

Planting vetiver by the meter in semi-arid conditions

Planting strips of Vetiver, each one meter long, can be a useful approach to applying Vetiver, particularly on steep slopes. Below are some notes on the topic from Criss Juliard's experience in Haiti.

- Soil plays the key role; sandy soil is not the best;
- Sandy soil needs to have some "adhesive" qualities in order to grow, transport and handle "vetiver by the meter;"
- In semi-arid zones, finding soil that retains moisture is hard; however, it should not be that difficult to "make" a supplement. Two basic sources can help make a rough compost that can be mixed with the sandy soil; these are kitchen vegetable and fruit peelings, raked leaves, twigs and residue found under plants, bushes & trees that fall after the hot dry season (avoid pine needles; they are generally too acidic). Accumulate plant-based residue and kitchen fruit and vegetable peels, egg shells, coffee grounds but never other remnants on plates (like rice, fats, meat, pasta, seeds of any kind), in piles about one 1 ½ meter in diameter, and about ¾ of a meter high (see Quick compost #1 & #2; ask neighbors and friends to save vegetable and fruit peelings, coffee grounds, crushed egg shells for you). Soak the piles initially so there is moisture all the way through. To add fruit and vegetable peels and other cuttings as they become available, scratch a small shovel-full in the pile of plant, twigs, leaf residue, put the fresh orange, banana, sweet potato, carrot peels, etc... and cover it with small parts taken from the pile so that there is no sight of the fresh, but decaying peels and tossed lettuce leaves, etc.
- A key point as the pile increases in size because you continue to add organic material to it (the pile also shrinks as it decomposes), is to "turn" the pile "frequently;" which means with a shovel or pitch fork, turning the top of the original pile to a base of the new pile next to the original one, and if needed, sprinkling water as you move the 4-5 week old pile into a new one. The more frequently you turn the piles (tri- or bi-weekly or even weekly – which is what I try to do) the

quicker the transformation from dry plant material to moisture-retaining soil amendment. When you sense that there is a soil quality texture to the compost piles, mix with the sandy soil to reach about 30% compost contribution. Continue to make rough compost (it can still contain small sticks and not fully rotted leaves. The piles can be located under a tree as they won't dry as quickly if you were to place them in the hot sun.

- The most recent "innovation" in planting vetiver by the meter is using a "renewable mold" that is basically using +/- 8-10 cm PVC pipe (either drain PVC or pressure PVC depending on what is available and affordable), and slicing/sawing the PVC length wise in slightly longer than 1 meter lengths. View attachments 3 & 4. (Haiti). I had tested the idea of a "mold" when I saw older banana trees being cut down after they had produced. I used the full trunk, slicing it horizontally in half and hollowing out the inside layered sheaths, replacing them with soil, thinking that vetiver roots would grow through the "flesh" of the rest of the banana stalk, thus could be planted directly in gullies that we dug as parts of hedgerows intended to reduce erosion. The banana stalk idea as a medium to produce vetiver by the meter **did not** work, which is why I am writing about the experience; watering the old, sliced banana stalk horizontally and laying it in a nursery accelerated the rotting of trunk; after three weeks, the supposed mold had the substance of jelly and could not be carried! It was only after my colleague in Haiti who suggested that we use PVC, since it could be re-used over and over, that he innovated a more effective solution; picking up a "meter" of vetiver was an slide out of the mold with no soil loss or ripped plastic.

- Four observations about attached photos three and four; "newly planted 1 meter....:"
 - o a) the height of the slips is too high! They should not be more than the longer above soil level between the tip of your thumb to the tip of your little finger (Average

+/- 20 cm from the crown to the cut leaves). When too long as in the pictures, wind and rains will flatten the slips, reducing survival rates (one or two slips missing in a meter of vetiver hedgerows reduces the efficiency of soil retention);

- b) spacing is actually too tight. We still recommend 10 slips per meter; note there are 13 in each sliced PVC piping;
- c) The internal width of planted “vetiver by the meter” should not exceed 10 cm, preferably 8 cm; otherwise the weight of watered soil 1 meter long and a half filled horizontal pipe are heavy to transport if done in quantities and for long distances.
- Because the inside of a PVC pipe is smooth, once you have a 5-7 week growth (if the weather is warm and regular watering is available), it should be enough time for roots to grow and intertwine with each other so that the meter is a sturdy mass of plant matter and soil. I recommend that you mix a bit of DAP (Di-ammonium Phosphate) in the compost/sandy soil mixture to increase growth and resiliency.

We find that vetiver planted in “mold” stripes using most any texture, either split PVC pipe, or in a simple plastic “hill and gully” arrangement by digging a framework in a level soil (about 105 cm w X 3 m long and 10 cm deep), and using re bars or straight sticks (about 108 cm long, and used as separators), placing them 10cm apart, and covering the framework with plastic sheeting, over the rebars, bamboo or thin straight sticks, down into gap, 10 cm horizontal “gully” along the ground then back up “hill” 10 cm to the next rebar and so on, filling each empty strip with good top soil, then planting vetiver slips 10 cm apart (the length of a fist), it will take about 4-6 weeks for the roots to grow longitudinal and eventually intertwine well so that you can lift the 1 meter strip with two hands and load them into a transport vehicle with little to no damage. You might have seen this

type of nursery preparation in pictures that Yoann Coppin submitted from his experience and developed of “vetiver” by the meter in Madagascar. Attached pictures (photo credit Criss Juliard) are of training sessions in Haiti based on the Yoann Coppin’s innovation approach.



Bed preparation in Haiti



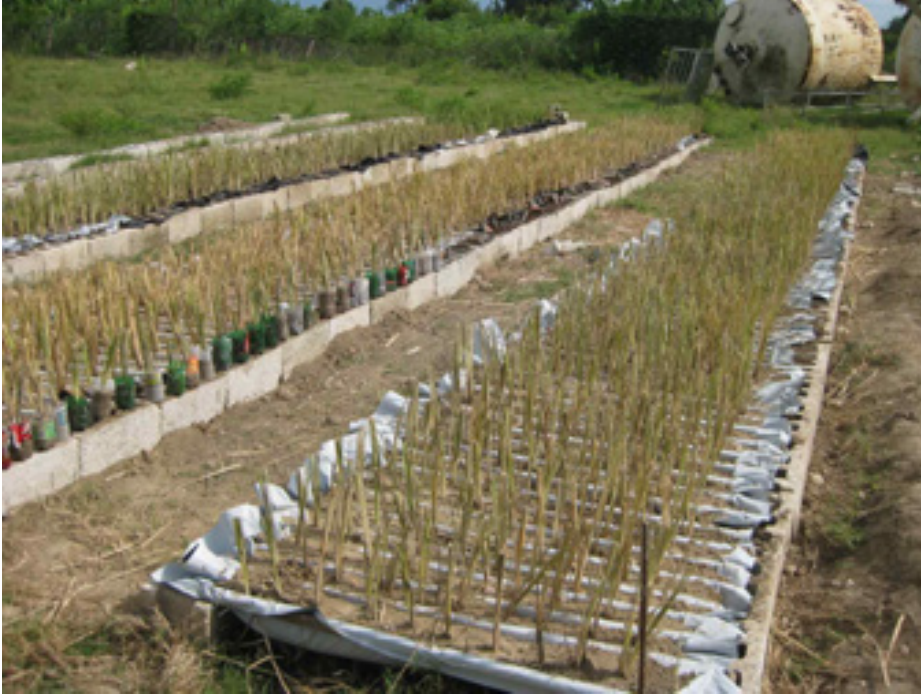
Contest planting among 5 groups of trainees for the most accurate framework and planting. Haiti



newly panted 1 meter using sliced PVC #1.



V. newly planted by the meter sliced PV#2.



Vetiver by the meter using raised gully beds, to be transplanted to protect rural roads; Haiti



Vetiver by the meter using role of plastic, Re bars for dividers and cinder blocks as risers; Archaie , Haiti