

## Orchards in the Kent Downs landscape

Traditional orchards can incorporate a mix of fruit growing, heritage, community and biodiversity as well as contributing to distinctiveness of the local landscape. Historically, the Kent Downs landscape has supported a rich variety of fruits, especially apples, pears, cherries and plums. Unfortunately, due to agricultural intensification and greater competition from abroad many orchards have been 'grubbed up'. In fact, here in the 'Garden of England' 90% of traditional orchards have been lost since the 1950s and remaining orchards are few and far between.

Traditionally managed orchards are those which use traditional, locally adapted varieties and that have been managed with few artificial inputs. Over the centuries, the traditional orchard environment has developed into a specialist habitat for an abundance of flora (plants) and fauna (animals). The tree sparrow, spotted flycatcher and the scarce noble chafer beetle rely heavily on these orchards for survival. Orchards also provide a beneficial habitat for bumble bees and can provide an area to graze sheep.

Effective management including the 'gapping up' of old orchards, restoring neglected orchards and planting new ones with locally grown varieties, will help to maintain this important landscape feature throughout the Kent Downs AONB.

Of course there are many 'commercial' orchards in the Kent Downs that are not managed traditionally, using more inputs and the lower growing modern varieties for maximising production and ease of harvest.





## The value of traditional orchards

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- A source of fresh local produce, often organically produced
- Contribute to distinctiveness of local landscape character.
- Provide a valuable habitat for wildlife.
- Local amenity/community value.
- Heritage/culture – keeping alive traditional techniques, customs and folklore.
- Contribute to local rural economy.
- Contribute to identity and character of Kent; the 'Garden of England'.
- Conserve local apples, cherries, plums and pears.

## What is 'gapping up'?

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This refers to the planting of trees equally off set in gaps between already established trees. A gap in a traditional row of orchard trees often occurs where a tree has died. A tree must not be planted in the exact same place because of Specific Replant Disease. Agricultural intensification and increasing maintenance costs have contributed to the decline of orchards in Kent. There is however a revitalisation of orchards as locally produced food demand gains momentum.



Gapping up

## Orchard management

### How do I decide how to manage my orchard?

Every orchard will be different from the next therefore further professional advice may be needed. This pack will provide you with the basis for orchard management.

## The two main types of orchards

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### Traditional orchards

Large trees planted in rows at regular spacing with a grass sward beneath, often grazed by livestock. Trees are planted at a low density of 150 per hectare. Traditional orchards are valuable for the local landscape, as a habitat for wildlife and for local community enjoyment. Management includes pruning, livestock grazing of sward or as a community orchard.

### Commercial orchards

Small, bushy fruit trees planted in closely spaced rows. Trees are planted at a high density of 2100 trees per hectare to maximise economic return. Commercial orchards are less valuable for wildlife and community enjoyment but still important nonetheless. Management includes pruning which is often done by specialist commercial orchard pruning contractors.

Management of orchards is essential for the trees to produce fruit, develop and grow healthily. The principles for managing traditional and commercial orchards are the same. Pruning trees is the most important form of management for any fruit tree. Additional management of a traditional orchard can be undertaken such as grazing livestock on the underlying grass or using as a community resource. Whether you embark upon more specialist management will depend on what you want to achieve from managing the orchard such as financial return, creating a wildlife habitat or providing an area for local community enjoyment.



Traditional apple orchard



Commercial apple orchard



## Restoring a neglected orchard

### Why does an orchard become neglected?

Neglected orchards are often suffering from a lack management, poor nutrition, pests, disease and weed infestation. To restore the orchard, it's important to establish its current condition, and the cause of any neglect that it may have suffered, as below.

### Contributing factors to neglected orchards

- Trees at the end of their productive life.
- Damage by pests and disease.
- Weeds competing for water and nutrients.
- Excessive shade due to overcrowding of branches.
- Unsuitable soil conditions; drainage or depth.
- Lack of pruning or incorrect technique.
- Damage by wind.
- Damage by wildlife.

Unless a tree is ridden with a serious disease such as 'silver leaf', restoration may still worth considering. This partly depends on your objectives for managing the orchard: an old or dead tree will provide an important habitat for orchard invertebrates and lichens, but this wood could also be kept in habitat piles if the orchard needs restocking with more productive trees.

### First steps ...

- Take a look around your orchard and record the flora and fauna present enlisting the help of professionals.
- Record the past and current management of the site and determine the aims of your orchard
- Use this to produce a management plan for your orchard which will steer the management of the orchard. Seek the help of professionals if required.



Neglected orchard

### How do I manage a neglected orchard tree?

Once you have established what caused the tree to become neglected, you are ready to begin pruning the tree. The objective of pruning a tree is to enable more light and air to reach all branches and the centre of the tree, encouraging growth and fruit production. Orchard trees require annual pruning.

### Why does a tree need pruning?

- To let light into the tree and create a good branch structure.
- To remove damaged or diseased wood.
- To encourage fruit production.

If a tree is not pruned, it will not generate new growth so the quality and quantity of fruit will decline. When pruning an old apple tree, you should try to obtain a 'wine glass' shape. This is achieved by encouraging branches growing laterally and removing ones going vertically. This enables the centre of the tree to remain open, maximising sunlight to remaining branches and increasing fruit production. Pruning old cherry trees is mostly limited to removing crossing, weak, diseased material and strong vertical growth.

If a tree is in really bad shape and will require a large amount of pruning to restore it, it is often best to undertake pruning over a two to three year period. This will help minimise shock to the tree and increase its chance of recovery, survival and future growth. There are two main types of neglected trees:

- Large and overcrowded.
- Small and starved.

The main difference to pruning these two types of trees is the amount of wood that is pruned. A large and overcrowded tree will require a large amount of pruning over two to three years. A small and starved tree will require less pruning but additional management of feeding, watering and weed removal. It may be advisable to establish a mulch around the tree.

### Pruning tools

- Secateurs
- Pruning saw
- Loppers (optional)
- Long-armed pruner (optional)



Apple orchard showing water shoots in need of pruning

### Winter vs summer pruning

#### Winter (October – April)

Recommended time of year to prune most fruit trees especially apples. The tree is dormant therefore limited damage is caused. Avoid frosty weather when pruning.

#### Summer (May – September)

Recommended time of year to prune for plums and cherries. Lowers the likelihood and severity of 'Silver leaf' disease developing as wounds heal quicker. Pruning other fruit trees in summer can reduce growth and wastes energy already used to produce leaves. Wounds need to be treated with a sealant paint to assist the healing process.



### Process for pruning an old/neglected tree

1. Remove dead, diseased or damaged wood back to a healthy branch.
2. Remove branches that cross back towards the trunk and vertical shoots or suckers in apples as these are water shoots. These shoots will not produce fruiting buds.
3. Select 3 or 4 main laterals for the structure of the tree. Cut back growth of leaders and laterals if not needed for structure.
4. Cut back new growth to half the total length if necessary for shape.
5. Do not prune out fruiting spurs (stumps and buds).

It is important that pruning cuts are smooth and done correctly. A clean, smooth cut will allow the wound to heal quickly. The best way to avoid branches splitting is to undercut the branch first and then cut from above meeting the undercut. A wrongly angled cut can result in the branch becoming susceptible to disease or even dying.

The photo opposite represents a badly pruned fruit tree. This tree is in a commercial orchard and has been cut using a chainsaw. The cuts are not smooth as splintering of the wood can be seen. These wounds will take longer to heal than if the cuts were smooth. A tree with open wounds like this is very susceptible to disease.

You may find that neglected trees are covered in ivy. Clearing the ivy from the tree will help the tree to thrive and make pruning easier. It is useful to stack dead wood removed from trees on site. Pile the wood away from the trees as this reduces the chance of any disease from the wood spreading to the tree. A dead wood pile provides a useful habitat for insects, lichens, fungi and small mammals.

### Correct way to make a 'heading back' cut

- Angle the cut away from a bud so rainwater will not collect there.
- Make the cut at a 45 degree angle.
- A cut angled too sharply will not heal properly.
- Ensure the cut is not too close to the bud as this will kill it.



Splintering wounds of branches cut incorrectly

## Planting a new orchard

### How do you plant a new orchard?

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Planting a new orchard or 'gapping up' an old one, will help to conserve orchards and ensure they remain a sustainable feature of the local landscape. Whether you are planting a couple of fruit trees in your garden or 'gapping up' a large-scale orchard, certain factors need considering prior to planting. One of the most important factors to consider is the variety of fruit grown in the local area. Traditionally grown varieties are often those which grow well in a certain locality without artificial inputs. It is possible to find out about local fruiting varieties by contacting local tree suppliers or nurseries. National Fruit Collections, Brogdale provides an identification service in which they can establish the specific variety of fruit tree from the fruit provided. Contact details can be found in the Appendix.

### Local conditions to consider

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#### Wind exposure

- A site that is too windy can cause problems for a fruit tree. It can be fatal to spring blossom, discourage beneficial insects so less pollination and can cause excessive fruit to be blown from trees causing bruising.
- If the selected site is windy, consider planting a 'shelter hedge' consisting of native species. Refer to the hedgerows section of this pack for further information.

#### Climate

- Does the site suffer from extremes in temperature? If the site is warm and sunny, can frequent watering be undertaken? May influence the growth rate and amount of annual pruning required.

#### Aspect (slope) and altitude

- Consider the gradient of the slope. A steep gradient could be problematic for retaining water. The bottom of a slope could have a higher frost risk.



New cherry orchard

- A lower altitude is preferable as it provides a warmer climate and minimises wind exposure.

#### Shade

- Too much shade can cause slower and late blossoming of trees. Fruit may not ripen properly and is likely to be smaller if a site does not receive adequate sunlight.

#### Frost risk

- Repeated and heavy frosts can severely affect the growth and survival of a fruit tree and the fruit.

#### Soil

- Consider the depth of the soil. Recommended to be at least 0.6m deep.
- Consider the drainage capacity of the soil. Waterlogging can cause roots to rot and a free draining soil can cause a tree to starve, without mulching.

#### Size of site

- Consider the size of the site. Do not cram too many trees into one site as they will not flourish.

## Factors to consider before planting

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### Aims

- Are you aiming to conserve and enhance traditional landscape character, wildlife habitat or are you aiming primarily for financial return? This will influence the size, type and density of trees planted.

### Surrounding landscape area

- Are orchards a feature of the local landscape? What types of fruit are grown? What specific local varieties of fruit are grown? Using varieties grown locally increases the chance of survival and enhances traditional landscape character.

### Local conditions

- Consider all local conditions stated on the previous page.

### Current state of the site

- What is the current use of the site? What was it previously used for? Does it need managing – mowing, ploughing or cultivating prior to planting?

### Type of fruit

- Consider what is grown locally as keeping with traditional varieties is important for the landscape.
- Important to use a reputable supplier and choose healthy trees.
- Consider any financial constraints that you may have. This will link in with type and quantity of plants, size of site and management limitations.

### Management limitations

- Have you sufficient labour to water, feed and prune the trees as required? Trees must be monitored regularly to check for occurring problems such as disease or starvation.
- Do you have the correct tools to carry out planting and aftercare?

## Rootstocks

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### What size tree?

Rootstocks affect growth habit, longevity, cropping and disease resistance. A standard tree, which is very vigorous, will take between

four and seven years to produce fruit; their lifetime will extend from between seventy to one hundred years. Larger rootstocks are less fussy about soil conditions. However, varieties vary as to their vigour independent of the rootstock, so all these factors need to be considered.

### Rootstocks for standard trees

- For apples, M25 produces a large vigorous standard and will need to be planted at least 7 - 9 metres apart.
- For cherries (*Prunus avium*) F.12.1 is very vigorous and ideal for planting standard cherry trees at 8 – 10 metres apart.
- For pears (*Pyrus communis*) however, they are often planted on their own roots and can make a very large tree. 10 – 20 metres apart
- For plums the Brompton rootstock is suitable for standards. 7 – 9 metres apart.

### Pollination

The transfer of pollen from the anthers (male part) to the stigma (female part) of a flower with the possibility of pollination, primarily carried out by insects, mainly bees. Traditional orchards use a 1:4 or 1:9 square planting pattern to ensure maximum possibility of pollination. Very few fruit trees are self-fertile meaning they will not pollinate themselves so at least two varieties are needed within the orchard to set fruit. Cherries have pollen incompatibilities so contact a local supplier or National Fruit Collections, Brogdale Horticultural Trust for advice.

## Factors to consider when choosing a fruit tree

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- Use a reputable supplier.
- The tree should be a good shape.
- The tree should be in good health. Mildew is a sign of an unhealthy tree.
- Select a tree with the smallest amount of green lichen and algae.
- Check leaves are large and of a healthy colour. Small and pale leaves indicate starvation.
- Check for strong shoots.
- The tree with the largest amount of blossom on will not necessarily produce more fruit.



Once you have chosen the variety, size and location of the tree, you are ready for planting. The following provides a thorough guide of the process and considerations needed when planting a fruit tree. It is best to plant trees in winter when they are dormant as they are more likely to adjust to the local conditions successfully.

### Preparing the tree

- Heel trees in if not planting straight away. Dig a large hole and place trees in.
- Trees can be bunched together as long as all roots are covered. Trees should be planted within the week.

### Preparing the ground

- It is beneficial to subsoil the soil prior to planting. This should be done down the line of planting for the trees.
- Mark out holes in advance. Traditionally bush trees are 4 – 5 metres apart, half standard 7 – 8m apart, standard (large, fully established trees) 10m apart depending on species.

### Planting the tree

- For whips (young tree with few branches), dig a hole 0.5m deep per tree. Dig holes at the same time as planting rather than in advance.
- Before placing the tree into the ground, wet the roots by dipping in a bucket of water.
- Place the tree roots firmly in the hole. Trim any long roots to ensure all roots fit into the hole.
- Place a stake next to the tree which protects the tree from wind damage. Put in about 0.5m away from the tree when it is planted. Use a soft cloth to tie to minimise damage to the tree.
- When refilling the hole, do not stamp the soil too hard as this can cause compaction making it difficult for water to get to the roots.

### Feeding and watering

- Protect the tree trunk with a shelter or wire netting especially if rabbits or livestock are nearby.

- Keep one metre diameter circle around the tree free from weeds and grass for the first five years. This reduces competition for water and nutrients by weeds.
- Mix green compost with the soil to help feed the tree.
- Renew the mulch every spring to a depth of 10 – 15cm with straw.
- Water the tree after planting.
- The tree initially requires a good watering once a week, not just a sprinkling!
- Reduce the amount of watering in autumn to enable the tree to prepare for winter dormancy.

### Initial pruning

- Prune away feathers that are under 0.75m on the trunk.
- If planting in autumn or winter, prune in late winter.
- If planting in spring or summer, prune immediately.
- During the following winter after planting, select between four and six feathers to provide the main structure for the tree. These need to be lateral and at an angle less than 45 degrees.
- Once the tree is established, prune back the previous year's growth by a third, ensuring any dead and diseased wood is removed.

### What is mulch?

A layer of straw which helps retain water and reduces weed infestation around the tree. A mulch consisting of a mix of compost and bark chippings could be put around the trunk of the tree and can provide nutrients to the tree instead of straw.

### What are 'feathers'?

The shoots found on a young tree. Overtime they will develop into branches and form the structure of the tree.

## Community orchards

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Traditional orchards are now used by people as a place to amble through and for picnicking. If you have a neglected orchard particularly if it is in a public area accessible by the local community, consider managing your orchard for community benefit. It may be necessary to create a path through the orchard to encourage people to walk through as they wish. Encouraging an orchard to be used by the community makes people aware of orchards and their importance in the landscape, providing fresh local fruit and providing a haven for wildlife and for people.

## Grazing an orchard

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Livestock grazed the grass sward beneath traditional orchard trees. It is still possible to manage a traditional orchard using this technique. Alternatively, it may be possible to mow the grass, although this is not a traditional technique. It is important to graze in late summer after wildflowers have set seed.

If your priority is economic return from a commercial orchard, then you may want to mow the grass three or four times in the summer. Mowing is not the recommended conservation regime to use due to the negative effect on wildlife. Please refer to the section on Meadow Grassland in this Land Manager's Pack for further details on grazing and cutting regimes.

### Benefits of grazing

- Control grass and weeds.
- Add fertility and nutrients.
- Economical option.
- Enhance appearance of orchards.
- Easy method for maintaining a short sward.
- Create a varied habitat for wildlife.
- Less damaging to wildlife than mowing.

### Considerations of grazing

- Livestock to use. Sheep are best as they graze all of the sward evenly right up to the trunk.
- Stockproof fencing will be required.
- Wire netting and tree guards will be needed.

### How can I stop pests and diseases affecting my tree?

Pests and diseases can pose a problem to fruit trees, with newly planted trees being even more susceptible. Many problem pests can be eradicated if appropriate management is undertaken and continued. Choosing locally grown varieties of fruit trees helps to minimise the prevalence of disease. Pruning helps control scab and canker by removing damaged leaves and branches.

Chemical control of pests is not necessarily the best option to eradicate a problem as it can deter beneficial insects. Instead encourage insects such as ladybirds which eat greenfly, bumblebees and blue tits which will eat pest species. These should flourish in your orchards if no chemical spraying is undertaken. For example, codling moths cause maggoty apples and can be discouraged by the presence of their natural predators such as earwigs and blue tits. Sources stated in Appendix should be able to provide further advice on organic methods of pest control.

### Insects to encourage

- Ants.
- Ladybirds.
- Bees.
- Hoverflies.



## Other types of orchards in Kent – cobnut plats

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A type of hazelnut known as 'Kentish Cobnut' because of its Kentish origin is also known as Lambert's Filbert. It used to be a major industry in Kent, however this valuable landscape and conservation resource has been in rapid decline since the last war. Even though more cobnuts are grown in Kent than any other county, cobnut plats are declining as they are subjected to the same threats as orchards. New varieties are being planted and there is growing interest in plats for their landscape, commercial, historical and wildlife benefits. The Kentish Cobnuts Association has produced several booklets on cobnuts and can be contacted for further advice (see Contacts).

## Frequently asked questions

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### Why are my apple trees not fruiting?

This could be for a variety of reasons. It could be that the tree has not been pruned correctly so no new fruiting wood has been produced. There could be a lack of pollinators such as bees, so pollination has not occurred or just one variety of fruit tree. Some varieties are self-fertile but the majority of varieties require another pollinator variety to set fruit. Bramley is a triploid so it requires two varieties to set fruit. Also apple trees can become biennial (flowering every other year) if a large fruiting crop was produced the previous year. Ensuring the correct pruning is undertaken in winter should help the fruit tree to regenerate fruit.

### I have just moved into the area and have a small orchard. I have no idea what to do with it!

The most important thing to do is ensure that the trees are managed. Fruit trees need annual pruning to keep them in shape and to encourage fruit to be produced. Your trees may need watering in the summer and should be fed by renewing the mulch layer every year. This pack should provide you with the basics needed for orchard management, whether it is a large scale orchard or a couple of fruit trees in a garden.



Cobnut plat

### There are so many types of apple trees, I don't know which ones to plant!

To maintain the traditional varieties grown in the locality, for example, if the local variety of apple grown is Kentish Fillbasket, then it is advisable to plant this variety. This will help enhance and retain local distinctiveness of the surrounding landscape area. Planting a locally grown variety is more likely to be successful than one that is not normally grown in the area. National Fruit Collections, Brogdale provide an identification service using fruit if you are unsure which varieties are grown in your local area.