

1. What is Ngolo cultivation

Ngolo or Matengo pit system is essentially a soil and water conservation system as well as a fertility restoration technique, through refuse decomposition and crop yield enhancement. It consists of a series of pits, 2m x 2 m and 30cm deep, which from a distance resembles a honeycomb or chessboard.



2. Where did it originate

Ngolo cultivation originates from Mbinga District (Matengo highlands) of Southwest Tanzania. It has been in use for at least 200 years and currently extends to over some 18,000 ha. The Matengo community developed this system due to shortage of arable land and had to cultivate on steep slopes for survival.

3. Introducing Ngolo Technology in Kenya

Through collaboration with MARI in Tanzania, CETRAD decided to migrate this innovation to Kenya and identified three settlements in the heavily degraded hillslopes of Maseki, Musengo and Nzauni and test its potential to restore land fertility and improve productivity. Prior to introduction in Kitui County, it was unique to the Mbinga district, and was not found anywhere else in the world.



Ngolo fields planted with Beans & Maize

4. Why you can use Ngolo for soil and water conservation

Ngolo cultivation technology has multifunctional benefits:

- Maintenance of soil fertility, weed control and Soil conservation through the effects of - interception of run-off water and soil

trapping, soil mulching and water harvesting.



Traditional farming



Ngolo maize plot

- It saves labour in the sense that the pits are reformed after 1 years.

5. What are the suitable areas for Ngolo Cultivation?

Ngolo is mostly practiced on steep slopes ranging from 10 to 60%.

6. What should be followed in this simple technology to get more harvest and conserve environment.

- The Ngolo formation starts by slashing grass with a sickle, panga or slasher to the ground level and lain in a matrix of discrete squares or rectangles after drying for 10-14 days.
- Then soil is dug by hoe from the center of these squares and thrown over the grass to form bunds on all sides and consequently a pit (Ngolo in the center).

- The bund walls thus consist of a layer of grass sandwiched between layer of topsoil and the original soil surface beneath it.
- The dimensions of the pits range from 2-2.5 meters and 0.3 m to 0.5m deep depending on: 1) the fertility of the area, 2) type of soil (easy or hard to till) and 3) whether or not the area is stony.
- On average, pits occupy about half of the area of a given field and the other half by ridges on which crops like beans or maize are planted.
- Throughout the year weeds and soil and crop debris are thrown into pits to form compost. The pits are reformed every 1 years.

7. How crops should be planted

- Sowing of bean or legumes seeds is done on small ridges and the seeds are covered with soils.
- Sowing of maize is done after harvesting beans or legumes. The farmer lightly rakes the soil to remove weeds and crop residues, in before planting of maize and cowpeas.

- Seeds are sown at an interval of 15cm for legumes and 30cm for maize.
- 8. What are the recommendations?**
- Farmers in Maseki, Nzauni and Musengo hilly areas are advised to adopt the Ngolo cultivation system, which has been proved to be environmentally sound and productively sustainable.
 - Farmers are advised to avoid slash and burn but embrace Ngolo cultivation method to improve their yields.



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More information can be obtained from

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NGOLO CULTIVATION TECHNOLOGY



“Ingolu” or “Ngolo”

Is a traditional farming system of the Matengo. This farming system is indigenous and is characterized by combination of anti-erosion techniques of pits and ridges on steep slopes.