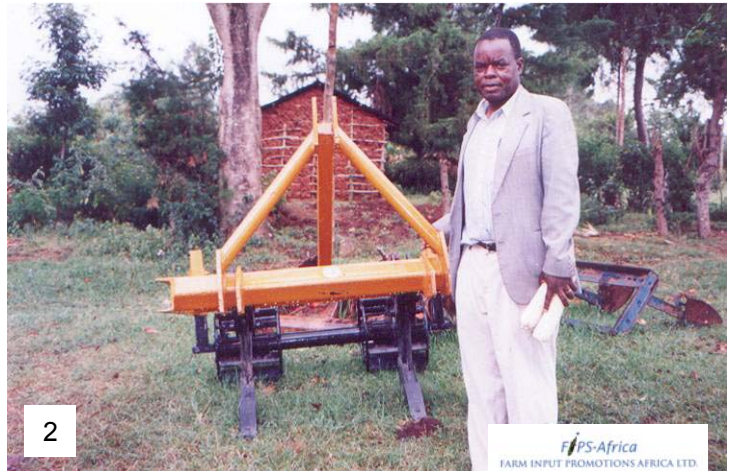


# Success Story

## Reduced tillage with chisel plough increases yields and reduce land preparation and fertilizer costs in Trans-Nzoia district



After years of cultivation by plough or jembe, a hard pan may form at plough depth (1). This forms a barrier to prevent water infiltration and/or root penetration. As a result, crops suffer from intermittent waterlogging as water can not drain away and drought as roots can not access the sub-soil to obtain water.



The Chisel Plough is essential for breaking plough pans. This chisel plough, manufactured locally by Ndume Ltd., has tines set 75 cm apart. Following a pass with the chisel plough, farmers plant within the furrows. The technique is suitable for those farmers who mechanically cultivate and hand plant.



Rainwater is able to drain through the furrows, and roots can penetrate deep within the subsoil to access more water and nutrients (3).

In 2005, 10 farmers from the Kiungani Maize Self-Help farmers Group experimented with the chisel plough. Results were excellent. Mr. Tom Walubengo increased yields of maize from 22 to 34 bags/acre! (4)



The following season, Mr Walubengo did not cultivate again, but planted maize and vegetables without fertilizer within the furrow made by the chisel the previous season (5). Early crop growth was excellent indicating that the plants in the second season were able to benefit from residues of fertilizer not used by the crop the previous season!

The method has great potential to improve soil fertility, reduce land preparation and fertilizer costs! All 165 members of the farmer group want to use the chisel plough next season!



## Success Story

### Use of chisel plough and herbicides reduces production costs to KSh 510/bag at Tom Walubengo's farm in Trans-Nzoia district

Use of the chisel plough and herbicides reduces the costs of land preparation and weeding compared to conventional ploughing, harrowing, and hand weeding. Yields using the chisel plough and herbicides reached 34 bags/acre at Tom Walubengo's farm in Kiungani. A simplified analysis outlined in the table below shows that total costs of production amounted to KSh 17,300, which is equivalent to approximately KSh 510 per bag. Therefore, if Tom sold his maize at KSh 1000/bag, he would make a profit of KSh 16,660/acre!

	Activity	KSh/acre
1	Lease of land	4,600.00
2	Herbicide (Roundup) (750 g)	930.00
3	Spray Roundup	200.00
4	Chisel Plough	1,000.00
5	Pit making	400.00
6	Sowing	250.00
7	Herbicide (Lasso GD) (1250 ml)	570.00
8	Spray Lasso GD	200.00
9	Hybrid seed (PAN691) (10kg)	1,550.00
10	Spot weeding	460.00
11	DAP fertilizer (75 kg)	2,550.00
12	CAN fertilizer (75 kg)	2,100.00
13	Labour (DAP application)	200.00
14	Labour (CAN application)	200.00
15	Stooking	350.00
16	Harvesting (43 bags *10 KSh)	430.00
17	Transport (43 bags *10 KSh)	430.00
18	Shelling (35 bags x 25 KSh)	875.00
	Total costs	17,295.00
	Total Yield = 34 x 90 kg bags	
	Production cost/bag	508.68