

E-letter # 17 – June/July 2015

Written by Peter Coppin 01/06/15 – can be reprinted as long as the author is acknowledged

Hi everyone, this is a meld of excerpts from previous E-letters (8, 9 & 13) to cover late autumn and winter, with a few changes or additions.

There is no doubt at all that climate change is having an impact, not the least the rising winter mean minimum temperatures here in WA. This is having a serious impact on chill unit accumulation, and there is some concern about the long-term viability of some of our deciduous tree crops.

1. Dormancy & Chill Units:

One impact is that deciduous trees may not know it's time to go dormant for winter. Winter dormancy (or senescence) is mainly triggered by changes in day length, but with many species is also accelerated with cold temperatures.

Remember that most deciduous species need a reasonable number of chill units to initiate bud burst and flowering in the spring. Lack of chill accumulation results in poor flowering and therefore poor crops, and if serious can lead to delayed foliation (and can be fatal to some varieties).

What are chill units? Most deciduous plant species come from regions where the winters are very cold or even iced, snowed or frozen, and their sensitive foliage can't tolerate that.

Therefore, they have developed a process called seasonal senescence, or winter dormancy, where they shed their leaves and stop sap-flow for the duration of the cold period. So how do they know when to burst back into life in the spring? Well, it's all to do with hormones.

During winter dormancy, deciduous plants may look totally asleep (no sap-flow or feeder root activity, etc). But like a hibernating bear, there's still a lot of internal activity. Amongst other places, behind the buds there is quite a bit of biochemical activity going on. One of these is the production of Gibberellins – the growth regulator/hormone that initiates flower-bud formation and thus flowering therefore fruiting.

The colder it is during dormancy, the more Gibberellins are produced, resulting in more flowers and of course, more fruit. Species/varieties originating in regions with long cold winters have a high chilling requirement, otherwise they would burst into life too early and their flowers would be literally frozen off.

'Low-chill' varieties only need a small amount of winter chill to burst into life in the spring. Remember that chilling (hours below 7.2 degrees) only has the required effect when the trees are dormant (after every green leaf has fallen). Requirements vary from 50 to 800 hours, with big differences between varieties as well as species.

A further advantage of the autumn copper spray is that it can help knock trees into dormancy earlier. With medium to high chilling requirement varieties, eg, most cherries, this can result in heavier crops. We often get considerable chill hours in May and June before night-time minimums tend to rise in late June, July and early August when the winter weather patterns set in.

Another trick is to hand strip green leaves off that remain after the autumn copper spray, thus forcing the trees into dormancy. Most Stonefruit are best leafless by early June and most pomefruit & cherries by early July.

You can also do this with un-neutralised copper and zinc sprays, but you really have to know what you're doing as these can cause a lot of unwanted burning – contact me if you are interested in trying this.

Every property is different. Chill accumulation can vary as much from the top of a hill to the bottom as it can travelling 100km down the road! Purchasing a little data logger such as the [Tinytag Transit 2](#) could be a good investment if you're considering commercial fruit crops.

1.A Reminder on autumn sprays:

May and June the months to apply copper-based sprays to deciduous fruit trees and vines, a very effective tool in controlling many fungal and bacterial diseases. More details are in [E-letter #8 - read here](#).

1.B Reminder on winter sprays:

Winter is the time to apply oil sprays to deciduous fruit trees, and late winter to apply sulphur-based sprays to vines in warmer (earlier) areas. More details are in a previous E-letter, which you can read here:

<http://www.petercoppin.com/eletters/eletter9.pdf>

2. Soil amendments:

Autumn and winter are great times to amend soils, whether it be adding clay to sands or gypsum to responsive clays. After the first rains, the soil is much easier to work, but also the winter rains can help to incorporate these amendments.

Soil amendments (contd):

Also, if the soil has to be dug or turned over, this is the time when least damage may be done to the plethora of beneficial soil organisms, from bacteria through to mites, beetles & weevils.

It also gives you the time to install or reinstall reticulation systems, and, more importantly, to reapply mulch before the drying winds commence in September and temperatures rise.

The 'spring rush' of activity most of us seem to do is totally inapplicable to our climate and soils, rather it simply reflects our cool-climate European heritage where maybe it does apply.

Many of you may have also noticed that over the last few years we don't seem to have a 'normal' spring anyway, rather we seem to jump from winter to summer in a very short space of time.

So it's very easy to be caught way behind schedule in the spring, putting extra stress on new plantings. Don't worry if your friends or neighbours think it's odd that you are installing irrigation in autumn or winter – you'll have the last laugh knowing your plants are going to be watered efficiently as soon as they need it!

3. Planting:

While evergreens can be planted from autumn through to spring, mid-dormancy is the time to plant deciduous trees & vines, though

Also, much of the new season's planting stock is now coming onto the market. So even if you're not ready to plant just now you will get the best selection from nurseries and garden centres.

Evergreen species can be planted now, but if you are in a frost susceptible area it may pay to wait until the risk of frost is over (as late as mid October).

What's the best planting stock? While there is still a push for bare-rooted nursery trees, I believe this is now old technology, and you have a limited timeframe between purchase and having to plant them out. To store them before planting, cover their roots with just straight sand and keep them moist, ideally in a cool, shaded part of the property.

Modern nursery production of trees in 4-7L square pots is the way to go, giving good quality plants that haven't or won't get severe root damage. Just make sure you're buying fresh stock, not last year's – another good reason for ordering/buying your trees as early in the season as possible.

4. Pruning:

A. Deciduous trees & vines:

Winter dormancy is the time to do detailed pruning on deciduous trees and vines, especially those that fruit on new wood (peaches and nectarines) or current season's wood (grapes and Kiwifruit), where the aim is to encourage replacement fruiting wood on an annual basis.

On species that fruit on a combination of new wood and spurs (apples, pears, plums & apricots) this is not mandatory every year but every two-three years, but because all the leaves are off it's easier to see what you're doing if you want to clean them up a bit.

Here's a quick guide to what has to be done according to what age wood a particular species flowers on:

- Every year: peaches, nectarines, grapes & kiwifruit
- Every 2-3 years: apricots, plums & pomegranates
- Every 4-5 years: apples, cherries, pears & quinces
- Every 5-8 years: figs
- Persimmons are pruned only following a light crop, and this varies from tree to tree.

Pruning for size & shape, air movement and sunlight penetration should be done during the growing season, not during dormancy. This is because pruning dormant wood invigorates new growth while summer pruning suppresses growth.

The only exception is if you have larger trees or vines that need a canopy reduction or major reshaping, and this is always best done during dormancy. This requires a lot of follow-up summer pruning over the next two seasons.

B. Evergreen trees & vines:

This will be covered in my next E-letter, though any resizing or restructuring can be done from mid July onwards.

C. Pruning newly planted deciduous trees:

Most nursery trees are tall 'whips', with little suitable secondary branching. Whether you are going to grow them on a trellis/espalier or as multi-stemmed vase trees, prune them to knee-high once they are planted.

This may seem savage, but you will get three or four strong shoots coming from that cut which then can be trained to suit whatever growing system you want. This is important where branching is wanted closer to the ground. But don't do this if they have started to flower or shoot as it can cause severe stress and stunt growth for months.

Later this month I will upload the first in a series of pruning and tree training videos to demonstrate all the procedures, and you will be able to follow them as the season progresses.