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Profitability Performance of Food Crop Production Enterprises in Nigeria

[1]Adeleke, H.M., [1]Adeleke, O.A., [1]Fajobi, D.T., and [1]Akintola, R.O.

[1]Department of Agricultural Economics,
LadokeAkintola University of Technology, P.M.B 4000, Ogbomoso, Oyo State, Nigeria.
Corresponding author's E-mail:oaadeleke41@lautech.edu.ng

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The profitability performance of Nigerian food crop production enterprises is critical to improvements in the economic well-being of the entire country. However, the profitability of food crop production enterprises can be attained by improving the production of various food crops within the limits of the existing resource base and available technology. This study therefore estimated the profitability of food crop production enterprises in Nigeria. Specifically, the study described the socio-economic characteristics of the food crop farmers, and estimated the costs and returns to food crop production enterprise. General Household Survey –Panel Wave 2 post harvest data from National Bureau of Statistics Abuja, Nigeria was used for this study, and a total of 1,678 food crop farmers (which represents 27.4% of the total population) were randomly selected from the six geo-political zones in Nigeria. The study used input-output data from National Bureau of Statistics Abuja, Nigeria in addition to data on the socio-economic characteristics of the food crop farmers. The study employed descriptive statistics to describe the socio-economic characteristics of the respondents and gross margin analysis to estimate the profitability of the respondents. The results showed that most (34.3%) of the farmers were aged between 41-50 years with modal family size of 6 - 10 members. The illiteracy level was high (62.2%) among the various food crop farmers as they had no formal education. Gross margin analysis showed that various food crop enterprises in Nigeria were profitable with a benefit-cost ratio of 1.40.

Keywords: Profitability, Food Crops, Households, Nigeria

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INTRODUCTION

In emerging countries like Nigeria, agricultural sector is populated by peasant and resource poor farmers. In Nigeria, over 90% of the agricultural output is produced by resource poor farmers, who are the engine behind the national food supply viz-a-viz harnessing of their natural and socio-economic factors of production (Adedipe, Okuneye, and Ayinde, 2004).

The Nigerian agricultural sector, as part of the real sector of her economy is typified by a multitude of peasant and resource-poor farmers who are scattered over the extensive stretch of land area, in form of small farm holding of about three hectares per farm land, operating rudimentary farming systems, amidst the obvious challenges of low capitalization and low yield per

hectare (Ogundari and Ojo, 2007).And it is only when there is a boost in the farm-level food crop production, that the welfare of the rural farming households will be improved, as well as a reduction in their poverty level and food insecurity status (Eze, et. al, 2010). Based on the aforementioned problems, this present study provided answer to the following research questions: What are the socio-economic characteristics of the food crop farmers in the study area? and What are the costs and returns to food crop production in the study area?

The main objective of this study was to estimate the profitability of food crop production enterprises in the six geo-political zones in Nigeria. To achieve the above stated objective, the following specific objectives were considered and these were to: describe the socio-economic characteristics of the food crop farmers in the study area; and estimate the costs and returns to food crop production enterprises in the study area.

METHODOLOGY

Study Area

The study area was Nigeria which comprise of 36 states and the federal capital territory (Abuja). It is located in West Africa and it covers a total land mass of 932,768.00sq km that falls within its latitude and longitude with a broad longitudinal range of diverse ecological lands in the south to the interior uplands, plateau and highlands in the North. It lies between latitudes 10°N and longitudes 8°E respectively (Maps of world, 2009). Nigeria has a total population of about 140milion, Census (2006). Nigeria is classified into six geopolitical zones namely, the North -Central Zone (NC), the North-East Zone (NE), the North- West Zone (NW), the South-East Zone (SE), the South-South Zone (SS), and South-West Zone (SW). Based on FAO(2001) report on Nigeria the country has a very diverse agro-ecology characterized by many farming systems which comprise of seven major agro-ecological zones existing within Nigeria's geographical confines which cut across the six geo-political zones which includes:

1. The mangrove swamp, which characterizes the coastal areas of the delta region.
2. The tropical rain forest which comprised of the eastern, central, and western rain forest and covers the states of Ogun, Ondo, Oyo, Edo, Ekiti, Imo, Anambra, and Cross Rivers.
3. Savannah zone Kwara, Benue, Niger, Adamawa, and Taraba states are the states in the Savannah zone, which also comprised of the middle belt region including Kwara, Benue, Niger, Adamawa, and Taraba States.
4. The Guinea savannah zone is comprised of Kaduna, the Southern parts of Sokoto, Bauchi, Borno and Katsina states. 5. The dry savannah which covers the northern parts of Bauchi, Borno and Kano States (Fasoranti 2006,Sowunmi and Akintola, 2009).

Types and Sources of Data

This studywasfocused on the food crops grown in all the six geo-political zones of Nigeria which are characteristic of all the agro-ecological types in the countries. Such food crops grown and examined in this study include; cassava, maize and yam. The food crop farmers in all the zones practiced mixed cropping system as captured in the data. Secondary data were used for this study. The major source of data is the Nigeria General Household Survey (GHS) –Panel Wave 2 (2012/2013) Post Harvest Data from National Bureau of Statistics Abuja, Nigeria. The Nigeria General Household Survey (GHS) is the result of partnership that the National Bureau of Statistics has established with the Federal Ministry of Agriculture and Rural Development (FMA&RD),the National Food Reserve Agency (NFRA), the Bill and Melinda Gate Foundation (BMGF) and the World Bank (WB). The Nigeria General Household Survey (GHS) is a survey of over 30,000 households carried out annually in the whole country. A full revision of questionnaire was undertaken, and it main objective is to collect information on labour force, employment, unemployment and underemployment. Also, information on demographic and socio-economic characteristics of the population was collected. This information collected is very important to the government for the review and formulation of economic policies and to the private sector for research purpose. A total number of 1,678 respondents was used which represents 27.4% of the total population (6,124) were randomly selected from the six geo-political zones in Nigeria. The reason for the wide disparity in the sample sizes was due to a lot of missing data.North Central Zone - 427; North East Zone - 463; North West Zone - 33;South East Zone - 443; South-South Zone - 232; and South West Zone - 80.

Analytical Techniques

The methods of data analysis employed in this study include Descriptive Statistics, and Budgetary Technique. The Descriptive Statistics (like frequency, mean and percentages) was used to describe and profile the socio-economic characteristics of respondents many research work. Descriptive statistics such as frequency distribution, mean and percentage for comparing and making inferences on the socio-economic variables.

The Budgetary Technique was used to estimate the cost, returns and profitability of food crop farmers. This was used to estimate the gross margin and the profit.

GM = TR – TVC ;
NFI = GM – TFC ;
BCR = TR/TC

Where

GM = Gross Margin;
NFI =Net Farm Income;
BCR =Benefit Cost ratio
TR = Total Revenue ;
TVC = Total Variable Cost;
TFC = Total Fixed Cost;
TC = Total Cost

Measurement of Variables

Output: The output in this study was quantity of the harvested food crops from the six zones. Cassava and Yam measured in tonnes while Maize was measured in kilograms. The farmers total output of crops consist of both the ones sold and the ones consumed, Upton (1996). The total weight of the harvested crop was obtained by multiplying the average unit weight by the total units harvested. Total revenue for each farmer was obtained by multiplying the physical quantity of the crops harvested by their average market prices.

Inputs: In any agricultural production operation land, labour, seeds, planting material are of importance. Other inputs such as herbicides and insecticides are also of necessity. Therefore, some important variables were considered.

i.) **Land:** This refers to the area of plot of land allotted for food crop production. The unit of measurement was in hectares.
ii.) **Labour:** This input captures family, shared and hired labour used for different agronomic practices of food crop production. But the differences in sex and age among labour would be expected. Hence to make a homogeneous group of labour to be added, the individual labour was changed into Man Days (MDs) Therefore, the human labour input is expressed in terms of total MDs used to perform land preparation, planting, weeding, fertilizer and herbicide application, and harvesting.
iii.) **Planting materials:** These are the stem cuttings and yam setts measured in bundles, the seed quantities planted or spread to the field, was measured in kilogram.
iv.) **Fertilizer:** It is the sum of the nitrogen (N), potassium (P_2O_2) and phosphate (K_2O) contained in the commercial fertilizer that was applied. Fertilizer input was measured in kilogram.

v.) Herbicide: Herbicides have been introduced as improved practices into the traditional farming systems (especially for food crop farming). The variable was quantified in litres.

Results and Discussion

Socio-economic characteristics of the respondents

The socio-economic characteristics of the food crop farmers from all the six geo-political zones of Nigeria considered include: age, sex, marital status, household size, educational status, farm size and type of land tenure, source of start-up capital and source of agricultural information.

Distribution of respondents by their socio-economic characteristics

Table2a shows the distribution of respondents by their age, sex, marital status, household size and educational status.The modal age class of the food crop farmers in all the six zones is between 41-50 years and this accounted for 37.9% (NC), 34.6% (NE), 27.3% (NS), 30.3% (SE), 32.3% (SS) and 14.8% (SW)of the food crop farming population respectively; only few of the respondents (3.5%) were about 30 years of age. From the pooled, 19.2% of the food crop farmers are above 60 years. The mean ages of the respondents in all the six zones were 50.5 (NC), 52.4 (NE), 50.9 (NW), 49.9 (SE), 49.7 (SS), and 50.5 (SW) years respectively. The implication of the above statistics showed that most of the young adults were not involved actively in food crop enterprises in all the zones. This could be a result of rural-urban migration prevalent in Nigeria. This is congruent with the works of Fakayode (2009) and Ogunsumi and Adetayo (2002) who found that most farmers in Nigeria are 40 years and above.

The food crop enterprises in all the six geo-political zones of Nigeria were dominated by male farmers (88.4%) of the total population while the female food crop farmers from all the six geo-political zones of Nigeria only accounted for 11.6%. This is congruent with the findings of Mustapha *et al.* (2012) where 98.1% of their respondents were male and 1.89% was female. Also, Matanmi*et al.* (2011) reported that 87.3% of their respondents were male while 12.7% of them were female. Therefore, there is the need to encourage more female farmers to engage in food crop production enterprises in all the six geo-political zones of Nigeria. About 89% of the food crop farmers in six geo-political zones were married (either as Monogamist and Polygamist) and 9.9% of them were widowed. By implications, the food crop production enterprises in all six geo-political zones of Nigeria are dominated by

married people. This will also afford them meet their cash needs and food security demands in their various families. This finding is in alignment with the findings of Ogunniyi *et al.* (2012) where 80.0% of their respondents were married.The mean household sizes for the North-Central, North-East, North-West, South-East, South-South and South-West and pooled were 6.9, 7.9, 6.6, 6.2, 6.1, 5.8 and 6.9 respectively. The modal household size is between 6-10 family members in the North-Central, North-East, North-West, South-East, South-South and Pooled accounted for 56.9%, 50.1%, 36.4%, 58.2%, 52.6% and 53.6% of the total population sampled in each of the six geo-political zones of Nigeria. It can be seen that the household size is large in all the six geo-political zones of Nigeria. This implies that they have the capacity to reduce the cost incurred on hired labour. This finding is congruent with the findings of Olumba, (2014) where most of the household size were within 6-10 members.From the Table 2a, 62.2% had no form of formal education while 16.4% of the food crop farmers from all the six zones had tertiary education. On the average, there exists a very low literacy level among the various food crop farmers in all the six geo-political zones of Nigeria. Hence, this may likely affect their level of participation in the adoption of new technologies as well as skill acquisition from various agricultural extension agents. This finding is not in consonance with the finding of Ogbonna, Idiong, and Ndifon (2007) where 33.3% of their respondents had 12 years of formal education. Table2b reveals the distribution of respondents by their farm size, type of land tenure, source of start-up capital and source of agricultural information. The output of any farmer depends on the size of the farmer's land. Many of them (84.4%) had about 5 hectares of farm size of the food crop farmer's population while those that have about 6-10 hectares of land were 15.4%. This implies that most of the food crop farmers in the six geo-political zones of Nigeria are small-scale food crop farmers who cultivate about 5 hectares of land. This result supports the findings of Adejare and Arimi (2013) that 38.3% of most food crop farmers had between 2 – 5 hectares of land so they posited that food crop farmers in Nigeria are small scale farmers. The types of land tenure system adopted by farmers in any region or zone determine to what use they can put the land under their care to, the rights and ownership status to be maintained. 26.3% and 30.7% of the food crop farmers in the North central and South East zones acquired their land from lease tenure system, 26.5% and 36.4% of the food crop farmers in North East and North West zones acquired theirs by renting, 42.2% of the food crop farmers in the South-South zones got their own land through gift, and 25.9% of the food crop farmers in South-West zone, purchase their farm land. By implications, food crop farmers in all the zones may be operating on scattered and fragmented farmlands and this could be a disincentive to large-scale food crop production in Nigeria especially for farmlands acquired by lease, rent and those given as gifts. This result is incongruent with the findings of Mustapha*et al*.(2012)where64.4% of their respondents acquired their land through inheritance and 11.8% acquired theirs through purchasing. Availability of capital helps in increasing the efficiency of the food crop farmers, with respect to the timely of all inputs. The food crop farmers from all the six geo-political zones of Nigeria employed household savings as their start-up capital, and their statistics are as follows: 51.5% (NC), 35.4% (NE), 21.2% (NW), 64.5% (SE), 20.7% (SS), 40.0%(SW). About 6.5%, 12.1%, 9.3%, 5.2% and 31.2% of the food crop farmers from the North East, North West, south East, South-South and South West source for their start-up capital from proceeds from their family farms. This implies that most of the food crop farmers use personal household savings for financing their food crop production enterprises in the study area. This result corroborates the findings of Babalola and Olayemi (2013) where 65.7% of the farmers used their personal savings for their farm business.The food crop farmers from all the six geo-political zones of Nigeria are distributed according to the sources from where they access agricultural information as this accounted for 67.7%, 71.5%, 72.7%, 49.9%, 68.9%, 71.3% and 64.5% of the food crop farmers from the North-Central, North-East, North-West, South-East, South-South, and South-West respectively access their agricultural information through the government extension service programme. About 32.3%, 16.0%, 27.3%, 21.4%, 28.9%, and 27.5% of the food crop farmers in all the six zones sourced for agricultural information through Electronic Media (i.e TV, Radio etc). The implication is that food crop farmers in all the six geo-political zones of Nigeria had access to quality agricultural extension service. Thus, the finding negates the findings of Oyebamiji*et al.* (2012) where 55.5% of the farmers received agricultural information from family and friends.

Analysis of Gross Margin and Benefit Cost Ratio

Table 3 presents the analysis of the gross margins and benefit-cost ratios of food crop enterprises in the six geopolitical zones of Nigeria. In the North-Central zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦63,092.04, ₦9,023.52, ₦72,115.56 and ₦99,208.73 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the North-Central zone are given as: ₦36,116.69, ₦27,093.17 and 1.38 respectively. By implications, the food crop enterprise in the zone is profitable, because for every ₦1.00 invested by the food crop farmers, ₦1.38 is returned into their

enterprises in the study area. This result is congruent with the findings of Omotesho, Muhammad-Lawal and Yusu (2010) which showed that the gross margin of the rice farmer was ₦40,387.90 and a return of 0.68 was made for every ₦1.00 invested in their rice production. Therefore, the production enterprise is a profitable one.

In the North-East zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦65,665.37, ₦6,521.27, ₦72,186.64 and ₦92,160.52 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the North-East zone are given as: ₦26,495.15, ₦19,973.88 and 1.28 respectively. By implications, the food crop enterprise in the zone is profitable, because for every ₦1.00 invested by the food crop farmers, ₦1.28 is returned into their enterprises in the study area. This is in support of the findings of Nathan Simon*et al.* (2015) that in their findings average total revenue/ha is ₦60,833.3, gross margin/ha ₦8,230.22 and Net farm income/ha ₦6,934.58 which revealed that their cowpea production was a profitable one.

In the North-West zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦56,424.30, ₦6,113.86, ₦62,538.16 and ₦114,389.39 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the North-West zone are given as: ₦57,965.09, ₦51,851.23 and 1.83 respectively. By implications, the food crop enterprise in the zoneis profitable, because for every ₦1.00 invested by the food crop farmers, ₦1.83 is returned into their enterprises in the study area.This finding corroborate with the findings of Ammani (2015) who showed that the gross margin of irrigated maize and tomato enterprises was ₦38, 419.88 and ₦80, 313.18 respectively with a cost benefit ratio of 1.49 and 1.40 their study concluded that all the enterprises are feasible and is a profitable enterprises.

In the South-East zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦53,405.85, ₦8,127.01, ₦61,532.86 and ₦97,742.73 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the South-East zoneare given as: ₦44,336.88, ₦36,209.87 and 1.59 respectively. By implications, the food crop enterprise in the zone is profitable, because for every ₦1.00 invested by the food crop farmers, ₦1.59 is returned into their enterprises in the study area. The result is in line with the work of Nwike and Ugwumba (2016) where the realized gross margin, net farm income and benefit cost ratio of seed yam producers were₦2,116,548, ₦2,047,179, ₦11,373and 0.76 respectively. Thus,signifying that seed yam production in the area was profitable.]

In the South-South zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦59,868.75, ₦5,318.25, ₦65,187.00 and ₦117,016.53 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the South- South zoneare given as: ₦57,147.78, ₦51,829.53 and 1.80 respectively. By implications, the food crop enterprise in the zone is profitable because for every ₦1.00 invested by the food crop farmers, ₦1.80 is returned into their enterprises in the study area. The result of this zone agreed with that of Enimu, Edet, and Ofem (2016), the total revenue was ₦325,700, net farm income was ₦222,690.00 per hectare, gross margin was ₦103,010, with benefit cost ratio of 0.68 it indicates that cassava production in the study area was profitable and that for every ₦1.00 invested by the farmers 68 kobo returned to cassava farmer as net income.

In the South-West zone, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦85,514.64, ₦7,231.77, ₦92,746.41 and ₦180,620.00 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the South-West zoneare given as: ₦95,105.36, ₦87,873.59 and 1.95 respectively. By implications, the food crop enterprise in the zone is profitable because for every ₦1.00 invested by the food crop farmers, ₦1.95 is returned into their enterprises in the study area. This result aligned with the result of Adeyemo, Oke and Akinola (2010) with a gross margin of₦95,738.10 and Benefit-Cost Ratioof 1.80 which shows that farming enterprise is a highly profitable and viable venture in the area.

For the pooled of the entire zones, the financial statistics for the total variable cost, total fixed cost, total cost and total revenue are ₦62,792.20, ₦11,136.22, ₦73,928.42 and ₦103,518.93 respectively. From the above financial statistics, the calculated Gross Margin, Net-Farm Income and Benefit-Cost Ratio for the food crop enterprises of the farmers in the Nigeria are given as: ₦40,726.73, ₦29,590.51 and 1.40 respectively. By implications, the food crop enterprise in Nigeria is profitable because for every ₦1.00 invested by the food crop farmers, ₦1.40 is returned into their enterprises in the study area.

The comparison of the gross margins and benefit-cost ratios for the six zones and the pooled revealed that South-West, North-West, South-South and South-East zone performed well above the financial statistics of the pooled results, while the North-Central and North-East zones under-performed. Hence, it can be ascertained that food crop enterprises are profitable in all of the geo-political zones of Nigeria.

Test of Hypothesis

The results obtained from the analyses of the gross margins and benefit-cost ratios address the hypothesis stated below:

- **H_{01}:** The food crop production enterprises in the six geopolitical zones of Nigeria are not profitable. Therefore, the null hypothesis is therefore rejected**,** implying that the food crop production enterprises in the six geopolitical zones of Nigeria are profitable.

Summary, Conclusions and Recommendations

The main objective of this study was to examine the profitability performance of food crop production enterprises in the six geo-political zones of Nigeria. The food crop farmers are within the active age (41-50 years) with modal family size of 6 - 10 members. The food crop farmers were small-scale farmers who cultivate about 5 hectares of farm land in all the six geo-political zones of Nigeria. Many of the food crop farmers (62.6%) in the six geo-political zones of Nigeria had no formal education. The comparison of the gross margins and benefit-cost ratios for the six zones revealed that South-West, North-West, South-South and South-East zone performed well above the financial statistics of the pooled results, while the North-Central and North-East regions underperformed. However, the various food crop enterprises in all the six geo-political zones of Nigeria were profitable with an average benefit-cost ratio of 1.40. From the major findings of this study, it was concluded that the food crop farmers in all the six geo-political zones are within the active age (41-50) years, and are small scale farmers with very low literacy level. The food crop enterprises in all the six geo-political zones were profitable and viable in all the six geo-political zones of Nigeria.Based on the major findings of this study, the recommendations include: encouraging youths and young adults to participate in food crop production, and financially motivating and supporting them with farm machineries in order to reduce the problem of labour in all the geo-political zones of Nigeria; forming and strengthening farmers' existing cooperative societies for the quality and ease of disbursement of soft loans and credit to promote large-scale food crop production enterprises in all the geo-political regions of the country; organizing and supervising adult educational programmes for the food crop farmers in all the six zones to ease and enhance the adoption of available agricultural extension innovation practices; reworking of the national agricultural programmes and policy plan to help the food crop farmers in all the six geo-political zones of Nigeria maximize the huge potential for agricultural productivity improvements in their agricultural sub-sector of the economy.

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Table 1. Nigerian agro-ecological zone by their zones

Zone	States	Population (millions)	Characteristics	Major crops
North Central	Benue, FCT, Kogi, Kwara, Nasarawa, Niger, Plateau	20.4	Derived savannah, Southern Guinea savannah, woodland and tall grass savannah.	Maize, Rice, Groundnut, Yam, Soya beans, etc.
North East	Adamawa, Bauchi, Borno, Gombe, Taraba, Yobe	19.0	Northern Guinea savannah, Southern Guinea savannah, Sudan savannah, Sahel savannah, marginal savannah, short grass savannah and montane.	Cowpea, Sorghum, Millet, Groundnut, etc.
North West	Kaduna, Katsina, Kano, Kebbi, Sokoto, Jigawa, Zamfara	35.9	Southern Guinea savannah, Sudan savannah, Sahel savannah and short grass savannah.	Sorghum, Millet, Soya beans, Cowpea, etc.

Source: (NBS 2009b; Onyekaet al. 2004)

Table 2a: Distribution of respondents by their socio-economic characteristics

Variable	North Central		North East		North West		South East		South South		South West		Pooled	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Age														
≤30	16	3.8	5	1.0	1	3.0	21	4.7	14	6.1	2	2.5	59	3.5
31-40	43	10.1	67	14.5	6	18.2	19	20.5	56	24.1	9	11.3	272	16.2
41-50	162	37.9	162	34.6	9	27.3	134	30.3	75	32.3	35	14.8	575	34.3
51-60	150	35.1	127	27.4	11	33.3	94	21.2	46	19.8	21	26.2	449	26.8
Above 60	56	13.1	104	22.5	6	18.2	103	32.3	41	17.7	13	16.2	323	19.2
Mean	50.5		52.4		50.9		49.9		47.9		49.7		50.5	
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Sex														
Female	40	9.4	92	19.9	2	6.1	31	7.0	22	9.5	8	10.0	195	11.6
Male	387	90.6	371	80.1	31	93.9	412	93.0	210	90.5	72	90.0	1483	88.4
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Marital Status														
Married (Mono)	166	38.9	300	64.8	20	60.6	279	62.8	140	60.3	43	53.8	948	56.5
Married (Poly)	212	49.7	89	19.2	13	39.4	124	27.9	72	31.0	32	40.0	542	32.3
Never married	4	0.9	2	0.4	-	-	1	0.23	2	0.9	1	1.3	10	0.6
Separated	1	0.2	4	0.9	-		4	0.90	1	0.4	1	1.2	11	0.7
Widow	44	10.3	68	14.7	-	-	35	7.90	17	0.4	3	3.7	162	9.9
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Household Size														
≤5	133	31.2	120	25.9	14	42.4	170	38.4	96	41.4	41	51.3	574	34.2
6-10	243	56.9	232	50.1	12	36.4	258	58.2	122	52.6	33	41.2	900	53.6
Above10	51	11.9	111	23.1	7	21.2	15	3.4	14	6.0	6	7.5	204	12.2
Mean	6.9		7.9		6.6		6.2		6.1		5.8		6.9	
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Educational Status														
Primary Edu	43	10.1	22	4.8	13	9.0	14	3.2	6	2.6	4	5.0	92	50.5
Secondary Edu	55	12.8	43	9.3	9	27.3	53	11.9	14	6.0	9	11.2	183	10.9
Tertiary Edu	63	14.8	55	12.8	3	9.1	105	23.7	32	13.8	17	21.2	275	16.4
Vocational & other	36	8.4	12	2.6	-		7	1.6	18	7.8	5	6.3	78	4.6
None	230	53.9	331	71.5	18	54.6	264	59.6	162	69.8	45	56.3	1050	62.6
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100

Table 2b: Distribution of respondents by their socio-economic characteristics (cont'd)

Variable	North Central		North East		North West		South East		South South		South West		Pooled	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Farm Size														
≤5	289	67.7	356	76.9	15	45.5	443	100	232	100	80	100	1,415	84.4
6-10	135	32.3	104	22.5	17	51.5	-	-	-	-	-	-	259	15.4
Above10	-	-	3	0.6	1	3.0	-	-	-	-	-	-	4	0.2
Mean	4.5		4.2		5.6		0.6		0.5		0.9		2.7	
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Type of Land Tenure														
Inheritance &Lease	77	17.1	45	9.9	7	21.2	66	12.9	8	3.5	6	7.8	205	12.4
Inheritance	35	8.2	49	10.7	1	3.0	31	7.0	29	13.0	8	10.4	153	9.2
Communal land	35	8.2	118	25.8	8	24.2	57	4.9	34	11.3	12	15.6	264	12.9
Lease	112	26.3	43	9.4	3	9.1	136	30.7	27	12.1	14	18.2	335	20.2
Gift	88	20.7	54	11.8	2	6.1	61	13.8	94	42.2	12	19.5	314	18.9
Purchase	42	9.9	27	5.9	-	-	49	11.0	12	5.4	20	25.9	150	9.0
Rented	41	9.6	121	26.5	12	36.4	43	9.7	19	8.5	2	2.6	238	14.4
Total	426	100	457	100	33	100	443	100	223	100	77	100	1659	100
Source of Start-up Capital														
Esusu/Adashi up Capital	9	2.11	7	1.5	-	-	13	2.9	-	-	-	-	29	1.7
Household savings	220	51.5	164	35.4	7	21.2	286	64.5	48	20.7	32	41.0	757	45.2
Money Lender	112	26.2	4	0.9	-	-	4	0.9	-	-	-	-	8	0.5
No Response	67	15.7	209	45.1	19	57.6	77	17.4	148	61.7	21	26.7	566	34.9
Proceeds from Family non-enterprise	19	4.5	19	4.1	-	-	8	1.8	5	2.2	2	2.5	34	2.6
Proceed from Family farm	-		30	5.5	4	12.1	41	9.3	12	5.2	25	31.2	179	10.7
NGO	-	-	-	-	-	-	7	1.6	-	-	-	-	7	0.4
Relatives/ friends	-		4	5.6	3	9.3	4	0.9	19	8.2	-	-	71	4.2
Other & Specifics	-	-	4	0.9	-	-	3	0.7	-	-	-	-	7	0.4
Total	427	100	463	100	33	100	443	100	232	100	80	100	1678	100
Source of Info														
Electronic Media	138	32.3	74	16.0	9	27.3	95	21.4	67	28.9	22	27.5	405	24.1
Extension Services	289	67.7	331	71.5	24	72.7	221	49.9	160	68.9	57	71.3	1082	64.5
NGO	-		1	0.2	-		43	9.8	-		1	1.2	45	2.7
Neighbour/Relative	-		42	9.1	-		52	11.7	2	0.7	-		50	5.7
Private Ext.	-		15	3.2	-		32	7.2	3	1.3	-		50	3.0
Mean	2.5		3.2		2.5		2.3		2.4		2.5		2.6	
Total	427	100.0	463	100.0	33	100.0	443	100.0	232	100.0	80	100.0	1678	100.0