WINTER FRUIT TREE MAINTENANCE AND PRUNING

Maria Ciavarella – My Green Garden

PRUNING

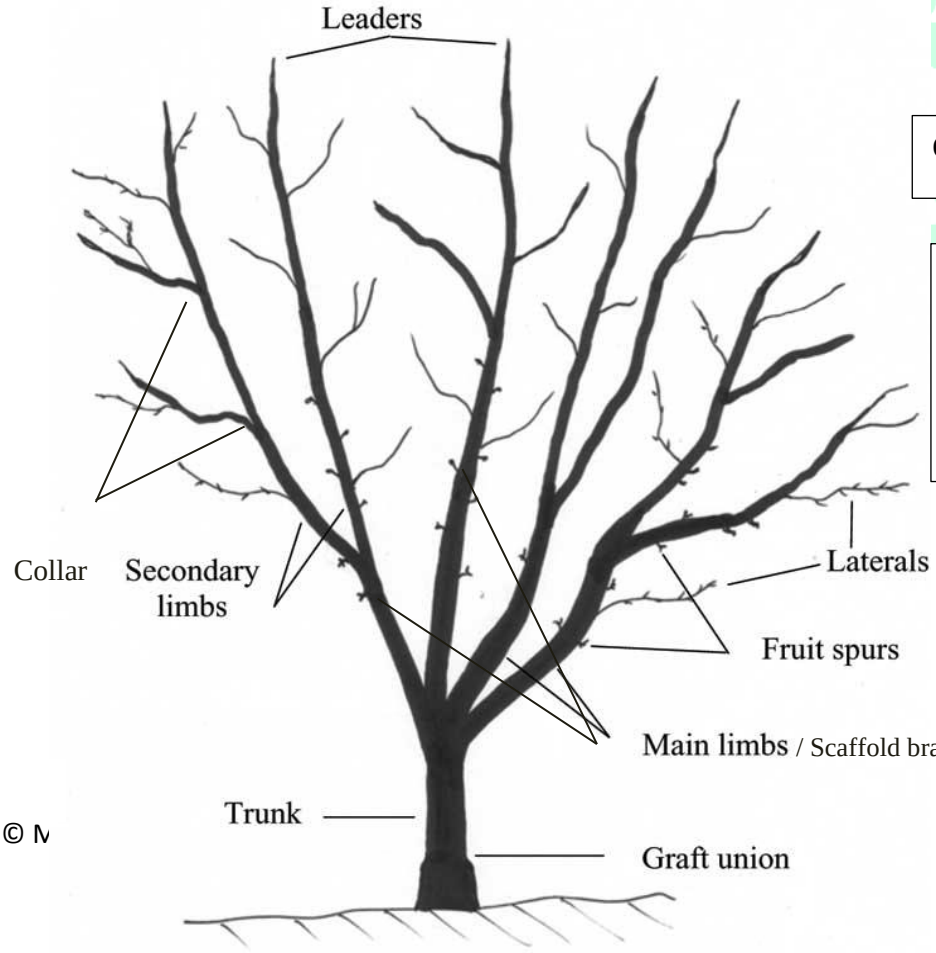
Why prune?

An unpruned fruit tree will still bear fruit, if the conditions are right for it (sun, water, decent soil). Left unpruned though, the tree will gradually become less productive, or its fruit of a lesser quality than a well-managed tree. The unpruned tree will make spindly growth which can break easily when bearing a heavy crop and the cropping will be increasingly further out from the centre of the tree. Branches which are shaded will not be productive and more prone to fungal issues. Amongst all these reasons for pruning, the well-managed tree will be much tidier and take up less space in the garden. By keeping unproductive upright growth in check, it will also make the fruit easier to harvest and the tree easier to net or protect against pest issues.

Before pruning, take time to have a good look at your tree and identify these parts of its growth. Observe where you may have made cuts before and the consequences of those cuts.

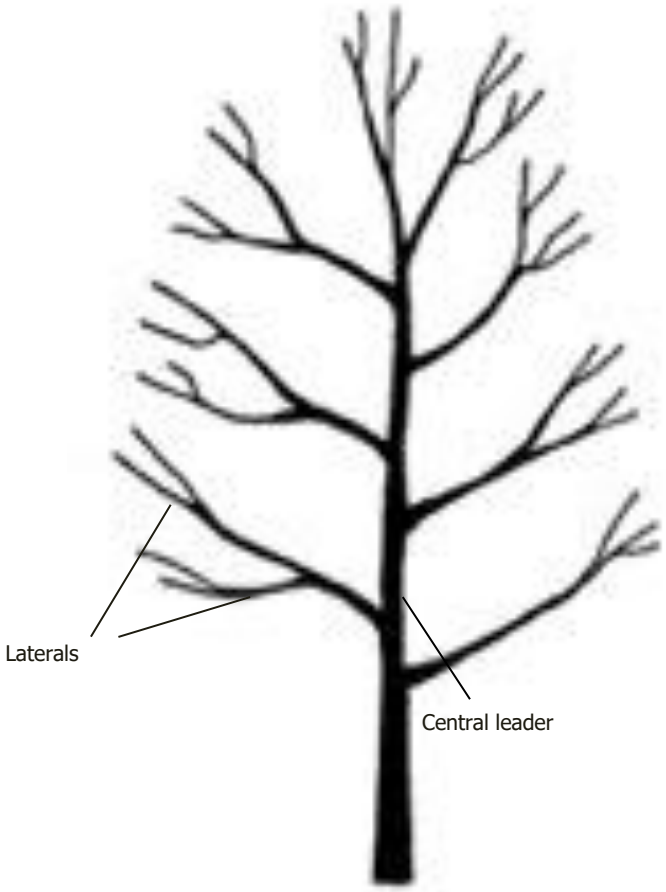
Recognising framework and terms associated with trees

1. Framework/scaffold = main permanent limbs
2. Secondary Limbs = branches from the framework limbs
3. Leader = main shoot at the end of each branch
4. Laterals = small horizontal branches from limbs or leaders. Also known as side shoots.
5. Nodes = points (or raised buds) on the tree branches or limbs that are like receiving stations for plant hormones.
6. Terminal bud = point on each leader towards which growth hormones are directed and so grow most vigorously.



Open Vase shape

Typical shape of stone fruits, such as peaches, nectarines; persimmons, plums, apricots etc.



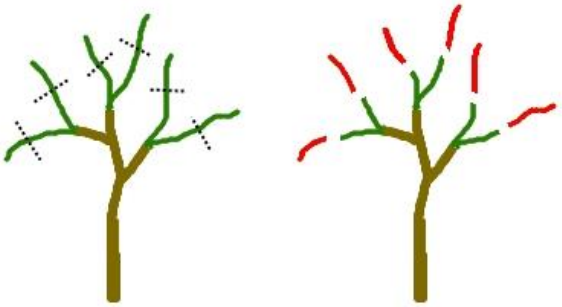
Central Leader shape

Typical shape of pome fruits, such as apples and pears; and almonds.

Are there different types of pruning techniques?

Depending on the age of the tree, different techniques are employed.
Newly planted trees need **establishment** pruning for shaping the main framework and creating new branch growth not too high from the ground.
Once their framework has been established over several seasons, they are pruned for **maintenance**, to control the height and the shape and encouraging the tree to produce fruit and wood where you want it.
If trees have been neglected for several years and allowed to grow unchecked, then **renovation** pruning is called for to get the tree back into order and production.

Spring Pruning



www.deepgreenpermaculture.com

What is the difference between summer and winter pruning and their outcomes on the tree?

Pruning has been traditionally done in winter when the deciduous tree is dormant, but this practice is now changing to reflect the nature of the outcome of the winter pruning on the tree. After hard winter pruning, the tree's growth hormones are concentrated around the buds nearest the cuts and result in vigorous growth at those points once the tree comes out of dormancy in spring. So winter pruning is now used primarily on young trees to train the tree to a particular shape, directing (as much as is possible) its subsequent spring growth. Newly planted dormant trees (except apricots and cherries) should be pruned in winter to start their new framework. *Winter pruning results in more vegetative (non-productive) branching.*

Pruning in late spring, through summer to autumn is used on mature trees to control their height. It is usually carried out after the tree has fruited but can be done at any time that the tree is still in leaf. At this time, you are shortening the new spring growth, up to 2/3rd of its length. This is particularly important for trees that bear fruit on the previous summer's growth (known as one-year-old wood). Also remove any new branches that overcrowd the centre. *Pruning in summer promotes more growth of productive wood over vegetative wood. Without a winter prune, the resulting growth will be much less vigorous in the following spring.*

Keeping these outcomes in mind for the timing of pruning, you can prune either when dormant or in leaf, except for apricots (and cherries) which must be pruned when in leaf and on a windy day with no rain forecast in the next few days to minimise the risk of fungal diseases entering the tree through the wound.

What is the order of pruning?

Looking at the tree carefully, we always prune methodically in this order:

1**. Cut out any dead wood, diseased wood (split) and broken branches**. Look to see if there is any 'mummified' fruit and remove this completely. Dispose of prunings away from the tree.

2. Look to see if there are any **branches crossing over others** and potentially rubbing each other. Remove or shorten the offending branch/es. Do any of the branches obstruct garden paths or thoroughfares? They may need to be shortened or directed away.

3. Look for laterals that are pointing **upwards too much (watershoots), inwards or that have a narrow angle** to the limb. They will become limbs and compete with main framework. An angle of 45^{o} -60^{o} is ideal as the vigorous growth from the tip is controlled by the angle of the branch, encouraging fruiting spurs or laterals rather than long limbs. Look out also for **suckers** from below the graft and cut them out.

4. Remove any **spent fruiting spurs**. Usually these appear as shrivelled little stubs. Thin or nip out crowded clusters of spurs on apples and pears; or if they are too close together. Limit these to 3 per cluster to increase the size of the fruit the following season.

5. Prune to keep the top down to a particular height. Usually 2.5m is the maximum height for a suburban garden to make the tree manageable. This is best done as a summer prune. *** Note that you can buy fruit trees on dwarf rooting stock and even super-dwarf rootstock to help control the eventual height of the tree. They are more expensive to buy but consider it an investment!*

Where is the fruit formed on the plant and how does this affect its pruning?

Here is a selection of commonly grown deciduous fruiting plants and pruning times for maintenance of established trees/vines.

Trees/vines that bear on current season's growth (new wood)	**Grapes** Prune back all of last year's growth to 2 or 3 buds from the main stem. New growth and fruit will come from these. Do this by the end of July in Melb. Do not cut to an angle. For sultanas leave 8-12 buds on each stem.
	Kiwi After fruiting 'arms' have developed, cut back to 2-3 buds from the main arms.
	Passionfruit In spring, after frosts, prune tips of all shoots. Cut back to the support.
	Figs Prune last year's growth in winter for a single autumn crop. If a *breba* crop is developing, leave the short growth and prune only the longer branches.
Trees/vines that fruit on last season's new growth (1 year old wood)	**Peaches, Nectarines** Winter: Remove laterals that fruited last season. Prune back to a newly formed lateral or dormant bud near the base of the fruited lateral. In early summer to mid-summer, shorten new growth to encourage the tree to grow fruit closer to the tree. After fruiting and before dormancy, any remaining pruning should be done.
	Persimmons Fruit comes on the shoots that grow from last season's laterals and are tip borne. Prune about a third of the number of the branches back hard each year, leaving the others to bear fruit.
	Japanese Plums Prune heavily by cutting back long thin growth to half after fruiting. Thin out short laterals and any crowded growth.
1 year old wood and older	**Pears** Require regular summer pruning to keep height down. Thinning of branches can occur in winter to keep the centre less crowded.
	Apricots Prune after fruiting and before dormancy (not in winter). Remove crowded growth in centre of the tree. Reduce upright growth to a well-directed lateral.
2 year old wood and older	**Apples** Summer prune to remove water shoots and to shorten vigorous laterals. Thin out any congested growth.
	Cherries Shorten laterals to develop fruiting spurs. Prune late summer to autumn. Keep height down otherwise not much pruning required.
	European Plums Shorten long vigorous shoots to encourage spur formation in autumn.
	Pomegranate Bears on new growth from the tips, so don't prune them all off. Cut off overly crowded growth and thin to a few main branches.

Evergreen varieties and where fruit is formed (These are usually best pruned in spring to avoid potential frost damage of any new growth. Avoid also very hot dry periods).

Avocado	1 year old growth (last year's). No pruning required except to check excessive top growth.
Citrus	1 year old growth. Prune only to remove Citrus Gall Wasp or to keep shape in check.
Olive	1 year old growth. Prune to keep the centre open and shorten any excessively long growth.
Loquat	Current year's growth. Thin out in autumn to keep the centre open as the tree matures and thin fruit clusters to maximize fruit size.
Guava	Current year's growth. Prune to keep in shape.

MAINTENANCE PRUNING

This is best done after fruiting while the tree is still in leaf.
The amount depends on your tree and its shape, but the aim is to keep the branching structure manageable, allowing light and air movement into the centre of the tree and to maintain a balance of fruiting wood (1,2,3 year old wood, depending on the fruiting type of your tree). Rule of thumb*: Prune as little as possible to achieve your aims*.

1. Remove deadwood.
2. Trim back vegetative growth from the top or ends of long laterals to put energy into branchlets lower down.
3. Cut off branches growing into the middle. Remember that the tree needs leaf growth to photosynthesize and put more sugars back into the tree so cutting off too much can shock the tree.
4. While branches are pliable bend and secure so that they are more at the 45° angle for more productive wood.

RENOVATION PRUNING

This process may take 3 years or more to bring a neglected tree back to a more productive and manageable state. This is because any hard pruning encourages more branching – a counterproductive move! Rule of thumb: *Avoid cutting out more than a quarter to a third of the tree in any one year (not including dead or diseased wood).*

YEAR ONE: After removing any dead or diseased wood, select the limbs you want to keep permanently, spaced as evenly as possible around the tree. Tie a marker around them to remind yourself of your plan.
Identify any big branches that are growing from the centre of the tree. Remove only one of them each year if it is large.
Remove also any suckers that are coming from the base if you can tell they are from the rootstock and not the graft. These may have developed into another trunk so you may have to wait until the tree is in leaf to see which is the trunk to keep.

YEAR TWO: Remove dead and diseased wood again and any growth growing into the centre of the tree, as well as any suckers. Keeping your permanent limbs intact, remove any big forks starting from the top of the tree that might be competing with these branches, not taking too many off at a time. (Prune back any new growth coming from the original large cut. This is a maintenance cut).

YEAR THREE: Remove any remaining competing forks that are competing with the main limbs and any growth into the centre of the tree. Maintenance pruning of last year's major cuts starts to take effect after this year if the main structure is back to where you aimed it to be.

PESTS & DISEASES AND PREVENTATIVE MAINTENANCE

TOOLS AND PLANT HYGIENE

Hygiene is important to prevent the spread of fungal diseases from one tree to another when pruning. This is best carried out at the start of the pruning session, as you will probably forget at the end! Have handy a little spray bottle with diluted methylated spirits or bleach and a clean cloth to use to wipe over the secateurs, loppers or pruning saw in between trees, or even diseased sections of particular trees.

PREVENTATIVE SPRAYING FOR FUNGAL DISEASES

Fungal spores overwinter (survive) from one season to the next and await the right conditions to start to take over. These conditions tend to be cool, wet springs. If your trees were affected last year, then the best way to repeat this happening is to catch them as they start to become active. Removing leaves around the base of the tree is a good idea to prevent certain diseases from remaining active around the tree. This is especially pertinent if you have had apple scab outbreaks or leaf curl issues.

The main fungal issues that suburban gardens suffer are:
Peach Leaf Curl; **Shot Hole disease**; **Blossom Blight**; **Brown Rot** and **Apple Scab**.

Peach Leaf Curl

- Spray from bud swell to just before bud burst with Copper oxychloride or Copper hyroxide powders.(Once the tree is in leaf and you see the disfigured curly leaves, it is too late for this season.)

Make these up the sprays according to directions, but only make up enough as you will use. It does not store once made up and will block up sprayer nozzles if not properly cleaned. If you need to dispose of excess, dilute this very well and do not pour it down the sink or stormwater.
It is the copper in these mixes which acts as a very effective fungicide, but the downside is that it will also kill off beneficial soil fungi and make any earthworms very unhappy if any of it drips onto the soil. To prevent this, cover the soil with an old sheet or newspaper before spraying. Do not spray on windy days and not when rain is forecast later that day.

- A less potent but safer option is using Lime Sulfur. The sulfur is the fungicide. It is corrosive to our eyes so take care with its use. It also smells like rotten eggs! A benefit of Lime Sulfur over copper sprays is that it will also kill off caterpillars, scale and mites that are overwintering in the bark of the tree.

At least two sprays are needed before bud burst, at 7-10 day intervals for greater efficacy. An option would be to do a first copper spray and then a lime sulfur spray.
If an older tree is affected by Peach Leaf Curl it will usually survive well enough, but the resulting leaf drop on a young tree can potentially kill it. If your tree is affected one spring, then it is a good idea to apply a spray also at leaf drop (autumn) as well as bud swell.

Brown Rot in Stone Fruit

At fruiting time when wet weather is predicted, Lime sulfur or wettable sulfur is applied to help to prevent brown rot. Dispose of all affected fruit and continue treatment until all fruit is picked. It is only prevalent in wet, humid weather.

Shot Hole

This appears as round holes in the leaves and the fruit becomes speckled. Treat this at early budswell with the copper hydroxide or lime sulfur sprays. It affects mainly apricots and almonds.

Blossom Blight

This affects apricots and peaches/nectarines. The blossoms appear and then fail to thrive, appearing rotten on the branch. For apricots, apply copper or lime sulfur sprays at bud movement and then 7-10 days later (usually August). If it is a particularly wet early spring, apply lime sulfur in September or at petal fall. For peaches/nectarines, do the same in August at mid to full bloom if wet weather is predicted and again at petal fall with lime sulfur.

Black Spot or Apple Scab

This affects both apples and pears.

For apples, before the tree is in leaf, apply copper sprays, in August and September. Once leaves appear, spray only with lime sulfur or wettable sulfur until October.

For pears, spray in August.

TREATING PESTS OF FRUIT TREES

Pear & Cherry slug

Really not a slug but the larvae of the sawfly, these creatures can disfigure the leaves of your pear, cherry and plum trees quite significantly. Treated early will help prevent a much larger outbreak. They first appear in October/November and complete their lifecyle quickly enough to lay eggs and hatch out another outbreak. Treat as you would caterpillars – squash; dust with something to desiccate them (old wood ash, flour, garden lime); or spray with Dipel. As they overwinter in the soil around your trees, sprinkling a generous amount of wood ash might keep their numbers in check. (Please note that adding wood ash or lime to your soils will affect soil pH).

Codling Moth

It is the larvae of the moth which cause the classic 'worm in the apple' damage. Treatment is not as simple as spraying but is a case of understanding the lifecycle and controlling at each stage. The caterpillar, once it has eaten through your apples (and quinces and pears) will move back into the soil to pupate. If you can provide shelter for it to do so by banding the trunk with corrugated cardboard, you can control at this point. Remove the cardboard and destroy at intervals and definitely before spring. Replace the cardboard to trap further generations as they can have more than one lifecycle in the same growing season. Alternatively, if you haven't banded, use a stiff brush to brush off loose bark and expose any hiding spots.

To monitor when the moths are active, hang a small container (eg yoghurt bucket) in the tree after leaves are on the tree and part fill it with a 10 parts to 1 water:sweet port (or molasses) solution. This is very attractive to the moths and they will drown in there. Not all of them will though, so just use this as an indication that they are active. This lets you know to put out pheromone traps that will actually capture the male moths as they flutter about trying to find a female moth.

If they have managed to foil you up to now, take a close look as the fruit is forming. If there are any tell-tale holes in the fruit, remove them and dispose of them (not in the compost) to try and break the life cyles of the moths.

Aphids

These come in many colours and particular ones are attracted to certain trees. If you had a severe outbreak the previous year, you can spray while the tree is dormant up and down the trunk and branches with Eco-Oil to smother the eggs which are overwintering in the bark of the tree. (Lime sulfur will also help). If you do have an outbreak, don't panic and automatically reach for a spray to kill them. There are many predators of aphids and they will soon come in to take over as long as you don't spray them too! However, if you do have a cherry tree with the new tips dripping with black aphids, just cut off the affected branch ends and dispose of.

Aim to encourage beneficial insects to your garden. Many are voracious feeders of insect pests!

TREE HEALTH AND FEEDING

Soil health

The soil plays an absolutely critical role in the health of the tree. Having a biologically active soil, teeming with micro-organisms, is essential for getting nutrients from the soil into the tree via its roots. The best way to keep this soil healthy is to feed these microscopic critters by regular applications of organic matter, in the forms of compost, well-rotted manures and feeding mulches, such as straws and woody material. Do not neglect watering as this also helps keep these essential micro-organisms thriving in well-drained soil.

Feeding regime

In addition to the organic matter, organic fertilisers are used to supply the essential feeding nutrients (N,P,K); and supplemental feeds, such as seaweed tonics and rock dusts, provide the extra micro-nutrients for the tree's fruiting needs.

Never fertilise new trees at planting time and then only a light feed in their first spring. If we are in drought, avoid fertilising any of your trees as this leads to more growth and hence greater water needs. The fertiliser is applied around the dripline of the trees and then watered in and covered with mulch.

CARE OF CITRUS TREES

Several things affect citrus over winter and into spring, but the main one to take note of is the control of the Citrus Gall Wasp. This little native wasp has found a home in (mainly) the lemon trees all across Melbourne as there is no natural predator for it here, unlike in its warmer home states in northern Australia. Control is important as, even though the little moth cannot fly far, it can fly over the fence to attack the neighbours' citrus trees and so the cycle continues. Left unchecked, the tree is eventually weakened as the eggs are laid in the stems of the tree and these will die off as sap flow is affected. Treatment is by cutting off the stems with the galls BEFORE any holes appear in the galls. If your tree is still young, an option would be to slice open the gall in winter and the cold and drying winds will desiccate the larvae.

Once there are holes in the galls, the wasps have exited and are ready to start a new cycle. This happens anytime from August to November in Melbourne, so pruning must happen by July. Yellow sticky Gall Wasp pheromone traps are available that will catch the male moths, but they also trap other (possibly beneficial) insects as well as small birds, so use with caution.

-For great information on growing and caring for fruit trees in Melbourne, visit www.deepgreenpermaculture.com

Main reference: *Mt Alexander Fruit Gardens 'Grow Great Fruit Program' 2014*