Nine maize planted in a pit (Paul Kahiga (8444-00300 Nairobi))

Nine Maize Pits ( )

Maize Pits

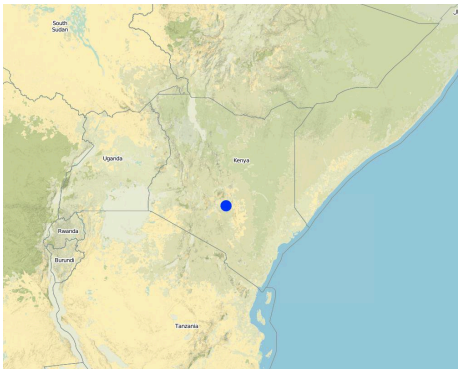
The nine maize pits is a type of SLM technology whereby, a planting pits measuring (2*2*2) feet are dug along a contour and maize planted in the pit at a spacing of (30*30) cm. The top soil is mixed with FYM and the spaces in between are left un-ploughed.

Maize pits commonly referred as zai is a traditional land rehabilitation technology “invented” to rehabilitate degraded dry lands and to restore soil fertility to the benefit of farmers living there.They are made on land which is not very permeable so that runoff can be collected. Improvements in the traditional pits by the addition of organic matter (compost) have resulted in dramatic improvements in yield. The planting pits are suitable for semi-arid area like the lower Mbeere District to enable crops to survive dry spells. They are used on a wide variety soil types but most suitable on silt and clay soils where runoff can be generated due to limited permeability.

Purpose of the Technology: Apart from establishment of a nine maize crop stand in one pit, the technology assists in harvesting rain water, conserving the moisture, managing of soil fertility and controlling of weed development. Use of this technique in Mbeere South District have produced higher grain yields, particularly on highly degraded sandy soils. They offers a good potential to both increase the livelihood of the rural population and at the same time, combat desertification.

Establishment / maintenance activities and inputs: The process is started in dry season of the year. Holes of 2ft by 2ft and 2ft deep are dug out. Remove the top soil and put it on the uphill side. Remove the subsoil and place it down hill to form a continuous bund from end to end of each row. The top soil is returned into the pit and mixed with animal manure at the rate of 1 debe per hole. Plant 9 maize seeds on the pit at a spacing of 1foot. The compost can be made from rotted cow/sheep dung, leaves, and ashes from wood-fueled stoves.

Natural / human environment: These maize pits are usually constructed on abandoned or unused ground. Thus, crop yields resulting from this practice bring a benefit of 100%.



: Mbere South District, Eastern Province,

:

- 37.69734, -0.74395

: (approx. < 0.1 2 (10))

?:

: 10-50

✓

(> 50)

/

Construction of the nine maize pits, the top soil is put aside and mixed with manure (Paul Kahiga (8444-00300 Nairobi))

✓
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: 1

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- Ha:

SLM

SLM

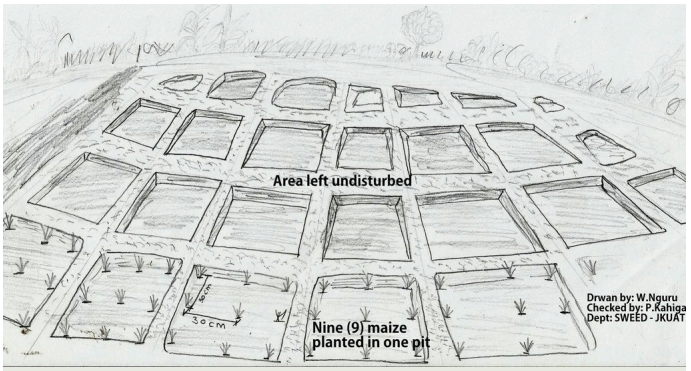
- S2:

The technical drawing on the right side shows a representation of how the nine maize pits are prepared. The top soil is put aside and mixed with FYM or other organic matter. The area in between the pits is left undisturbed.

Location: Mbeere South District. Eastern
Date: 19/09/2012

Main technical functions: control of raindrop splash, water spreading, sediment retention / trapping, sediment harvesting
Secondary technical functions: control of dispersed runoff: retain / trap, control of concentrated runoff: retain / trap

Retention/infiltration ditch/pit, sediment/sand trap
Vertical interval between structures (m): 0.2
Spacing between structures (m): 0.3
Depth of ditches/pits/dams (m): 0.2
Width of ditches/pits/dams (m): 0.3
Length of ditches/pits/dams (m): 0.3



Author: Paul Kahiga, 62000-00200 Nairobi

- It requires high intensity labour due to manual construction.
- **KSh**
- ( ) 1 USD = 100.0 KSh
- 4.00

1. Land clearing (/ : Before onset of rainfall)
2. Digging of pits (/ : Before onste of rainfall)
3. Buying of seed maize (/ : before onset of rains)
4. Planting of seed maize (/ : just before onset of rain)

			(KSh)	(KSh)	%
Labour	ha	1,0	24,0	24,0	100,0
Tools	ha	1,0	15,0	15,0	100,0
Seeds	ha	1,0	12,0	12,0	100,0
Manure (FYM)	ha	1,0	50,0	50,0	100,0
				101.0	
				1.01	

1. Weeding (/ : after 2 months)

			(KSh)	(KSh)	%
Labour (weeding)	ha	1,0	24,0	24,0	100,0
Tools	ha	1,0	15,0	15,0	100,0
				39.0	
				0.39	

Thermal climate class: tropics

- < 250
- 251-500
- ✓ 501-750
- 751-1,000

- 1,001-1,500
- 1,501-2,000
- 2,001-3,000
- 3,001-4,000
- > 4,000

- (0-2%)
- (3-5%)
- ✓ (6-10%)
- (11-15%)
- (16-30%)
- (31-60%)
- (>60%)

- ✓
- ✓

- 0-100
- 101-500
- ✓ 501-1,000
- 1,001-1,500
- 1,501-2,000
- 2,001-2,500
- 2,501-3,000
- 3,001-4,000
- > 4,000

- (0-20)
- (21-50)
- ✓ (51-80)
- (81-120)
- (> 120)

( )

- / ( )
- ✓ (,)
- / ( )

(> 20)

- / ( )
- (,)
- / ( )

- (>3%)
- ✓ (1-3%)
- (<1%)

- < 5
- ✓ 5-50
- > 50

- ✓
- /

( )

- ✓ ( )
- ( )

?

- /
- /

- ✓

SLM

- ( )
- ✓ (/)
- /

- 10%
- 10-50%
- 50%

- ✓

- ✓
- /

- ✓ /
- /
- (,)

- ✓

- < 0.5
- 0.5-1
- ✓ 1-2
- 2-5
- 5-15
- 15-50
- 50-100
- 100-500
- 500-1,000
- 1,000-10,000
- > 10,000

- ✓

- ✓

- ( )
- ( )
- ✓
- ( )
- ( )
- ✓

	✓	
	✓	

Machinery

High manpower to dig the pits

/

SLM /

Food security and a source of income generation at household level

decreased increased

(
)

/

/

( )

1-10%
11-50%
> 50%

?

0-10%
11-50%
51-90%
91-100%

?

/

?

/

( )

:

- Prevention of soil erosion.
- It is a water harvesting technology.

/ / :

- Encourages pests to stay in the pits

:

- Food security.
- Prevention of excessive evaporation.
- Income generation at household level.
- Improves ground water recharge.

/ / :

- Labour intensive (construction & maintenance)
- In wet seasons, they can be prone to water logging
- Prevents machinery movement in the farms

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https://qcat.wocat.net/km/wocat/technologies/view/technologies_1676/

SLM

- International Centre for Research in Agroforestry (ICRAF) -
- Jomo Kenyatta University (Jomo Kenyatta University) -
- KARI Headquarters (KARI Headquarters) -