

The Steps of Deep Bed Farming

From Barren to Fertile

From Hunger to Food security

STAGE	EVENT	ACTION	BENEFIT
1	Breaking the "Hard Pan"	Where land has been continuously farmed, commonly a hard pan has formed. This must be broken up with pickaxes to a depth of 30cms minimum	Water percolates into subsoil, instead of running across the surface. Plants more robustly cope with dry spells. Farmers only dig once.
2	Create the marker ridges	Careful survey using line levels creates marker ridges exactly on the contour lines at intervals down the slope. Training essential for complex slopes	Clearly visible marker ridges help to align the deep beds along the contour lines. This minimises water erosion and aids percolation
3	Reinforce the marker ridges	Vetiver grass is a non-invasive deep-rooted grass, planted to stabilise the marker ridge. This is used for land stabilisation in many parts of the world. It transplants very easily.	Vetiver grass is widely available in Malawi. It is a plant essential for the DBF method by creating stable marker ridges and providing materials for mulching.
4	Create the holding ditch	Above the marker ridge a ditch 0.5 metres wide and deep with closed ends and baffles every 3 metres becomes a holding reservoir after heavy rain.	By holding the water in the ditches, it allows slow percolation of water into the subsoil where the roots of the crops are
5	Making the Deep Beds and footpaths	Deep beds about 1 metre wide are created aligned to the marker ridges. Raised footpaths created and the furrows "boxed" at 3 m intervals. Beds are never trodden on again.	Allowing walking in furrows and on raised footpaths stops recompaction of the planted areas. Footpaths raised so they can never become watercourses.

6

Planting the beds with main and cover crops

The beds are wide enough for 2 rows of maize and inter-planting for other crops. They can be planted by farmers standing in the furrows. Timely planting of cover crops is important.

Inter-planting complements crops, helps with pests and diseases. Cover crops add nutrients, lower soil temperature, evaporation and protect the soil-surface from 'crusting' by sun and rain.

7

Composting, fertilisers and Bokash

Crop residues and chopped vetiver grass are used as mulch. Nothing is ever burned. 7 ingredient "Bokash" compost is made

Mulching reduces heat and evaporation. It builds organic content of the soil. Compost reduces use of artificial fertiliser. PH rises.

8

Crop rotation and agro forestry

Farmers reminded of importance of rotation. Essential plants such as Tephrosia are planted for deep nutrients and pest control.

Pests and diseases can be controlled more effectively. Soil becomes more fertile with crop rotation. Yields increase. Deeper soil nutrients are accessed.

9

Livestock. Pigs and Goats.

An animal "pass on programme" is introduced into each community. Progeny from the animal is distributed on a cascading model

This programme creates strong bonds in villages. The animals are kept for their dung, an essential ingredient of Bokash

10

Lead Farmers spread DBF

Each Lead Farmer, voted by that community, agrees to train between 5 and 15 farmers who request it, annually. Tiyeni provides ongoing consultancy

The cascading effect of this training allows communities to spread the technology, adapt to their circumstances and control their own destiny.