Your tree planting companion

Teagasc

Agriculture and Food Development Authority

Teagasc is the state agency, which provides advisory, training and education support to the agri-food sector and wider bio-economy.

Teagasc's Forestry Development Department focuses on providing support to new and existing forest owners in Ireland. Our team of researchers carry out their work at our Teagasc research centres at Ashtown, Athenry and Carlow. In addition, we also have research trials in forests throughout the country.

We benefit from having many collaborations both nationally and internationally.

Our advisers, supported by this research capacity, are located around the country and provide support regionally.

Being part of a larger organisation strengthens us and gives us additional capacity and the ability to be more efficient.

If you want to find out more about the various programmes we are involved in or contact one of our staff, you can check out our website: www.teagasc.ie/forestry.

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Foreword

Singly or in groups, in small or large areas, there is always space to plant trees and create a magical resource that will deliver numerous benefits. This publication brings you, the reader, through the key stages to successfully plant and look after trees, regardless of context, scale, or objectives.

People plant trees for many reasons. This guide is a very practical companion on your planting journey. It highlights the importance of setting your objectives and careful, timely planning.

Of particular importance is considering what you want trees to deliver for you and the type of trees that match the planting location you have in mind. Once a suitable site is chosen, careful preparation and planting is essential. Follow-up care and protection, as your trees establish, will pay dividends for you. And of course, turning your woodland into a wildlife haven is a further wonderful bonus many wish to aim for.

Strong support is available to inform your decision making. Teagasc Forestry Development Department staff are available to support you, providing independent and objective advice on the key aspects of planting, including your objective setting and planning.

This support is available via one-to-one contacts or through a range of initiatives designed to share knowledge. We are contactable through local Teagasc offices or through our informative website, www.teagasc.ie/forestry. Our forestry advisers also hold many events to demonstrate what is involved in tree planting and aftercare. Do remember to look well in advance at attractive schemes and financial supports that may be available.

Teagasc sincerely hopes this planting companion will inform and inspire you to create your own magical tree resource that will continue to deliver and be valued by future generations.

Tom Houlihan
Acting Head, Forestry Development Department, Teagasc

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Chapter 1

Getting started – key areas to focus on

Getting started: key areas to focus on

- **Consider the purpose of trees**
- **Dig a test hole, checking soil and water table**
- **Plan access to and among the trees**
- **Take present ecological value into account**

There are many reasons to plant trees, including for pure personal enjoyment, doing something positive about climate change by capturing carbon, restoring degraded habitats, improving water quality, providing shelter or privacy, growing firewood, and at the same time producing top quality timber. Several of these objectives can be combined with careful planning.

Check with your local Teagasc Forestry Adviser what financial support may be available.

First of all: decide on your reasons for planting trees.

Work with what is present already rather than removing trees. They will provide great shelter and may have ecological value.

Digging a test hole will tell you a lot about the soil you have.

It is a great idea to work with existing 'scrub/trees' rather than removing such an ecologically valuable habitat. For instance, an area with a lot of willow or hazel may be enriched by clearing small areas where appropriate tree species such as oak can be planted. The newly planted trees will benefit greatly from the shelter provided by the more mature trees.

Soil knowledge is vital for successful tree growth. This can be determined by digging a small test hole using a spade. The uppermost (and nutrient-rich) darker layer will hopefully be over 30 cm in depth. Soil can vary from heavy clay (sticky soil that if rolled between fingers will form a little sausage) to very sandy soil causing water to drain quickly. Soil can also be peaty: very black and spongy. Which trees will suit which soil will be discussed in the next chapter.

It is very important to check what drainage is like as this will determine what trees can be considered: most tree roots will not grow well in water. This can be tested by pouring a bucket of water into the test hole. Additional drainage may be required if it takes 24 hours for the water to drain away.

Keep in mind that wet areas can be ecologically rich. Rather than drying out the area extensively, consider trees that thrive in those conditions such as willow and alder.

One of the most important -and often overlooked- practical aspects when planting trees is providing adequate access into and through the trees. Consider where the access to the woodland will be and have at least one dedicated - and maintained - path meandering among the trees. To be able to walk in comfort amongst your own trees is not only useful but very special too.

A path through a woodland is both practical and magical.

Chapter 2

The right tree in the right place

The right tree in the right place

- **Choose the right tree for the right place and purpose**
- **See table on page 58 for suggestions**

Over 500 tree species grow well in Ireland: picking the right one isn't always very easy. The table on page 58 shows a selection of common native and non-native trees. The table shows which trees prefer dry or wet, heavy or light, acid or alkaline soil. For instance, alder and willow do better in damper soil whereas beech prefers to keep its feet dry. The table also indicates which trees are suitable for coastal and/or exposed areas.

Birch is a typical pioneer species: it is a prolific self-seeder, strong light demander, fast grower, is able to colonise adverse areas and is relatively short-lived.

Keep in mind that most trees prefer plenty of light to grow well, and only a few will tolerate shade. Holly, elder, blackthorn and beech can withstand some shade.

People may wish to commemorate special occasions such as the birth of a child by planting a tree: as the child grows so does the tree! Choose carefully, the sapling planted close to the house, may eventually dominate and create a risk to the house. Choose a small tree or plant further away from the house. The table indicates the size trees may grow to.

It is advisable to go for a faster growing tree such as alder, birch or wild cherry if shelter, screening or immediate impact is required. Yew on the other hand, grows very slowly:

it will be a long time before making any impact. It will outlast any other tree as it can become extremely old, much older than oak or even lime. Avoid short-lived trees such as poplar, elder or birch if you wish your tree to last for generations.

Of the 100,000 tree species known worldwide, only 28 or so are native to Ireland. These native trees tend to be more ecologically valuable. Native trees grown from local seed are even more valuable as they have adapted through many generations of selection to the local growing season and conditions and to the local bird, insect, fungi and bacteria populations. It is advisable to go for a walk in your own area to see what is growing well naturally. Your selection should mimic these.

Rather than planting a single tree, it is much more valuable to plant clumps of native trees connecting them to adjoining habitats such as woodlands, hedgerows and rivers.

Certain tree species live together well.
Typical Irish ecologically valid mixtures are as follows:

- Oak with hazel (the upper canopy is made up of oak with hazel underneath)
- Oak, birch with holly, rowan
- Oak with hazel, hawthorn, holly, spindle
- Oak, alder with willow, hazel, holly
- Alder with willow
- Birch with holly, rowan
- Scots pine with birch, willow, rowan

The table also indicates which trees make good firewood or indeed quality timber. High quality, high value timber is produced by letting well-nurtured trees grow to larger diameters. The production of top quality timber will require regular, hands-on management as the trees grow to maturity.

Some trees, when cut down at ground level, will resprout from the stump. This is called coppicing and is a very practical and traditional way of growing firewood. The new shoots are allowed to grow for 7 to 30 years depending on the species.

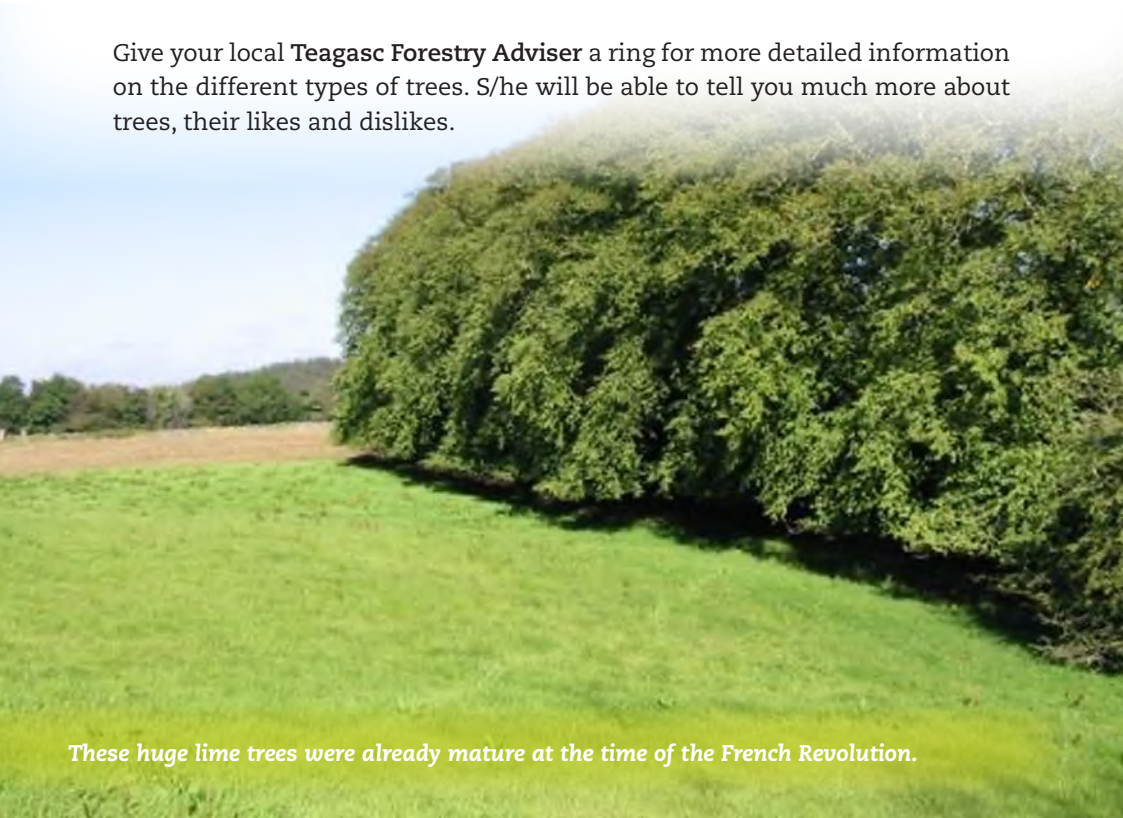
Tree identification books and apps are very handy in identifying the trees around us. Soil type, shade conditions, desired height, exposure levels, ecological value, timber/fuelwood potential and prospective age all play a role in deciding what trees to plant where. Here are some useful titles you may be able to find in the local library:

- Trees in Britain, Europe and North America; Roger Phillips, MacMillan
- Trees of Britain and Europe; G. Aas, A. Riedmiller, Collins Nature Guides, HarperCollins
- A Field Guide to the Trees of Britain and Northern Europe; Alan Mitchell, Collins

Useful apps include: *Seek by iNaturalist, Tree Id and Winter Id by Sunbird.*

When considering a single, really attractive tree for the garden, then *John Cushnie's "trees for the garden"* ***is an excellent book*** with great photographs *(published by Kyle Cathie, 2002)*.

Give your local **Teagasc Forestry Adviser** a ring for more detailed information on the different types of trees. S/he will be able to tell you much more about trees, their likes and dislikes.



These huge lime trees were already mature at the time of the French Revolution.

Spindle is a striking tree native to Ireland that will do well on more alkaline soils.

This is one of the two famous yews at Crom, Co Fermanagh. Most believe it to be over four hundred years old. Some believe it to be more than one thousand years old.

These crack willows have a very high ecological value.

Chapter 3

Where to plant trees

Where to plant trees

- Consider different locations to plant trees

No farm, garden or home is complete without trees. They provide many wide-ranging benefits. This chapter suggests suitable locations for planting trees and what to watch out for.

Before you start, check with your Teagasc Forestry Adviser if financial support is appropriate and available for your tree planting project.

Along lanes and roadsides
Trees along driveways must be chosen for their colour, appropriate size/diameter and shape. They should provide year-round interest. Don't plant too close to the road (or fence), as they'll expand in height and girth. Cherry tree roots in particular can lift road surfaces if planted too close. If space is limited, then a clump of distinctive trees at the entrance such as rowan can make a fantastic impact. Use the tree species table on page 58 for help choosing the right tree(s).

Laneway trees become beautiful landscape features.

Around the house or farmyard
Trees can make houses - both new and old - blend into the countryside so much better.

Make sure not to plant too close to houses (keeping light and future extensions in mind): the distance to any building should not be less than the eventual average height of the tree. It is much more attractive to plant trees in groups rather than in lines. Avoid planting poplar trees as the wood is brittle. Poplar tree roots can also block drains and even undermine foundations.

Trees help houses blend into the landscape: note smaller trees near the house, taller trees away from the house.

In hedgerows
The easiest way to introduce (more) trees into hedgerows is by identifying a suitable tree shoot such as holly within the hedge and avoid trimming it. Within three to four years, a nice little tree will have grown up.

Another method is to cut a gap in the hedge, loosen the soil and then plant a suitable tree sapling. Such saplings will require regular feeding, weeding and watering for the first couple of years. Promote trees such as rowan, cherry,

crab apple, oak (or willow, alder and birch in damper places) but avoid beech, chestnut and sycamore as they will cast too much shade on the hedgerow.

Trees can be easily introduced into hedgerows.

Along streams and riverbanks

Streams and riverbanks are very important corridors for flora and fauna through the landscape. Planting and encouraging suitable groups of trees along riverbanks can enhance this interconnectivity greatly. Common alder is an excellent choice as it will stabilise riverbanks, fix nitrogen and can tolerate damp conditions. Also include willow, hawthorn, blackthorn and hazel. Tree cover along rivers and streams will safeguard against temperature extremes. For this to be effective, leave open sections so that aquatic life have a combination of sunlight and shade. Avoid planting opposite sides if access is required.

Trees stabilise riverbanks and help control water temperature.

In field corners

Field corners are often under-utilised areas. They often develop naturally into ecologically rich areas through the development of native flora. Planting native trees such as oak, rowan, cherry, alder, willow and birch can speed this process up. Smaller trees and shrubs such as hazel, hawthorn and blackthorn can be mixed in, creating a shrub layer. Such a field corner will develop into a very rich wooded habitat, especially if these four adjoining corners can act as biodiversity corridors by connecting to existing hedgerows.

Underused corners can be developed into something much more valuable using trees.

Individual specimen trees look very impressive.

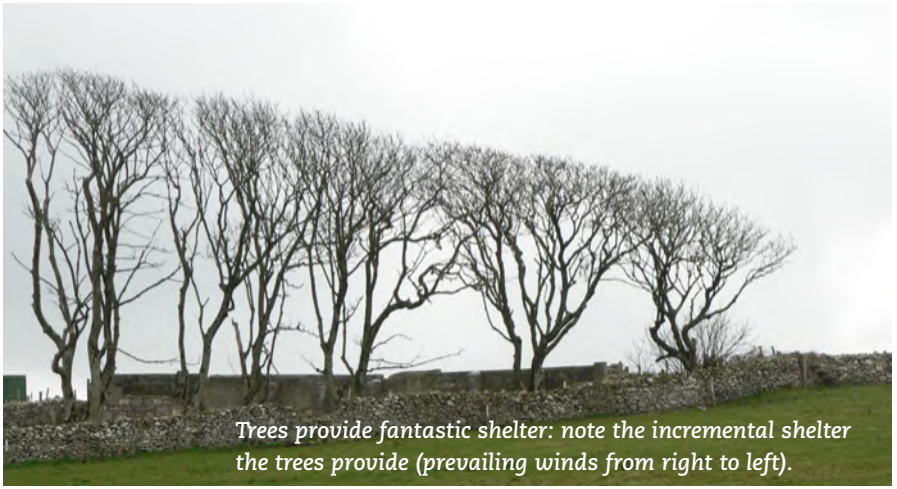
In a parkland setting

Some parkland landscapes still have majestic trees. For instance, have a look at Thomas Pakenham's excellent book "Meetings with Remarkable Trees". Regrettably, numbers are dwindling due to their age. Choose a tree for its longevity, shape and colour. When planting these individual trees, consider planting 'standard trees' (approx. 2 m tall) for immediate impact. Provide sturdy fencing at least 1.5 m from the tree.

Oak is a good choice. Lime, horse chestnut or even sycamore are faster growing alternatives. Be aware that some trees can be poisonous to humans and/or livestock.

As a shelterbelt

Trees create fantastic shelter resulting in a much improved microclimate. They are especially useful in coastal, exposed and upland areas. It is generally advisable to plant from a NW to a SE direction. The wider this shelterbelt, the more effective it will be. Avoid using species such as Leylandii as they very quickly outgrow their allotted space, are short-lived, create wind turbulence and don't fit in well to the landscape. Go for a mix of tall and small trees that will slow down wind rather than blocking it.



Trees provide fantastic shelter: note the incremental shelter the trees provide (prevailing winds from right to left).

Near ponds

Trees near water can play an important role in attracting waterfowl and providing refuge for a range of organisms. Trees provide food, shelter, screening and nesting areas. As with shelterbelts and field corners, try to connect these trees to existing woodlands and hedgerows. Only work with appropriate native trees such as willow, alder, hawthorn, blackthorn and hazel avoiding ornamental garden plants. Most trees should be kept 15 m from the water's edge. Smaller trees such as alder and willow can be planted closer. Plant most trees on the northern and western side of the water and smaller tree groups on the other sides dependent on the size of the pond.

Trees provide all-important shelter, screening, food and nesting places near ponds.

Chapter 4

The importance of careful planting: a good start is half the work

The importance of careful planting: a good start is half the work

- **Buy good quality trees of the right size**
- **Care for recently bought trees**
- **Plant trees well**

It is important to be able to recognise a good quality tree because trees of poor quality will not grow up to be tall and healthy.

Trees can be bought from a nursery, in a local garden centre or by mail order. They can be bought as bare-root trees in winter, as cell grown (plug) trees or as potted trees. Prices may vary considerably. Trees of true native Irish seed origin tend to be difficult to find and more expensive.

It is useful to check the quality of the trees before buying. The very first thing to look out for is to see how they are looked after. Bare-rooted trees should be left in the soil as long as possible. Once they have been taken out of the nursery soil, they should be kept in heavy, co-extruded plastic bags, stored side by side in a cool, dark, frost-free, dry place. The roots should not be exposed to the air.

A good quality tree has compact and bushy roots. The root collar (where roots become stem) should be preferably over 10 millimetres thick (that's thicker than a biro). The stem is straight and the top should be intact, not broken off. A good tree size to buy is a height of 45 to 100 centimetres. The more sheltered the planting area, the taller the trees that can be considered. Planting tall trees in exposed locations will result in dieback.

Tree roots: check tree roots before buying your trees (left: good quality, right: poor quality).

Trees can also be bought online.

Make sure to only buy from a reputable supplier as you can't check tree quality before buying.

It is important to use area-specific seed sources where possible. This means that tree seed comes from an equal climatic region. For instance, spring comes to Cork one month earlier than to Donegal. An oak tree in Donegal grown from a Cork acorn will come into leaf much earlier and may well be stunted and small due to repeated spring frost damage.

Frost damage: seed from different climatic conditions may result in repeated frost damage.

Seed from genetically inferior and/or inappropriate trees will not produce good quality trees.

Bare-rooted broadleaf trees can be planted from the beginning of December to the middle of March. For best results, plant before St Patrick's Day. Conifers can be planted in April too.

Bare-rooted trees

The best way to plant bare-rooted trees is by digging a hole, putting the topsoil to one side and placing the tree in the planting hole with the roots spread out evenly.

Replace the soil over the roots ensuring that no roots or bark are damaged. Firm soil around the roots gently and carefully and replace the sod grass-side down.

Planting depth is indicated by the soil on the root collar: planting too deeply may result in the tree rotting away while planting too shallowly will result in the tree drying out.

Plug trees

Trees are also available as cell-grown plants (CGPs) or plug trees. They are more expensive than bare-rooted trees but can be planted over a much extended planting season and tend to be easier to plant.

Plug tree: plug trees may have many advantages albeit more expensive.

Potted trees

Dig a sufficiently large hole.

Remove the pot, place the tree in the planting hole without disturbing the root ball.

Soil is then carefully replaced around the root ball and gently firmed in.

Avoid buying any trees with pot-bound roots.

Trees should be planted as soon as possible after buying. Avoid exposing the roots to the air, not even for a few minutes. Soak bare-rooted tree roots for an hour in water just before planting. Take the trees from the bucket of water and place in a strong plastic bag. Plant directly from the bag one tree at a time, thus minimising root exposure to the air. Do not plant in very wet, windy or frosty conditions.

Newly planted trees will not need any fertiliser in good quality soil. If any fertiliser is required, use some chicken manure pellets, rock phosphate or well-rotted farmyard manure mixed in through the soil. Avoid the farm yard manure from coming into direct contact with the roots. Watering during a dry spell following planting is very important to prevent newly planted trees from drying out and to help establishment.

Trees must be planted with care to provide the best conditions for successful establishment.

Correct stake: these trees are staked correctly at approx. 1/3 of the tree height.

Wrong stake: these ties are placed too high up the stem and will result in a weak stem that is easily broken.

Most trees that we plant are small and do not need staking. In fact, staking a tree is often more damaging than beneficial.

However, trees that are two or even three metres tall can be considered where immediate impact is required. These trees are very expensive and need a lot of care to survive. Diligent watering and feeding is essential. Such large trees will require sturdy staking. This staking needs to be removed once the tree is established.

Planting such trees requires a lot of preparation. This work needs to be carried out by two people. The planting hole has to be very large (1 metre across) and improved with fertiliser. Stake(s) are knocked into place after which the tree will be planted fairly close to the stake. While one person is holding the tree, the other person replaces and firms the soil carefully. A rubber tie is used to tie the tree to the stake(s) ensuring that the tie crosses between the stem and the stake to avoid chafing damage to the bark. The appropriate height for the tie is roughly one third of the tree height to stabilise the roots rather than immobilising the stem from swaying in the wind. Trees tied any higher will result in weak stems.

Check ties regularly to avoid strangulation.

Planting good quality trees now, will result in much healthier, better growing trees later on.

It is important to check staked trees regularly to avoid damage (chafing damage shown here).

Chapter 5

Good aftercare: the difference between success and failure

Good aftercare: the difference between success and failure

- **Control vegetation around newly planted trees**
- **Protect trees from animals**
- **Check your trees regularly**

Trees need all the help they can get to establish in their new surroundings. Grass and weeds compete very aggressively with young trees for light, water and nutrients. Well-weeded trees will grow much more quickly. Trees grow better in fertile areas but so will grass and weeds!

Trees will start to grow in earnest by April so at that time grass and weeds should be under control. There are several ways to do this.

Organic mulches control weeds while enriching the soil.

Organic mulches such as bark or wood chips, straw, old hay, grass, well-rotted manure, cocoa shells, rushes and spent compost will control grass and weeds while at the same time enriching the soil with nutrients. This is a very viable option where the number of trees planted is limited. After planting, apply a thick layer of an organic mulch. Top up and rake this layer regularly to prevent it from becoming a medium for weed growth. Weeds need to be killed prior to planting for this layer to be effective.

Black polythene is a very effective weed barrier. Cover fully with gravel.

Biodegradable sheet mulches are very effective weed barriers but will not enrich the soil. Cut a 1 m^2 piece of plastic and make a small slit or cross in the centre. Put the tree carefully (without breaking any branches) through the hole in the plastic and cover the plastic fully with a 2 cm layer of gravel or building sand to keep it in place. Damp newspapers also suppress grass and weeds well around newly planted trees.

These mulches can give very satisfactory results though may only be suited to a few trees as it is very labour-intensive.

Grass and weeds can also be controlled efficiently with herbicides. There are many different herbicides available on the market. Before applying

any of them, it is a good idea to talk to your local Teagasc forestry adviser regarding types, application rates, precautions, application period, current regulations, etc. Some herbicides not only kill grass and weeds but also trees. Consider carefully as herbicides are expensive and may have detrimental environmental effects. Safety first: read instructions before use!

Herbicides can kill weeds AND trees very efficiently. This little oak tree was seriously damaged by glyphosate.

Regular trampling of grass and weeds around young trees can also be a satisfactory vegetation suppression method. This will need to be carried out three or four times over the growing season. Do not let the surrounding vegetation get out of hand and smother the young trees: it will not only slow down tree growth, it will also make it much more difficult to find the little tree again!

Avoid cutting or strimming grass and weeds because cut weeds require more nutrients and water to regrow, placing trees under additional stress. Another reason is that too often trees are cut too!

Do not cut grass and weeds around trees: too often trees are cut too!

Grass and weeds around this tree need to be trampled urgently.

Bark is the tree's lifeline: it is of critical importance for the transport of water and nutrients up and down the tree. Damage to the bark impedes this flow while allowing diseases in. If damaged the whole way round the base of the tree, the tree will die. That is why it is so important to avoid browsing damage to trees by cattle, sheep, goats, deer, hares, rabbits or voles.

One way to achieve this is by erecting a sturdy fence to keep out livestock. Four strands of barbed wire will keep cattle away. To keep out sheep, sheep wire with one or two strands of barbed wire on top is required. Sturdy stakes should be spaced four metres apart. The fence needs to be at least one metre from the trees to protect from sheep. Horses must be kept over two metres away. To keep trees safe from rabbits and hares, rabbit wire is required and must be dug in and bent outwards to prevent burrowing underneath.

Tree guards or spirals can provide protection.

Protection from animals needs to be in place when trees are being planted.

This sturdy fence will protect trees from livestock. Note the rabbit wire buried and bent outwards.

Go for regular walks among the trees you have planted. Ensure no animals are nibbling at them, that they are not being smothered by grass, that all drains are working and that they are looking healthy.

Animals and trees do not mix.
Note the damaged bark caused by browsing animals.

Chapter 6

How to turn your woodland into a biodiversity haven

How to turn your woodland into a biodiversity haven

- Consider ways to enrich the wildlife value of your trees

No home -large or small- is complete without trees. Regardless of the reason for planting trees, they will always be of immense benefit to wildlife. Many plants and animals depend on trees for survival. Trees provide food, cover, shelter and nesting sites. Trees create a more pleasant habitat where other plants and animals thrive. All these important functions can be enhanced greatly by keeping the following simple guidelines in mind.

The very first and most important intervention required is to protect the trees with a suitable fence. Animals such as cattle, sheep, horses, deer, goats, rabbits and hares will all cause a lot of damage to the trees by stripping bark, eating seedlings, compacting soil and by impeding drainage. Restricting their access will very quickly turn your clump of trees into rich woodland.

The simplest way to create a rich woodland is by fencing out browsing animals.

Use the tree species table on page 58 to choose more ecologically valuable trees. Native tree species of local seed provenance tend to support more birds and insects than other tree species. Willows are particularly valuable for insects and birds while oaks support amazingly large insect, fungi and lichen populations. Both also provide great nesting cover. Consider also planting trees that bear loads of berries such as rowan or elder: many birds depend on these berries as a food source.

Native trees grown from local seed are even more valuable as they have adapted to the local bird, insect, fungi and bacteria populations through many generations of selection. A good indicator is to observe what trees are growing well locally. However, make sure to compare like with like. For instance, a sessile oak tree doing well in a hedgerow may enjoy very different (e.g. drier) growing conditions than an alder tree growing in a low-lying, damp area of the adjoining field.

Rather than planting a single tree, try to plant clumps of trees.

This beautiful young oak tree has been destroyed by pigs.

Ireland has one of the lowest forest covers in the whole of Europe and most of our flora and fauna depend on individual trees, hedgerows and linear woodlands to survive and move across the landscape. Activities such as removal of hedgerows by enlarging fields and building new houses in the countryside are ecologically very damaging. It is important to try to (re-)connect habitats such as existing scrub woodlands or small tree groups (in field corners for instance) by linking into existing hedgerows or riverbanks.

Some trees are ecologically more valuable and attractive too.

Woodlands don't have to be large. Unused field corners or part of a huge lawn have great potential. Consider planting different tree species with varying lifespans. First, plant the tree layer with medium to large trees (see table). Arrange the same species together. For instance, a clump of oak alongside a small group of Scots pine, etc. This is followed by planting suitable smaller trees in between. They won't grow as tall and will eventually form the shrub layer underneath the upper canopy. Suitable trees include: hazel, holly and hawthorn. A woodland herb layer of wood anemones and bluebells will gradually replace grasses, nettles and briars.

Plant berry trees such as these rowan near the edge of your woodland to attract birds.

The next step to consider is to provide open spaces in or near this woodland. Hedgehogs, bats, butterflies and many birds depend on flowers and grasses that will thrive in those sunny spots. Birds will use this sheltered area as a feeding and sunning site. Barn owls, sparrow hawks and others will use the open space for hunting. The neighbouring woodland will provide shelter, nesting sites and lookout posts in return. This woodland edge can be improved by encouraging smaller, low-growing shrubs and trees: they will attract even more wildlife, provide better shelter and result in more nesting sites for certain bird species.

This mature tree has been ringbarked to create standing deadwood, a vital element in any woodland ecosystem.

As the woodland matures avoid "the manicured look". Trees not only provide many different functions when alive, they continue to do so when dead. Many fungi, bacteria, lichens, mosses, insects (e.g.: beetles) and birds (e.g.: owls, woodpeckers) depend on dead trees as a very important source of food, shelter and nesting sites. Fungi and bacteria fulfil an extremely important role in every woodland by recycling nutrients and enriching soils. Both standing and lying dead trees are essential links in any healthy woodland ecosystem cycle. If no dead trees are present, consider cutting down a few mature trees to create lying deadwood. Standing deadwood is achieved by removing a 20 cm band of bark from around the base of the tree. This is called 'ringbarking'.

An ecologically rich woodland is a haven for wildlife where “weeds” are welcomed and needed. These plants contribute greatly to the woodland’s biodiversity. Nettles support fifteen different moth species and provide food for butterflies. Briars offer food to forty different species of butterfly and moth. They are valuable groundcover and food to many birds. Elder provides early cover for birds because it comes into leaf very early in spring, while its berries are an important food source for birds in autumn.

Ivy plays a very important role in wooded ecosystems too and should be retained as a valuable food source for bees in late summer (flowers) and for birds in late winter (berries) when very few other food sources are available.

Contrary to public belief, ivy rarely kills trees. Removal of ivy should only be considered for safety reasons where ivy is free flowering in roadside tree crowns. This will lead to top-heavy trees. A handy rule of thumb for dealing with ivy on roadside trees is that it should be removed for safety reasons when reaching the crown branches.

Allow ivy and other ‘weeds’ to develop.

Chapter 7

Why it is important to plant trees

Why it is important to plant trees

- Reflect on the many advantages that trees can give you and your community

Trees offer a surprisingly wide but often under-appreciated range of advantages. Appropriate planning and management gives the best chance of success. This is true when establishing a woodland -large or small-, hedgerows or even a few trees at the back of the garden.

Trees are a sound financial proposition if well managed. Trees provide timber and firewood either for use at home or for sale. Well-managed forests are safe, tax-efficient, long-term investments because of the steady returns and favourable tax rules.

Timber is a green, carbon-neutral and renewable source of building material.

Timber is a green, carbon-neutral and renewable source of building material, heat and electricity, providing employment in rural areas. Trees play a critical role in combatting global warming by absorbing greenhouse gases.

Trees and hedgerows give form and character to our rural and urban areas. They help ensure that new developments blend into the landscape. The sheltering effect of trees and hedgerows surrounding houses also results in lower heating bills. They provide protection against climatic excesses resulting in less storm damage. The resale value of properties surrounded by trees tends to be higher because of the greatly improved visual appearance.

Trees help ensure that new developments blend into the countryside.

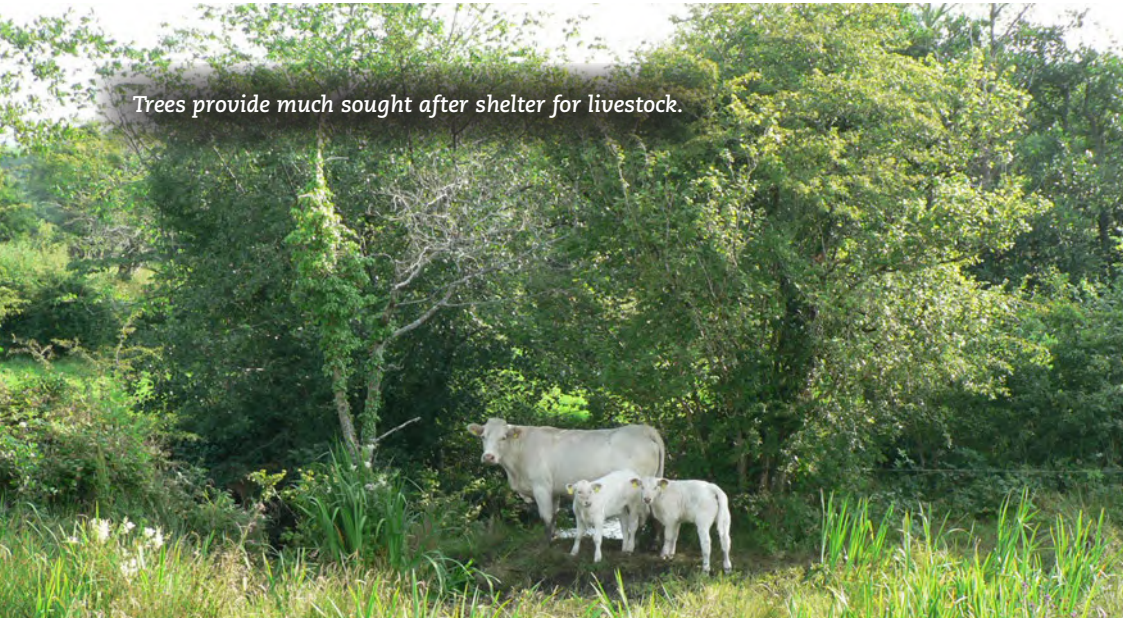
Trees have immense ecological importance. Their high biodiversity value assists in retaining ecological balance. In particularly, trees in a wide, tall and diverse hedge are very valuable as a habitat and for interconnecting different habitats. They are an important seed source for native tree species. Groundwater quality is better in areas with high levels of trees because of the filtering activity of the roots, which also minimises pesticides and excessive nutrients entering waterways. Soil erosion can be severe: woodlands along rivers will prevent riverbank erosion and sedimentation while trees and hedgerows help to prevent erosion caused by rain and wind.

Tree roots will help prevent pesticides and fertiliser polluting our rivers.

Trees have an immense ecological importance.

Wire fences on the farm - or block walls around gardens - will control livestock but offer few additional benefits. Hedgerows and trees are a cheaper and more environment-friendly alternative than short-lived wire fences.

Trees act as windbreaks. This leads to lower wind speeds reducing evaporation of adjacent crops/grass thereby minimising drought conditions. They also provide shelter and shade for livestock. Dense, linear woodlands assist in disease control between farms (e.g. TB, brucellosis).



Trees provide much sought after shelter for livestock.

Garden shrubs and agricultural crops germinate earlier because of higher soil and air temperatures improving growth as a result of adjacent trees. Crops and gardens surrounded by trees and hedgerows will be healthier and require fewer insecticide applications because trees sustain large populations of birds and other animals eating crop disease carriers: insects. Birds and bats can eat up to 3500 midges in two hours.

Trees provide valuable recreational opportunities.

Some trees may have special cultural, historical, religious or ecological value, indicating ancient townland boundaries or remnants of native woodlands. Other trees may have been managed over centuries as coppice or pollards. Some trees also play an important religious role even dating back to pre-Christian times. It is important that these trees are preserved. So many townland and place names in Ireland refer to trees or wooded areas.

It is important to protect historically important trees.

Trees play an important role in our lives: many wedding photographs show the happy couple smiling at the camera with beautiful trees as a backdrop. Forests also provide fantastic recreational opportunities throughout Ireland: many people enjoy a walk in their local forest. Trees certainly add to Ireland's green tourism image.

Research found that a single tree living for fifty years contributes approximately €250,000 to the community during its lifetime. This includes in addition to the above-mentioned benefits, providing oxygen, recycling water and regulating humidity, sequestering huge amounts of carbon, controlling air pollution, producing protein and fertilising the soil.

Trees are a valuable Irish resource.

Hedgerows give form and character to our countryside.

Tree Selector

TREE SELECTOR

species	soil preferences			height	growth rate	tolerance	biodiversity	uses	tree age	attractive features
	moisture	texture	acidity							
Alder, common (Alnus glutinosa) *	1	23	23	2	1		1234	123	2	3
Alder, grey (Alnus incana)	123	2	23	2	1			123	2	3
Ash (Fraxinus excelsior) * +	2	2	23	3	2	23	134	123	3	
Beech (Fagus sylvatica)	3	12	23	3	2	123	24	125	2	34
Birch, downy (Betula pubescens) *	1	23	12	23	12	3	123456	1	1	14
Birch, silver (Betula pendula) *	3	12	12	23	12		123456	1	1	14
Blackthorn / sloe (Prunus spinosa) *	2	123	123	12	2	23	12	345	2	12
Buckthorn, alder (Frangula alnus) *	1	2	1	1	2		12	23	1	124
Buckthorn, purging (Rhamnus cathartica) *	12	2	3	1	2		12		1	2
Cherry, bird (Prunus padus) *	12	12	12	12	2		12	123	3	124
Cherry, wild (Prunus avium) *	23	123	23	2	12		12	123	3	124
Chestnut, horse (Aesculus hippocastanum)	12	23	12	3	12	3	56	3	2	134
Chestnut, sweet (Castanea sativa)	2	12	2	3	12		1	123	2	34
Crab apple (Malus sylvestris) *	2	23	23	12	3		12	23	2	124
Elder (Sambucus nigra) *	123	123	23	1	1		12	3	1	12
Elm, wych (Ulmus glabra) *	12	23	23	3	2	23	2346	13	3	4
Guelder rose (Viburnum opulus) *	12	23	23	1	2		12	5	1	124
Hawthorn (Crataegus monogyna) *	23	123	23	12	12	23	12	345	2	12
Hazel (Corylus avellana) *	23	23	23	12	12	1	1234	135	1	13
Holly (Ilex aquifolium) *	23	2	12	12	23	13	124	2345	2	125
Hornbeam (Carpinus betulus)	12	3	23	23	2	1	1	1235	2	4
Juniper (Juniperus communis) *	23	1	23	1	3	3		4	3	25
Larch, European (Larix decidua)	2	2	2	3	2			1	1	34
Larch, Japanese (Larix kaempferi)	12	12	2	3	12	23		1	1	34
Limes (Tilia spp.)	2	23	23	3	2		24	3	4	4
Maple, field (Acer campestre)	23	23	23	1	2	1	24	35	1	4
Maple, Norway (Acer platanoides)	23	123	23	3	12	2		13	2	4
Oak, pedunculate (Quercus robur) *	12	23	2	3	2	3	12456	123	3	34
Oak, red (Quercus rubra)	23	123	12	3	12			123	2	34
Oak, sessile (Quercus petraea) *	2	12	12	3	2	3	12456	123	3	34
Pine, lodgepole (Pinus contorta)	13	13	12	3	12	23		12	1	35
Pine, scots (Pinus sylvestris) *	3	1	12	3	2	3	1234	12	3	35
Poplars (Populus spp.)	1	23	2	3	1		2	3	1	
Rowan (Sorbus aucuparia) *	23	12	12	12	1	23	124	3	2	124
Spindle (Euonymus europaeus) *	12	23	23	1	2		2		2	24
Spruce, Norway (Picea abies)	12	23	12	3	12			12	1	35
Spruce, sitka (Picea sitchensis)	12	23	12	3	1	23		12	1	35
Sycamore (Acer pseudoplatanus)	12	23	23	3	12	23	14	13	2	4
Whitebeam (Sorbus aria) *	123	123	23	12	2	12	12	3	2	12
Willows (Salix spp.) *	12	23	23	2	1	23	12456	3	3	14
Yew (Taxus baccata) *	23	12	23	2	3	13	1	35	4	25

* Tree species native to Ireland + Ash is no longer an option due to ash dieback disease

Soil preferences:

Soil moisture
1. Damp
2. Average
3. Dry

Soil texture
1. Light
2. Medium
3. Heavy

Acidity vs. alkalinity
1. Acid
2. Medium
3. Alkaline

Height (in metres):

1. Small (-5)
2. Medium (5-15)
3. Large (+15)

Growth rate:

1. Fast
2. Medium
3. Slow

Tolerant of:

1. Shade
2. Coastal sites
3. Exposed sites

Biodiversity value:

1. Birds/bats
2. Insects
3. Red squirrels
4. Lichens
5. Fungi
6. Deadwood

Uses / suitable for:

1. Timber/stakes/etc.
2. Firewood
3. Coppicing
4. Prickly deterrent
5. Hedging

Tree age (years):

1. 40-70
2. 100-150
3. 200-250
4. 500 +

Attractive features:

1. Flowers/catkins
2. Berries
3. Nuts/cones
4. Autumn colour
5. Evergreen

Native trees	alder, ash, aspen, downy birch, silver birch, bird cherry, wild cherry, crab apple, wych elm, hazel, holly, pedunculate oak, sessile oak, rowan, Scots pine, whitebeams, willows, yew
Native shrubs	blackthorn, broom, purging buckthorn, alder buckthorn, dog rose, elder, gorse, guelder rose, hawthorn, juniper, spindle, privet
Introduced species	beech, Douglas fir, field maple, hornbeams, horse chestnut, larch, lime, lodgepole pine, Norway spruce, poplars, Sitka spruce, sweet chestnut, sycamore,...

In addition, consider some of the following shrubs for your garden, attracting an abundance of bees, butterflies and birds:

Aucuba, Berberis (barberry), Buddleia (butterfly bush), Ceanothus, Chaenomeles (Japanese quince), Cistus, Cotoneaster, Escallonia, Fuchsia, Hebe, Hypericum, Mahonia, Olearia, Philadelphus (mock orange), Potentilla, Pyracantha (firethorn), Ribes sanguineum (flowering currant), Rosa canina/rugosa (dog/ramanas rose), Skimmia, Spiraea, Syringa (lilac), Viburnum and Weigela.

Further information

Teagasc Forestry Advisers are available to support landowners, providing advice and training on all forestry-related issues.

For further information, including staff contact details, **visit www.teagasc.ie/forestry.**

Contact details:

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December 2023

Teagasc
Agriculture and Food Development Authority

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