Planting fodder on soil bund, fanyan juu, or directly as pure strip to effectively control erosion.

This short note presents some ways of planting fodder grasses in order to help a good development of the young plant and increase its efficacy to control erosion.

A. Ensuring the availability of sufficient fodder grass (which quantity needed)

In the context of Southern Ethiopia, the use of fodder grass has proven to be very effective to control erosion:

- to plant and consolidate physical structures (soil bund or fanya juu) – photo on the left
- to establish pure strips of grass acting as a biological barrier – photo on the right

↓Physical structure (soil bund) planted with grass

↓Creation of a pure strip (layout and planting grass along the contour line)

But in any cases, it is necessary first for the farmers **to have sufficient planting material**. In order to have significant effect on erosion control at a micro-watershed level, it is necessary that all farmers conserve their land and have therefore access to some grass in advance. As a references:

- To cover **1 linear metre** of structure with a double row of grass, you will need 20 slips to be planted (2 slips per pit distant from 20 cm x 2 rows)
- To cover **100 linear metres**, you will need 2000 slips which can be multiplied in **16m² of backyard nursery**[1]

B. Preparing the soil (physical structures and pure strips)

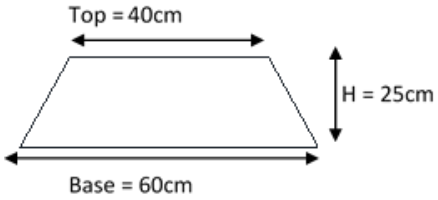
To limit heavy work, it is suggested to alternate physical structure and simple rows of grasses (called "pure strips").

← Often, **physical structures** are placed at the **top, at the middle, and ant the bottom of the sloping field**. Their advantage is to retain the sediments that are otherwise washed away by the run-off water. Planting grass on those physical structures is essential to consolidate them and ensure their durability.

[1] considering a distance of 40 x 40cm in the nursery, 16m² (4m x 4m) corresponds to 100 pits planted with 2 slips per pit, allowing the production of about 2000 slips after one rainy season.

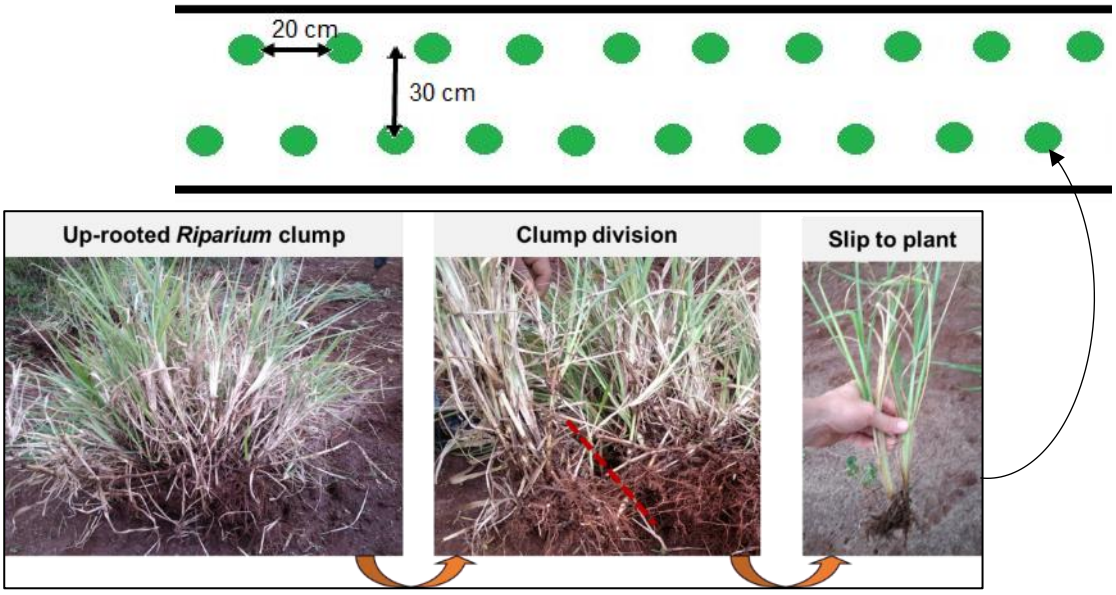
Between these physical structures, it is advisable to integrate **pure strips of grasses** to conserve the soil and help the progressive formation of pseudo-terraces. On gentle slops (<10%), only pure strips can be used.

The installation of pure strips also requires soil preparation, → but lighter than for physical structures. It consists in collecting and raising soil up to 25cm, compacting the loosened soil to realize a small mound of 60 cm wide on the base and 40cm wide on the top; and work the soil to be friable just before planting the grass to allow the good development of the roots. Respecting this width and making the top of the mound flat is important for the plantation of the grass.



C. Planting the grass

To obtain rapidly an effective biological barrier that will break the speed of the run-off water and maintain the soil, the **plantation of 2 rows of grass is very effective**, could it be on the pure strip, on the physical structure or to plant an old fanya-juu. The **average distance between two plants on the structure shouldn't exceed 20cm, with the plantation of 2 slips in a small planting hole and a distance of 30cm between two rows**. A planting hole10 cm depth is enough to cover the root parts of the 2 slips . After the insertion of the base of the slip within the hole, the soil should be piled up and compacted enough to insure a good rooting.



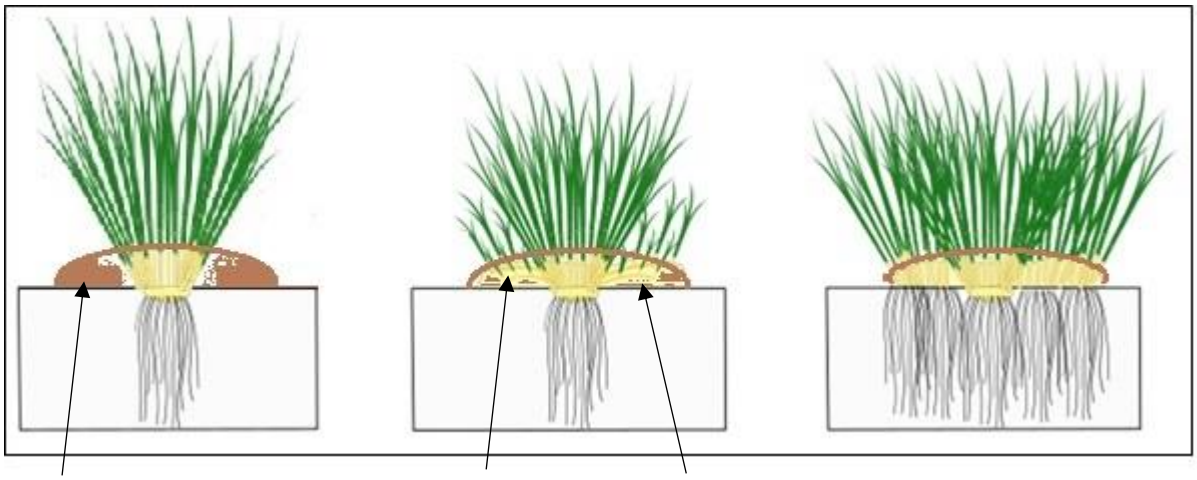
The clump is uprooted and divided to obtain several slips. In each pit, only 2 slips are necessary to produce a new clump.

☝ It is important to replant some slips in the backyard nursery to continue multiplying planting material for future structures, and also to further develop the fodder resources of the farm (fodder bank)

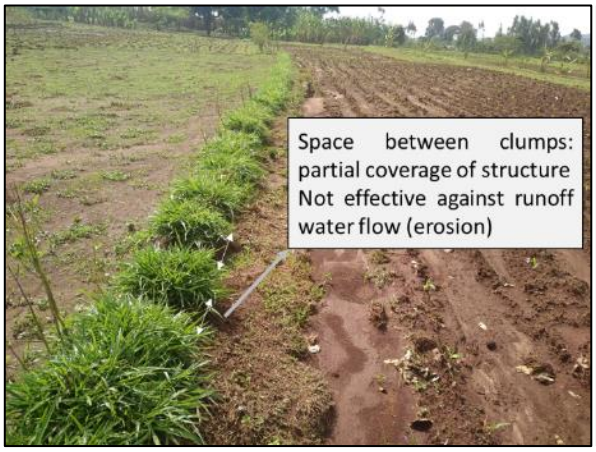
D. Earthen up (ridging) the grass to form an effective barrier against erosion

→ During the first year, it might be necessary **to fill the gaps**: sometimes, erosion may take away some young seedlings, especially in the absence of physical structures or just some failed to survive and required to be replaced. Replanting additional seedling might be needed to form an effective structure.

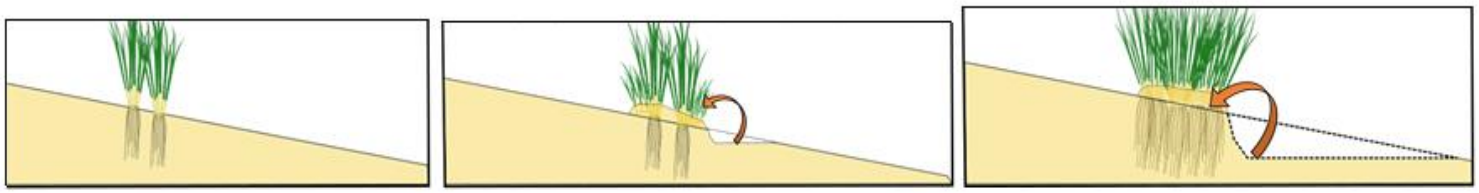
→ Also, to enable a **continuous hedge of the fodder grass**, **ridging the strips** is required (this is also called "hilling" or "earthen up"). Bringing soil to cover the foot of the plant will encourage the emergence of new rhizomes that will generate new shoots.



Earthen-up the foot of the grass | After some time, new shoots will appear at the base of the plant. | Progressively, the grass is forming an effective barrier against erosion



Most of the time, it is advisable to ridge the grass **using the downstream soil** to help the development of the grass but also to encourage the formation of a terrace, as shown in the following picture:

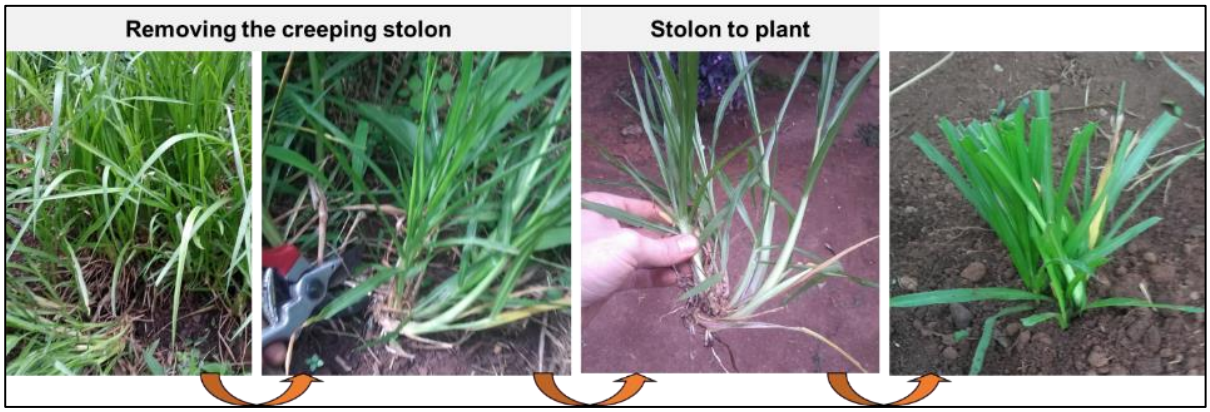


E. Multiplying the grass without uprooting the plant

This method allows to multiply grass without up-rooting a clump, which might particularly interesting for farmers who have no backyard nursery but already some grass on anti-erosion structures. To develop this practise, the grass has to be cut frequently but at 20cm height from the soil minimum in order to boost the development of stolon. If the grass is harvested at the soil level, the plant will not produce stolon.

By doing so, stolon will appear at the base of the plant, as shown on the pictures below.

These stolons can then be collected and planted in a backyard plot to fasten the propagation rateor on the ridges arranged for pure strip.To succeed, it is mandatory to plant the stolon while the soil moisture is sufficient (otherwise the leafy part is drying and there is no roots development from the node).



The establishment might be slower than from clump division. However, the grass multiplication can be done without uprooting the plant (clump division) and simply by cutting/ removing the creeping stolon.

F. Harvesting the grass

The grass can usually be cut between 3 to 4 times per year. In order to preserve the grass, it is advised to **cut it at about 10cm high minimum**.