

# Preliminary Results from the FSRP/GART Magoye Ripper Study 2005

To be Presented at Golden Valley Agricultural Research Trust  
(GART)

Stephen Kabwe  
Food Security Research Project, Zambia

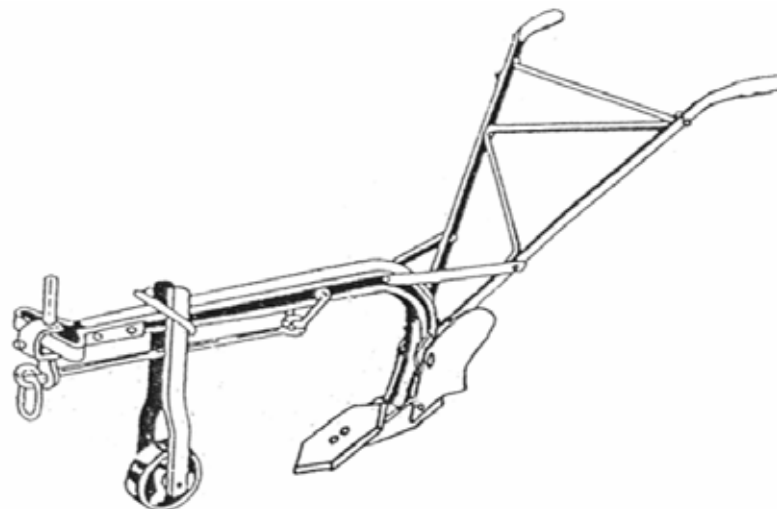
December 9, 2005

This research funded by



1

## A Magoye ripper (*Award Winning Implement*)





# Introduction

---

- Introduction of the ripping technology in Zamba (mid and late 1990s)
- On station and on farm trials were staged.
- Scaling up the ripping technology GART distributed about 2000 magoye rippers to CP, CBP, SP and EP in 2001/02



# After the distribution

---

- How many farmers have been using the magoye ripper once they received them?
- What are benefits and problem perceived by farmers using the magoye ripper?
- If there are problems, is there need to do further research to the technology or better extension and training?
- How profitable is the Magoye ripper in farmer fields?



# Methodology and Procedures

---

- Location of the study:
  - Eastern Province: Chipata, Katete, Lundazi
  - Southern Province: Choma, Mazabuka, Monze, Namwala
- Sample was randomly selected from farmers identified as having purchased ripper (ideally 200 farmers)
  - EP 84 farmers (33 ripper farmer and 51 nonripper farmer)
  - SP 94 farmers (45 ripper farmers and 49 nonripper farmers)
- Field and crops to be captured (ideally 400 total fields)
  - Crops: Maize and cotton
  - Fields that were ripped (61 cotton & 56 maize fields)
  - Fields were not ripped ( 126 cotton & 143 maize fields)
- Preliminary work: descriptive statistics



## Distribution of rippers

---

<b>Provinces</b>	<b># distributed</b>	<b># bght</b>	<b># of hh</b>
<b>Central</b>	<b>500??</b>	<b>385</b>	<b>361</b>
<b>Copperbelt</b>	<b>500??</b>	<b>24</b>	<b>24</b>
<b>Eastern</b>	<b>500</b>	<b>258</b>	<b>254</b>
<b>Southern</b>	<b>500</b>	<b>307</b>	<b>307</b>
<b>Total</b>	<b>2000</b>	<b>974</b>	<b>946</b>

- From the list generated about 946 farmers bought 974 magoye rippers.



## Institutions involved in the training of farmers

---

- GART, Dunavant and MACO are the major institutions involved in training farmers in Southern Province
- Clark Cotton, MACO and fellow farmers are the major trainers on how to use the ripper in Eastern Province.

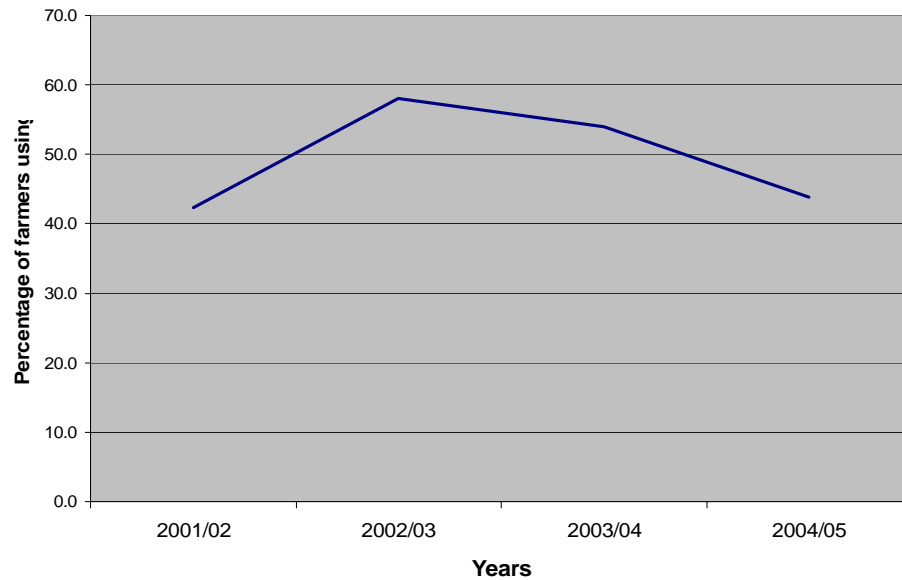


## Results

---

- Sample of 178 farmers who all have rippers
  - (only 6 heads of hhs were women; 2 were ripper farmers)
- 44% are ripper farmers (i.e. used them 2004/5)
  - 58% of ripper farmers in this sample are found in Southern Province
- In terms of ripper use by town, Mazabuka is the highest at 35% followed by Chipata at 18%.
- Least is Choma at 1%.

## Ripper use since 2001/02 by farmers receiving the ripper



## Distribution of fields studied

Province	Maize Ripped	Maize Plowed	Cotton Ripped	Cotton Plowed
EP	12%	39%	11%	37%
SP	17%	35%	20%	28%
Ave	15%	37%	16%	33%

**Total number of fields: 386 fields**

Source: FSRP/GART Ripper Study 2005



## Distribution of fields studied

---

Province	Total # fields	Eastern Prov	Southern Prov
Maize Ripped	56	41%	59%
Maize Plowed	143	52%	48%
Cotton Ripped	61	34%	66%
Cotton Plowed	126	56%	44%

Source: FSRP/GART Ripper Study 2005

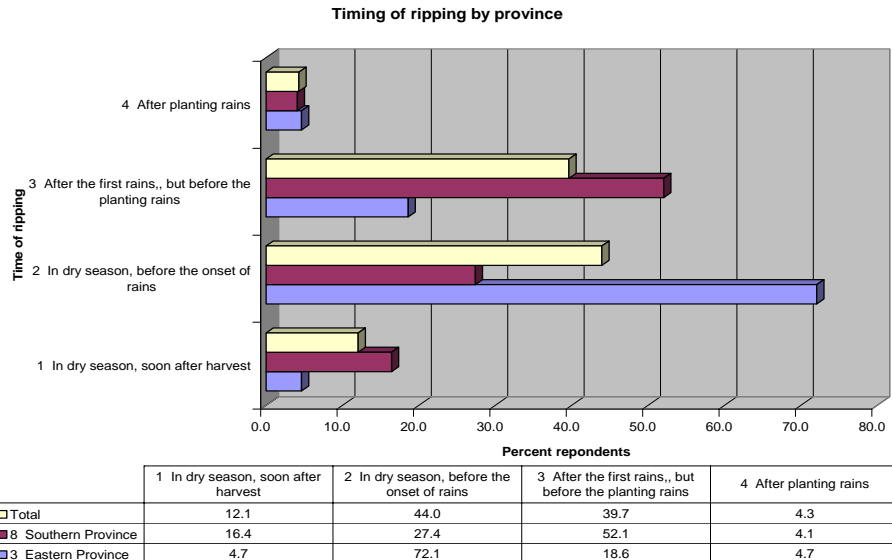


## Average size of fields

---

- ☀ **Maize ripped field: 1.1 ha**  
( Maximum: 3.63 Minimum: 0.11)
- ☀ **Maize poughed field: 1.8 ha**  
( Maximum: 12.2 Minimum: 0.20)
- ☀ **Cotton ripped field: 1.2 ha**  
( Maximum: 6.0 Minimum: 0.24)
- ☀ **Cotton ploughed field: 1.9 ha**  
( Maximum: 6.37 Minimum: 0.28)

# Timing of ripping



# Practices

- 11% of farmers indicated that the ripper was used in other farmers fields as well as their own, but only 2 farmers indicated revenues from it
- About 9% of plots used hired animals for either plowing or ripping (spread across both types)
- Some (39 farmers) used the ripper for planting furrows, mostly in Southern Province
- 74% of the ripped fields were on medium soils (as opposed to coarse or fine soils), whereas 47% the plowed fields were on medium soils
- Only 13% of ripper farmers sharpened the tines prior to the season, at a cost of 5,000 – 10,000 kwacha

## Major Benefits seen by farmers who have used the ripper at least once

Major benefits observed when using the magoye ripper

	Eastern	Southern	Total %
	Col %		
Ripped lines harvest and conserve water	16.3	31.3	25.6
Early land preparation of the field	19.2	20.5	20.0
Early planting of seeds	23.1	15.1	18.1
Good seed emergency	22.1	6.6	12.6
Higher yield	7.7	7.2	7.4
Finish the work fast	2.9	7.8	5.9
Ripper disturbs just a small portion of soil	1.0	6.0	4.1
Crops grow even when there is a drought	3.8	3.6	3.7
Root penetration is good	1.0	1.8	1.5
Not seen	1.9		0.7
Easy application of fertilizer	1.0		0.4

Source: FSRP/GART Ripper Study 2005

Note: 110 Farmers indicated 2 benefits; 50 farmers indicated 1 benefits and 18 farmers had no responses

## Most important problems faced by farmers who have used the ripper at least once

Most important problem observed when used the magoye ripper

	Eastern	Southern	Total %
	Col %		
To many weeds in the ripped field	28.6	34.9	32.3
Tine wears down quickly	18.5	31.3	26.0
No where to buy spare parts	35.3	3.0	16.5
No animals/animals are small	7.6	15.7	12.3
Ripper has no wings	6.7	10.2	8.8
Others	3.4	4.8	4.3

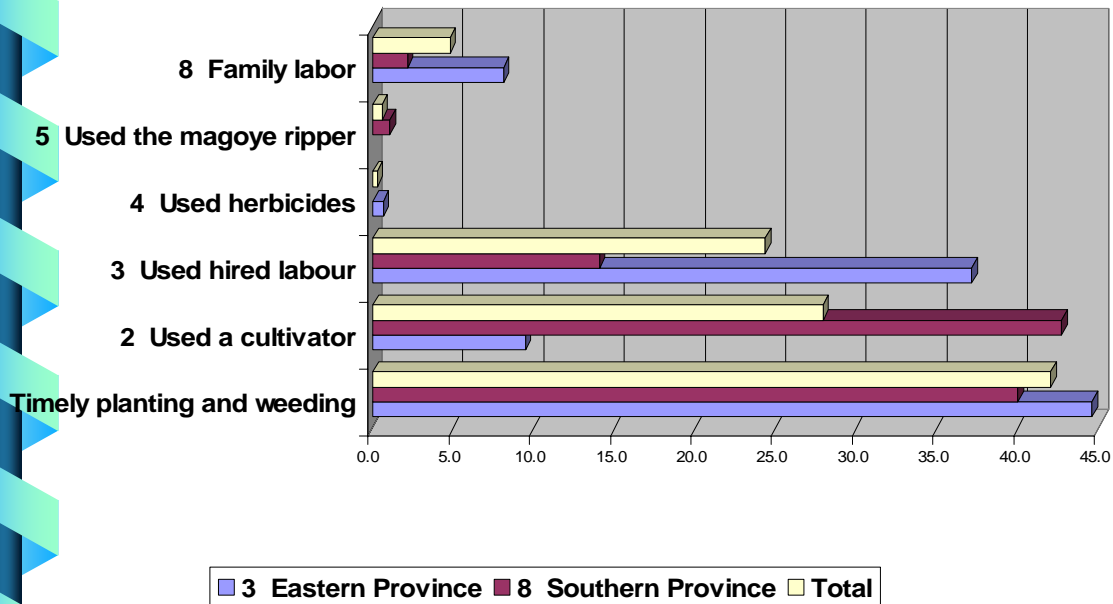
Source: FSRP/GART Ripper Study 2005

Note: 125 Farmers indicated 2 problems; 35 farmers indicated 1 problems and 18 farmers had no responses





## Most important strategies for coping up with weeds



## Strategies used for coping with weeds, by type of field

Strategies	Mzrip (%)	Mzpl (%)	Ctnrip (%)	Ctnpl (%)
Timely weeding	47	43	46	40
Using a cultivator	28	28	26	28
Using hired labor	24	23	21	30
Family labor	6	5	5	4
Using herbicide	-	-	-	1
Using ripper	-	0.8	1.8	-

# Most important reasons why non ripper farmers did not use the ripper

## Reasons for not using ripper by non ripper farmers

	Eastern	Southern	Total %
	Col %		
No animals/animals are still small	27.5	33.3	30.7
The tine was blunt	7.8	34.9	22.8
No training on how to use the ripper	23.5	15.9	19.3
Fear of weeds in the field	2.0	9.5	6.1
Not interested	5.9	1.6	3.5
No beam	5.9		2.6
The beam is broken down	5.9		2.6
Ripper has no wings	3.9		1.8
Others	17.8	4.8	12.6

Source: FSRP/GART Ripper Study 2005'

'Note: 14 farmers had two or three reasons for not using the ripper, while 85 had one reason and 1 had no reason'

'Farmers using ripper in 2004/5 are excluded'

# Issues coming out of the ripper study

## Farmers perceive a benefit from using magoye ripper

- Majority (72%) of ripper farmers felt that yields were higher in 2004/5 for their ripped fields compared to plowed fields
- Ripping enabled early land preparation / early planting
- Water harvesting was indicated as a reason for higher yields
- Good germination of seeds
- Finishing the work faster



## Issues coming out of the ripper study

---

- There are also problems when farmers use the magoye ripper:
  - Weeds are a problem in ripper fields
  - The tine of the ripper finishes fast
  - No spare parts for the magoye ripper
  - Some hh have no animals or animals are still small
  - No adequate training on how to use the ripper was offered



## Recommendations

---

- In addition to timely planting and weeding there is need to promote developed technologies to reduce weeds (eg Zamwipe & cover crops)
- Need to evaluate tine: stronger tines in general or strength of the tine corresponding to type of soil
- Spare parts for the rippers (tines, wings) should be made available
- Develop system to relax constraint on animals (distribution campaigns, etc.)
- Training: Stage demonstration plots for farmers to learn, work with private sector (eg. Clarke, Dunavant)

# Analyses remaining

- Farmer diaries for activities
- Profitability of the ripper use in maize and cotton
  - Labor use
  - Purchased inputs
  - Yields



Thank you

