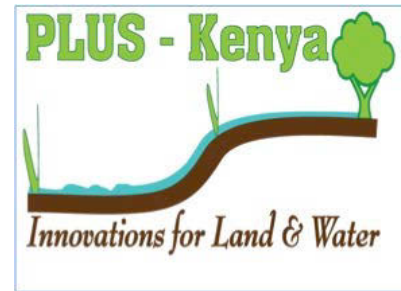


# Vetiver hedge establishment for engineering purpose

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with thanks to Criss Juliard and Dick Grimshaw, TVNI, [www.vetiver.org](http://www.vetiver.org)



## Introduction

*To train engineers on using Vetiver, it is very important to understand these guidelines and the following one on hedge maintenance. Understanding necessarily implies that below guidelines are put into practice during a field training; experience has shown that only 30% of spoken instructions are retained by a listening audience. Taking these guidelines into the field may help, but TVNI experience has shown that making one's hands dirty is the only way to assure that this knowledge is sufficiently acquired.*

## 1. Timing of planting

For normal on-farm use the obvious planting time is at the beginning of a rainy (growing) season. However, **for engineering applications the time of planting much depends local conditions** including the slope (steepness, length), the soil, the rainfall distribution (and how heavy showers can be, e.g. if there's typhoons).

So it may be that the rainy season is the wrong time for a particular application. For example if planting takes place in gully bottoms or drains just before or at the beginning of the rainy season, the plants are likely to wash out as roots have not been fully established. To avoid having to water, it might be a possibility to plant later in the rainy season, when rains are less destructive, or in the dry season, but then watering is required for some weeks (depending on the location).

This watering, together with the importance of establishing a CLOSED hedge, is the reason why quality of planting material and correct hedge establishment is important: if not correctly done, one has to return for gap-filling (and continue watering, protection) over and over again. And that is very costly, and it determines the choice of planting material (pots rather than slips) and choice of supplier (reliable quality).

Yet, on less challenged roadsides (with not too steep slope, allowing for rainfall water infiltration) it is worth trying to plant in the rainy season.

## 2. Quality of planting material

First of all it is important to check the quality of the planting material. Exceptions there, in most cases the preferred planting material used for roads are 'poly-pots' or 'strips'. These have to be ordered 4-6 weeks in advance, and the quality to be checked upon arrival, i.e. the root development in the pots, the ability of the strips to 'hang together'.

### Transporting, storage and handling

This is all about minimising transplantation stress. As soon as planting material is removed from a nursery (or from an on-farm hedge), the roots are exposed. Hence and the plants have to be kept in the shade, and damp (e.g. in buckets of water or in wet soil). During transport they should be shaded.

If bare root slips are used (which is not advised in most engineering applications – only try this if no pots are available), it might be preferable to transport clumps (as separated slips dry faster), and split them after transport. Or when slips are supplied, these are transported in bags filled with wet paper, to assure they do not dry out during transport.

If bare root slips are supplied, it is worth considering the option to have it supplied earlier, to keep the slips in water or slurry for 2 weeks (preferably with added rooting hormone, or the locally made juice from water hyacinth), until there is a noticeable new root growth. Soaking can be in the sun. If pots are used, then it is good to 'harden' the plants in the pots, once they showing signs of good growth (that is, reducing the watering frequency in the last 3 weeks before planting).

Key issues to consider when a supply arrives:

1. Quality (freshness, age, and for bare root slips: length of pruning leaves and roots).
2. Quantity; for slips: the international standard is that these contain at least 2 healthy, viable tillers, but after that counting, considering the local conditions, it may be better to use slips that have 3-5 tillers; this will improve the all-crucial survival rate.
3. Timing of supply (not too early, to avoid transplantation stress, and obviously for practical reasons of work planning, not late).

Bare root slips might be delivered 1 week earlier (see remark on bare root slips above).

Also see the format for a Vetiver supply contract for roads.

### **3. Planting procedure**

#### **Planting distance**

For poly-pots a minimum of 6 pots per metre is required.

For strips the distance is already fixed, which avoids the problem of wrong planting distances.

For bare root slips one needs 7-8 slips/metre, but in semi-arid areas this number may be up to 10 (Vetiver is a social plant, doing better with other Vetiver plants close-by).

#### **Bare roots: pruning, cow tea prior to planting, manuring**

Assuming healthy bare root slips, and preferably 3-4 viable tillers per slip, properly pruned (20 cm leaves, about 5 cm of roots), and preferably pre-rooted, then the next thing to protect the roots and assure quick establishment is the use of 'cow tea': a mix of fresh manure slurry and water. And then fertilisation is to be applied (for this, see leaflet "Vetiver for farmers").

#### **Preparing furrows**

Dig furrows deep and wide, in semi-arid areas the furrows depth may exceed 30 cm. This is very important, to ensure that the crown of the plant develops under the soil, that enough water is infiltrating, and to prevent washout by heavy rains in early stages. If the furrows are deep enough, watering frequency can be reduced to three times or twice weekly (as long as enough water is indeed applied), also depending on the circumstances, and keeping in mind that water has to assure root growth but too frequent watering will not give the plant enough stress to speed up its rooting downwards in search of water.

Especially in semi-arid areas the dug out soil needs to be improved; some good soil may be brought to the furrow if the soil is hard clayish. Most other soil types (sand, loam, stone), if furrows are well prepared, will accept plant growth during long hot days. Improve the soil further with manure/fertilizer, and put it back leaving a 4-5 cm deep trough to allow water infiltration.

#### **Fertilisation**

And then, make sure you press the soil!

### **4. Watering**

Obviously, watering at planting time might be important. Even if it is in the rainy season it might be necessary to assure plant watering e.g. when there is some dry days and the topsoil is dry.

If planting in the dry season is unavoidable, then provision for watering should be made, depending on the water availability; for large works this could be by hiring a water-tank (lorry).

More on watering in the leaflet 'VS hedge maintenance in semi-arid areas'.