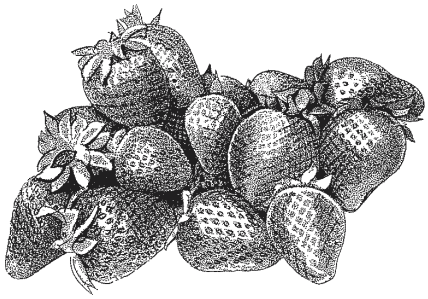

Department of Horticulture

Purdue University Cooperative Extension Service • West Lafayette, IN

Growing Strawberries

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The strawberry is the most popular small fruit grown in the home garden. It is relatively easy to grow, produces large quantities of good-quality fruit without requiring extra equipment, and it can be grown in home gardens all over Indiana.

A planting originating from 25 plants can yield 25 to 50 quarts of berries ripening from mid May to late June, depending upon the area of the state in which they are grown.

Cultivars

Three types of strawberries are available: Junebearers which fruit once each season, Dayneutrals that fruit several times each season, and Everbearers that, despite their name, fruit twice each season. Junebearers are the most widely adapted and recommended in Indiana. Dayneutrals may perform well in protected areas. Everbearers generally do not perform very well except as ground covers or novelty plants.

Cultivar recommendations are difficult with strawberries because they tend to be very site specific. A cultivar that may be outstanding in your garden may do poorly for your neighbor. Cultivars that have performed well across a range of sites are listed below.

Junebearers: Good early season cultivars are 'Earliglow,' 'Annapolis,' and 'Delmarvel.' 'Earliglow' has excellent flavor, but fruit size decreases after the first harvest. 'Redchief,' 'Honeoye,' 'Guardian,' and 'Surecrop' are suggested as mid-season cultivars. 'Redchief' and 'Surecrop' are reliable plant producers and will do well across a range of sites and conditions. 'Allstar,' 'Jewel,' and 'Sparkle' are suggested cultivars for late season. 'Allstar' is a consistent producer or large berries with orange/red color. 'Jewel' is an excellent quality berry but plantings don't renovate well.

There are a number of promising newer releases that have not been tested much in the region. Small trial plantings are recommended. For early season try 'Northeaster.' For mid-season try 'Kent,' 'Mesabi,' 'Primetime,' or 'Cavendish'. For late season try 'Winona.'

Dayneutral cultivars: Good cultivars for cooler climates are 'Tribute' and 'Tristar.' Dayneutrals generally do not do well during the heat of summer unless in a protected site.

Everbearing cultivars: 'Ozark Beauty' and 'Fort Laramie' appear to be the most promising cultivars. 'Quinault' is a new release that may have potential.

Disease-free plants are important to successful strawberry production. To insure disease-free plants, always buy healthy, virus-free plants from a reliable nursery rather than using plants from your own or a neighbor's planting.

Site

While strawberries will grow on most soil types found in Indiana, they will do best on well-drained sandy loam or loam soils. The best site is one which permits good soil drainage and good surface drainage so that water doesn't accumulate in the area of the planting. Where the only site available is on heavy soils with poor soil drainage, strawberries should be planted on a bed raised a minimum of 6 to 8 inches to encourage good internal soil drainage. A number of types of beds will accomplish this purpose. Raised beds which are surrounded by landscape timbers or strawberry pyramids can be used, or soil can simple be ridged up along a row to create the raised bed. Soil amendments should be used to improve the soil to provide for adequate productivity.

Areas that had been planted to strawberries, tomatoes, peppers, potatoes, or other crops susceptible to soil diseases, especially Verticillium wilt, should not be planted to strawberries within two or three years after those crops have been removed from the area.

Land Preparation

Where possible, a green manure crop should have been grown the previous year. Oats, rye, or sudan grass are excellent green manure crops which could be plowed down before planting strawberries. Strawberries grow best on soils having high organic matter content and high

fertility levels. In raised bed situations, extra organic matter such as compost, peat, or well-rotted straw and manure can be incorporated.

In the early spring before planting, the strawberry bed should be fertilized by working in two pounds of 6-24-24 or an equivalent analysis fertilizer per 100 square feet. Work this into the top 6 inches of soil. High levels of phosphates and potash are desirable for best fruit production. The ground should be worked as soon as possible in the spring, and the plants should be set early in order to obtain the best growth and plant production in the first year.

Planting

Rows should be spaced 36 to 48 inches apart depending upon the space available in the garden and the intensity of culture that is practiced. Plants should be set 15 to 24 inches apart in-row. Wider spacings should be used for earlier plantings and the narrower space for later plantings.

Plants should be set with the crown (the fleshy part from which the leaves develop) at the soil surface (see Figure 1). If the plants are set too shallow, roots tend to dry out before they take hold, and the plant may die. If planted too deep, the plants may also fail to grow. Firm the soil around the roots, and then water thoroughly.

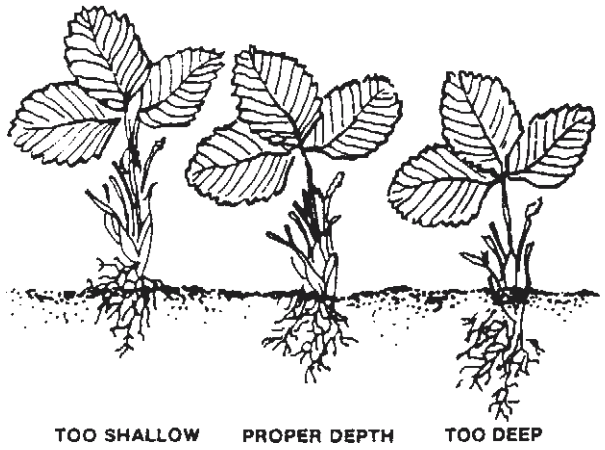

Figure 1.

First Season's Care

Maintain the planting weed-free throughout the season by cultivating, hoeing, and hand removal of weeds. If the garden is large enough, suitable herbicides may be used.

As soon as flowers appear, they should be pinched off to promote early, vigorous plant growth and early formation of runner plants. The first crop will be harvested a year from planting and a major portion of the crop will come from the mother plants plus the runner plants which are formed and well-rooted before August. Runner plants should be positioned as they develop so that a density of about 5 plants per square foot is achieved. The rows should be maintained no wider than 12 to 18 inches, and when the desired plant density is reached, all additional runners should be removed through cultivation and cutting of runners by hand within the row.

As the plants develop, an additional side dressing of about one pound of 12-12-12 or equivalent analysis fertilizer per 50 feet of row can be used. This may be repeated a month later if necessary. Care should be taken that fertilizer particles do not lodge in the plants, as damage will result. Fertilizer can be swept off plants with a broom or other suitable device.

In late August or early September, an additional application of one pound of 12-12-12 per 50 feet of row will be useful in assisting in fruit bud formation.

Weed control in the strawberry planting is of prime importance. Considerable hoeing and cultivating will be needed to maintain a vigorous weed-free planting. This handwork is well-repaid in the following year by larger quantities of large berries.

The number of runner plants is limited in order to provide each plant with adequate space to grow and develop multiple crowns. These multiple-crowned plants will provide maximum yields of large, excellent quality berries. If too many plants are allowed to grow, they act like weeds and reduce yields and berry size.

Strawberries benefit from irrigation. To obtain maximum growth and yield, they should never suffer for lack of water. Strawberries should receive a minimum of 1 to 1-1/2 inches of precipitation per week either by rainfall or supplemental watering. Watering in dry periods during August and September will help in fruit bud formation for the following year. Elimination of stress during this period is very important.

Frost Control

Early spring frosts pose a hazard in strawberry production. Covering plants with commercially available row covers of lightweight material is only partially effective.

Sprinkler irrigation can be used to control frosts if applied in the correct manner. Watering should be started slightly before the temperature reaches 32°F in the canopy. Ice will form, and so long as the ice surface is kept wet, the temperature of the plant underneath will be maintained at 32°F. A watering rate of 0.10 to 0.15 inches of water per hour is required, and the sprinklers should rotate about once each minute for maintenance of that wet surface. Apply water to the plants as long as the temperature in the berry canopy is below 32°F, and until all ice is melted off the foliage in the morning. If wind velocities are above 5 mph, sprinkling for frost control becomes difficult. Due to risk of serious plant injury, sprinkler irrigation is not practical for the average home grower.

Mulching

After plants have become dormant, which will usually occur in December, apply a 2-inch layer of straw mulch over the plants. If straw is not available, weed-free materials such as hay, fresh corn cobs, or bark chips may be used. Grass clippings and leaves are not suitable because they tend to mat and form a layer that smothers the strawberry plants. The following spring, at about the time when the first new leaves begin to develop, rake off most of the mulch and put it between the rows, leaving just enough within the rows to give some protection and to provide surface protection for the berries so that they don't get dirty.

Insect and Disease Control

For home garden strawberry disease and insect control, an all-purpose fruit spray may be necessary. Thorough coverage of fruit and foliage is important. Follow label directions. For adequate control of insects and diseases, but especially gray mold fruit rot, sprays must be well-timed to correspond with infection periods. Sprays should be applied just as the first blossoms open and again at full bloom. Observe all precautions and harvest restrictions on the label. Maintaining a sufficient layer of clean mulch between the rows, keeping rows narrow, and reducing excess plant vigor will greatly reduce fruit rot problems. Refer to ID-146 Managing Pests in Home Fruit Plantings for a complete discussion on pest control in strawberry plantings.

Harvesting

Berries should be harvested as often as every other day to maintain top quality. Pick the berries with the caps on and with 1/2 inch of stem attached. Pinch the stem between the thumb and middle fingernails, while cradling the berry in the palm of the hand. Strawberries do not ripen after harvest, so they should be allowed to fully ripen before picking. Remove overripe and rotted berries so that insect and disease problems can be minimized. If berries are to be stored for overnight or longer in the refrigerator, do not wash them. Place them in a covered shallow pan and place in the refrigerator as soon as possible to cool quickly. Wash just prior to consumption.

Renovation

To maintain the quality and productivity of the berry patch, the planting must be renovated each year. This allows new runner plants to replace old plants. Most of the fruit next season will be produced from the new runner plants that get established this season. Start the renovation program immediately after the last picking of berries.

1. Fertilize the planting. A soil test will help to determine phosphorus and potash needs. Nitrogen should be applied at 1/2 to 3/4 pound of actual nitrogen per 100 feet of row. In the absence of a soil test, apply 4 to 6 pounds of 12-12-12 fertilizer per 100 feet of row.
2. Mow the foliage off the tops of the plants. Mow just above the crown. Be careful that the crowns are not damaged.
3. Narrow the rows to a manageable width based on your row spacing and the width of aisle desired. A final row width of 12 to 18 inches is optimum, so rows may be narrowed to 6 to 8 inches at renovation. Aisle width should be wide enough to accommodate both traffic and the leaves and clusters of berries that will lay out from the edge of the row. Use a rototiller, cultivator, or hoe to reduce the row width.
4. Thin plants. For best production, plants should not be too dense. Optimum plant density at the end of the season is 5 to 6 plants per root of row or per square foot. A good rule of thumb might be to cut out half of the plants in a good, vigorous row at renovation.
5. Cultivate. Work in the straw between the rows. Throw about 1/2 inch of soil over the top of the crowns to facilitate new root development. A rototiller is ideal for this operation. The addition of soil to the row will help to maintain a slightly raised bed.
6. Irrigate. Water is needed for ideal plant growth. Never let the plants go into a water stress situation. Berry plants need about 1 to 1-1/2 inches of water per week either by rain or added water. Continue through September.
7. From renovation time until frost: cultivate and maintain planting weed-free. Allow early runner plants to root where needed in and along the row until the desired row width is achieved. After desired density and row width is achieved, remove all excess runners as they form. Runners that set after September 1 will not have time to set fruit buds.
8. In early August an additional application of three pounds of 12-12-12 or equivalent amount of nitrogen per 100 feet of row will help in fruit bud formation.
9. Mulch plants with clean wheat straw after the plants have gone dormant, usually in mid-December.

Enjoy the fruit of your labors next June.

For more information on the subject discussed in this publication, consult your local office of the Purdue University Cooperative Extension Service.