

All the articles on this page also appeared in [The Gardiner](#) magazine, was written by [Gary English](#) and published with his kind permission..

© Gary English gary@cybersmith.co.za

© The Gardener Magazine - Editor: Tanya Visser tanya@thegardener.co.za

The Root of the Matter

So much emphasis is placed on the visual aspects of bonsai, the style of design, correct branch placement etc, that it is easy to ignore what goes on below the soil. If a tree has badly formed roots or even insufficient roots, the tree will eventually wither and die, or at best always be a mere shadow of its promise.

Roots provide more than just support for a tree. A healthy root system works in a symbiotic relationship with the branches and foliage above the soil to provide the tree with the correct mix of nutrients, gasses and trace minerals.

A healthy, well developed bonsai has the same amount of fine root below the soil as it has foliage above. In some tree species, buddleja and azalea, for instance, a specific root will supply a specific branch, and root pruning is carried out with the utmost care and forethought. These are not trees which novices should start with.

Most trees are more forgiving and as long as some basic rules are adhered to root pruning is a fairly low risk exercise. Always be gentle when working with roots. The fine roots can easily be damaged lengthening recovery time.

Why and when to work the roots

The aim of pruning the roots is to achieve a ramification of fine hair roots similar to that of the twigs and branches above. The fine roots are the ones that absorb the water and minerals from the soil. Taproots in a large tree are merely for support and play little part in the absorbing of food. They should be removed over a period of time. They will just get in the way when repotting into a smaller pot later, and bonsai do not need the support needed by their big brothers. After removing a taproot one may need to tie the tree into the pot for a season or two until stronger roots have formed. NB! If the plant only has a taproot then do not remove it entirely. Prune back to just before some fine roots. This will allow for a slightly better survival rate. One can ? damage? the surface of the large root, which may stimulate the growth of new hair roots. One can remove the rest a season later when other roots have developed.

Because the amount of root should match the amount of foliage, it follows that a good time to trim the roots is when any major styling is done on the tree. To access the roots one normally needs to remove the tree from its container so all of these processes are done at the same time. Normally in spring, just as the tree begins to show signs of emerging from its winter dormancy.

How much soil to remove when root pruning and repotting, is debatable. Although some people remove all of the old soil and actually wash the roots gently in water, others prefer to leave as much of the old soil as possible. With some trees it is essential that some of the old soil is retained. Conifers require assistance in absorbing nutrients. They get this from an association with a fungus (mycorrhiza) in the soil. Some of the mycorrhiza containing soil must be transferred with the tree into its new pot to help the plant recover.

Soil

One can? t discuss roots with out mentioning the very stuff the roots sit in. So why is bonsai soil different from normal potting soil. It isn? t really, meaning that one should give as much attention to the soil in one? s bamboo palm pots as to the 150 year-old bonsai that is your pride and joy.

Soil should always drain well. The speed at which soil should drain depends on the climate and tree type. In a hotter climate one might require the soil to retain water for longer, and some plants prefer a more moist soil. Drainage is controlled by mixing in a quantity of gravel or coarse river sand to your potting medium. In KZN Umgeni sand is the most common and productive. In other areas crushed granite is frequently used. Whatever the source, the gravel must be thoroughly washed before use. As previously mentioned, the quantities of gravel to potting soil vary but one would normally use between a third and a half of gravel to potting soil. Small quantities of bone meal and slow release fertilizer like 3.1.5 can be mixed in as well, but don? t over do it as too much fertilizer can burn the fine roots. Less is more.