

Economic Viability of Yam Minisett Production and the Problems Affecting Minisett Enterprise in Northern Rivers State, Nigeria

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Abstract This study investigated the economic viability of Yam Minisett Production and the problems affecting minisett enterprise in Ogba/Egbema/Ndoni Local Government Area of Rivers State. A sample size of one hundred (100) respondents, was purposively and randomly selected, and was used for this study. Data collected were analyzed using costs/returns analysis to determine the viability of yam Minisett production and statistical mean derived from Likert rating scale with four options, to determine the problems associated with yam Minisett production/enterprise in the area. The result, revealed a Net Farm Income (NFI) of (N76, 810.00) and a Gross Margin (GM) or a Return to Management (RM) of N82, 620.00, an indication that yam minisett production is profitable/viable. The result shows that the Gross Margin alone is capable of taking care of another cycle of production of seed yam conveniently without sourcing for extra fund elsewhere. Also shown, was the Return per Naira (R/N) from seed yam production which was put at 0.91, and which means that, from every N1.00 employed in the production of seed yam in the study area, 91k was realized, which is another indication of the viability of seed yam production. Problems identified in their order of degrees include: yam minisett production as a micro business for poor people (with weighted mean score = 3.38); cost of labour (3.00); lack of awareness of yam Minisett production as an enterprise (2.96); land acquisition problem/soil problem (2.82); fertilizer unavailability (2.70), etc. Based on the findings, this study recommended among others that: Extension Agencies in the area should beef up their awareness strategies in sensitizing the farmers, women and youths inclusive to go beyond practicing Minisett techniques only to raise seed yams for household use, but should embrace it as a viable business to earn a good living; Also, that Governments/non-governmental organizations should not slack in giving incentives in form of grants, subsidies, soft loans and other farm inputs to productive farmers in the area. These incentives should be timely so as to achieve the purpose for which they are given.

Keywords: Economic Viability – Minisett Production – Problems – Affecting – Enterprise – ONELGA.

Introduction

Yams (*Discorea* spp.) in general are important in the farming systems as well as in the traditional cultures of several countries. All the major species of yam are indigenous to Africa, particularly West and Central Africa, which produces over 80% of the world's production (NARP, 1993). According to the International Institute of Tropical Agriculture (IITA) 2001 and Akinsame (1975), the yam zone in West Africa stretched from Cote d'Ivoire to Cameroon and it is especially important throughout the coastal West Africa where about 60 million people obtain more than 200 dietary calories per day from it.

Yam is a perfect staple food appreciated for its taste and cultural role. It is a major source of energy in diet of west African people, especially yam growing zone, with Nigeria being the largest producer of yam (Offei, Ofusa-Anim, Teiko, and Yamaki (2006) and Uguru, (1996), accounting for over 70% of the total world annual producer of the yam estimated at 20-24 million metric tones. The production because of its large starch content is eaten fresh when boiled, roasted, baked or fried. It is also processed into crude flour by drying thin slices in the sun, and then pound or grind into flour. The flour is used in West Africa for FU-FU. Yam can further be processed into instant flakes producing a food similar to instant potato.

Yam can also be made into fried chips. Also most starch industries use yam as one of their important raw materials. It provides job opportunities to both the producers and sellers of yam. It also provides income

for dealers' improvement. The peels serve as feeds to livestock (such as pigs, goats, rabbits, etc.) and as good component of farm yard manure (F.Y.M). It is used as a laboratory crop for scientific investigations. It is propagated by tuber and most recently by yam sets, which are portions of large tuber of ware yam used for breeding purpose.

Yam production has been on the decline despite the increasing demand for local consumption and for export. Some of the constraints to yam production are unavailability of planting material, soil degradation/lack of soil nutrients, poor handling and storability (Tetteh and Saakwa, 2004). In order to solve the problem of unavailability of planting material, 'Yam Minisett Technology' (YMT) was introduced by the National Root Crop Research Institute (NRCRI), and has been found useful (ARMTI (1993). The Yam Minisett Technology involves essentially the cutting of yam tuber to produce seed yams for the next season production of ware yams, for domestic consumption and for other industrial uses.

Production of yam minisett like every other agrarian enterprise, involves costs and returns through which its profitability is determined. It is the economic aspects of all agricultural productions of crops and livestock that qualify them as an enterprise or not, and which may encourage a would-be farmer/firm to embark on any of the agro-enterprises of his/her choice. In the study area, much work has been done on yam propagation, using yam minisett techniques by various extension agencies (Green River Project, Total Fina ELF in Rural / Community Development). Though, not much has been known about the economic potentials and problems of yam minisett production in the area.

Despite the fact that efforts have been made through concerted extension services to make farmers aware of the techniques and to encourage them practice it in the area, not many farmers have been moved to take up yam minisett production as an empowering business for survival. This is what prompted the study in order, to investigate the economic viability of yam minisett production and its associated problems in Ogba/Egbema/Ndoni Local Government Area (ONELGA) of Rivers State.

Methodology

Data used in this study were obtained from primary and secondary sources. Primary data were gathered from personal interview (through questionnaire) and direct discussions with yam minisett farmers and marketers of seed yams in the study area. Secondary data were obtained from Journals, Research Reports, Published texts and Internets.

A sample size of one hundred (100) respondents, Ten each from Ten (10) communities which were purposively and randomly selected, were used for this study. This number (100 respondents) to the researcher is a logical representation, considering the number of yam minisett farmers and marketers in the study area.

Data collected were analyzed using Costs/Returns Analysis adopted from Akinpelu and Ogbonna (2005), in Odinwa, Benson and Otuaga (2009) to determine the viability of yam Minisett production and statistical mean derived from Likert rating scale with four options, such as: Strongly agree (with 4 points); Agree (with 3 points); Disagree (with 2 points) and Strongly disagree (with 1 point), to determine the problems associated with yam Minisett production/enterprise in the area.

Mathematically the Cost/Returns Analysis model is expressed as:

$$NFI = GFI - TC (VC+FC) \text{ ----- (1), and}$$

$$R/N = \frac{NFI}{TC} \text{ -----, (2)}$$

Where NFI = Net Farm income

GFI = Gross Farm income

VC= Variable cost

FC= Fixed cost

TC= Total cost

R/N = Return Per Naira.

While the critical mean 2.5 derived from 4-point likert rating scale (4+3+2+1/4) was used to accept or reject an item as a problem of yam Minisett production in the study area.

Results and Discussion

From the Analysis of Costs and Returns of Yam Minisett production per plot of land in Table 1, it was shown that the Gross Farm Income (GFI) of N161, 280.00 was realized from the sale of 16,128kg of seed yams obtained as yield per plot of land within one farming season. It showed a Total Cost (TC) of N84, 470.00, with the Variable Cost (VC) constituting the major cost (93.1%) of production. The analyses also indicated that cost of labour in yam miniset production was the highest- N48, 600.00, which accounts for 57.5% of the total cost. This was followed by the cost of the planting materials (seed yams), which recorded N22, 400.00, about 26.5% of the total cost. This finding agrees with (Tetteh and Sacra, 2004) that some of the constraints to yam production are unavailability of planting material, soil degradation/lack of soil nutrients, poor handling and storability.

The analysis further, revealed a Net Farm Income (NFI) of (N76, 810.00) and a Gross Margin (GM) or a Return to Management (RM) of N 82,620.00, an indication that yam Minisett production is profitable. Lastly shown from the analysis, was the Return per Naira (R/N) from seed yam production which was put at 0.91. This implies that in every N1.00 tied to the production of seed yam in the study area, 91k was realized, an indication of more than 50% return to every financial commitment to seed yam production in the area.

Table 1: Showing the Costs/Returns Analyses of Yam Minisett Production per plot of land.

A	BUDGET ITEMS	UNIT OF COUNT	QUANTITY/ PLOT(kg)	PRICE/UNIT (₦)	TOTAL VALUE (₦)	%
	Sale of Seed yams	Kg	16,128	100.00	161,280.00	
	Total Revenue(TR)				161,280.00	
B	COST ITEMS					
I	FIXED COST ITEMS		QUANTITY	UNIT PRICE	TOTAL(₦)	%
	Rent on land	50 by 100 ft	1 plot	4,000.00	4,000.00	
	Depreciation on fixed assets Cutlass, spade, hoe, head pan etc.				1,280.00	
	Opportunity cost of fixed capital at 20%				530.00	
	Total Fixed Cost(TFC)				5,810.00	6.9
ii	VARIABLE COSTS ITEM					
a	Operating inputs	Unit of count	Number			
	Seed yams	0.8kg	280	80.00	22,400.00	26.5

	Manure	Bags of 25kg	12	150.00	1,800.00	
	Twine rope				1,500.00	
	Apron plus	sachet	2	400.00	800.00	
	Stick for staking		168	10.00	1,680.00	
	Cost of transportation				2,500.00	
	Total operating cost				30,060.00	35.6
b.	LABOUR INPUT ITEM		MANDAYS	UNIT PRICE	TOTAL	
	Land clearing		2	1,500.00	3,000.00	
	Seedbed preparation	56 beds/plot	4	1,500.00	6,000.00	7.1
	Planting		3	1,500.00	4,500.00	
	Manure application		1	1,500.00	1,500.00	
	Weeding		2	1,500.00	3,000.00	
	staking		2	1,500.00	3,000.00	
	Training of vine		6	1,000.00	6,000.00	7.1
	Harvesting/packing		3	1,500.00	4,500.00	
	Barn preparation/banning		4	1,500.00	6,000.00	7.1
	Transportations		-----	-----	3,000.00	
	Opportunity cost of variable capital at 20%				8,100.00	9.6
	Total labour cost				48,600.00	57.5
	Total Variable Cost(TVC)				78,660.00	93.1
	TOTAL COST (TFC+TVC)				84,470.00	100

Source: Field Survey, 2010.

Costs/Returns Analysis from table 1:

$$\begin{aligned}
 \text{Net Farm Income (NFI)} &= \text{Gross Farm Income (GFI)} - \text{Total Cost (TC)} \\
 &= 161,280.00 - 84,470.00 \\
 &= \underline{\underline{\text{N}76,810.00}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Return to Management (RM)} &= \text{Gross Farm Income (GFI)} - \text{Variable Cost (VC)} \\
 &= 161,280.00 - 78,660.00 \\
 &= \underline{\underline{\text{N}82,620.00}}
 \end{aligned}$$

$$\begin{aligned}
 \text{Return per Naira (R/N)} &= \frac{\text{Net Farm Income (NFI)}}{\text{Total Cost (TC)}} \\
 &= \frac{76,810.00}{84,470.00} \\
 &= 0.9 = \underline{\underline{91\text{kobo}}}
 \end{aligned}$$

The analysis in table 2, showed that one of the major problems of yam minisett production in ONELGA, was the fact that yam minisett production was regarded as a small enterprise for poor farmers (with weighted mean score = 3.38). It means that one of the serious reasons why people do not embrace minisett production in the area was its relegation to the background of poverty. Next major problem was the labour cost of yam minisett production (with the weighted mean score of 3.0). This finding agrees with the result in table 1 which put the labour cost of minisett production in the area at 57.5% of the total cost, and which constitutes the highest cost in the production .

The result also showed that lack of awareness of yam minisett production as a viable business with the weighted mean score of 2.96; land acquisition/soil problem with the weighted mean score of 2.82; non-availability of fertilizer with the weighted mean score of 2.70; and pests and diseases with the weighted mean score of 2.63 as well as storage cost with the weighted mean score of 2.50, were also identified as major problems in the enterprise of yam minisett in ONELGA. This finding on storage cost was supported by Komolafe (2004), who pinpointed storage problem as a serious factor to be considered in yam production. While the techniques involved in the production; marketing of seed yam; transportation; and stealing of seed yams from the farm/barn were identified as no problem areas in minisett transaction.

Table 2: Showing the Problems Associated with Yam Minisett Production in the Study Area.

S/NO	Possible Problems	Weighted Score	Weighted Means(x)	Remark
1	Lack of awareness of yam minisett enterprise in the area	296	2.96	**
2	Yam minisett as a micro enterprise for poor people	338	3.38	**
3	Techniques involved in the production	226	2.26	*
4	Harvesting operation of yam minisett	198	1.98	*
5	Pests and diseases problems	263	2.63	**
6	Storage cost	250	2.50	**
7	Marketing of seed yams	176	1.76	*
8	Non availability of Fertilizer /application	270	2.70	**
9	Land acquisition/soil problem	282	2.82	**
10	Labour cost	300	3.00	**
11	Transportation	186	1.86	*
12	Stealing of seed yam from the farm/barn	221	2.21	*

$$X = 27.77$$

Source: Field Survey, 2010.

Critical Mean = 2.5

Note: ***, means accepted as a problem, while **, means not accepted as a problem.

Other findings in table 3(a) showed that those engaged in the production of yam Minisett in the area were little more than other yam minisett dealers (38% +29%), but in a very small scale. While 33% of the farmers engaged purely on marketing of seed yams. The same tables 3b, revealed that majority of the farmer's (80%) farms were less than one (1) plot of land, hence the record of low productivity of seed yams in the area.

The study further revealed that land for farming is mainly acquired by rent (67%) and weakly followed by inheritance tenureship (14%). This accounts for small farm size and eventual low output of seed yams in the area. Seed yams for planting in the area were obtained through purchase (52%) from neighboring communities. While only 25% of seed yams were self-sourced, which is not always enough. Also identified in table 3(e) was the optimum time/period (April – May) for planting minisett and for better productivity in the study area.

Table 3: Showing the type of Minisett enterprise; Size of farm land; Sources of farm land; Sources of planting material (seed yams); and Time of planting yam minisett.

S/NO. A	TYPE OF YAM MINISETT ENTERPRISE	NUMBER	PERCENTAGE (%)
	Yam Minisett farming (production)	38	38
	Marketing of seed yam	33	33
	Both farming and marketing	29	29
	None	-	-
	Total	100	100
B	SIZE OF FARM LAND IN PLOTS	NUMBER	(%)
	0.5	80	80
	1.0	12	12
	1.5	6	6
	2.0	2	2
	Total	100	100
C	SOURCES OF FARM LAND	NUMBER	(%)
	By rent	67	67
	By inheritance	14	14
	By purchase	7	7
	By gift	12	12
	Total	100	100
D	SOURCES OF PLANTING MATERIAL (SEED YAM)	NUMBER	(%)
	By self	25	25
	Through purchase	52	52
	Through cooperatives	5	5
	As incentive from(govt., NGOs, cooperatives etc.)	18	18
	Total	100	100
E	TIME OF PLANTING YAM MINISETT	NUMBER	(%)
	February - March	-	-
	March - April	22	22
	April - May	68	68
	May - June	10	10
	Total	100	100

Source: Field Survey, 2010.

Conclusion

From the findings, it was noted that yam Minisett production in the area of study is viable, but one of the greatest problems among others, in this enterprise was its relegation to the background of poverty. The people saw yam Minisett production as a business for poor people. Also, it was revealed that the type of awareness created in the area through extension was limited to the practice of yam Minisett techniques as a means of producing seed yams for household use in the coming season and not as a business. Therefore, Extension Agencies in the area should beef up their efforts in sensitizing the farmers, (women and youths inclusive) to go beyond practicing Minisett techniques

only to raise seed yam for household use, but to embrace it as an empowering and a viable business to earn a good living. Also Government and non-governmental organizations should not slack in giving incentives in form of grants, soft loans and other farm inputs (such as planting materials, farm tools, farm chemicals like fertilizers, pesticides, herbicides etc.), to identified and distinguished farmers in the area. And these incentives should be timely so as to achieve the purpose for which they are given.

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