

Growing Tips: Training and Pruning

How to train and prune fruit trees

Pruning fruit trees can seem a daunting prospect, but if you follow a few simple rules, it need not be complicated. All fruit trees will grow and fruit better if pruned regularly and it is a rewarding and satisfying task!

The key point here is that you don't really learn how to prune from reading guides! Pruning is a wisdom that you'll only begin to acquire through repeated visits to the trees over many years. You can learn the principles through reading, but only by observing each individual tree's response to each of your cuts will you begin to learn. So, practice as much as you can, go on courses, invite experts to teach in your orchard, go and shadow others pruning in different situations.



The main aims of pruning are to encourage the tree to produce more fruit, and to remove unwanted growth. 'Training' goes a step further to control the shape and size of the tree. Pruning and training for each tree form is outlined in the following pages, but there are a few basic facts to keep in mind before you start:

- Use sharp secateurs and try to make a clean cut with no rough edges.
- When pruning, make a slanting cut just above an outward- or upward-pointing bud. If you are pruning back to a vegetative (shoot) bud, a new shoot will develop in the direction that the bud is pointing.
- Most apple and pear varieties are spur bearers – producing fruit buds on short, stubby shoots called 'spurs' which develop on two-to-three-year-old wood. However, a few are tip bearers, or partial tip bearers, producing all or most of their fruit bud at the very tips of the branches. Be careful when you are pruning tip-bearing varieties not to cut off all the shoot tips, or you won't have any fruit in the following years!
- You can tell fruiting wood apart from new wood as the fruit buds along it are rounder and fatter than vegetative buds – this is most noticeable in March, when the buds begin to swell – so if you are unsure, leave pruning until then.
- Don't worry if you prune the wrong bit – it is all part of the learning process! Apple trees are normally very resilient and will recover from even the harshest of cuts, though pears are a bit less tolerant of mistakes.

Pruning and training different tree forms

.....

If you buy ready-trained trees, then most of the work has been done for you and the following ‘starting from scratch’ advice given below can be ignored. Follow the advice on ‘pruning in the fourth winter’ and ‘pruning an established tree’ instead. The pruning advice below refers to apples and pears only.

1. Training and pruning a ‘bush’

A bush is a sturdy open-centre tree on a short trunk – a common and easy-to-manage form which you will use if you plant an orchard. The centre of the tree is kept light, airy and open so that sunlight and air can penetrate all parts of the tree – this helps to discourage pests and diseases. Most varieties of apple and pear respond well to this system of pruning and training, although very upright varieties can be more easily trained as centre-leader trees.



An open centre (bush) apple tree on MM106 rootstock in a commercial orchard before pruning



Starting from scratch

First winter (after planting)

- 1) Start with a maiden (one-year-old) tree, with a few lateral branches (side shoots or ‘feathers’) where possible.
- 2) Cut the main stem back to about 75cm (30ins) in length, leaving at least 2 good buds (if no laterals) or 3-5 evenly spaced lateral branches below the cut which will later form the main branch framework. Trim these laterals back by one-third to one-half of their length, to an outward-facing bud. Remove any unwanted laterals (e.g. poorly-placed, weak, low growing) by cutting right back to the main stem.

Second and third winter

- 3) During the second and third year after planting, these laterals, now lead branches, will grow to form the main branch network. Prune the growth they made from the previous summer by about half its length, to an outward-facing bud. Other shoots arising from these laterals (called ‘sub-laterals’) which are required to fill in any gaps in the branch framework can also be shortened by half. Unwanted laterals (e.g. weak growing, overcrowded) can be removed completely or pruned back to four buds to help form fruiting spurs.

Fourth winter

- 4) Having formed the basic framework (or if you have bought a ready-trained tree), only light pruning is required. As above, prune the lead branches and sub-laterals back by one-third to one-half the length of the previous summer’s growth. Laterals not required to extend the main branch framework can be shortened back to four buds to encourage the formation of fruiting spurs. Prune out any vigorous,

upright-growing shoots as these will crowd the centre of the tree.

Winter pruning an established tree:

- Prune out any dead, diseased or damaged wood back to a healthy bud or stem.
- Continue to keep the centre of the bush uncluttered – prune out any weak-growing, very upright or crossing shoots and branches.
- If some of the lead branches are weak growing they can be lightly trimmed back to a vegetative bud to stimulate more growth.
- Remove any worn out and unproductive wood (generally more than three years old) by cutting back to a suitable replacement (younger) shoot.
- Remove any congested or overcrowded laterals or shorten them to four to six buds to encourage fruiting spurs to develop.
- Keep about a third of the newly- formed (one-year-old) laterals – these will provide fruit in the following two to three years.
- If fruiting spurs become overcrowded, thin them out leaving one or two fruit buds per cluster.



Removing unwanted laterals with secateurs

2. Centre-leader trees

Some varieties of apple and most pears are very upright-growing in habit, and can be difficult to manage as bush trees without some form of branch manipulation (e.g. tying down branches to a more horizontal position when the growth is most flexible in late summer). Growing trees as centre-leaders (sometimes called ‘spindlebush’) is a good way to manage such varieties, and trees can be planted slightly closer together than bush forms. Trees grown in this way take on a shape like that of a cone or Christmas tree, where early (formative) pruning encourages the development of a dominant strong, central stem with several tiers of well-placed lateral branches beneath it. Staking is usually required to allow the central leader to be secured.



A centre leader pear tree on a dwarfing Quince rootstock in a commercial orchard (before pruning)



Starting from scratch

First winter (after planting)

- 1) Start with a maiden (one-year-old) tree, with a few lateral branches (side shoots or 'feathers') where possible. Unfeathered maidens should be pruned back by one-third of their height, to a vigorous, healthy bud which will encourage side shoots to develop during the growing season.
- 2) Retain three to four well-placed lateral branches to form the main tree framework – these should be evenly spaced and well-distributed, but not less than 60cm (2ft) from the ground. Prune these back by about a half to an outward-facing bud. Prune out any poorly-placed (eg overcrowded), narrow-angled or weak-growing laterals completely. Cut back the central leader to the third bud above the topmost selected lateral.

First summer (after planting)

- 3) A new central leader should have grown and can be secured against the supporting stake by tying-in gently with some soft twine. Upright extension growth of newly-developed laterals can be encouraged into a more horizontal position by gently tying down to an angle of 30° above the horizontal (branches can be tied down using twine attached to a temporary stake, lower branch or pegged into the ground). This will help spread the branches out and prevent them becoming too upright and competing with the central leader.

Second and third winter

- 4) Prune the central leader by about a third of the previous summer's growth – preferably to a bud on the opposite side to that of the previous year's cut. This helps to keep a straight lead stem. The central leader should be gently tied in to the stake to provide support.



- 5) Prune other laterals by a third of the previous season's growth, preferably to a downward and outward-facing bud

Winter pruning an established tree

- Continue to tie down any strongly-growing vigorous or upright shoots (except the central lead shoot) to a position just above the horizontal; this will help encourage fruiting. Once the trees are cropping well, the weight of fruit will help pull the branches down and there will be less need for tying down.
- Lightly pruning or 'tipping back' lead branches by a few inches to an outward facing bud will help encourage further laterals to develop along the branch if the branches are bare. Branches at the top of the tree should be kept shorter than those beneath to prevent shading the lower canopy.
- Continue to prune the central leader by a third of the previous summer's growth each year (as detailed in step four, above). When the central leader has reached a height at which it can be comfortably managed - 2.5-3m (8-10ft) - it is replaced by pruning back to a weaker lateral, or left un-pruned and cut back to a fruit bud on two-year-old wood the following year.
- Other strong-growing laterals and unproductive wood older than three years can be cut out completely or cut back to fruit buds. Retain about one-third of newly formed laterals (the previous season's new wood) to supply next year's fruit.
- Old or congested fruiting spurs may be thinned to one or two fruit buds.
- Prune out any damaged, diseased or crossing / rubbing branches.

3. Training and pruning a half-standard and standard

Starting from scratch

First winter (after planting)

- 1) Using a maiden (year-old) tree, the procedure is the same as that outlined for a ‘bush’ tree form (see overleaf), although the height at which the main stem is pruned back differs. For large, standard trees the maiden should be pruned to a height of 1.8-2m (6-6.5ft) and for half-standards, a height of 1.2-1.4m (4-5ft). It may be necessary to wait a year or two until the tree has grown tall enough to prune it to the required height.
- 2) For the next few winters, pruning during establishment is the same as for bush tree forms (outlined above). Once the tree has formed the main crown framework, any laterals that have formed below the crown can be removed to give a nice, straight, clean trunk.

Pruning once established

Due to the size of the trees, it will be quite difficult to prune established trees with the same attention to detail as that given to a bush. It is best to limit pruning to the basics – just remove overcrowded, congested or crossing branches and dead or diseased wood, where you can. Do not cut too much off in one year – if there is a lot of wood or major branches to remove, spread the work out over several years.

4. Training and pruning restricted tree forms

Use these forms of tree where you don’t have a lot of space, or you want to grow apple trees against a post and wire framework, fence or wall.



For a more informal experiment in shaping trees you could use stones or tights filled with sand to bend and train selected branches.

Step-over

Step-overs are trained and treated as single-tier espaliers (see section below) although they are usually trained on a single supporting wire set at a height of 25-30cm (10-12”) from ground level. Pears are trickier than apples to train as step-overs, so this is best left to a specialist.



Apple step-over



Starting from scratch

First winter (after planting)

- 1) After planting a maiden tree in winter, prune back the main stem to a bud just above the level of the supporting wire.

First summer after planting

- 2) In late summer, select and tie in two new shoots to horizontal positions along the wire. Remove all other shoots.

Pruning during and after establishment:

Prune as for cordons (see section to right).

Cordon

These are usually planted in rows against a wall, fence or post and wire framework and planted tilted at an angle of 45° to reduce the growth at the tip and concentrate the tree's energy into flower and fruit production. It is possible to create double, triple or even quadruple-stemmed cordons from one tree, with two, three or four vertical limbs respectively, although growing and training a single cordon (as outlined below) will allow you to grow more varieties in a tight space.

Starting from scratch

First winter (after planting)

- 1) Start with a one-year-old (maiden) tree. Prune back the main leading stem by about a third. Cut all side shoots back to leave them 7.5cm (3ins) long. From now on, only summer pruning will be required.

Summer pruning (during and after establishment):

- 2) Late the following summer, and in all subsequent summers, prune back any lateral shoots arising from the main stem to 7.5cm (3ins), as above. If the laterals have produced shoots (sub-laterals) of their own,

prune these back to about 2.5cm (1in) to encourage the formation of short, stubby, fruiting spurs. The main stem can be kept growing until it reaches the desired height, after which it can be treated as a lateral and any new growth cut back by several inches each summer.

Espalier

Traditionally, these are trained as three symmetrical tiers of limbs on either side of the main stem, against a 2m (6.5ft) wall, fence or supporting post and wire structure. Each tier of branches is set 50-60cm (20-24ins) apart, trained and tied in to strong wires.



Espalier pear tree

Starting from scratch

First winter (after planting)

- 1) Start with a maiden tree planted against a tier of wires set 50-60cm (2-24ins) apart. The first tier should be set at this distance from ground level. After planting, cut the main stem right back to a bud just above the lowest wire. A bamboo cane can be used to help secure and guide the main stem into position.



First summer

- 2) During the growing season of the first year, at least three new shoots should grow out. Towards mid-late summer, two of these shoots can be tied in horizontally along the first tier of wires, on opposite sides of the main stem. The third should be trained upwards (along the bamboo cane) to form the main stem. Remove any other shoots.



Removing an unwanted branch with a hand saw

Second winter

- 3) In the winter, prune back the main stem to a bud just above the second wire (as for first winter).

Summer pruning (second summer)

- 4) During the second summer, the process can be repeated as for the first year (tie in two newly- produced shoots horizontally and one vertically)
- 5) Prune the branches of the first tier as for cordons (outlined above) by cutting back side shoots to 7.5cm (3ins) and any shoots arising from those to 2.5cm (1in).

Winter pruning (third winter)

- 6) Repeat the process outlined above to make a third and final tier. Select only two new shoots to tie in horizontally to complete the espalier. Remove any other shoots.

Pruning once established

Annually summer prune the espalier as you would for a cordon, cutting back side shoots to 7.5cm (3ins) and any shoots arising from those to 2.5cm (1in). No further winter pruning is required.

