

Pruning

- **Formative Pruning** – determining the tree’s form – position of main framework branches and height of framework branches above ground. Often done after planting and then for next few years.
- **Maintenance Pruning** – keeping the shape going for most of the tree’s life.
- **Restorative Pruning** – if a tree loses its shape it must be restoratively pruned.

Tools

Ensure that your tools are kept sharp and clean to ensure cuts are not messy and to avoid the transmission of diseases.

- secateurs (two bladed). This is the most suitable tool for branches up to 2cm thick
- small pruning saw such as an Opinel for branches up to 5cm diameter
- larger pruning saw for thicker branches
- long handled saws / pruning poles are helpful for branches that are higher up
- Clean tools between trees to avoid spreading disease

Cuts

- Remember that the cut is on the pull, not the push.
- Take the weight off heavier branches before making the final cut.
- Don’t leave any stumps and don’t cut into the branch ‘collar’. Cut 1mm away from the node at a gentle angle.
- If shortening a branch, come back to a lateral that is at least 1/3 of the thickness of the branch you are removing.

What & When?

Why?

<p>Non-Prunus trees that aren’t trained forms, e.g. apples, pears, medlars, mulberry, fig that are shaped as standards, half standards or bushes. (Formative, Maintenance and Restorative Prune in WINTER)</p>	<ul style="list-style-type: none"> • prevents branch rubbing • creates/maintains/restores tree shape • allows air and light into the tree • encourages fruit and shoot growth • prevents disease build up
<p>Trained forms (of any species) to let light and air into forming fruit. (Formative or Maintenance Prune in SUMMER after mid June)</p> <p>Out of shape trained forms. (Restorative Prune in WINTER)</p>	<p>To promote fruit rather than vegetative growth in the following year. Encourage formation of fruiting spurs.</p> <p>To try to restore original tree shape.</p>
<p>Prunus - ‘stone fruit’: plums, damsons, bullaces, peaches, cherries, almonds and nectarines. (Formative, Maintenance or Restorative Pruning in SUMMER)</p>	<ul style="list-style-type: none"> • To avoid exposing them to Silver leaf fungus and bacterial canker (<i>Prunus</i> spp.) • <i>Prunus</i> spp. are particularly brittle and the branch may break.
<p>Trees of any species that have lots of vertical ‘water shoots’. (Maintenance Prune in SUMMER)</p>	<p>They have put in most of their growth now and will hopefully not regrow. You want to limit their vigour.</p>
<p>Veteran trees (Maintenance or Restorative Pruning in WINTER)</p>	<p>Removing leaves during the growing season will weaken them further. Remove just 10-15%.</p>

Formative Pruning

All young fruit trees need pruning to help them develop a balanced, open shape. This framework of well-placed branches will serve the tree to carry the weight of its future fruit and ensure the tree as much light and air as possible, so the fruit can ripen. It also reduces the risk of fungal infections which are more likely to occur in a congested canopy.

Apical dominance

The apical bud (found especially at the top of a leader branch) releases **auxins** to suppress lateral buds from growing. This encourages the tree to have an upright leader. Not only are upright branches less productive than angled or horizontal branches, but the fruit may end up being out of reach if the tree is left to determine its own shape.

Maiden Tree – to create an open centred form

Year 1

Cut the leader to two buds above the where you want the top branch to form. This is normally waist to shoulder height for a community orchard tree. If it's a very dwarfing rootstock, you'll want to go lower because this kind of rootstock won't be strong enough to support a high canopy. This is called the 'heading cut'.



As the tree grows, the trunk gets fatter but not longer. This means that the heading cut will determine the height of the framework branches.

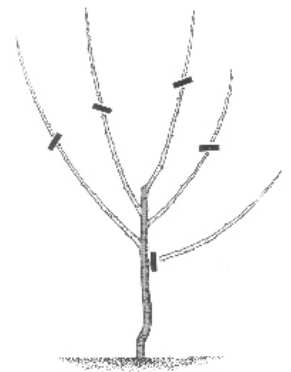
If the whip isn't yet tall enough, you may just prune some of the lower lateral branches to encourage more upright growth and make the heading cut the following year.

If you have made the heading cut, you'll need to do what's called a 'Nick Knock'. Use a sharp blade to nick underneath the top bud – this will discourage this bud from becoming the leader. Remove the second bud completely – knock it off. This will encourage wide angled branches.



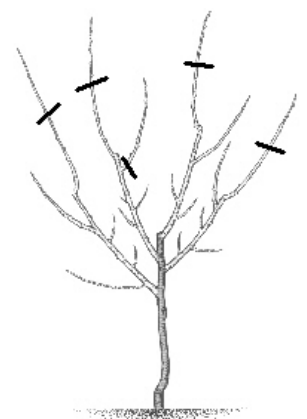
Year Two

- Remove the snag created from last year's Nick Knock
- Cuts should slope away from the bud at 30° to the stem.
- A tree with 4 or 5 evenly spaced branches is ideal.
- Remove any branches that are too low, damaged or cause congestion.
- Prune all other branches by between a third and a half of their length. Cut back to a healthy bud that faces outwards (vertical branches) or upwards (horizontal branches).
- Overly erect and vigorous branches may be tied down. Ideal angle is 30 to 40 degrees to the horizontal.



Year Three

- Remove any branches that are too low, damaged or cause congestion in the centre of the tree.
- Remove any diseased or damaged shoots.
- Prune the leading shoot of each branch by around a third of this current season's growth. Cut back to a bud that faces the direction of preferred growth.



Maintenance Pruning: Apples & Pears

Regulated Pruning

This is the simplest and oldest method. It is used in traditional orchards, especially for cider production where the fruit will not be handpicked and fruit size or quality is not important. In regulated pruning, remove branches completely which are:

- crowded and crossing
- dead or damaged
- weak or unproductive
- growing into the centre of the tree or below the crown



Apple fruitlets on spurs, by RH Dengate (Own work) [CC-BY-SA-2.0, via Geograph 456740.

Only 20% of the leaf buds should be removed each year. Prune vigorous trees lightly, and less vigorous trees harder.

Spur Pruning

Spur pruning is for spur-bearing trees. It is simple but more time consuming than regulated pruning.

The aim is to have a variety of different aged spurs on each leader, by thinning and removing old spurs and young laterals. In contrast to regulated pruning where the tree is assessed as a whole, in spur pruning each branch is considered individually:

- Year 1: pruned back new growth to 4-5 buds.
- Year 2: prune laterals, leaving the fruit buds and any vegetative growth there is space for.
- Year 3: laterals will fruit and the oldest fruit buds will develop into spurs. Any vegetative growth can be removed completely, or left to develop into fruit buds if there is space.

Each year around 20% of spurs should be removed across the whole tree, so there is always a rotation of newer and older spurs producing fruit.

Modified Renewal Pruning ***Recommended***

This method blends spur and regulated pruning and means you don't need to know if you have a tip or spur bearing tree. Its other benefit is that it favours fruit over excessive growth.

- about half of any **upright and vigorous shoots** are removed – some to become future framework branches
- **suckers** from the base are removed completely – these will be coming from the rootstock
- **dead, damaged, diseased, crossing, poorly placed** e.g. inward pointing, too low – all **removed completely**
- branches are not pruned at tips - makes them stiffer and inhibits fruiting
- prune to ensure there are always one, two, three and four-year old shoots on each framework branch - provides continuous production
- some of the four year old branches removed to encourage new one-year old growth

Prune no more than 20% of the leaf buds each year. The harder you prune, the longer it will be until the tree fruits. In general, weaker trees are pruned harder, vigorous trees are pruned less.

Maintenance Pruning: *Prunus*

- make as few cuts as possible as they are still vulnerable to Silverleaf and canker, even in the summer.
- prune off bacterial cankers on *Prunus* in the hope that you'll stop it spreading.
- larger cuts in May, June
- smaller cuts in July, August.
- don't remove more than 20%.
- don't 'treat' the pruning wound and avoid touching cut ends with your hands or fingers.

Approach

Similar to maintenance pruning for apples and pears, but fewer cuts. *Prunus* tends to have a looser structure with longer branches – you won't create an open centred goblet shape.

1. remove **suckers** from base and any other shoots from the rootstock.
2. **low growing** branches – cut outside the branch collar.
3. **dead, diseased, crossing or inward pointing** branches. You won't get bigger plums after pruning (unlike with apples) so just remove whole branches that interfere with the structure.
4. *Prunus* splits easily so remove ends of **pendulous branches**. Don't worry about removing fruit – it has to be done.
5. Remove any branches that are major framework branches that are at a tight angle to the upright - they should be 35-40° to the horizontal. This shouldn't be necessary for trees that were formatively pruned well.

Maintenance Pruning: Trained Forms

Approach

The risk with summer pruning (or modified Lorette approach) is that you might prompt regrowth – this might be vulnerable to frost. However, if you prune regrowth off in September any problems can be avoided. If you leave pruning too late, the basal buds might not become fruit buds.

- prune as per the guidance below just after midsummer's day.
- last week of August / beginning of September, prune off the secondary growth to one leaf

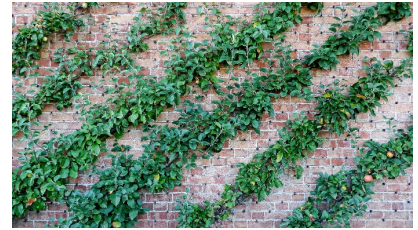
General pruning rules

- don't prune in winter unless you're removing a main branch from the framework of the trained form.
- new lateral shoots longer than 20cm: cut back to six nodes/ leaves.
- new lateral shoots less than 20cm: don't cut as they probably terminate in a fruiting bud.
- new sub lateral shoots: cut back to one node.
- remove water shoots, upright, vigorous growth
- bigger cuts earlier in the season and smaller cuts at the end of the season.
- prune vigorous trees more gently because they will respond with vigorous growth.
- apples fruit better on the horizontal and pear fruits better on 33°.
- flexi-ties or cut down bike inner tubes work well to tie in branches without causing damage.

Cordons

Prune all side shoots to 2-3 leaves above the basal cluster and once the leader reaches 1.8m prune it to one leaf from the start of the new growth. This will keep the tree within reach for harvesting.

Growing trees as cordons is a good way of having many varieties in a small space. You can have a range of cultivars that will give you fruit from August until May, even in a small garden.



Apple cordons, via <https://pixabay.com/en/apple-tree-cordon-oblique-fruit-1708511/>

Fan

Popular for stone fruit (*Prunus*).

Tie in any suitable shoots if there is room in the framework. Cut back remaining new shoots to 6 leaves from the basal cluster. Any misplaced or damaged shoots may be cut out altogether. After fruiting, in the summer cut shoots again back to 3 leaves. This will help to create a spur that will bear fruit next year.

Prune back to two or three leaves beyond the basal cluster as well as at the end of the branches.



Apple fan, by KVDP (Own work)

Espaliers

Suitable for apples and pears but not leggy top fruit such as plums or cherries.

If the ends of the main branches are starting to grow upwards, you need to tie them loosely at an angle until they've stopped growing. This allows the branch to strengthen by letting plant hormones flow in. Once branches have stopped growing, tie them horizontally.

Once established, prune laterals back to three leaves beyond the basal cluster, as well as at the end of each branch. Prune back any sub laterals to one leaf above the basal cluster.

If they are out of shape, you may also have to prune them in winter.



Espalier, by KVDP (Own work), via Wikimedia Commons.