

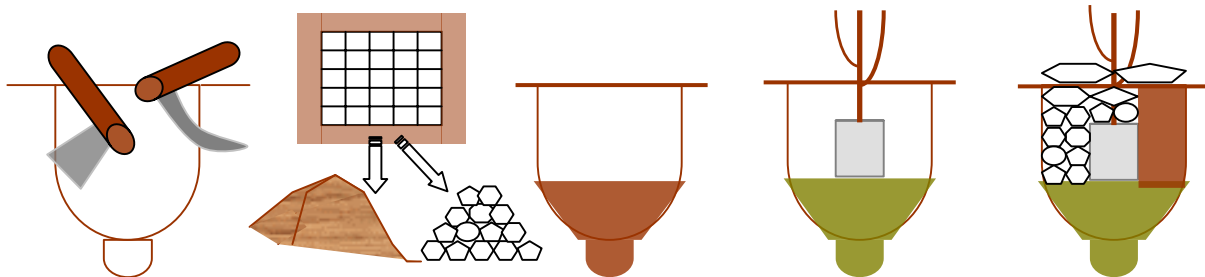
Mini Series: Sequel to “Designing Roots”

Part 2: Development of appropriate technology following long-root cultivation

In the northern edge of the desert in Sahel, there are deserts, dunes, stony plains and flat plains that are the remains of the bottom of dried lakes. Going a little further southward, one starts seeing farm land with crops that only require a small amount of annual rainfall, and seasonally used rangeland and woodland. However, many such farmlands and rangelands, which have been used repeatedly for millennia, are noticeably degraded having lost their topsoil. Tominian is in such an area. It is situated near the border with Burkina Faso and you can reach it from the Capital City Bamako, going on a major road to Mopti, leaving the Niger River at Ségou and go eastward through Bla and San. The NGO Saheru-no-Mori (Forest of Sahel) has been working in the town to restore natural vegetation and to promote afforestation and the greening of the area, making use of their experience with long-root cultivation.

The biggest success factor of long-root cultivation is how we can make roots reach permanently moist soil layers as quickly as possible. Once roots reach the layer, there is no need for watering and the plants will still keep growing. In Tominian, we are experimenting with the following method, attempting to attain similar effects as long roots, using ordinary saplings or young saplings.

- (1) Dig as deep a planting pit as possible using locally available tools
- (2) Divide the dug soil between fine soil and pebbles by sieving
- (3) Place fine soil mixed with livestock dung at the bottom of the hole
- (4) Pour ample amounts of water in the pit and plant the sapling
- (5) In order to ensure that water reaches the deep part of the pit, create vertical pebble layers and evaporation preventing mulch



By planting in this way, we can not only obtain the same growth efficiency as planting long root saplings, but also limited rain drops will be fed directly to the growth area of the root system without waste. In order to effectively trap rain water, it is important to observe detailed micro topographic conditions. Therefore, it is useful to mark areas that are even slightly lower than surrounding areas by walking around the planting area after rain. Sometimes there are no pebbles in soil dug from planting pits. It is important to identify places where pebbles and stones can be found. As we explained when we introduced the use of pebbles and stones in arid areas in AAI News Vol. 8, the use value of pebbles and stones for improving water permeability and mulching is very high. Rather than sticking to a particular technology, it is increasingly essential, in development assistance, to create processes to develop technologies appropriate for particular areas, by combining various technologies.



Digging a pit using locally available tools



Effective use of pebbles and stones



Sieving dug soil