

## Strawberries in Alberta

The strawberry is one of the first of the Alberta fresh fruits on the market. It is a very popular plant in home and market gardens because it produces large amounts of fruit. Selecting the proper cultivar or combination of cultivars, based on fruiting patterns, ensures ripe fruit throughout the summer and into late fall. Use only certified virus-free plants from reputable nurseries or growers.

Commercial strawberry production in Alberta covers hundreds of acres; however, this factsheet will focus on home garden strawberry production.

### The plant

The strawberry's main root system is in the top 15 cm of soil. The young roots are white, but as they age, they brown, with only the fine root hairs remaining white. Upon scraping away the brown-woody surface of a healthy root, the tissue beneath appears yellowish-white and firm.

The flower cluster develops a primary flower that opens first. The remainder of the flowers open in sequence. The primary flowers produce the largest berries. This pattern is why the first harvest of June-bearing strawberries has large berries, while later pickings have a greater proportion of smaller-sized berries.

A plantation can be no better than the plants used to start it. It is essential that healthy plants be used.

### Varieties

#### June-bearing

June-bearing cultivars produce a single crop each year for a three- to four-week period, generally in July and into

early August. Flower buds are produced in the fall of the previous season (short days). The first crop from these buds will be harvested the year following planting.

**Kent:** Mid-season, high yielding, produces abundant runners, difficult to hull, slightly susceptible to powdery mildew, winter hardy. Most common June-bearing cultivar grown in Alberta.

**Glooscap:** Mid-season, high yielding, vigorous plants, free runner, easy to hull, resistant to leaf diseases, tolerates low winter temperatures.

**Bounty:** Late season, medium red berries, medium producer, large fruit.

**Honeoye:** Bright red, moderately firm berries with tender skin.

**Cavendish:** Large, firm dark red fruit (ripe berries may appear overripe), fruit are slightly pubescent, good yields, flavour depends on soil type (off-flavour on heavier soils), resistant to leaf diseases.

#### Everbearing

Everbearing cultivars will bear fruit generally twice a year, usually from late June to early July and again in late

August. They may also produce small crops throughout the summer and autumn. If the strawberries are planted early, a small number of fruit may be harvested in the fall of that year. The fruit is generally softer and less abundant than June-bearers or day-neutrals.

**Ogallala:** Extremely hardy, consistent producer, sweet berries, fruit can be bitter if produced during hot weather.

**Fort Laramie:** Large, bright red fruit, tolerates low winter temperatures.

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## Day-neutral

Day-neutral cultivars do not depend on day length to produce flower buds; therefore, they produce fruit throughout the growing season, as well as producing leaves and runners. Generally, production is heaviest in August and September.

One advantage of day-neutrals is that they will produce fruit in the same year they are planted; therefore, they may be grown as an annual plant. If allowed to, they will bear fruit on runners that have not rooted. Day-neutrals, like June-bearers and Everbearers, require winter protection and can be carried over one or two seasons, similar to June-bearers.

**Tristar:** Medium to small plants, medium to high yield, good flavour, deep red, medium size, attractive fruit, excessive heat will cause small fruit, resistant to verticillium wilt, leaf scorch and leaf blight.

**Fern:** Medium to high yielding, attractive, firm fruit, good texture, good hardiness.

**Seascape:** Medium to high yield, most fruit produced late summer, early fall; firm large fruit with good texture.

**Albion:** Long, large, narrow and firm fruit, late producer; winter survival can be spotty.

## Site location

Considerations for choosing the planting site:

- avoid low lying areas to reduce the chance of frost damage
- select a sunny spot, sheltered from strong winds
- strawberries prefer a loose, rich and well drained soil
- a soil pH of 6 to 7 range is necessary for the plants to use essential nutrients in the soil
- choose a site where raspberries, potatoes, tomatoes, peppers or eggplant have not been grown the previous year
- the above site choice helps reduce the incidence of soil-borne disease

## Soil preparation

The addition of organic matter such as well rotted manure or compost improves the soil structure and may increase the level of nutrients. Peat moss improves the soil structure but does not add any nutrients. The addition of fertilizer is important when using peat moss as a soil amendment.

Cultivation of the site before planting is important for several reasons: to reduce persistent weeds, to incorporate the organic matter and to reduce soil compaction. Incorporating the organic matter the year before planting allows the breakdown of organic matter to begin.

Before planting, work the soil to a depth of 15 cm, and ensure the site is level and loose. It is important for the site to be free of large lumps and clods so that the roots and soil can make good contact with each other.

## Nutrition

The type and rate of the fertilizer to use is best determined by a yearly soil test. Before planting, measure out 200 mL of fertilizer such as 20-10-10, 23-24-0 or 16-20-0 with a liquid measuring cup, and broadcast over a 10 m<sup>2</sup> area. Incorporate the fertilizer and water thoroughly.

In subsequent years, apply 200 mL per 10 m<sup>2</sup> of 34-0-0 after the June crop has been harvested. The use of a high nitrogen fertilizer in the spring is not recommended because it increases the leaf growth and reduces yield. Every second year, apply 16-20-0 or 20-10-10 at a rate of 200 mL per 10 m<sup>2</sup> in the spring.

Day-neutrals should be fertilized four times during the growing season with a high nitrogen fertilizer because the plants are constantly producing fruit. Use 34-0-0 fertilizer at a rate of 50 mL per 10 m<sup>2</sup>.

## Planting

Plant as early as possible (April or early May) after the soil has been thoroughly cultivated. If sufficient water is available, June planting may be successful. Fall planting is not usually recommended. If immediate planting is not possible, plants can be stored in the refrigerator for a short period. Keep the roots damp while in storage and before planting.

It is important to keep the roots moist while planting. Exposure to the sun or wind will quickly dry out the tender rootlets. This drying means the planting will fail to establish. A convenient way to keep the roots moist is to wrap them in wet burlap and then carry them in a pail or basket. Plants should be kept in the shade until planted.

Plant June-bearers in rows 1.3 m apart, and plant 30 cm apart within the row. Allow the runners to grow and cover an area approximately 60 cm wide. Everbearers and day-neutrals can be planted in double rows 15 cm apart, with 1.5 m between the rows, or in rows similar to June-bearers.

Plant strawberries so the mid-point of the crown is level with the soil surface (Figure 1). If the crown is covered by soil, the plant will either rot or fail to send out runners. If the strawberry is planted too shallow, the crown and roots will dry out, and the plants will die.

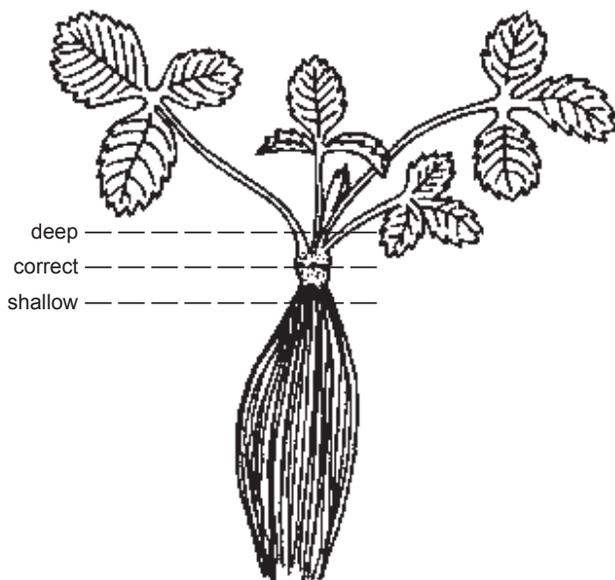


Figure 1. Correct planting depth.

Gently firm the soil around the roots and water well. Re-check the plant depth after watering. Apply a starter solution of 10-30-10 or 10-52-10 at a rate of 1.5 mL per litre of water. Apply 250 mL of solution per plant.

## Maintenance

Begin cultivation shortly after planting; repeat as often as necessary to control weeds and to keep the soil loose. Keep cultivation shallow, as the strawberry is a shallow-rooted crop. Cultivation will control the width of the row and the placement of runners within the row.

Soil may be used to keep the runners in position, as long as the terminal buds are not covered since young plants can easily be smothered.

Remove surplus runners every two weeks. Once the plants are established, cultivate from the last frost in the spring to the first frost in the fall.

Pay close attention to soil moisture levels. The plants will reach maximum production by receiving 3 cm of water per week. The amount of organic matter, the soil structure and the weather will all influence moisture requirements.

The removal of flower stalks on newly set June-bearers allows the plants to produce runners earlier and more extensively. To enhance plant establishment, remove the blossoms on day-neutrals once a week for four to six weeks after planting.

## Bird protection

Different methods can be employed to deter birds from the berry patch: frequent harvesting, noise makers, brightly coloured flags hung above the crop, streamers, aluminum pie tins suspended on a stake, netting and bird scare tape.

## Pests

A number of disease and insect pests can affect strawberries. Careful management of water, nutrients and airflow, as well as other plant needs, can help reduce the effects of pests. Older stands should be removed and replaced if pests become too firmly entrenched.

## Harvesting

Strawberries do not improve in flavour or quality once they are picked. Pick the fruit as soon as it is red all over. Harvest berries every other day at the peak of the season, preferably in the coolness of the morning.

## Winter protection

Winter protection in the form of mulching may be needed in those regions of Alberta where there is too little snowfall early in the season or where the snow does not remain until late spring.

The best mulching material is weed-free wheat or rye straw. The time to apply the mulch varies with the season. Usually when the temperature reaches  $-5^{\circ}\text{C}$  for three or four nights (before temperatures reach  $-7^{\circ}\text{C}$ ), the crop can be covered. Cover the plants to a depth of 10 to 15 cm.

Small rodents may cause considerable damage. If burrows and footprints are noticed, trapping may be required.

Remove the mulch early in the spring after the danger of severe frost has passed or when plants begin to grow. Delay in removing the mulch results in delayed blossoming and fruit ripening. Removal too early could subject the blossoms to late spring frost injury.

# Strawberries in barrels or other containers

Many people are interested in growing strawberries in barrels or other containers, either for novelty purposes or for maximizing the use of limited space.

Remove both ends of a large barrel and bore holes at 30 cm intervals along the sides. Set the barrel on its end in its permanent position. To facilitate watering, a central column of tiles and sand or gravel may be placed in the barrel at the time of filling. Thus, water supplied at the top will reach all the plants.

Place moist, fertile soil in the barrel to the depth of the first layer of holes. Insert the roots of a plant through each hole in the first layer, cover with moist soil and firmly press in place. Repeat this procedure for each layer of holes until the barrel is full.

Another adaptation of the “barrel” method is the tiered strawberry planting. This planting may be circular or rectangular, as in a two-sided stairway. These benches, which resemble window boxes, may be one foot high and may be assembled in tiers of four or five, or any desired length.

With these methods of planting, frost damage may be increased. Winter protection is necessary because the planting may be killed by the freezing and thawing of the soil in the barrel or window box. The planter should be moved to a site such as a cool garage where the temperature is 2 to 4°C and constant.

## Prepared by

Alberta Agriculture and Rural Development

## For information on commercial production of strawberries in Alberta, contact:

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