

File 1

Sweetpotato-based microenterprises in Uganda—Survey report

Description of enterprises

Twenty nine micro-scale enterprises trading foods were surveyed. Half of them were women's groups, and the remaining were private individuals. Each village-based women's group had an average of 15-15 members. 25% of the groups had an organization committee, 11% had a sale/finance controller, 11% were led by churches and 4% of them were led by local NGOs.

82% of the microenterprises surveyed indicated that they received the information on how to use sweetpotato through a training in product development. The training was conducted by the National Postharvest Programme of Kawanda (32%), the District Agricultural Extension Office (32%), or they learnt from their neighbours (22%). Women interviewed said that they had trained their friends (71%) and some of the on-job trainees had started to make products in their homes (64%). They were mostly engaged in trading mandazis (50%), pancakes (18%), chapattis (11%), crisps (7%), millet/maize flour (4%), and other (15%). 39% of people interviewed thought that the by-products had no value, while 28 thought they had.

The average number of employees was 2.2, and each employee was being paid Ushs 3300 per week (US\$2.80). However, 67% of microenterprises had not costed the labour since the activity was communal for women's groups or familial for private individuals. 68% of interviewees found the activity profitable while 25% did not see it as enough profitable.

Table 1. Type of enterprises surveyed (n=29), %

Women's group	48.0
Individual	48.0
Other	3.0

Table 2. Products traded by microenterprises surveyed, %

Fresh sweetpotato	32.0
Chapati	28.6
Mandazi	42.8
Pancakes	25.0
Buns	10.7
Fresh cassava	10.7
Beans	3.6
Maize	3.6
Simsim	3.6
Crisps	3.6

Table 3. Age of enterprises, months

Months	%
0-20	52.2
20-40	39.1
40-60	4.3
60-80	4.3
80-100	0.0

Table 4. Facilities used for business

Facilities	%
Individual shop	78.6
Urban street seller	14.3
Village kiosk	14.3
Market stall holder	14.3
Other facilities	32.0

Table 5.1. Ingredient for mandazis, g

Ingredients	from C&M SP	from cassava flour	from maize	from wheat flour
Wheat flour	2000	2000	2000	4000
Cooked and mashed sweetpotato (C&M SP)	990			
Sugar	110	250	500	1000
Baking powder	96	35	125	180
Cooking oil	906	2000	1000	2000
Water	1000	2000		1500
Cassava flour		750	600	
Maize flour			600	

Table 5.2. Ingredients for chapati, g

Ingredients	From SP flour	From fresh SP	From C&M SP	From wheat flour
Wheat flour	1000	1000		2000
Sweetpotato flour	250			
Salt	5	7	5	2,5
Cooking oil	25	500	500	375
Water	As needed	As needed	As needed	As needed
Fresh sweetpotato		500		
C&M SP			600	
Baking powder				4
Onion			20	20
Sugar				3

Table 5.3. Ingredients for pancakes, g

Ingredients	From C&M SP, g	From maize, g	From grated cassava, g
C&M SP	200		
Cassava flour	1250	1916	
Banana	1500	1500	
Maize flour (posho)	500	1125	
Cooking oil		458	1000
Water	As needed	As needed	As needed
Sugar		375	500
Grated cassava			4500

Table 5.4. Ingredients for buns, g

Ingredients	Buns from C&M SP, g	Buns from SP flour, g
C&M SP	1000	
Wheat flour	3000	4000
Yeast	66	100
Cooking oil	20	250
Salt	5	50
Sugar	10	1000
Butter/margarine	625	250
Water	as required	as required
Seetpotato flour		1000

Table 5.5. Ingredients for crisps, g

Ingredients	Amount, g
Peeled & sliced SP	15000
Cooking oil	2000
Salt	10

Table 6. Cost of ingredients

Price	Ushs/unit
Wheat flour	1555/kg
C&M SP	191/kg
Sugar	1152/kg
Baking powder	300/tin
Cooking oil	1450/l
Cassava flour	460/kg
Maize flour	750/kg
SP flour	350/kg
Salt	300pqt
Yeast	1475/pqt
Fresh SP	200/kg
Onion	50/pce
Banana	20/finger
Maize flour	500/kg
Grated cassava	150/kg
Butter/margarine	1500/kg
Peeled&sliced SP	200/kg

Table 7. Description of processes

Product process	knead/mix/slice, %*	Rise in the sun, %	roll/size/shape, %	ferment, %	fry/oven, %	cool/grease/salt, %	rise, min	fry/oven, min	whole operation, min
Mandazi C&M SP	17.85	17.85	14.3		17.85	14.3	71	4	180
Mandazi cassava/maize/wheat flour	14.3	10.7	14.3		14.3	14.3	55	3.5	180
Chapati wheat/SP flour	10.7	3.6	10.7		10.7	7.1	30	3	120
Chapati C&M SP	3.6		3.6		3.6	3.6			
Chapati fresh SP	3.6	3.6	3.6		3.6	3.6	15		
Pancakes posho	7.1	14.3	14.3		14.3	10.7	53	16	
Pancakes grated cassava	3.6	3.6	7.1		7.1	7.1	15	5	
Pancake C&M SP	3.6	3.6	3.6		3.6	3.6			
Buns C&M SP	7.1	7.1	7.1		7.1	7.1	90	20	
Buns wheat flour	3.6	3.6		3.6	3.6	3.6	120	15	
Crisps*	3.6				3.6	3.6			

Table 8. Time required per operation

Operation	Time, min	%
Peeling	12,4	53.6
Grating	30,5	14.3
Boiling	52,3	39.3
Mashing	8,3	39.3
Mixing	32	82.1
Sizing	28	85.7
Rolling	23,4	67.8
Frying	31,5	78.6
Packing	11,3	82.1
Distribution	43,6	64.3

Table 9. Available equipment

Operation	Equipment used	Use by microenterprise, %
peeling	knife	75.0
grating	grater	14.3
boiling	stove	14.3
mashing	saucepan	10.7
	pestle	14.3
	bottle	14.3
	mortar	7.1
mixing	saucepan	10.7
	saucepan	39.3
	basin	10.7
sizing	bowl/plate	7.1
	cup	21.4
	knife	3.6
	slicer	3.6
rolling	table	7.1
	rolling board	32.1
	table	10.7
frying	roller	10.7
	frying pan	50.0
	saucepan	17.8
packing	oven	7.1
	tray	35.7
	polythene	21.4
	saucepan	10.7
distribution	dish	3.6
	bicycle	7.1

Table 10. Need of operational tools

Operation	easy, %	difficult, %
peeling	46.4	3.6
grating	7.1	7.1
boiling	35.7	3.6
mashing	35.7	3.6
mixing	25.0	57.1
sizing	57.1	25.0
rolling	25.0	39.0
frying	53.6	21.4
packing	75.0	3.6
distribution	25.0	50.0

Table 11. Products made by microenterprises

Product made	Average quantity	% of production	Ushs/unit
mandazi	210 pieces	32.1	50/piece
chapati	110 pieces	17.8	103/piece
pancakes	143 pieces	21.4	23/piece
buns	166 pieces	10.7	50/piece
crisps	40 packets	3.6	100/packet
fresh cassava	125 kg		100/kg

Table 12. Use of by-product

	%
Animal feed	21.4
organic manure	7.1
thrown away	10.7

Average amount of by-products was 0.5 Kg per microenterprise.

Table 13. Profit per product processed

Product	UShs/month	%
mandazi	51387	28.6
chapati	34600	17.8
pancakes	30500	14.3
buns	150000	3.6
crisps	20000	3.6

Table 14. Influence on microenterprise profit

Reasons operation no profitable	%
Lack of energy	34.0
Quality is not stable	37.0
Using sweetpotato is risky	38.0
Equipment is not adequate	26.0
less market days	17.7
stiff competition	10.7
lack of capital	7.1
shortage of SP	7.1
high market dues	7.1
Consumers want high quality products	8.0
lack of time	3.6
sickness	3.6

Table 15. Sales volume per gross units prepared

Gross units prepared	mandazi	chapati	pancakes	buns	crisps	fresh cassava	fresh SP roots
Gross units prepared	100-400 pces	50-100 pces	150-220 pces	120-240 pces	400 pces	240 kg	60 kg
gross units sold/day	100-400 pces	50-100 pces	120-220 pces	100-200 pces	200 pces	130 kg	50 kg
gross units sold/week	400-2500 pces	200-600 pces	450-1200 pces	600-800 pces	1200 pces	800 kg	200 kg
gross units sold/month	1500-6000 pces	600-1200 pces	1800-7200 pces	1800-32000 pces	4800 pces	3000 kg	600 kg
gross units sold/market day	100-300 pces	50-100 pces	120-200 pces	160-220 pces	200 pces	120 kg	50 kg

Table 16. Period of high sales	%
months of dry season/food scarcity	53.6
school months	10.7
1st rainy season	10.7
around Christmas/Easter	3.6
any time	7.1

Table 17. Period of low sale	%
Harvest/stock period	35.7
rainy season	28.6
school holidays	7.1
peak period of work	3.6
any time	3.6

Table 18. Type of consumers

Consumers	mandazi	chapati	pancakes	buns	crisps	total
men	17.8	7.1	25.0	7.1	3.6	60.6
women	21.4	14.3	25.0	7.1	3.6	71.4
children at home	10.7	3.6	3.6	3.6	3.6	25.1
school children	25.0%	7.1	21.4	7.1	3.6	64.2
urban labourers	7.1	7.1	10.7	7.1	3.6	35.6

Table 19. Cost of equipment

Equipment	UShs/unit
saucepan	8083
basin	2100
tray	3860
frying pan	3890
spoon	690
bottle	230
knife	840
ladle	2330
grater	500
oven	120000
stove	4875
slicer	6000
sieve	1500
cup	260
plate	1110
weighing scale	15000
roller	500
rolling board	3750
fork	200
packing polythene	900
table	12500
jerican	1500
mortar	2335

Table 20. Equipment availability, %

Equipment	at local shops	at local workshops	at local market
saucepan	60.7		3.6
basin	10.7		3.6
tray	50.0	3.6	
frying pan	7.1	28.6	14.3
spoon	42.8		3.6
bottle	3.6		7.1
knife	25.0		32.1
ladle	39.3	3.6	
grater		3.6	
oven		3.6	
stove	3.6	10.7	
slicer			
sieve			
cup	21.4		
plate	17.8		
pestle		3.6	
weighing scale	3.6		
roller		7.1	
rolling board		28.6	
fork	3.6		
packing polythene	39.3		
table		25.0	3.6
jerican	10.7		

Table 21. Source of sweetpotato used

Source	%
own farm	78.6
bought	21.4
group garden	7.4

Table 22. Cost of intermediate products

Product	Ushs/unit
fresh roots	2900/basin
flour	1585/tin
C&M SP	725/kg
Raw&grated SP	1067/tin

Table 23. Quality required for sweetpotato roots

Quality	%
freshy	67.8
firm, not watery	14.3
white inside	3.6
yellow	3.6
mature	3.6
sweet	7.1

Table 24. Variety preferred by microenterprises

Variety	%
Atyenerema	35.7
Tanzania	21.4
Tedelo karen	28.6
Atedo	3.6
Mwezimoja	3.6
Bas Nase II	3.6
Any other	10.7

Table 25. Flesh colour preferred

Colour	%
White	60.7
yellow	17.8
orange	36.0

Table 26. Advantages of adding sweetpotato in recipes

Advantages on product	Raw & grated	C&M SP	SP flour
easy to grate	3.6		
palatable product		7.1	
less sugar/less cost		21.4	
smooth,soft product		21.4	
nice taste		14.3	3.6
less time		3.6	7.1
easy to mix			7.1
good smell			14.3
Disadvantages on product			
rough product	3.6		
doesn't sell well	3.6		10.7
goes bad quickly		21.4	
difficult to mix		14.3	
unusual taste/heartburn/oily		21.4	
dirty colour of product			14.3
Longest shelf life			25.0
Shortest shelf life	7.1	50.0	
Consumer preference of the products			
not liked at all	3.6		
liked very much		28.6	
nice,sweet,soft product		21.4	
nice taste/smell			10.7
not very soft			7.1
lasts longer			3.6
not presentable			10.7

Table 27. Quality required for product

Quality required	%
size	78.6
freshness	89.3
sweetness	75.0
smoothness	75.0
constant availability	53.6
colour	50.0
price	46.4
heaviness	10.7
oilness	7.1
any other	7.1

Table 28. Factors limiting the sale

Limiting factors	%
time limit	35.7
financial limit	35.7
lack of market/stiff competition	17.8
seasonality of raw material	10.7
lack of equipment	3.6
transport cost	10.7

Table 29. Degree of business

Business	%
Wholesale	17.8
retail at own stall	82.1
street sales	21.4
neighbour's shops	14.3
restaurant	10.7

Table 30. Types of consumers

Consumers	%
labourers	60.7
travellers	82.1
children	64.3
others	3.6

Table 31. Storage of unsold products

Material used	%
polythene bag/tray covered	46.4
aerated tray/on mat	7.1
sealed in boxes/sacks	10.7
in flour	3.6

Table 32. View of entrepreneurs on sweetpotato products, %

compete better	60.7
equal competition	14.3
inferior	10.7

Table 33. Expansion limits

Type of limiting factors	%
capital limitation	89.3
reliable supply of raw material	32.1
credit (loan inavailability)	78.6
lack of time	17.8
lack of market	32.1
lack of labour	32.1
less training/supervision	7.1
taxes:market dues	64.3
stall dues	10.7
licence	7.1

Table 34. Reason for stopping the use of sweetpotato

Reasons	%
lack of market	17.9
shortage of sweetpotato (expensive)	10.7
lack of adapted equipment	10.7
long procedure of making products	7.1

Table 35. Reason for not using sweetpotato after the training

Reasons	%
no market	21.4
sweetpotato expensive	14.3
lack of adapted equipment	7.1
sickness	7.1
other business ore profitable	3.6
lack of trained labour	3.6

Table 36. Amount of sweetpotato used in microenterprises per product, %

Type of sweetpotato	mandazi	chapati	pancakes	buns	crisps	Total
Fresh roots	0.0	0.0	0.0	0.0	3.6	24.9
Flour	7.1	3.6	7.1	3.6	0.0	21.4
C&M SP	17.8	10.7	3.6	7.1	0.0	39.2
raw&grated	0.0	0.0	7.1	0.0	0.0	7.1
any other	14.3	7.1	3.6	0.0	0.0	25.0