

INTRODUCTION

Careful handling and planting is the key to successful establishment of trees. Attention to detail saves time and money in the long run.

BASIC RULES

Bare rooted trees are planted from November to March. Container grown trees can be planted anytime provided the soil is moist.

- Keep roots moist at all times by transporting in closed plastic bags and keep the bags upright.
- Plant vertically to same root collar depth as in nursery.
- Firm soil gently but do not compact. Test firmness by tugging gently, the tree should not move.
- If possible plant the same day trees are lifted from the nursery. If this is not possible heel the trees into trenches to cover all roots completely, or enclose fully in undamaged polythene bags and squeeze base gently to reduce air content. Keep upright, cool and protect from rabbits and stock. Check regularly for mould and flushing (buds opening).
- Organise grants and paperwork early and order trees, shelters and stakes in good time.

Survival depends on correct planting, protection and weeding.

PLANTING

For bare rooted stock there are various methods for planting trees, including: -

Pit - a slow method but has the highest success rate, useful for small numbers or replacing failures.

- Discard turf.
- Dig hole to take all roots easily, in very large pits fork over base.
- Backfill first with topsoil, leaf mould, or well rotted compost (fresh manure and inorganic fertiliser will kill roots) shaking gently to fill voids.

Slit or notch - a quick method but do not rush the task. This is the usual method for mass planting of bare rooted trees.

- Make a vertical L-shaped cut with spade or mattock deep enough for the roots (approximately 15cm).
- Lift one side and insert stem deeply and draw through slot and up the other side thus taking roots down with the soil.
- Remove spade, tread to firm gently.

Inverted turf - used on very wet land to raise plant above water table.

- Cut turf 30-45 cm square and about 20cm thick and invert.
- Cut slit from middle to one side.
- Lift one corner and place tree roots below.
- Remove spade and tread to firm gently.

Cell grown or root trainer trees - Plant in a slit as for barerooted trees, or use a planting corer to prepare a hole. Ensure that the compost is half an inch below soil surface. Crumble any loose soil to cover the compost.

Stakes

- Use oak or sweet chestnut.
- Keep short and use on windward side.
- Insert before planting to avoid driving stakes through the roots.
- Trim off below the top of tree shelters.

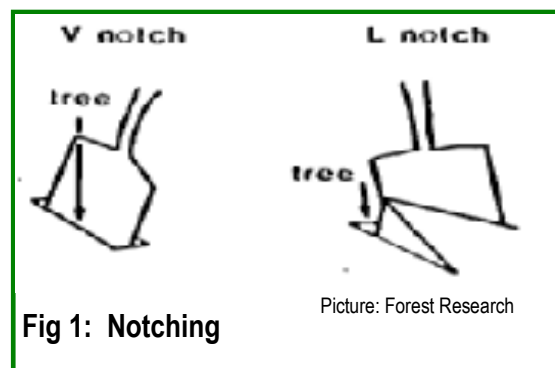


Fig 1: Notching

Picture: Forest Research

Ties

- Do not use wire and plastic baler cord.
- Check regularly and do not allow to chaff or constrict.
- Buckle ties can be loosened as the tree grows.

Do not

- Plant in frozen or waterlogged soil.
- Leave transplants exposed to sun, frost or drying winds even on a rainy day - fine roots die in minutes.
- Keep in black bags exposed to the sun.
- Keep in water as the soil will wash from the fine root hairs - water can stagnate.
- Drop or throw bags as the roots will be damaged.
- Stack bags on top of each other.
- Keep in warm vehicle.

TREE PROTECTION

Protection is needed because young trees are readily eaten by deer, cattle, horses, sheep, hares, rabbits and voles.

Tree Shelters – help to protect against animals, drying winds and sun; promote early height growth over stem expansion; locate trees when weeding and protect from sprays and are made in heights from 0.6 - 1.8m and in different colours. They are NOT a substitute for weeding.

When using tree stakes:

- Use strong stakes of sufficient length to give stability in strong winds but keep below the top of the shelter to avoid fraying the emerging tree.
- Use taller shelters on steep ground to keep out of reach of animals.
- Use a second stake if livestock have access, to prevent rotation of the shelter by rubbing.
- Use full 1.8m shelters if deer are present and a main stake of at least 5cm diameter.

Tree Shelters are unsightly and slow to degrade. Remove them as soon as the trees are established.

Spiral and Tubular Guards - These help protect against bark stripping rabbits, but are unsuitable for use against other animals. They are available in 0.45 m to 0.9m heights in various colours.

Mesh - Protects against rabbits, hares, sheep, and deer. They are in a galvanised steel 0.4 - 1.8m height or strong plastic in various mesh sizes, either in pre-formed tubes 1.2m high or in 50m rolls 0.3 - 1m, for self assembly. Mesh is useful on exposed sites since they are little affected by wind.

Timber Enclosures - These protect individual trees among livestock. They must be wide enough to keep trees out of reach of cattle, horses and deer. Designs and materials vary but an effective structure against all livestock uses:-

- 4 No 3m x 125 mm full round uprights with 90cm to go into the ground
- 12 No 3.60m x 125 mm half round horizontal rails
- 1 roll of chicken wire netting to exclude rabbits etc.

Squirrels - From about 7 years old newly planted trees are vulnerable to barkstripping by grey squirrels. This is often severe and can result in all the trees being ruined. Both hardwoods and softwoods are vulnerable to attack with the only remedy being to kill the squirrels particularly during spring and early summer. Trapping using cage traps and approved spring traps is more effective than shooting but traps have to be inspected every day and squirrels



Fig 2: Tubular tree shelter and mesh shelter



Fig 3: Timber enclosures

destroyed humanely. It is an offence to release them elsewhere. Further information is available on the Coed Cymru website: www.coedcymru.org.uk

Whatever protection is used it is still advisable to exclude all livestock with a good stock proof fence and avoid planting within 1.5m of fence line to prevent damage from animals reaching over. Remember to remove all guards when they have served their purpose.

WEED CONTROL

To encourage unchecked growth, trees need effective weed control to remove competition. Removing weeds over 1m diameter around each increases: nutrients; moisture; light; and soil temperature. This will help to maximise the survival and growth rate of the trees.

Tree Spats - These are effective against all weeds except bracken, dock and thistle. They are available in various sizes from 50cm to 1m² or in 12m rolls x 2m wide. They are synthetic and designed to rot after 3-4 years. The corners of each spat should be turned under the soil for anchorage or weighted with stones. Be aware that voles can live beneath and strip the tree bark.

Composted Mulch - Bark and wood chip can suppress weed growth if spread 8-10 cm thick. This method is widely used in landscaping, often to disguise black plastic mulches but unsterilised composts or bark chippings can bring disease and should be avoided. Fresh farmyard manure and inorganic fertiliser can scorch roots and bark.

Soil Cultivation - Hoeing is an effective method of weed removal, but is labour intensive and needs to be repeated. It is not practical for large projects.

Mechanical Cutting - This can be done with grass hook, strimmer or bracken swipe. It can prevent tall weeds shading and flattening small trees, it stimulates growth of some weeds especially grasses and thereby increases their moisture and nutrient demand. This method is labour intensive and needs repeating. Care must be taken as trees are easily damaged.

Herbicides - These can remove weeds for whole season and are available in liquid form that is applied with sprayer/weed wipe, or granules that are applied with a "pepper pot" shaker.

Caution must be taken at all times. Most chemicals kill trees, always use a shield to keep spray drifting away. Do not spray the whole site as this wastes costly chemical and kills valuable wildflowers. Always wear protective clothing and make sure you are trained or use a properly qualified contractor. It is an offence to apply a pesticide to a crop or by a means for which it is not approved. When using chemical always follow the manufacturer's instructions.