

FARMING-SYSTEM SPECIFIC EXTENSION CONTENT FOR ENHANCING CLIMATE CHANGE ADAPTATION AND RESILIENT FOOD SYSTEMS IN SORGHUM-BASED DRYLAND FARMING SYSTEMS OF TANZANIA AND BURKINA FASO

ZAI PITS

CLIMATE CHANGE ADAPTATION AND RESILIENT FOOD SYSTEMS ISSUE

How to overcome water loss through evaporation and runoff, encourage infiltration at the crop base and also mitigate the effects of insufficient and erratic rainfall

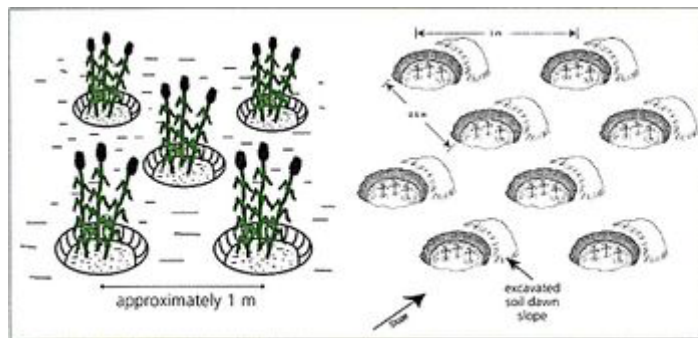
ESSENTIAL TECHNICAL INFORMATION

Zai pits are also known as planting pits, planting basins, micro pits, or small water harvesting pits. They measure 20-30 cm in width, 10-20 cm deep, and spaced 60-80 cm apart. Benefits of Zai pits include:

- Increase the amount of water stored in the soil profile by trapping rain water. It retains moisture thus allowing it to infiltrate.
- Increased yield due to more water and nutrients available
- Protects seeds and organic matter from being washed away
- Reduction in water runoff and evaporation
- Possible increased termite activity, which leads to a higher water infiltration when it rains.
- Can collect more than 25% or more of run-off water
- The pits also retain moisture for a long period of time because of the crop residues at the bottom of the pit.
- The approach ensures improved water and small quantities of fertilizer and manure are targeted to the crop; the result is improved productivity.
- It can work with other techniques such as stone contours and hand dug trenches
- Improved soil fertility and agricultural productivity of several crops
- Pits are sometimes dug during the dry season, which alleviates the labour burden for land preparation at the onset of the rains
- Because of labour times (especially because pits are created during dry and warm season), it is most effective if the measure is undertaken by groups of farmers together, instead of individuals.
- The construction of planting pits can be done with machines.
- Zai pits are even more efficient when combined with other interventions such as organic and inorganic soil inputs such as mulching.

HOW TO IMPLEMENT ZAI PITS

Figure 1: Zai Pit implementation



- i. Plough the land along the contour;
- ii. Dig the Zai pits (holes) with diameter of 15-20 cm and depth of 10-15 cm or more, distance between each other from 70 to 80 cm apart, resulting in about 10 000 pits per ha. Make sure they are dug perpendicularly to the slope and put the soil from the hole on the direction of the downslope (so as to create a small soil wall/bund to keep the water in the hole)
- iii. Apply well-decomposed manure and fertiliser microdose in the Zai pits and slightly mix with soil.
- iv. Plant seeds in the pits

Figure 2: Implemented Zai Pits

