to 32°F. and keep it on until ice disappears the next morning. (See section under mulching.)

VARIETIES:

Robinson and Surecrop varieties are easiest to grow in Michigan gardens. With little effort, they produce

considerable fruit even under relatively poor conditions. Other varieties are superior in quality although somewhat more difficult to raise.

Surecrop—One of the easiest varieties to grow; plants are vigorous. They produce many runners and are resistant to red stele, leaf spot, leaf scorch, and *Verticillium* wilt. Fruit is medium sized, bright red, very attractive and firm.

Robinson—Berries are very large, bright red, attractive; flesh is medium firm and white at center. Plants are very vigorous and productive, especially on sandy soils. The plants are somewhat susceptible to leaf spot and the fruits to stem end rot. It is not a good berry for freezing unless well ripened on the plant.

Midway—Fruit is large, glossy, dark red, firm, and freezes well. The plants are vigorous and very productive. Plants are resistant to red stele but susceptible to *Verticillium* wilt and sometimes suffer from drought on sandy soils. Midway produces many runners but requires good fertile soil. Fruit size remains fairly uniform throughout harvest when moisture supply is adequate.

Sparkle (Paymaster)—One of the best varieties for home freezing. The fruit is high in quality and flavor but the berries are quite small after three or four pickings.

Dunlap—One of the hardest varieties grown. It can withstand drought and freezing temperatures better than most others. The berries are deep red, soft, and medium to small. The fruit has good flavor and is fine for home freezing.

The above varieties ripen in about the following order (earliest to latest): Midway, Surecrop, Dunlap, Robinson, and Sparkle.

EVERBEARING VARIETIES:

Most everbearing varieties of strawberries bear crops during two seasons each year: (1) late spring-early summer, and (2) from mid-summer to the first killing frost in the fall.

Everbearing strawberries may not always be successful for several reasons: (1) Plants are often low in vigor and production, especially during hot weather, (2) fruit quality is low during hot weather, and, (3) much hand work is needed to obtain good yields.

Ozark Beauty—One of the best everbearing varieties. Plants are vigorous growers and make a full bed of plants. Fruit is medium size, glossy dark red with prominent yellow seeds, and has excellent flavor.

Geneva—Plants are vigorous and productive. The berries are very large, dark red, and of good quality but soft. Space plants 15 to 18 inches apart to avoid excessive rot during wet weather.

Twentieth Century—Plants are vigorous and often productive but develop few runners. The fruit is an

attractive light red, large, irregular, and firm. Fruit quality and flavor are good.

Gem, Superfection and Brilliant—These varieties are very much alike. The berries are light red, medium size, soft, and very acid in warm weather, but sweeter and firmer in cooler weather. The plants produce a fair number of runners.

Red Rich—Plants are vigorous but grow few runners and have poor yields. The berries are dark red, medium size, and of good quality.

Ogallala—Plants produce many runners. The berries are of medium size, light red, glossy, good quality, but very soft.

INSECTS AND DISEASES:

White grubs feed on large roots and crowns. Eradicate these grubs by growing cultivated crops before strawberries are set.

Strawberry leaf-rollers draw the leaflets together, form a web, and feed from the inside. In a small patch the infested leaves may be removed by hand and burned.

In most home plantings, spraying is less effective as a means of pest control than the use of preventative measures such as mowing after harvest, clean tillage, and removal of weeds and rubbish from the borders of the plantation, together with the use of healthy planting stock, short rotation, and proper management methods.

Just as with a field crop, success with strawberries in the home garden depends upon close, careful attention to many details—from the selection of the best variety to the preservation of the harvested crop. There is more satisfaction in properly managing a small planting than poorly handling a more extensive one.

PLANTING A STRAWBERRY BARREL

The strawberry barrel is an interesting and ornamental novelty for the gardener. Use an old wooden barrel or one of any other solid material that has been washed thoroughly to remove all materials injurious

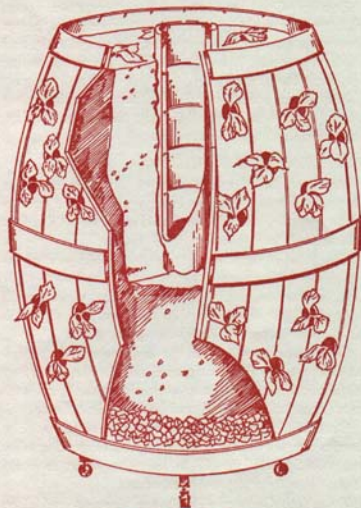
to strawberry plants. Avoid vinegar or dill pickle barrels.

Remove all hoops not properly located for the holes that must be provided for the strawberry plants. Locate the first row of holes about 5 inches below the top of the barrel, the next row 6 to 8 inches beneath the top row, and so on until the bottom row is about 8 inches above the bottom of the barrel. Bore holes $1\frac{1}{2}$ to 2 inches in diameter and spaced about 8 inches apart in each row. Stagger the holes in adjacent rows so plants are not directly above plants in next lower row. In the bottom of the barrel, bore 5 or 6 holes 1 to $1\frac{1}{2}$ inches in diameter closer to the center than the edge of the barrel to provide for drainage.

Ideally, the barrel should be on a wooden platform with casters to allow turning so all plants can enjoy some sun. A base of bricks would be an acceptable alternate base.

FILLING THE BARREL:

Place a 2-inch layer of pebbles, coarse gravel, or broken flower pots in the bottom of the barrel. Then fill the barrel with a loam or sandy loam soil to the bottom row of holes. Pack the soil firmly. Now insert plants into the lowest row of holes, roots first, so that the plant crowns are even with the surface of the barrel. Place only one plant in each hole (everbearing varieties preferred). Spread the roots out well and cover with soil. Follow the same procedure as the soil is built up to each series of holes. Pack the soil rather firmly to prevent excessive settling when watered. Finally, set 6 or 8 plants in the top of the barrel.



Strawberry barrel.

AERATION AND WATERING:

Make provision for watering and aerating the lower level of soil. When the barrel is one-third full of soil, place on end in the center of the barrel a 3- or 4-inch tile, metal pipe, or wooden channel long enough to extend up even with the surface. This tube must contain sufficient perforations to allow for the circulation of both air and water.

When planting is finished, thoroughly moisten the soil by running a hose into the open center or tube, filling it with water. Do this often enough to keep the soil fairly moist but not water-logged. The top row of plants is irrigated by applying water onto the surface of the soil in the barrel.

FERTILIZATION:

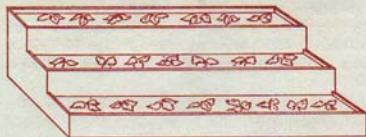
A small amount of a complete fertilizer can be included once every 2 to 3 weeks with the watering. Avoid using large amounts of fertilizer or using it too often. A small handful at each of these times is sufficient. Discontinue fertilizer applications about September 1.

WINTER PROTECTION:

Move the barrel into a building for winter protection or cover with several inches of straw. This protects against hard freezing and alternate freezing and thawing.

PYRAMID AND TERRACED BEDS

These beds are made in a wide variety of shapes. You can use metal, wood, concrete, or almost any



Terraced bed.



Pyramid bed.

material for construction of the retaining walls. The beds usually are 8 to 12 inches wide and 6 to 8 inches above the one immediately below. One row of plants, spaced 10 to 12 inches apart, is used in each tier.

Terraced beds usually require a little more room than a barrel. They normally are more productive, and easier to make and care for. Soil fertilizer, location, and plants are the same as for the barrel.

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