Guide To Soil Preparation

Clean, well cultivated land in a good state of fertility will not need much initial preparation apart from the forking in of a slow release fertilizer such as Vitax Q4 or Osmocote at the rate of 105g/m^2 (3oz/yd^2) over the whole plot for soft fruits and closely planted fruit trees. Widely spaced trees should have each planting site prepared.

Virgin land, compacted soils and those low in fertility and organic status should be double dug to ensure good drainage and to enable bulky organics such as farmyard manure or turves, in the case of grassland, to be incorporated.

Compaction is a problem that should always be addressed as it leads to the death of plants. Compacted soil will prevent surplus water from draining away in periods of heavy rain and will prevent plant roots from penetrating it in their search for water during dry spells.

DOUBLE DIGGING

Double digging is best done several weeks before planting, in the autumn or winter when the ground is moist but not waterlogged or frozen. The ground then has time to settle and on heavy soils the frost will break down the clods before planting.

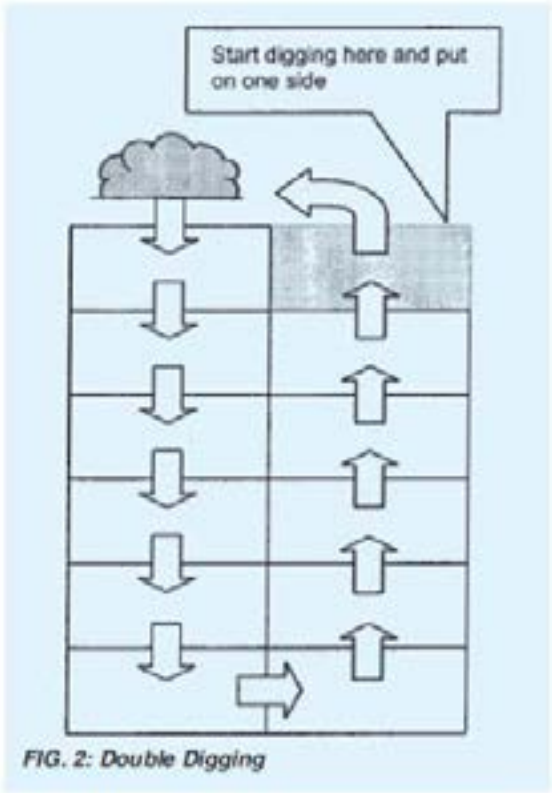

FIG. 2: Double Digging

Double digging may sound like a complicated process, but it is in fact very straightforward. Basically you need to work on two layers of soil, hence the name ‘double digging.’ The top layer is dug with a spade and the soil is set to one side so the layer underneath is exposed. This can then be forked over whilst incorporating some bulky organic matter.

Use a line to mark out the area you intend to dig. Once you have marked out the width, dig a trench 25-30cm (10-12in) deep and 60cm (2ft) back from the line, half way across the width of the bed. (See fig 2). Set the soil temporarily to one side as this will be used to fill the top layer of the final trench. Lightly fork into the subsoil a 5-7.5cm (2-3in) layer of rotted manure or compost.

Using a cane to mark where to dig to, dig a second trench next to the first trench 25-30cm (10-12in) deep and 2ft wide. This time, move the soil into the space created when the first trench was dug. Once again fork into the subsoil a 5-7.5cm (2-3in) layer of rotted manure or compost.

This process should be repeated until the whole planting area has been dug. In the final trench, replace the top layer with the topsoil that was removed from the first trench.

After digging, a 5-7.5cm (2-3in) layer of rotted manure or compost should be spread on top and forked or rotovated in.

DOUBLE DIGGING GRASSLAND

The procedure for double digging grassland is exactly the same as for double digging, with the exception that the turf is incorporated into the bottom layer. The turf should be considered the 'cream off the top of the milk' as when it breaks down it will feed the soil. It should therefore never be removed from the planting site.

After the plot has been marked out, the turf should be sprayed with a suitable herbicide to kill the grass and skimmed off the first trench to a depth of 5cm (2in). The skimmed off turf should be set to one side (just outside the area that is going to be dug). When the second trench is dug the turf should be skimmed off and placed grass downwards on the loosened subsoil in the first trench. It should be chopped up before the top soil from the second trench is placed on top. When the final trench is dug, incorporate into the bottom layer the turf that was removed from the first trench.

CONSTRUCTING A RAISED BED

If the soil is inclined to be heavy or shallow a raised bed should be constructed.

The height of the raised bed will depend on the type of crop to be grown and how poor the soil is. The soil needs to be 45cm (18in) deep for tree, bush and cane fruits or 30cm (12in) deep for strawberries. If the soil is fairly workable, the bed will need raising just a few inches. However, if the soil is impenetrable below a few inches, the bed will require raising considerably more, in which case a box will need to be constructed to enclose the bed.

If the bed is to be raised by just a few inches, the existing topsoil should be loosened and improved by incorporating some bulky organic matter such as compost or well-rotted manure and some additional topsoil. Using a sturdy garden rake, drag the soil mix up to form a bed to the required depth for the crop that is to be grown.

If the bed is to be raised by more than a few inches then you will need to construct a box out of almost any solid material, such as brick, pressure treated timber or plastic. It is important that the material used is not toxic to the soil, especially when an edible crop is being grown (railway sleepers that have been treated with creosote, for example, are not suitable). If the bed is longer than 3m (10ft), crossbrases should be used to prevent the bed from wobbling. The box should be positioned on the level and slightly below the surface of the soil to improve stability. Once in place, it should be filled with topsoil mixed with some bulky organic matter such as compost or well-rotted manure.

LIMING & ACIDIFYING

With the exception of blueberries and cranberries, all bush, cane and top fruits grow better when the soil pH is between 6.5 and 6.7 (slightly acid). Before (and preferably a year before) planting, the soil should be tested with a meter or chemical testing kit. If the pH is lower than 6.5, ground chalk or carboniferous limestone should be applied at the rates indicated in the table.

pH before liming	kg/m²	oz/yd²
6.5	nil	nil
6.0	0.25	7
5.5	0.50	14
5.0	0.90	26
4.5	1.25	37

A pH of 5.5 may not appear to be very serious but it is ten times more acid than one of 6.5. The lime should be broadcast over the soil after it has been dug and then forked or rotovated into the ground as deeply as possible. Lime should not be

applied at the same time as fertilizers as it can adversely react with some of them. It is best applied earlier in the winter or autumn and preferably a year in advance.

Fruit stocks growing on alkaline soils, especially shallow soils with a pH of 7.0 or above, may suffer from lime-induced chlorosis caused by deficiencies of iron or manganese or both. Alkaline soils can be acidified by the application of Flowers of Sulphur. For details on reducing the pH, please refer to the section on ‘Lime Induced Chlorosis’ (click here to view).