



Guide To Growing Strawberries In The Garden

The attractions of strawberries are many; the cost of planting stock is small, and they produce fruit even when given the minimum attention and expense, though under these conditions the crop may vary in size from year to year. The berries have a more attractive colour than any other fruit, are sweet and well flavoured, enabling them to be eaten when picked direct from the bush. Their one fault is that they do not freeze very well and this provides every incentive to prolong the ripening season for as long as possible by various means. A combination of early (fruiting mid June to early July), mid (late June to mid July) and late (cropping throughout July) summer varieties will provide strawberries from approximately mid June to the end of July. If you plant Perpetual fruiting varieties they will extend the season even further, cropping from around mid August through to first frosts, they may even provide a small crop earlier in the summer as well.



Site & Soil

Strawberries will grow on all kinds of soils, ranging from light sands and gravels to clay, however they do benefit from being grown in raised beds on poor or heavy soils where the addition of organic matter will not only improve the soil but aid drainage. On chalky soils, strawberries may suffer from deficiencies of iron and manganese, making it necessary to apply these elements in the form of chelated compounds.

Strawberries grow best on a site sheltered from the prevailing wind; they should not be planted in the shade of trees, nor on the north side of a wall or house. It should also be noted that if they are planted against a south facing wall they will require frequent watering.

Rotations

With rotations, the most important rule is to allow the longest period of years possible to pass before replanting strawberries in ground where they had grown previously. If possible, they should follow crops such as turnips, cauliflowers or cabbages that had received an application of bulky organic manure, and which tended to suppress weed growth. Where bulky organic manure has not been applied, peas and broad beans are a suitable preceding crop because they are harvested in midsummer and allow the strawberries to be planted early. There are few reasons why strawberries cannot be planted directly after other fruit crops such as blackcurrants or gooseberries, provided the soil is free from perennial weed, but it would be easier to prepare the soil for planting if a whole year were to elapse between grubbing and replanting.

Strawberries should not follow potatoes or tomatoes because both crops can infect the soil with verticillium wilt, a disease that seriously affects the growth of, or kills strawberries. Potatoes left in the ground can also be a problem and getting rid of them may interfere with the roots of the strawberry plants.

Soil Preparation & Manuring



The strawberry plot should be carefully prepared to enable the plants to crop satisfactorily for three or four years. The soil should be dug with a spade or fork to a depth of 25cm (10in) and the bottom of the trench forked over in order to break up any hard layers of soil and improve drainage. Ideally this should be done several weeks beforehand to allow the ground time to resettle. At the same time, the roots of any perennial weeds should be picked out of the soil as they are impossible to remove after the strawberries are planted. Best of all, an application of organic matter at the rate of a barrowload to 5m² (6yd²) in the form of well rotted farmyard manure or spent mushroom or garden compost should be spread on the soil after digging and forked into a depth of 15cm (6in). Poultry manure should not be regarded as an organic manure but a substitute for fertilizer and should only be applied to strawberries in limited quantities; for instance, 140-270g/m² (4-8oz/yd²).

Applying Lime & Sulphur

Strawberries grow best on soil that is very slightly acid (pH 6.5), for at this level all the plant nutrients will be available to the roots. Therefore, it is advisable to check the pH of the soil with a soil testing kit or pH meter.

If the soil is too acid (i.e. the pH reading is lower than 6.5) then ground chalk or carboniferous limestone should be applied according to the manufacturer's instructions. The lime should be forked or rotavated into the ground. A pH of 5.5 may not appear to be very serious but is ten times more acid than one of 6.5. When a pH meter indicates that a soil is too alkaline and provided there are no particles of chalk or lime in the soil, the pH may be reduced by the application of flowers of sulphur. An application of 70g/m² (2½oz/yd²), forked or rotavated into the soil, will reduce the alkalinity or increase the acidity by a pH of one. The sulphur should be forked or rotavated into the soil.

Applying Fertilizers

New gardens are likely to be deficient in potash and phosphate. The soil should therefore be given a broadcast application of:

35g/m² (1¼ oz/yd²) of sulphate of potash
and 15g/m² (½ oz/yd²) of super-phosphate.

In addition to these amounts of fertilizer recommended, established and new gardens should have raked into their soil before planting, a compound fertilizer suitable for strawberries, at the rate recommended by the manufacturer.

Raised Beds

Strawberries can be cultivated on raised beds which have the following advantages over conventional growing:

- (1) They reduce the risk of waterlogging and soil-borne diseases.
- (2) They increase the available rooting depth on shallow soils.
- (3) They warm up quickly and so produce early crops.

These advantages in turn lead to higher yields.

Construction & Planting of a Raised Bed

A raised ridge 7.5cm-10cm (3-4in) high in the centre after firming down and 60cm (2ft) wide should be constructed. The ridge should have an even curve and the soil broken down to a fine tilth so that the polythene fits well without any bumps or hollows.

The drip line should be laid along the top of the ridge slightly off centre. Black polythene 1m (3ft 3in) wide and at least 50 microns (200 gauge) should be stretched across the raised bed and the surplus polythene on either side should be pushed vertically into the soil using a spade.

The runners should be planted through cross slits cut in the polythene. The size of slit is an important consideration — too small and crown growth will be restricted — too large and weeds can be a problem. An 8cm (3in) diameter hole is a good compromise for most planting material. Plants should be spaced 30-40cm (12-16in) apart. Rows should be spaced 75-90cm (30-36in) apart leaving a 15-30cm (6-12in) gap between the rows for water to penetrate.

The majority of polythene covered raised beds constructed by commercial strawberry growers carry two rows of plants, 30-40cm apart (12-16in), with plants 40-45cm (16-18in) apart within the row. In these circumstances the distance from centre bed to centre bed is 1.5m (60in).

Polythene Mulches

Various types and colours are available, but whichever type is chosen, it is essential to select the correct width and thickness to last the life of the crop. Using polythene mulches (except white), results in soil warming, depending on the type used and the time of the year. All types will conserve soil moisture by reducing evaporation from the soil surface. All types except clear and white types suppress weed growth and thereby remove the need for herbicides, eliminating any associated growth checks. Since runners cannot root through plastic, polythene mulches provide a useful way of maintaining discrete plants.

Clear polythene gives the greatest soil warming effect, as radiation passes through to the soil producing a 'glasshouse' effect which can advance cropping by up to a week. However it will not suppress weed growth and can only be used after a residual herbicide is applied prior to laying the polythene. White polythene has similar limitations.

White on black polythene laid white side up is useful for delaying cropping. The white side reflects light and heat, keeping the soil and therefore the roots cool, whilst the black side suppresses weed growth.

Black polythene is probably the most widely used type at present. It suppresses weed growth and warms the soil by conduction and radiation, and so advances cropping by several days. However, in very hot sunny weather, fruit resting on the black polythene can be damaged and straw is therefore sometimes used to protect the berries from 'cooking'.



Certain pests, in particular vine weevil, find the microclimate beneath the polythene very attractive and numbers can build up rapidly.

Irrigation

Although polythene mulches will conserve moisture in the soil by reducing surface evaporation, irrigation is still essential to sustain plant growth and cropping throughout the season. The best method of supplying water on most soil types is by trickle irrigation tubing, laid beneath the polythene. Generally, a single line of tubing laid down the centre of each bed will provide adequate water but on some drought prone soils two lines should be used, one for each row of plants. Various types of trickle tubing are available, with different flow rates, orifice sizes and durability. Uneven watering will quickly be reflected by uneven growth, so careful consideration should be given to irrigation layout prior to planting.

In most cases, overhead watering alone will not supply adequate water to the rooting zone (particularly as the crowns increase in size and fill the planting hole) and will cause 'puddling' in the alleyways. Strawberries planted through polythene without irrigation lines will, in times of drought, need to be watered individually using a watering can or hose.

Planting

Types of plant available

Two types of strawberry runners are available:

- (1) October-November: Open ground runners that have been newly dug before being sold.
- (2) March-July: Cold-stored plants. These are open ground runners that were dug in January and kept in cold storage until required for sale before the end of July.

Runners, when received, should have a minimum of twelve primary roots that are not less than 10cm (4in) in length when measured from the base of the crown. This is particularly important when autumn planting is contemplated outdoors but less so when planted out in the spring. There are a few varieties, notably the 'perpetual' fruiting ones and some of the classics, which do not produce runners which meet the above specification; the 'perpetual' fruiting varieties nevertheless, grow into large plants by the time they are ready to fruit in the early autumn.

Importance of Speedy Handling

Freshly lifted strawberry runners should be unpacked immediately they are received and soaked in water for a few minutes only. If it is not possible to plant them in their permanent quarters straight away, they should be potted up or heeled into a tray of damp compost and watered so that they are kept moist. **Coldstored runners should always be planted out or potted on within twenty-four hours of receipt and thoroughly watered in.** If for any reason this is not possible, they may be kept wrapped in polythene for a few days in an ordinary domestic refrigerator, **but not frozen.** The roots should be lightly sprayed with water if they look dry.

Effect of Different Planting Dates on Yield

Time of planting has an important bearing on the amount of fruit that will be produced in the first full cropping year. Early planting with coldstored runners in July (or better still May or June), will give the heaviest yields; from as much as 450g (1lb) per plant or 1.4kg/m (2½/yd) of matted row, depending on the variety. The later planting is carried out in the autumn, the less the maiden crop may be. The yields of fruit in succeeding years will not be affected.

Runners that are planted outdoors in their permanent quarters between the end of November (end of October in the north) and the end of February will not root well in cold soil and can be heaved out of the soil by the frost and possibly killed. Runners obtained during the winter months are therefore best potted up or heeled into a tray of damp compost and kept in a coldframe or greenhouse. The compost should just be kept barely damp during the winter period. Alternatively the runners can be firmly 'heeled in' outdoors 5cm (2in) apart into a shallow trench until the spring. If severe frosts should ease them out of the ground, they need to be pushed or better still planted back into the trench. A covering of loose bark chippings 10cm (4in) deep over the top of the heeled in runners will greatly assist in preventing severe frosts from lifting them out of the ground.

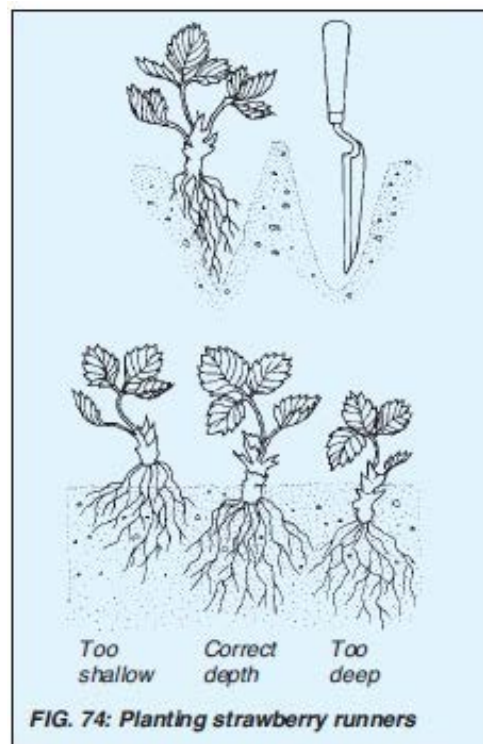


FIG. 74: Planting strawberry runners

Final Preparation of the Soil & Planting

The soil should be finally prepared for planting by consecutively raking and rolling or treading until it is as firm as a seed bed prepared for the sowing of small seeds. The distance between the rows should be 75-90cm (30-36in) and the distance between the plants should be 30-40cm (12-16in).

Planting should be carried out with a trowel or small spade which should be used to open a 'V' shaped slit 15cm (6in) deep in the soil (see fig. 74). The base of the crown of the runner should be placed on the edge of the slit with the roots hanging in the slit to their fullest extent without curling upwards. If the roots are too long for ease of planting, they may be shortened back to not less than 10cm (4in) in length, using a knife or pair of scissors. The soil should be eased back onto the roots with the trowel or spade after which the soil should be well firmed with the sole of the boot. It is important that the strawberry runners are planted at the correct depth; if the crown is buried or the roots left exposed, the plants will not thrive and may eventually die. A test for correct firmness is to attempt to gently pull a plant out of the soil by one of its leaves (or the crown of the plant in the case of coldstored runners). If the plant moves before the leaf tears, the planting has not been firm enough.

Annual Culture & Maintenance

De-Blossoming in the Maiden Year

Flowers will appear in May on plants grown out of doors, or in the case of coldstored runners, 2-4 weeks after planting (depending on when they are planted). Provided the plants are growing strongly, they may be left to bear a crop of fruit. However, if for any reason the growth of the plants is poor, the flower trusses should be cut off with scissors so that the plants may devote their resources to building up strong crowns that will produce the following year's crop.

Weed Control

A strawberry bed may be kept free from weeds by hand-hoeing throughout its life but this is tedious work and during periods of wet weather, difficult to do properly. This work should be done with a dutch or swan-necked draw hoe taking care not to draw soil away from the crowns or allow the weeds to grow past the seedling stage. Once they have grown past this stage it becomes more difficult to control them without damaging the strawberry plants.

Alternatively, subject to availability, herbicides can be used, remembering of course that it is extremely important to read the manufacturer's instructions beforehand and to follow them precisely.

Treatment of the New Runners

From June onwards, runners will start appearing and a decision will have to be made whether to have a bed of single plants or matted rows. Single plants are easier to keep free from weeds and the fruit is well displayed for picking. Furthermore, a higher proportion of large sized fruit may be expected than from matted rows which, though more difficult to keep free from weeds, bear a heavier crop of fruit within the same sized plot.

By repeatedly cutting off the stolons as soon as they appear and well before the runners start to root, strong single plants consisting of many crowns will be formed round the original plants. To form a matted row, the runners should be trained to root into a strip of soil 35-45cm (14-18in) wide along the originally planted rows. For every original plant, between six and nine runners should be allowed to root. Any runners in excess of this number that appear should be cut off so that a clear pathway 35-45cm (14-18in) wide is left for walking between the matted rows. It is not possible to form a matted row having planted strawberries under polythene, because the runner crowns do not have the necessary contact with the surface of the soil to be able to root.



Removing runners after harvest

Frost

The yield of strawberries can be seriously reduced by spring radiation frost that can occur during the month of May when strawberries are in flower. Frost damage can be prevented by covering the plants with either fleece, straw, sheets of polythene or hessian on frosty nights. Whatever form of protection is used should be removed during the daytime and if necessary replaced in the evening. The television meteorologists forecast very accurately when damaging frosts are likely to occur and when these precautions should be taken.

Strawing & Netting

At the beginning of June, straw should be placed in the rows and around the plants under the fruit trusses, to keep the fruit clean and provide a clean walking surface. Barley straw is best because it is soft and pliable. If straw is difficult to obtain, polythene sheeting is a satisfactory alternative.

A net should be placed over the plants after the last spray for grey mould has been applied as there are few gardens in which the ripening fruit will not be attacked by blackbirds and other bird species.

Harvesting

Strawberries are ready for picking when the fruits have coloured to that shade of red which is characteristic of that particular variety. For example, Cambridge Favourite will be a paler shade of red when picked than the darker coloured Florence. At this stage of development, the fruits will have developed their full flavour, sweetness and aroma.

They are best picked at this stage for eating fresh, freezing and making into jam; they will keep very satisfactorily for forty-eight hours in a domestic refrigerator at a temperature of 2°C (35°F). When necessary for instance, if the family is going away for a few days, the fruit may be picked when two thirds of the berry has turned to pink. They should be stored in a refrigerator at 2°C (35°F) where they will remain in a satisfactory condition for up to ten days, during which period they will gradually ripen, though the quality and flavour will not equal that of fruit that ripens on the plant.

Strawberries should always be picked with the green calyx in place and without bruising the flesh. The stalk of each berry should be taken between the thumb and forefinger and severed by the nails pressing each side. A little practice soon enables this to be done so that the berries can be placed in the picking container without the actual fruit being touched or bruised. Fruit should only be picked into shallow containers, because by using deeper ones, the lower fruits will be bruised by the weight of fruit above pressing down on them.

Feeding

If a strawberry bed has established well in its maiden year on weed free soil, little work will be required in its fruiting years. Strawberries require a minimum of fertilizer or manure and a bed that was established with healthy plants that grew without check should only have broadcast over the bed each February:

15g/m² (½oz/yd²) of sulphate of potash.

Strawberries produce a maximum crop when the colour of their leaves is pale green; thus a bed should not be given nitrogenous fertilizer until it is seen that the vigour of the plants is declining; then the application of sulphate of potash should be replaced by a compound fertilizer suitable for strawberries, following the manufacturer's recommendations.

Spring Cleaning

At the end of March, the bed should be weeded, cutting off any dead leaves and loose runners that had not rooted. For the following three months, the bed should be examined weekly for the presence of greenfly, spider mite, capsid bugs and powdery mildew and if an infestation is severe enough, sprayed with the appropriate insecticide or fungicide, following the manufacturer's instructions. (Click here to view our Pest and Diseases Fact Sheets.)

Watering

A bed should only be watered after flowering if the plants are grown on light soil or drought conditions are experienced. Then a water sprinkler should be used once every two weeks to apply 50-75 litres of water per m² (11-17 gal/yd²) or the equivalent of 50-75mm (2-3in) of rain. This may be measured by placing two straight sided tins under the sprinkler and these will give an approximation of the amount of water that has been put on the bed. Water applied too early in the year encourages leafy, rank growth and a meagre set of fruit which will develop poorly.

Defoliation

It is not generally realised that the immature flower parts from which the next year's crop develops are formed in the crowns during July and August. Therefore the new leaves that appear at this time should be given every encouragement to grow rapidly. The bed should be thoroughly weeded, any straw removed and on all vigorously growing varieties, the old leaves should be cut off with a pair of shears or short knife without cutting into the crowns. All this dead plant material should be collected and put on the compost heap, or burned. This operation must be carried out as soon as picking finishes and not delayed, otherwise next year's crop could be reduced. If the soil is very dry, the bed should be watered, applying 50 litres per m² (11 gal/yd²).

The new set of leaves grows rapidly and provided they are fully exposed to the light, they will effectively manufacture food material for flower initiation. Any further runners that single plants produce and those that grow into the pathways from matted rows should be cut off as they appear.

'Perpetual' Fruiting Strawberries

These varieties commence flowering and fruiting at the same time as midsummer varieties and following a short interval of two to three weeks continue to produce a succession of flowers and ripe fruit for the remainder of the year, until cold weather in October prevents further ripening.

As the main reason for growing 'perpetual' varieties is to provide fruit from July onwards, it is recommended that flowers appearing before the end of May should be cut off with scissors so that all the energies of the plants are directed towards bearing the maximum weight of fruit from July onwards. De-blossoming reduces the overall yield but increases the yield of late fruit.

'Perpetual' fruiting varieties are cultivated in the same way as standard varieties with two major exceptions. They produce few runners but any that are produced flower immediately and crop. These runners should be allowed to root and increase the yield from what are otherwise only moderately yielding varieties. The plants are not defoliated in August but the major weeding and removal of old leaves and rubbish is carried out in late winter just before growth recommences.

In August the fruit should be protected from birds. Polythene or glass cloches are better for this purpose as they hasten the ripening and increase the overall yield of fruit. As wasps also attack the ripening fruit, a jar of sugar solution should be placed in the bed.

From the end of August onwards, when ripening proceeds very slowly, the fruits are very liable to infection by grey mould. Spraying should therefore be carried out according to the manufacturer's instructions from the period of early flowering until ripening commences.

'Perpetual' fruiting strawberries are sometimes offered for sale as 'climbing', 'elevated' or 'trellis' strawberries. Neither 'perpetual' or any other kind of strawberry is able to climb. If grown in this way, stolons and runners of a 'perpetual' variety have to be trained and tied to a specially erected framework. This is not successful because the parent plant does not have a root system sufficiently large to support its own fruit as well as that of the rootless runners. It is better to allow the runners to root in the soil and support their own fruits.

Replacing the Old Strawberry Bed

The useful cropping life of a strawberry bed depends upon the variety and inherent fertility of the soil, how well it is managed, and not least, the strawberry plants remaining comparatively free from virus diseases.

Normally a bed ought to give two or three good crops, but it could go on cropping satisfactorily for as long as five or six years, though the berries are likely to be small at the end of this period. In most circumstances, a bed should have a useful life of three full cropping years. A replacement bed should therefore be planted before the last cropping year, to ensure a succession of fruit from year to year.

An alternative plan is to decide how much of the garden can be devoted to strawberries and plant a quarter of the area every year — this method reduces the risk of a sudden crop failure and allows new varieties to be tried more quickly.

Deep Strawing (Delaying Production)

Deep strawing can be used to delay the cropping of late June bearing varieties such as Florence and Symphony. It is usually only practiced in the final year of cropping since it tends to weaken the plants. Plants covered with 15cm (6in) of straw in January (preferably when the ground is frozen) and uncovered in early to mid-May should crop at least five days later than normal — up to two weeks later in some instances.

Sometimes plants are simply left to grow through the straw covering, or alternatively, only part of the straw is raked into the alleys. Deep strawing may result in yields being reduced by 10-15%.

Production Under Cloches, Polythene Tunnels & Cold Frames



The basic cultural practices used in outdoor bed production apply to early protected crops of strawberries.

For early production, coldstored runners must be planted by the end of July and no later. Open ground runners are too variable in quality at this time of the year to be recommended for this purpose.

Planting distances for low barn cloches or a 50cm (20in) wide polythene tunnel should be 25cm (10in) between twin rows, with plants 23cm (9in) apart and staggered in rows. The distance between rows of cloches or tunnels should be 37cm (15in).

At the end of February (by which time the plants should be large and well established), the soil should be weeded and hoed, and any dead leaves removed. The plants should be checked for greenfly and sprayed if necessary. Cloches or polythene tunnels should then be placed over the plants.

When the flowers open, on sunny days the glass cloches or frames should be opened and the sides or the polythene raised so that the bees may enter and pollinate the flowers, otherwise fruit set is likely to be poor.

Strawberries grown in this way require more watering, and at least two applications of water, equivalent to 50mm (2in) of rain — 50 litres per square metre (9 gal/yd²) should be given. The first application of water should be made after flowering and the second before the berries begin to ripen. On warm, sunny days when the temperature rises above 18°C (65°F), adequate ventilation should be provided. With a cloche or cold frame this may involve removing some of the panels or opening the vents. With a polythene tunnel ventilation can be achieved by raising the polythene sides. The cover should be replaced or the vents closed in mid-afternoon. When ventilation has to be given during cropping, the gaps should be covered with netting to prevent birds eating the fruit.

Floating Polythene Mulches

Clear, perforated polythene laid directly over the top of established plants in the second or third week of February and removed at first flower (or shortly afterwards), will advance cropping by about two weeks. If removal is delayed for too long, although additional protection will be given to the crop, full pollination may not occur and fruit may be misshapen. Polythene bags containing soil can be used to anchor the sheet in place around the edges. If the sheet is carefully removed it can be re-used several times. This technique should only be used on carefully selected sites since there is a danger of frost damage to the flowers once the polythene has been removed.

A Helping Hand All The Way

Strawberry orders are supplied with a FREE copy of Ken Muir's 'Grow Your Own Strawberries' booklet (Worth £4) which provides all the above information together with details on container growing. You are also welcome to contact our 'Free Advisory Service' if you have any fruit growing queries.