

Orchard Link News

'Saving orchards in South Devon'



Baked apple on spiced bread ... (photo: Audrey Ryder)



ORCHARD LINK

Orchard Link is a south Devon organisation set up in 1998 by apple and cider enthusiasts concerned about the disappearance of traditional orchards in the area. Its purpose is to promote the restoration and extension of orchards by offering technical advice and support to both existing owners and individuals or groups planting trees for the first time.

At the moment the committee is meeting every month by Zoom. This arrangement will be reviewed when all coronavirus restrictions are lifted.

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Copy deadline for the next issue: mid-February.

Gill Gairdner and Sue Hallam



Chairman's bite of the apple



At the time of writing, I've just returned from two weeks in Glasgow taking part in actions around the COP climate conference. In so many parts of the world this year, the impacts of climate change have been extreme and devastating, while for the most part the effects here in Devon have so far played out more indirectly and subtly. The storms and frosts and absence of pollinators in May blossom time this year meant that many Orchard Link members – myself included – had no apple crop to harvest; our remaining older trees are keeling over from root rot in the more frequently waterlogged ground; and the current mild autumn temperatures raise the question of whether we will have a sufficient number of winter chill days for the setting of a good crop next year. The online talks Orchard Link has run this year have given some pointers: when planning new planting of trees to flourish in our orchards 30–50 years from now, we will need to think more carefully about site and varieties and not just follow what worked in the past. In addition, at this time of steep wildlife decline, we have an essential responsibility to make our orchards a haven for wild things as well as a source of fruit.

On a completely different tack: at our AGM I reported that Orchard Link is in good heart with a strong financial and membership base, renewed website, great stock of fruit-processing equipment for use by members, and preparations in hand for a full programme of events and courses. My thanks go to the committee members for their work over the last year. However, we do have some essential roles that need filling this year. Gill Gairdner and Sue Hallam have done a fantastic job creating these newsletters three times a year, but they are now stepping down, so we need a new newsletter editor. We also need a website editor/webmaster to keep our website up to date. Please do contact me if you could take on either of these tasks.

Robin Toogood

Trained fruit



There are several good things to say about training fruit trees in the garden.

For a start, trained fruit trees present a great way to grow plenty of fruit in a relatively small space.

The cordon form is especially good for this, suitable for apples, pears and quince, which on a semi-dwarfing rootstock such as MM106 or Quince A can be planted happily 70 cm apart. They can be grown at an angle (oblique) or vertically. And while a post and wire structure can help when training espaliers (above), fans and oblique cordons, it is not strictly necessary for training vertical cordons, which can be easily grown as free-standing trees. A stout 6 or 7 ft bamboo cane is all you will require to help keep the vertical extension growth upright.

The advantage of growing trained trees against a fence or wall is that it offers shelter from the wind and additional warmth on sunny spring and summer days, which in turn improves pollination and fruit set. It is especially good for fan-trained plums, apricots, peaches, gages, cherries and pears – the trees that flower earlier in the spring when inclement weather is never far away.

Growing trained forms can also allow you to produce some top-quality fruit. Trained trees require summer pruning, which means you are pruning out lots of young shoots that are otherwise shading developing fruits. Dessert fruit needs direct sunlight in order to ripen and colour fully, and the act of summer pruning opens up the tree and allows more light to fall on the fruit.

The summer pruning that is carried out on trained fruit trees is also a much simpler and less demanding task than winter pruning. The method is fairly proscriptive so there are fewer of the 'do I or don't I remove this branch' dilemmas associated with winter-pruning larger fruit trees. Summer pruning can be a nice meditative task for a sunny afternoon.

In terms of when to do it, save summer pruning cordons and espaliers until late August/early September. If you do it any earlier you will get regrowth from your cuts before the tree enters dormancy in the winter, which is not what you want.



For fan-trained stone fruit, you can prune the previous year's extension growth back by around half to two thirds in April when you see new growth starting, and then pinch back side shoots in June and July.

Trained trees also provide an additional design element to the garden, creating subdivisions and architectural features. Fruit arches are a simple structure (essentially, two vertical cordons) that take up little space and work well with both apples and pears. If you've got plenty of space then you could consider a fruit tunnel.

And you don't have to limit yourself to dwarfing rootstocks for trained trees. The garden designer Arne Maynard, who uses trained fruit trees to great effect, favours crab apples on vigorous rootstock to create striking 'walls' of pleached espaliers on tall stems. And if you happen to have a rather large house and a tall ladder (or a gardener with a head for heights), why not train a Comice pear tree on pyrodwarf rootstock into a glorious 20-foot espalier?

Tom Nancarrow (Adam's Apples)



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Orchards for smaller spaces



To produce a range of different fruits, especially when space is limited, there are advantages in growing more rigorously trained trees. And anyway, do you really want 100–200 kgs of Discovery or Bramley? By planting cordons (left) you could have 5–10 kgs from each, followed by similar amounts of Lord Lambourne, Cornish

Aromatic and Adams Pearmain – or the sequence could be Reverend Wilks, Lord Derby and overwintering Howgate Wonder. It's possible to fit 5–6 cordons in the same space as one dwarf bush. An added advantage is that trained forms crop some two years earlier than bigger trees ... and those who like well-regimented trees can feast their eyes on their more orderly shape.

First, buy trees on dwarfing rootstocks which restrict growth. These trees will generally need a sound support frame to help train the branches and also keep the tree upright. Look online – there's a huge amount of information on 'restricted' systems such as cordons and 'step-over', espalier and fan-trained trees. Join an Orchard Link training session on summer pruning, which is essential for restricted tree forms. There are useful lessons to be learnt from those with experience of growing apples and other top fruit this way: for example, should you avoid using vigorous 'tip-bearers'? We plan to look at sites using different tree forms in further articles – watch this space.

Charles Staniland



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Our new apple orchard – good for fruit, good for nature

Our land near Buckfastleigh is managed as a nature reserve and our continual aim is to increase its biodiversity. We have a small mixed fruit orchard already and we collect what we need and we leave the rest for wildlife. In winter we are visited by many blackbirds, song and mistle thrushes, redwings and fieldfares, all feasting on the fallen apple bounty.

While looking at the Devon County Council digitised nineteenth-century tithe maps*, we saw that many valley fields from Buckfastleigh to Holne were



once orchards. Of course, orchards were a traditional part of the British landscape for centuries, but sadly the majority have been removed. What really started us thinking about planting a new orchard was reading Nick Gates and Benedict MacDonald's book *Orchard*, which celebrates ancient orchards as one of the richest

ecosystems left in Britain. What sealed the decision was reading that the destruction of old orchards was helped as late as 1991 by government legislation – the Apple Orchard Grubbing Up Regulation – that paid for the removal of orchards, ancient or not.

The site we chose to plant is a two-acre, south-facing sloping field (see above), not currently a particularly rich habitat and with good vehicular access for harvesting the apples. We sought the advice of Charles Staniland from Orchard Link on the varieties that would grow best on our site and in due course bought 66 apple trees of eight varieties from Adams Apples;

these arrived in February 2021. One of the criteria for the choice of variety was that they fruited at the same time for easier harvesting. The rows are planted wide enough apart for some of them to be interplanted with a



winter bird food mix, and each tree has a tripod wooden guard, made by Tavistock Taskforce, to protect them from grazing livestock in the autumn (see left).

With the very dry April and wet May we weren't sure how the new trees would fare but they have survived well, with no current losses.

The hope is the orchard continues to develop, long after we are gone, into a cranky ancient ecosystem, providing apples for many years and supporting an extraordinary range of wildlife.

* <https://www.devon.gov.uk/historicenvironment/tithe-map/>

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Mistletoe

Sitting under the mistletoe
(Pale-green, fairy mistletoe),
One last candle burning low,
All the sleepy dancers gone,
Just one candle burning on,
Shadows lurking everywhere:
Some one came, and kissed me there.

Walter de la Mare



There are many mistletoe customs and legends, the best-known of which is the kissing tradition – hanging mistletoe high in a room and kissing loved ones (or complete strangers) beneath it is a hugely popular Christmas custom.

For over 2,000 years mistletoe has been considered a fertility symbol, remaining green through the winter months with its berries ripening to white in midwinter. The Druids are thought to have believed that the berries of the mistletoe represented the sperm of the Gods. When pressed, a semen-like substance issues from the white berries. They also believed that mistletoe had healing properties – but beware of eating it, it does contain toxins.

The plant is, of course, a parasite of trees (it is particularly keen on apple trees), which will cause serious damage if left to grow unchecked. On the other hand, over the years it has been used in herbal remedies and for medicinal use, and is very much in demand at Christmas.

If you would like to grow your own crop of mistletoe on a handy apple tree in your garden or orchard, you could either buy a kit* or attempt to go it alone.

The aim is to persuade the seeds from mistletoe berries to attach themselves to a host branch, where they should germinate, and after a few years you would hope to have plenty of mistletoe to be kissed under.

Getting started

Mistletoe seeds germinate best in February and March. It is possible, but not ideal, to keep Christmas berries until mid-February by pulling them off the stems in December and putting them in, for example, a light shed or

greenhouse. The seeds are actively photosynthetic and need to be kept in the light, or they will die within a couple of weeks.



So, ideally in mid-February, if you have not stored any, find a local source of mistletoe berries or buy fresh berries in kits. You'll need a lot of berries to succeed with your mistletoe germination adventure, and will also need to get the timing right – success is much higher in February and March.

Then choose your host tree. In order of preference: apple, then poplar, lime, false acacia, hawthorn, etc. Most trees and shrubs of the Rosaceae family are suitable. However, remember that mistletoe is a parasite and will affect the growth of the branch it is on and, if on apple, will reduce fruit yield.

In mid-February, if the berries have been stored, rehydrate them for a few hours in a little water.

Then, whether they're fresh or have been stored, squeeze the seeds out of the berries. They will come out surrounded by sticky, jelly-like viscin. Try to remove almost all of this, leaving a small amount to act as glue. Collect several sticky seeds on your finger.

Going to your chosen tree, select a young branch 2–6 cm in diameter and choose a section well away from the trunk of the tree. Using the glue-like viscin left on the seeds, stick the half-dozen or so seeds from your hand onto the branch.

Label them with a plant label tied to the branch: it's difficult to remember which branch(es) you used, particularly as you may not spot the tiny seedlings during the first few years.

Return to your source mistletoe and take more berries. Try to plant as many seeds as possible, at least twenty at a time, divided between four or so branches. Given the right timing, germination is very likely, but many seeds/seedlings will later die, or be eaten by birds or invertebrates.

Another consideration is that mistletoe, like holly, is 'dioecious' – that is, each plant will be either male or female, with only the female bearing berries. This means you'll need at least two plants, and maybe several, in

order to produce berries Another reason to start with as many seeds as you can.

Germination

By March/April in year 1 your seeds should be germinating. They are only tiny the first year, so be sure your labels are still tied securely to the branches.

In year 2, your surviving seedlings may become more erect, but growth will probably still be limited. However, as long as your shoots are still green, your mistletoe should be fine. If your seedlings have been damaged by slugs or snails, they may be set back a year, but could well survive.

In year 3, you should see some proper leaves – though these may be tiny at first. If the plants have been set back, this stage may not be until year 4 or 5.

After the emergence of the first proper leaves, the mistletoe plant will start to grow much more rapidly. Each branch bifurcates at least once a year, so the number of branches doubles. Now you can celebrate Christmases with your very own supply of mistletoe.

Onward management

A few decades of mistletoe growth can smother a small apple tree and may eventually kill it. It can look delightfully romantic for a few years, but management will be needed in the medium term to make sure both tree and mistletoe continue to flourish.

- You will not need to manage a new colony for several years after establishment.
- Male and female plants should be equally cut, even when harvesting for Christmas and you are looking for berried pieces.
- The winter shoot tips are spring flower buds, so if berries are wanted some of these must be retained.
- A pre-planned proportion of growths can be cut back each season – a rotation system can work well.
- Mistletoe is difficult to kill – it will resprout if cut back to host bark. This can be a useful management tool.
- If you are dealing with neglected trees with excess mistletoe you may need to remove complete branches.

More guidance about mistletoe hosts and habitats, traditions, biology, conservation and management from mistletoe.org.uk.

*Grow-Your-Own Mistletoe Kits can be ordered from englishmistletoeshop.co.uk. Gift cards can be given for Christmas, with the kits delivered in February and March.

Jonathan Briggs (mistletoe.org.uk)

(Editors: As Benedict MacDonald and Nicholas Gates point out in their book *Orchard: A Year in England's Eden*, mistletoe also has significant value as a source of food and nesting cover for birds.)

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‘The Girls’, or one thing leads to another ...

Way back in the early noughties a couple of dozen new, purpose-bred apple varieties were released into the cider world from Long Ashton Research Station. These were ‘the Girls’, seedling crosses between our best-performing cider apples Dabinett and Michelin with James Grieve and Worcester. The big commercial cider makers had been asking for early maturing bittersweet and juicing apples to spread the harvesting and milling period forward in the factories. But their interest had waned by the time the Girls had emerged from the long trial process.

Fortunately, a number of enthusiastic cider growers soon began to recognise the collection as a group of regular cropping and neat-looking trees.

James Grieve and Worcester both contributed earliness and easy tree management to the crosses. The Dabinett and Michelin passed on their well-balanced bittersweet juice and regular cropping habit. John Worle was growing a selection of the best in his Hereford nursery. Varieties like Amanda, Angela, Debbie, Fiona, Gilly, Hastings, Helen's Apple, Jane, Lizzy, Prince William, Three Counties and Vicky. Thanks to plenty of encouragement and publicity from him they began to catch on. Between 2006 and 2013 nearly 80,000 trees were planted. By 2016 there were over a million of them cropping well in all the cider-growing counties – over 1,000 acres in Somerset alone for Thatchers and their contract growers.

Most young orchards got down to producing good crops immediately, but some had real problems setting fruit. It was soon realised that varieties with the same parents weren't able to adequately pollinate each other. Unfortunately, all the tree labels had been lost early on and there was no way of checking which was crossed with which. So how to know what the parents were? It was at this time that Keith Edwards, ex-Long Ashton wheat geneticist who had transferred after its closure to Bristol University, recognised that some essential DNA work was needed to unravel their genomes and reveal their parentage.

In 2003 the Bristol Centre of Agricultural Innovation (BCAI) had been set up as a trust to manage the funds generated from the sale of part of the Long Ashton Research Station site. This was Long Ashton's legacy to the cider industry – money that was only available for work on fruit and could be spent on an essential task. Keith's first Bristol project sampled and processed all the Girls using a smart technique, SEQSNP, single-nucleotide polymerization, a development of the technique already used for wheat genetics and breeding. It's quick and easy, relatively inexpensive and accurate – all done by computer. Now we do know which variety was crossed with which. Cider growers can plan their orchards and compatible pollinators with confidence.

Bristol has continued to develop the technique with apples by sampling and processing all the 2,000-odd trees in the National Fruit Collection at Brogdale, together with the Welsh National collection and several others.

This year's sampling of over 500 trees in Thatchers' extensive collection of cider and other apple varieties in Somerset has given a Bristol undergrad an opportunity to continue the work for a PhD. A couple of years ago they launched a popular public supported project, Apple Source, which has generated considerable enthusiastic publicity. It was begun locally in north Somerset by inviting members of the public to send in samples of leaves from cider apple trees that had lost their names or old rare apple trees in the area that needed conserving. You can read all about it on their website Apple Source (cerealsdb.uk.net), which gives you fascinating details of their sequencing techniques. This year sees the launch of a cider-making course for Bristol's Life Sciences undergraduates using fruit from all the Long Ashton selections. Lucky students!

Sadly, all the current DNA sequencing carried out at Bristol's Functional Genomics, that done at East Malling with Reading University for the registration of local cultivars, and similar work progressing in Europe and the States, although giving us more and more tantalising insights into apple relationships, have not yet resulted in our being able to communicate with one another in a comparable way. But it is early days of the world of DNA and we hope for more collaboration in the future.

And in the meantime, all those acres of Long Ashton seedlings are doing fine, adding some good quality genuine bittersweet flavour to some of our commercial ciders.

Liz Copas



The nutritional value of apples

Everyone knows 'An apple a day keeps the doctor away' ... but now it has been demonstrated: apple consumption has been associated with decreased risk of chronic diseases such as cancer, cardiovascular disease and asthma.¹

Animal studies and laboratory experiments with apples have shown the polyphenols they contain have high antioxidant activity that can inhibit cancer cell growth, lower blood sugar levels and decrease ‘bad’ cholesterol. Polyphenols are considered prebiotic because they feed the bifidobacterial in your gut.

The amount of polyphenols in a fruit varies according to cultivar/variety, ripeness and amount of sunlight. Optimal storing does not seem to deplete the beneficial effect.

A 2003 Canadian study² looked at the polyphenolic profiles of eight apple cultivars using HPL chromatography and found that the peel had a five times higher concentration than the flesh. It is not completely simple, though: red apple skins and apples that have had the benefit of full sun are shown to have more anthocyanins, but green and yellow apples have more quercetin.

A study published in the *British Medical Journal (BMJ)* compared the effect of taking a commonly prescribed statin daily to eating an apple a day instead – and the apples came out as favourably, and with no adverse side effects! Dosing with apples rather than statins could avoid more than a thousand excess cases of myopathy (muscle weakness) and more than 12,000 excess cases of diabetes.³ Curiously, the report said that providing the apples would be more expensive!

Audrey Ryder

¹ *Nutrition Journal* 2004. 3:5; ² Ontario 2003; ³ *BMJ* 2013;347:f7267

Courses and events

Tuesday, 18 January, 7.30. Illustrated talk by John Walters, Buckfastleigh-based naturalist, on the survey he carried out on the wildlife and biodiversity of some of our members’ veteran orchards. Landscope Victory Hall. Free/donation.

Sunday, 30 January, 10.00–3.00. Pruning an Established Orchard, with Charles Staniland. Hillcroft (between Staverton and Buckfastleigh). An opportunity to examine young, cropping apple/pear trees and learn practically how best to prune them. £25/£30 (members/non-members).

Saturday, 26 February, 10.00–1.00. Formative Pruning, with Tattwa Gyani. Marlborough (between Kingsbridge and Salcombe). The importance of pruning in the first few years is often not fully understood, and young trees can consequently fail to thrive. After considering the theory, participants will practise their new skills by working on young trees in the host's orchard. £15/£20 (members/non-members).

Saturday, 5 March, 10.00–1.00. Restorative Pruning, with Tattwa Gyani. Caddaford, near Staverton. A short introductory session indoors followed by practical work on established apple trees whose health and productivity are affected by overcrowded branches. £15/£20 (members/non-members).

Saturday, 23 April, 10.00–1.00. Top Grafting (Top Working), with Tattwa Gyani. Schumacher College on the Dartington Hall Estate. If you have an established apple tree but don't much care for its fruit, grafting scions of preferred varieties onto its branches can be transformative. The technique can also be used to rejuvenate tired or damaged trees. £15/£20 (members/non-members).

Saturday, 25 June, 10.00–1.00. Pruning Stone Fruit, with Tattwa Gyani. Schumacher College on the Dartington Hall Estate. The morning will be spent working on plum trees, with a focus on clearing cluttered growth and managing any damage or disease. £15/£20 (members/non-members).

Sunday, 10 July, 2.00–7.00. Members' Annual Gathering. Broadhempston Village Hall. Details TBA.

Early September. Cider-making Course. Details TBA.

For information about these events and/or to book, use the booking form online or email info@orchardlink.org.uk.

NB All courses and events will observe any government legislation and advice regarding Covid safety that is current at the time.



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