

How to grow a tree from seed

Seed  to sapling 

Where to collect seed

Ancient and semi-natural woodlands or ancient hedgerow are ideal places for collecting seed.

You need to get permission from the landowner to collect seeds, even if you are using a public right of way. A site with special protection such as a National Nature Reserve or Site of Special Scientific Interest will also require government permission.

You can check if a woodland is ancient using [Magic Maps](https://magic.defra.gov.uk/magicmap.aspx) (magic.defra.gov.uk/magicmap.aspx). Select 'Ancient woodland' under the 'Habitat and species/Habitat/Woodlands' section.

It is good practice to collect seed near to where the new trees will be planted and to store the seeds from different species in separate clearly labelled bags or containers. Record the date and location the seed was collected ([Grid Reference Finder](#) may help with this) and keep track of the label during the growing process so any source of disease can be identified.

When to collect seed

It's important to collect seeds at the right time and not to collect more than you need. Be careful not to remove buds, and it's better to collect a few seeds from a number of different trees to vary the genetic stock.

The best time to collect is when seeds or nuts are ready to disperse naturally, but avoid the first to fall as these can often be poor quality. Do not keep seeds in sealed or non-breathable containers for any length of time as the seeds become too moist.

Fruits should not be piled too deeply and are best stored in a cool, dry place (a fridge is ideal), in hessian, cotton or paper bags until they are ready to be extracted.

Types of seed



Fruits

Stones, pips or seeds need to be extracted and any flesh removed to reduce the likelihood of pests and diseases affecting the seed during storage.

Berries can be gently squashed to remove the seed from the skin and flesh. This can be done by hand for small quantities or by using a rolling pin and sieve to rinse them. For larger quantities the flesh can be removed by mixing the berries with water and squashing with a potato masher or similar to separate the seeds that will sink to the bottom. The seeds of all fleshy fruits need to be stratified (see next page) over the winter.



Winged seeds

These seeds can be planted with the wings left on, although it can speed up germination if the seed is removed from the outer casing.

If the seeds are to be stored for any length of time before stratifying (see next page), the seeds should be laid out and turned every two days until they are dry.

More information on extracting seeds can be found at treegrowing.tcv.org.uk/grow/extraction



Nuts

To check if your collected acorns or hazel nuts are healthy take them out of their husks or cups and drop them into water. Any that float should be discarded as they will not grow.

Nuts should then be sowed immediately to avoid them drying out – which will kill them, or can be stratified over winter to allow the radical to appear (first root). This process called 'chitting' involves keeping the nuts outside in a bucket with a light, damp mixture of leaf mould or sand and compost until they germinate.



Cones or bracts

These should be collected just as the cones or bracts turn from green to brown and left to dry naturally in an open box or large paper bag. Avoid direct heat from the sun or a radiator or fire and shake as they dry to dislodge the seed. When they are completely dry the seeds should be stored in a cool, dry place until ready to be sown.

How to stratify your seeds

Check our [Tree growing calendar](#) for details on the timing and process required for different tree species.

Some seeds can be planted directly into a pot of soil. Others will need the flesh of the surrounding berries removed and a dormant phase (stratification) of at least one winter before planting.

1. Use an equal mix of peat free compost and a coarse material such as sharp sand, bark or grit.
2. Mix the seeds with an equal volume of your stratification medium and put them in a well- drained container or bucket with a mesh lid to keep birds or animals away.
3. Keep the container outside, protected from frost and ensure the mixture is kept moist but not saturated.
4. In the spring, tip out the mixture and any seeds that are showing small shoots or roots are germinating and should be quickly sown.
5. Put any seeds that haven't grown back into the stratification medium and check every week during spring.
6. If some seeds haven't germinated by the end of spring, don't be disheartened as they may need two winters to germinate.



How to sow your seeds

Once the seeds have germinated they can be removed from the stratification mixture and sown. Alternatively you can sow all the seeds when some have started germinating in the hope this is an indication that the remaining seeds will soon also start growing.

To sow your seeds follow these steps:

- Fill small pots or root containers with peat free potting compost.
- Sow a single germinating seed or pinch of small seeds in each pot.
- Small seeds can be placed on the surface and covered with a thin layer of compost whilst larger seeds can be planted to a depth of about one and a half times their length.
- Ensure the pots have good drainage and are watered regularly so the compost remains moist.

Find out more

- [Tree Growers Guide](http://treegrowersguide.org.uk) (treegrowersguide.org.uk)
- [The Conservation Volunteers \(TCV\)](http://treegrowing.tcv.org.uk/grow/collecting) (treegrowing.tcv.org.uk/grow/collecting)
- [Growing Trees from Seed - The Tree Council](http://treecouncil.org.uk) (treecouncil.org.uk)
- [Tree Planting Guide - The Tree Council](http://treecouncil.org.uk) (treecouncil.org.uk)
- [Grow More Trees: Autumn Seed Search guide](http://cornwallwildlifetrust.org.uk/growmoretrees) (cornwallwildlifetrust.org.uk/growmoretrees)
- [Walking with Trees - Glennie Kindred](http://glenniekindred.co.uk) (glenniekindred.co.uk)

Seed to sapling

The Seed to Sapling project, run by Yorkshire Dales Millennium Trust, helps to ensure the right trees are available to plant in the Yorkshire Dales by creating community nurseries where native saplings are grown from local provenance seed.

The project supports local communities to set up their own micro nurseries, as well as providing opportunities for volunteers to get involved and take practical action for nature.

We're very grateful to the many partners who have funded this project.

Find out more at
www.ydmt.org/seed2sapling



Yorkshire Dales Millennium Trust | Main Street, Clapham
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How to grow a tree from seed

Seed to sapling

Once your seeds have germinated (see Part I of this guide) the young trees will need nurturing - watering, weeding and feeding - so they grow healthy and strong. If spring has arrived and your seeds have not germinated, don't give up hope! Many seeds can take at least two winters to germinate and so it is definitely worth leaving them for another year.

Pricking out and potting on

If your germinated seed has remained in a seed tray to grow into seedlings they will need moving into a larger container or growing bed.

Your seedlings will first develop seed leaves (Cotyledons) as they start to grow. Wait until the second set of leaves have grown before you prick them out. These leaves will look like the leaf of the adult tree and mean that the tree has developed a root system strong enough to cope with being transplanted.

Fill all your containers ready with compost and then make a hole with the prodder deep enough for the seedling roots to be fed in. If using a plastic pen as a prodder you can rub this on your trousers or sleeve to create a static that can help with feeding the roots gently into the hole (see [The Tree Growers Guide - video](#) for this process).

Lift the seedlings from their germination tray using a lollipop stick or similar to go right down under the roots and lift gently holding the leaves rather than the stem. Once in the pot firm down the compost and water the seedlings thoroughly but lightly with a mist or fine watering can rose.

What you'll need



Containers

Root trainers are ideal as they take up little space, encourage vertical growth, are easy to transport and enable the root ball to be removed easily. The container can then be re-used. If you would rather re-use other containers make sure they are clean and have good drainage holes.

The size of the container should be determined by the tree species and how long you intend to leave it in the container before it is planted out. Faster growing species (eg. alder, rowan, hazel, birch, willow) may be ready for planting after one year in a 1-2 litre container.

Slower growing species (eg. holly, oak) will need longer to grow and so it may be best to plant them in a 2 litre container from the start.



Compost

It is important to use freely draining peat-free compost that retains moisture and also allows air through to the roots. Adding horticultural grit or coarse sand can help with this.

Do not be tempted to use garden soil as this is heavy and will not drain well. Look for a reputable supplier of compost that has been heat treated to kill any pathogens and has certification such as PAS 100 (Publicly available specification for composted materials).



Equipment

Gloves, prodder (plastic pen or similar), lifter (lollipop stick or similar), labels (waterproof or wooden), permanent marker, watering can with rose.

Care for your seedlings

Although our native trees need plenty of light to grow healthy and strong they do not like high temperatures and may need protecting from scorching on hot sunny days and frost during winter.

Horticultural fine-mesh netting can be used to help protect the growing trees from the elements as well as from birds and insects including butterflies, whose caterpillars can quickly defoliate trees.

Water the young trees regularly so that the compost remains moist but is not waterlogged. The trees will also benefit from a well-balanced liquid plant feed during the growing season or a slow release fertiliser could be used.

Carefully remove any weeds that appear as soon as possible to avoid disturbance to the trees delicate roots.

Protect against pests and diseases

Adopt good growing and biosecurity techniques to protect your growing trees from the increasing number of pests and diseases.

‘Damping off’ is a condition caused by fungi and other organisms in the soil that will kill seedlings even if they are growing well to begin with. Seedlings die off in clumps or entire trays and unfortunately there is usually little hope of saving them. To prevent this and avoid great disappointment follow these steps.

- Use a certified, commercial compost.
- Keep the containers in a well-ventilated area, protected from birds, mice and other animals.
- Avoid overcrowding and keep different species separate and clearly labelled.

- Use clean and fresh water – if collecting rain water ensure the collection tanks are kept clean.
- Use clean equipment including watering cans and any tools.
- Avoid growing the trees near any standing water.
- Use shoe dips containing a disinfectant to help prevent the transfer of soil-borne diseases.
- Check your plants regularly for any signs of disease. For more information visit [The Tree Growers Guide](https://treegrowersguide.org.uk/wp-content/uploads/2022/11/Trees-from-Seeds.pdf) (treegrowersguide.org.uk/wp-content/uploads/2022/11/Trees-from-Seeds.pdf)
- Keep an eye on any mature trees and shrubs near to your growing area.

Once your trees are about 30 to 40cm tall, after one or two years, they are ready to be planted out into their final position.

**Congratulations and many thanks
for all your hard work helping
to grow trees for our future!**

Find out more

- [Tree Growers Guide](https://treegrowersguide.org.uk) (treegrowersguide.org.uk)
- [Tree Growers Guide video](https://youtu.be/D4HM-NYlx-W4?si=dnRYdkHQ1OOUbQFA) (youtu.be/D4HM-NYlx-W4?si=dnRYdkHQ1OOUbQFA)
- [Miresbeck Nursery video](https://youtu.be/BhDVIDjn-Vrc?si=pKlj8klKxV01-1Zo) (youtu.be/BhDVIDjn-Vrc?si=pKlj8klKxV01-1Zo)
- [The Conservation Volunteers Tree Growing Guide](https://treegrowing.tcv.org.uk/grow/sowing) (treegrowing.tcv.org.uk/grow/sowing)
- [The Conservation Volunteers Tree Growing Handbook](https://treegrowing.tcv.org.uk/wp-content/uploads/2019/09/handbook.pdf) (treegrowing.tcv.org.uk/wp-content/uploads/2019/09/handbook.pdf)

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