

TREES

on the golf course

By **TONY GENTIL**

IN my previous article in this series I stressed the importance of protecting the root systems of trees that are being transplanted. From this I think you'll appreciate that when it comes to actually planting a tree, the preparation of the hole that the root system will occupy also requires considerable care.

It doesn't matter whether the tree is a small forest transplant or a large standard, its root system must be able to fit comfortably into the hole you've excavated. Furthermore the soil backfill must have a fine enough tilth to make intimate contact with as many root hairs as possible. This is because the root hairs extract the moisture that the tree needs from the thin layer held round each soil particle.

The techniques used for planting the main types of tree varies slightly.

FOREST TRANSPLANTS are small trees, two or three years old and perhaps six inches tall. They have the smallest root systems of all the tree types and because of this they are often planted using a high speed technique.

The method used is to first skim the surface vegetation off with a spade to expose the soil over an area of approximately a square foot. Then two vertical cuts are made into the bare soil with a spade. The second of these cuts crosses the end of the first one at 90 to form a 'T' shape. The planter doesn't take the spade out of the ground after the second cut. Instead he levers back on the handle of the spade, pressing it from the vertical towards the

horizontal. This has the effect of forcing the 'T' cut upwards and open, so exposing a slit. The roots of a forest transplant are next placed into the slit and the spade is lifted back up to the vertical and removed. This traps the tree's roots in the soil and holds the top in place.

The millions of conifers growing in upland Britain are testimony to the fact that this technique works. I'm not too happy though that this method deals kindly enough with a tree's root system. On the smaller scale of golf course planting, I think you'll get better results this way.

First skim off the vegetation to expose the soil but then dig out a hole of about one cubic foot in volume. Chop the excavated soil down to a fine tilth and then plant the tree, working the fine soil round its roots. Finally consolidate the backfill by pressing it down with the heel of your boot.

Forest transplants planted amongst vigorous competing vegetation do have difficulty in getting established.

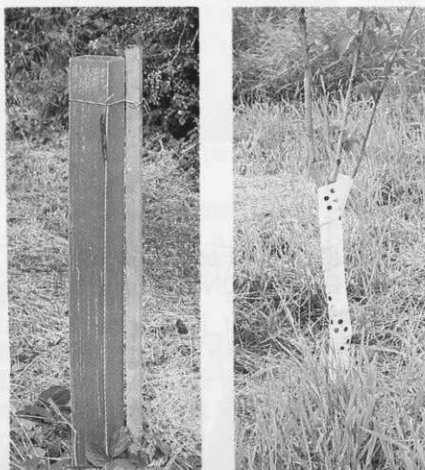
A new technique has recently been developed to help small trees through the difficult establishment period. The new method is to plant the tree, as I've already described, and then to fit a rigid plastic tube vertically over it. These tubes are known as "Tuley

Tubes" or "Tree Shelters". They provide a greenhouse-like microclimate round the tree inside them. This enables the tree to grow vertically at three or four times the speed it would do so without their protection. They also act as rabbit guards and keep external vegetation at bay.

Tree Shelters have become very popular and you'll see these square, brown, plastic statues springing up all over the countryside. Give them a try by all means, but don't expect them to be a panacea for bad planting. Success still depends on keeping the root system happy all the way through the transplanting process.

WHIPS are small trees with a single whip-like stem. Generally they have branches all the way to the ground. They are, in my opinion, the best size of tree for planting on golf courses. This is because they are tall enough to hold their own against encroachment from the surrounding vegetation and yet still have a root system small enough to cope with the trauma of transplanting.

Whips are planted by clearing the ground of vegetation over an area of, say, a square yard, and then excavating a hole big enough for the root system. Backfilling and consolidation is the same as for



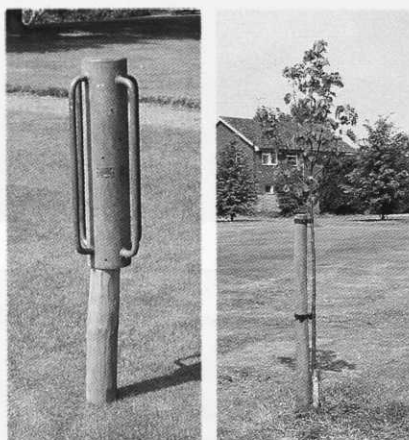
A whip planted in a Tuley Tube (left) and protected by a spiral rabbit guard.

forest transplants. You shouldn't need to stake whips except perhaps on very windy coastal sites. If you need to stake whips use one inch square hardwood stakes driven into the ground on the windward side of the tree. Tie the tree to its stake with soft string.

It can be very tempting, when planting whips, to treat them as if they were forest transplants. It is fatal to try and stuff their root systems into tiny holes. Each whip needs to be treated as an individual and given a planting hole which will accommodate its entire root system properly. If you curl the roots round to make them fit into a hole that's too small, they'll grow permanently like that. You'll reap the harvest of such folly when they blow over in later life.

Tree shelters are not normally used with whips because of the difficulty of fitting the narrow tubes over the side branches of the whips. It is quite common practice, however, to put plastic, spiral, rabbit guards round the stems of whips. Unless you fit them carefully these guards won't cover all the vulnerable areas of bark. They can also damage the trees if you don't check them regularly.

Where rabbits are a problem I think it's better to plant in groups and then fence off the entire area with rabbit-proof netting.



A drivall (left) and traditional staking

STANDARDS. These trees, with a trunk clear of branches for six feet are the largest that you are likely to plant. Standards look rather formal and artificial and are best planted in formal, rather than



A standard staked with a short 3 foot stake

semi-wild areas. They have the biggest root systems and so need the biggest planting holes. They also need staking.

The technique of planting them is to remove the surface vegetation over an area of a square yard and then excavate a hole three inches square by two feet deep.

If you are planting in turf, then I would suggest that you remove the turf carefully using a half-moon and turfing-iron. This will ensure that the perimeter of the hole is neat and square, matching the formality of the standard.

When you dig the soil out of the planting hole I don't think it's necessary to try and keep the topsoil and sub-soil separate. I know that all the text books tell you to do so but in practice it is a bit unrealistic. When the hole is big enough to take the root system of the tree that you are planting, fork the bottom over to improve the drainage and break up any pan.

Next, place the tree in the hole and work out the best position to insert the stake. Basically you want the stake somewhere on the windward side in a position where it can fit between the fingers of the root system.

If you are using the traditional eight foot stake, remove the tree and drive the stake into the ground using a drivall. This is a steel cylinder, sealed at the top, which is used for pile driving fencing and tree stakes. It is a much safer weapon than a mallet used off a pair of step ladders!

With the stake secure, put the tree in position. The trunk should be vertical, about two inches away

from the stake so that it doesn't chafe. You can now backfill the hole making sure the soil has been broken down to a fine crumb size.

After replacing every two or three shovelfuls of soil, shake the tree up and down to work the soil round the root system. When you've covered the root system consolidate the soil with the heel of your boot. Finish off the backfilling and give the soil a final firming.

The tree is now planted and can be tied to the stake. With an eight foot stake you'll need two ties - one just below the top of the stake and the other halfway down the trunk.

Finish the job off by pricking the surface of the soil over to relieve any capping and help rainwater penetration.

You'll notice that I haven't suggested adding anything to the soil in the planting pit. No well-rotted manure, peat, tree planting compound or fertilizer, not even the turf first taken off to dig the hole. Quite honestly, on golf course soils your trees will grow just as well without any additives. In fact, recent scientific research has proved that trees grow just as well without fertilisers or soil conditioners.

The things which do matter are to protect the root hairs all the time the tree is out of the ground and also to keep the area round the base of the newly planted tree free of competition from other vegetation.

Strange as it may seem, many trees are killed each year by misguided kindness. Here's how it happens. Tree pits are excavated in fairly heavy soils, the excavated material is carted off site and the hole backfilled with a high quality compost. When it rains the hole becomes a sump for the less permeable soil surrounding it and the root system is drowned. If you put back only what you dig out this is less likely to happen.

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Standards have to be staked for the first few years after planting, but what is the best length of stake to use? I've explained about the traditional method of using an eight foot stake, but in the last few years the fashion has changed to using a much shorter stake.

The reason for doing so is this. When you stake a tree you do so in order to help the root system become established. Provided that the roots don't move about, the rest of the tree above the ground can look after itself. In fact the trunk benefits from swaying about in the wind. This is because a tree produces strengthening wood in response to the forces acting upon it. When a tree is supported but doesn't build up the strength it needs to withstand the wind. As a consequence, when the stake breaks or is removed, the trunk can't cope with the real conditions of the site and may be damaged by gusting winds.

A standard, staked with a short three foot stake, will develop into a stronger three than one staked in the traditional way. There are also other benefits. Short stakes are cheaper than long ones and are much easier to drive into the ground.

Just a final point about tree stakes. They are only needed to do their job for the first few years after tree planting. Therefore, there is no need to buy the expensive ones treated with wood preservative. You don't want them to be rot-proof and last for ever. It is much better that they rot off at ground level and give the tree a chance to learn to stand on its own feet.

So I think that you'll see from this that the most expensive specification for tree planting isn't necessarily the best. Use short, untreated stakes and no soil additives and your trees will thank you for it.

The next article in this series is concerned with tree maintenance.

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simply stated that nature would select the plants best fitted to survive in any particular habitat under the influence of the climatic, edaphic and biotic factors that were present.

Then men started to get clever and believed that, by the use of cultivational and chemical measures, they could get the better of nature and these processes of adaptation and succession.

Nature was not slow to strike back and show that She still had a few tricks up her sleeve!

The first indication lay in the disastrous dustbowls of Mid-America in the 'Thirties, when ploughing-up the prairies to give higher productivity instead gave a chance for wind to erode both

the soil and the seeds and crops therein, which didn't really stop anyone for long, for commercially and politically there was a lot of mileage in using these aids.

Once again, today, we are seeing that nature has defeated modern agricultural methods. It may be possible to eliminate the need for such old-fashioned routines as rotation and, by chemical means, to keep on top of diseases, but there is an ever-increasing price to be paid. We are now seeing that the community is not willing to pay that price.

Copying these methods on golf courses has produced horrific problems and we are all finding that we have no alternative but to return to sounder practices - not right back to pure undiluted nature, but to a more sensible balance and the science of plant ecology is essential to that process.



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