



REPUBLIC OF KENYA



NAVCDP

National Agricultural Value Chain Development Project
Transitioning from Subsistence to Commercial Farming

SOIL AND WATER CONSERVATION IN POTATO



Introduction

Soil and water conservation are purposeful and aim to maintain or enhance the productive capacity of the land including soil, water and vegetation in areas prone to degradation through:

- Prevention or reduction of soil erosion, compaction and salinity
- Conservation or drainage of water
- Maintenance and improvement of soil fertility



Drip Irrigation in potatoes



Intercropping potato

Mulching

Mulching is when a layer of organic material is applied to the soil surface between rows of growing crops. Its main function is to conserve soil moisture by improving soil holding capacity, improving soil fertility, suppressing the growth of weeds, preventing soil erosion from heavy rains and strong winds, and maintaining an even soil temperature. Mulching is commonly used in banana, Irish potato, avocado, and cotton farming.



Mulching Potato Crop

Furrow and Ridges

Furrow irrigation uses furrows between planted ridges. The soil is prepared into vertical channels (furrows) and planting mounds. Water moves into each furrow, running down the furrow's length and seeping into the soil at the root level. Furrows and ridges are popular in potato-growing regions.



Furrows in Potato crop field

Zai Pits

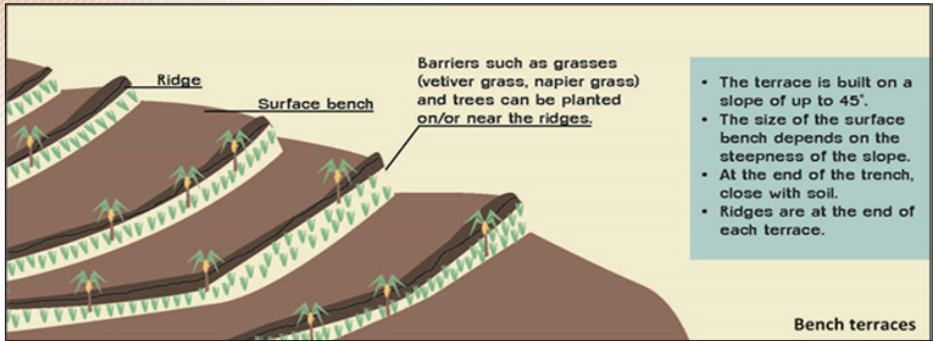
Zai pits are small basins in which the seeds of annual or perennial crops are planted. The pits as illustrated are then filled with mulch, manure or good soil to increase soil fertility and the capacity of the soils to capture water. Zai pits are constructed circular, square or rectangular depending on the soil depth, plant density and amount of organic manure available. This low-cost and environment-friendly technology is very efficient in protecting seeds and soil organic matter from being washed away from water runoff. This intervention is most suitable for flat or gently sloped terrains (0-5%) with a precipitation range of 350-600 mm/year.



Zai Pit

Bench Terraces

Bench terraces consist of a series of beds that are more or less level and run across a slope at vertical intervals, supported by steep banks or risers (walls or bunds). The flat beds created by bench terraces illustrated enable the cultivation of crops on medium to steep slopes. The technology is highly suitable for semi-arid to humid regions of rainfall, 700 mm or more; medium to steep slopes (12–47%) soil depths greater than 50 cm; and areas with no gullies or stones.



Bench terraces



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KALRO/NAVCDP/Potato Pamphlet No: 132/2024

