



Working with the informal sweetpotato seed system to deliver benefits in the Lake Zone of Tanzania

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Outline

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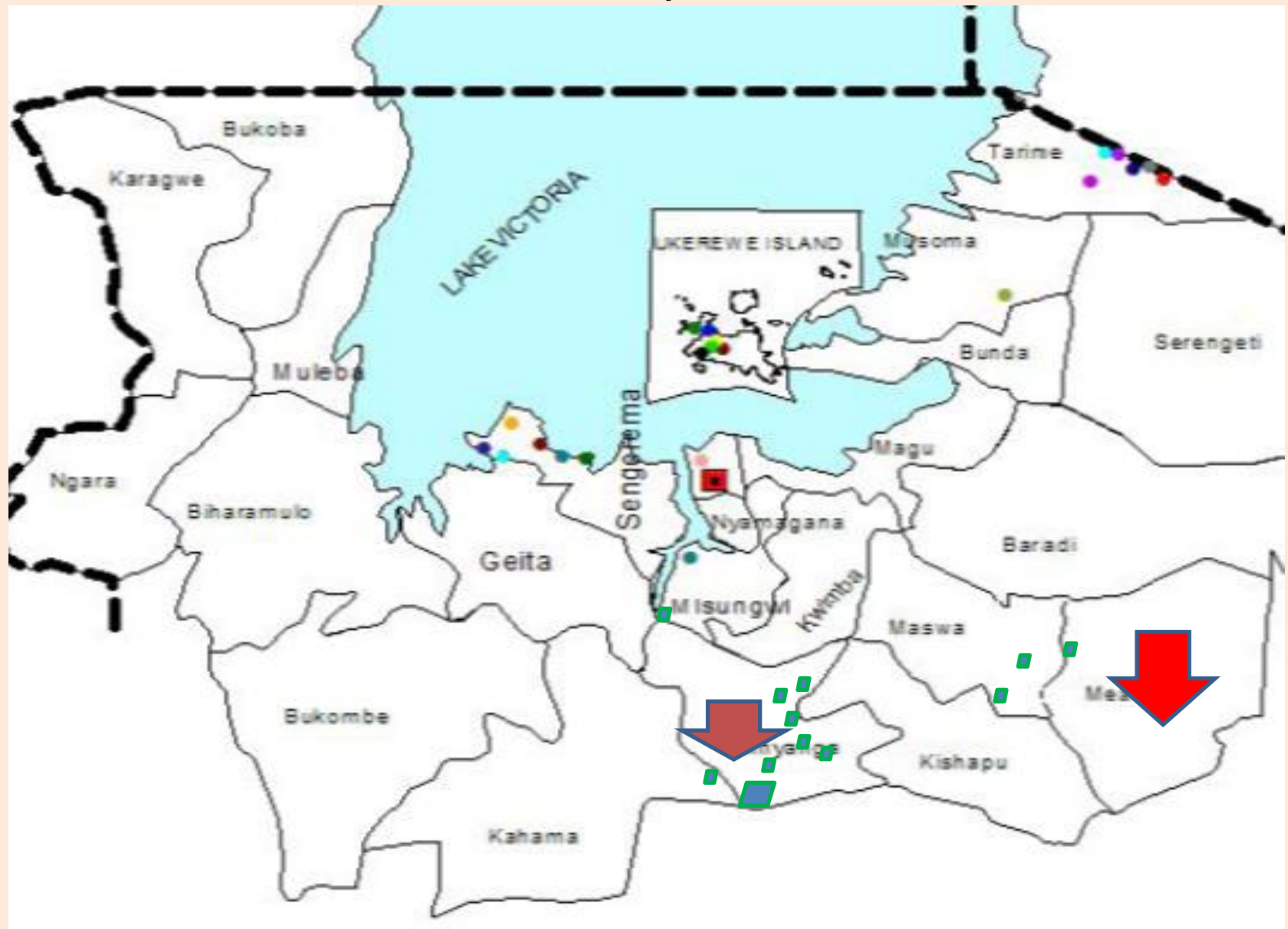
Introduction

- The Great Lakes region is a major area of SP production in Tanzania
- SP is important to smallholder famers
- Inadequate amount of quality planting material is a prime constraint at the start of the rainy season
- Nitrogenous fertilizer has long been known to increase SP planting material, yet not known by farmers

Objectives of the Study

- (1) To determine the range and capacity of the informal seed system to supply vines to farmers in Misungwi, Shinyanga and Meatu districts**
- (2) Examine the potential of the formal sector to supply possible improvements to the informal systems through**
 - Using fertilizer to boost vine production
 - Providing multipliers with improved cultivars including OFSP
 - Demonstrating rapid multiplication techniques (RMT) and more efficient irrigation
 - Awareness creation on improved varieties and seed source

Fig1: Project Intervention sites in the Lake Zone
Areas where the study was conducted



Material and methods

A total of 35 vine multipliers were selected for the study;

- 26 (53% F) in Shinyanga,
- 8 (% 57 F) in Meatu and
- 1 in Misungwi (Mr Maguta)

Mr Maguta was chosen because of the favourable location, near the lake, good access to tarmac road, easy transport of planting materials

Material and methods cont'd

- All 35 vine multipliers received training on Intergrated Crop Management(ICM)
- All received improved varieties (including OFSP) for rapid Multiplication during the dry season

Mr. Maguta ; Vine multiplier



Material and methods cont'd

- 9 vines multipliers were identified to conduct a demonstration trial on fertilizer use (20:10:10 NPK fertilizer)
- Each demonstration trial consisted of 4 fertilizer treatments
- Each vine multiplier was representing the replicate across the plots

Material and methods cont'd

- NPK 20:10:10 was applied at four rates: 0, 50, 150 and 250 kg of N/ha
- RMT applied where a local check landrace Kakamega, and NASPOT 1 were used
- 20 cm long cuttings were planted on the slightly sunken beds 1x2.4M plots at 20 x 10cm spacing

Fertilizer trial, dry areas



Material and methods cont'd

- A net plot of 1.2m^2 harvested three times at 45 days after planting and then at intervals of 4 weeks
- The data of 30cm cuttings harvested and recorded

Farmers assessing fertilizer trial in Shinyanga



Material and methods cont'd

- The data on the multipliers were analysed using statistical formulae (means, standard deviations, standard errors, Student's t test, Chi-Squared test) in Microsoft Excel 2010
- The numbers of cuttings harvested from the demonstration trials were analysed using Genstat version 14.

Data collection at field level



Results

General Observation of the informal seed system

- June - Vines multipliers establish small areas in lowland and along seasonal rivers
- Areas expanded further in August and at the peak mid September
- Selling of vines was at the peak when the short rains started in November/December
- Customers were root farmers who had no access to lowland/wet areas

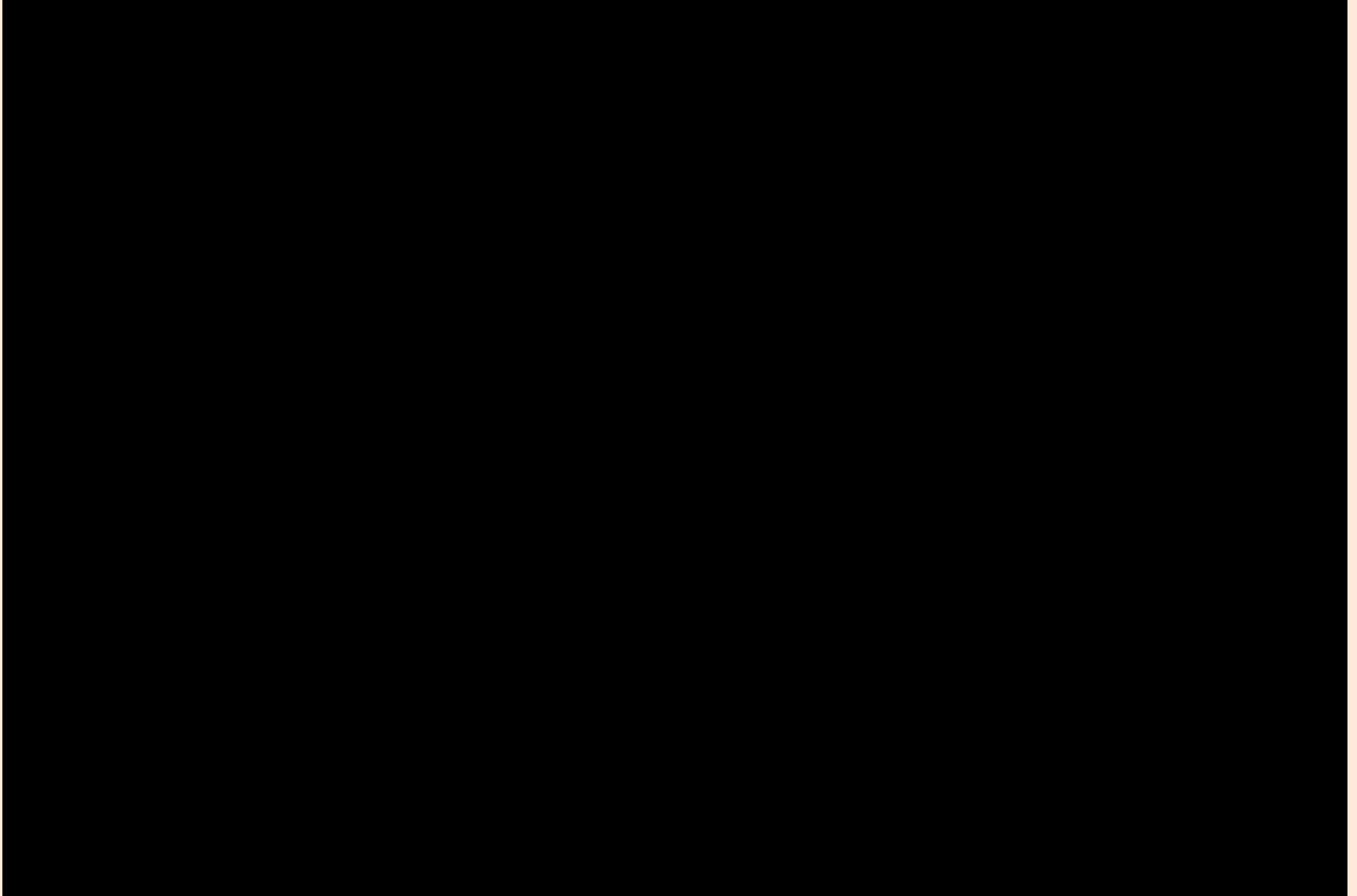


Acute shortage of water...

Created the demand for vines



Women at work!



.....results cont'd

Traditional storage
of “matobolwa”

- Vines planted in late December and January were harvested in April/May
- Vines planted in March matured in June/July, relying on residual moisture in the soil in these latter months



Sold to traders

Fig 2: Diagram of the production cycle in dry areas

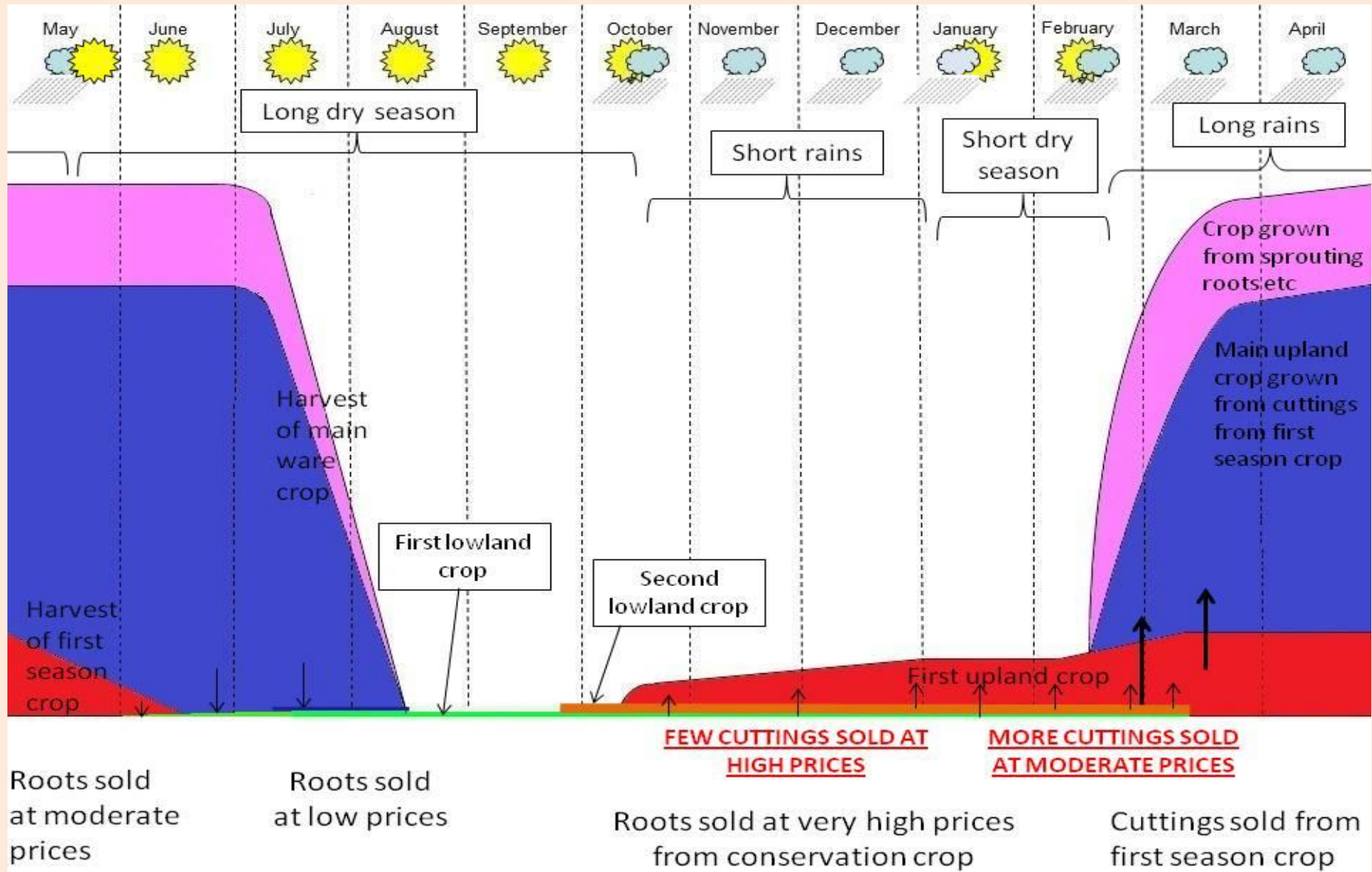


Table 1. The production of vines and sales by the different types of multipliers.

Type of multiplier	Number of multipliers selling	Average production (bundles of vines)				Amount sold per customer	Average revenue (/-) from vines)
		Sold	Own use	Gift*	Total		
With >0.5ha and pumping from Lake Victoria	1(Male)	364.5	12.0	5.5	382.0	1.68	1,822,500
With 0.25-0.5ha and pumping from a well a long way from river	1(Male)	109.5	12.5	3.0	125.0	1.99	547,500
With 0.25-0.5ha and pumping from a well in river flood plain	4(50%F)	115.1	10.3	5.4	130.8	1.81	575,625
With 0.25-0.5ha and carrying water from a well in river channel	1(M)	154.0	6.0	6.0	166.0	2.70	770,000
With <0.25ha and water flowing from a spring	2(1F, 1M)	57.3	12.3	7.0	76.5	1.64	286,250
With <0.25ha and pumping from a well in river channel	1(M)	75.5	8.0	3.5	87.0	3.97	377,500
With <0.25ha and carrying water from a well a long way from river	1(F)	77.0	7.5	5.0	89.5	1.20	385,000
With <0.25ha and carrying water from a well in river flood plain	2(1F, 1M)	54.8	11.0	4.5	70.3	1.66	290,200
With <0.25ha and carrying water from a well in river channel	12 (69%F)	59.7	9.2	4.1	73.0	1.58	300,000

Table 2: Rapid multiplication: benefit of using fertilizer to boost vine production

Fertilizer rates (Kg/ha)			Cost of fertilizer/ha (Tz /-)*	Harvest of vines/ plot	Increment al vine yield/plot	Increment al vine yield/ha	Value of additional vines/ha** (Tz /-)	Incremental cost of fertilizer/ha (Tz /-)	Return on investment
N	P	K							
0	0	0	0	123					
50	25	25	340,000	196	73	608,176	10,199,119	340,000	x30
150	75	75	1,020,000	288	92	765,490	12,837,266	680,000	x19
250	125	125	1,700,000	297	9	75,,840	1,271,836	680,000	x2

*Cost of 100kg of 20:10:10 NPK fertilizer was 136,000/-Tz

**2,182 bundles of vines, each containing an estimated 300 vines, were sold for 10,975,900/- (Table 2) making a mean value of 1 vine to be 16.77/-

***Plot area harvested was 1.2m²

How the system works in dry areas

It is entirely multipliers maintaining crops during the dry season by watering and then selling on-farm to smallholders

Number of bundles supplied			Average price/bundle	Average income	Number of recipients
Sold	Own use	Gift or barter			
76	10	5	5,028/- (\$3)	380,642/- (\$230)	50

Estimated distances (km) travelled by recipients to access vines			
0 to 10	11 to 20	21 to 30	31 to 40
24	20	5	1

On farm sale of vines

**On farm vines customers-
Meatu**



**On farm vines customers-
Shinyanga rural**



Trading vines .100km away

Track loaded with vines

- Misungwi vine multiliers transported vines to markets (>100km away) to dry areas
- Transported vines with tomatoes, backloading on lorries returning empty from Mwanza to Dar es Salaam
- 153 bundles were sold to 103 customers.



Discussion

- The multipliers are diverse, men and women, different locations, different quantity of vines produced, watered from different sources using different means
- Multipliers mostly sold on-farm direct to farmers who mostly came from ≤ 20 km to cut and purchase the vines during the short rains

customers can select disease-free planting material (Gibson et al., 2000), judge the quality of the planting material

- By purchasing, ensure the system is sustained year after year

Selected on-going activities

- Explore expansion of sales and marketing systems, and communications tools
- Monitor and clarify business models of multipliers as they increase their production and sales
- Linking to other service providers, e.g agro-dealers
- Planting material – using net tunnels, etc
- Understanding more irrigation possibilities
- OFSP adoption low – work to broaden activity

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Thank you for listening

