
FARM INPUT MANAGEMENT STRATEGIES IN SMALL SCALE FARMING IN NIGER STATE, NIGERIA

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ABSTRACT

The study examined farm input management employed by small-scale farmers in the selected villages in Paikoro Local Government Area of Niger State, Nigeria. The objectives of the study were: to examine the management strategies of farm inputs among small-scale farmers, to estimate the income of small-scale farmers before and after the effective management of selected farm inputs; and to recommend necessary measures that will encourage farmers to adopt new farm inputs strategies for higher income. Data were collected from 101 respondents purposely and randomly selected from six villages with the aid of interview schedule administered by well trained enumerators (Village Extension Agents). Tools used for analysis were frequency distribution tables and percentages. The results showed preference for the fertilizer usage as an effective farm input strategy vital for production of yam. A greater proportion (41%) testified that they had an increase in income per annum from yam produce. It is therefore recommended that small-scale farmers are assisted with inputs that will improve the quality of their lives.

Key words: Adoption, effective farm input management, income generation, strategies, Niger State

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INTRODUCTION

Agriculture, after petroleum is the back bone of Nigerian economy. It is commonly practised by small-scale farmers who produce more than 98% of food consumed in Nigeria (Olayide, 1998). Okigbo (1985) reported that small scale farmers have farm sizes ranging from an average of 0.10 to 5 hectares per farm family. The use of small-scale natural resources by this category of farmers remained very important, hence the need to device improved technologies through research efforts that will invariably lead to modernization of some aspects of traditional farm practices. Agricultural extension is a service that assists farm people through educational endeavours to continuously improve farm practices for sustainability of agricultural development. Oladeinde (1991) observed that the ultimate goal of agricultural extension is to increase productivity, total farm input, income and the standard of living of farmers. Before the attainment of political independence in 1960 and shortly thereafter the agricultural sector recorded impressive annual growth rate during the "Oil Boom" Era of 1970 – 1979. Nwosu (1992) reported that there was a serious imbalance between the demand and supply of domestic and imported food crops. Domestically produced food commodities were placed at a serious market disadvantage compared with imports of the same crop items. The incentives for small-scale farmers to produce more food crops declined over the years. However, Mijindadi (1991) reported that the average annual growth rate in agricultural sector had risen to 4.8 percent, one percent above the population growth rate. Consequently, the annual growth rate of agricultural sector had been sustained above 7% and that agricultural sector would continue to remain the driving force for the

nation's Gross Domestic Product (GDP) apart from the oil sector. This is as a result of the Federal Government's policy on de-regulation of petroleum products down stream and the Presidential Reform Initiative of the Nation's Economy.

Williams (1972) reported that farmers in South West States of Nigeria agreed that the use of fertilizer on their farm operations significantly improved their cocoa farm produce. The result was that, they (farmers) recorded increase in farm income. Similarly, Umeh and Ikejimba (1992) reported that small-scale farmers that had access to farm inputs such as agrochemicals during the Structural Adjustment Programme (SAP) period testified that they had increase in their farm produce. Given the nature of agriculture in the tropics there is need to provide simple and effective technologies to small-scale farmers which they can easily manage. The Niger State Government in 1986, established the Niger State Agricultural Development Project (NSADP) mandated to provide extension services to sensitize small-scale farmers who constitute 95% of rural population with a view to raise their income and improve their quality of life (Salako, 1994). It is envisaged that the food and fibre need of Niger State, indeed Nigerians in general will be met when small-scale farmers are adequately supported with farm inputs which they can effectively manage.

The main objective of the study was management strategies of farm inputs employed by small-scale farmers in Paikoro Local Government Area of Niger State, Nigeria.

The specific objectives were to:

- (i) examine the management strategies of farm inputs among small-scale farmers;

- (ii) examine the income of small-scale farmers before and after the effective management of selected input strategies; and
- (iii) recommend necessary measures that will improve farmers management skills on adoption of farm inputs for higher income.

METHODOLOGY

Survey Area

A preliminary survey was conducted among small-scale farmers in six purposely and randomly selected villages in Paikoro LG Area of Niger State. The villages were Yandayi, Tatiko, Danduru, Selefu, Panya and Gbaita. The major tribes of the community are Gwari, Nupe, Fulani and Hausa (Kehinde, 1989). The inhabitants are either Muslims or Christians with very few traditionalists or animists. The primary occupation of the people is farming, while some are engaged in other vocations such as white-collar jobs, crafts and arts. The Paikoro Local Government Area is located between latitudes 8.20° and 11.30° N; longitudes 3.30° and 3.20°E. The area is characterized by alternating seven months of dry and five months of wet seasons. It has a mean annual rainfall that varies from 1,100mm to 1,300mm, having an average rainfall of about 1,200mm. The climatic and vegetation pattern coupled with sizeable expanse of arable fertile soil makes the area to be well suited for cultivation of wide variety of crops such as yam, maize, rice, sorghum, cassava to mention a few. The traditional crop of the farmers is white yam (*Dioscorea rotundata*). It is the main crop of this study because it serves as both food and cash crop. Other crops are cultivated in mixtures.

Sampling procedure and sampling size

Six villages were purposely and randomly selected for the field survey because of the intensity of farm activities. The villages were Yandayi, Tatiko, Danduru, Selefu, Panya and Gbaita. Most of the farmers were found residing in these villages. A total of three hundred and one farmers were found in the selected villages. By proportion, the sampled respondents were obtained by dividing the number of farmers in each of the villages by the total population of farmers, multiplied by thirty percent (30%). Thus, for each of the villages by calculation the number of respondents were as follows:

To calculate 30% of the population of farmers

	$\frac{30}{100} \times 335 = 101$
(i) Yandayi village	$\frac{35}{335} \times 101 = 11$
(ii) Tatiko village	$\frac{20}{335} \times 101 = 36$
(iii) Danduru village	$\frac{44}{335} \times 101 = 13$
(iv) Selefu village	$\frac{48}{335} \times 101 = 14$
(v) Panya village	$\frac{33}{335} \times 101 = 10$
(vi) Gbaita village	$\frac{55}{335} \times 101 = 17$
Total	101

The respondents sampled from each selected village are indicated as follows: Yandayi (11) Tatiko (36) Danduru (13) Selefu (14) Panya (10) and Gbaita (17).

The indicators for effective management of farm inputs used were tractor hiring services, fertilizer, agrochemicals; improved storage facilities and unimproved yam sets.

Data Collection

Primary data were obtained through the administration of interview schedule. The task was achieved with the assistance of the Village Extension Agents (VEAs) as enumerators. The secondary data were gathered from published and unpublished reports. All the one hundred and one copies of the interview schedule were returned and used for analysis.

Statistical Analysis

Tools such as frequency table and percentages were employed to compare individuals or group of individuals in the sampling units. The study took place within 8 months that is between July, 2005 to March, 2006.

Results and Discussion

The analysis of the data collected from 101 respondents concerning the effective management of farm input strategies and how these have helped to improve the quality of life of the participating farmers.

Table 1: Frequency Distribution of the Respondents into Age Groups

Age groups (years)	Frequency	Percentage
< 21	12	11.9
21 – 30	41	40.6
31 – 40	27	26.7
41 – 50	15	14.9
51 – 60	6	15.9
> 61	0	0
Total	101	100

Source: Field Survey, 2006

About forty one percent (40.6%) of the respondents were between 21 – 30 years. Nearly twenty seven percent (26.7%) were between 31 – 40 years, while 14.9% claimed to be of the ages 41 – 50 years. Only

11.9% claimed that they were below 21 years. About 67% of respondents claimed to be within the age group of 21 – 40 years. This agrees with Gana (2004) that farmers within the age of 21 – 40 years were youths who are active in farming and willing to adopt new innovations.

Table 2: Distribution of Respondents into Education Levels

Educational Status	Frequency	Percentage
No formal education	53	52.5
Islamic education	22	21.8
Primary education	24	23.8
Secondary education	2	2.0
Others	0	0
Total	101	100

Source: Field Survey, 2006

Table 2 shows that 52.5% of the respondents claimed they had no formal education. About 26% said that they had either primary or secondary education. Education is a key factor for any development, be it in the rural or urban areas. The opportunity opened to rural communities with

respect to having been educated is not encouraging since 21.8% said that they had had only Islamic education. This might also be due to financial constraint as a result of poverty, which abounds in rural areas, (Adeyeye and Carim, 2002).

Table 3: Percentage Distribution of Respondents Based on Effective Management of Input Strategies Adopted.

Input strategies adopted	Frequency	Percentage
Tractor hiring services	10	9.9
The use of fertilizers	60	59.4
Unimproved yam sets	20	19.8
Agrochemicals	7	6.9
Improved storage facilities	4	3.96
Total	101	99.96

Source: Field Survey, 2006

Note: Multiple responses were recorded. It indicates that farmers do not just adopt one input strategy but in combination with one or more others. Consequently, it was not practicable to attribute yield of the farmer to a particular strategy per se. Also, the yam set seedlings used are unimproved local types as the farmers are not receptive to improved varieties of yam mini-set technique.

The results in Table 3 shows that 59.4% of the respondents claimed that the use of fertilizer on their yam plots assisted the performance of the crop. One of the critical strategies in motivating small-scale farmers is to ensure that there is constant supply of fertilizer at affordable price and to make it readily accessible to farmers. This

assertion agrees with Salako (1988) that correct dosage of fertilizer applied to crops as per research recommendation significantly improved yield of farmers' crops. About twenty percent (19.8%) of respondents opined that when they used unimproved local types of yam sets for planting it contributed to increase in yield per hectare. Over nine percent of the respondents said that the tractor hiring services provided by State and Local Governments made it possible for them (farmers) to have increase in the yam tuber which was due to expansion of farm land. This agrees with Okoro (1998) who reported that increases in agricultural products have been attributed to small farmers cultivating more land and not as a result of adoption of improved technologies.

Table 4: Frequency Distribution of Respondents based on average yield of yam tuber before and after effective management of selected farm input strategies.

Before the use of strategies			After the use of strategies		
Yield/hectare (t/ha)	Frequency	Percentage	Yield/hectare (t/ha)	Frequency	Percentage
< 5.0	52	51.48	< 5.0	5	5.0
5.0 – 10.0	38	37.62	5.0 – 10.0	49	48.5
> 10.0	11	10.89	> 10.0	47	46.5
Total	101			101	

Source: Field Survey, 2006

F-ratio = (i.e. $F_{cal 0.05} = 143.70$)

Table 4 shows that 51.48% of the respondents obtained yield of less than 5 tons/hectares before the adoption of selected strategies as against 5% of the respondents who claimed that after the adoption of selected strategies they equally recorded less than 5 tons/hectares. In the same vein 37.62% of the respondents said that they had recorded between 5 – 10 tons/hect before the adoption of farm inputs strategies as against forty-nine percent (48.5%) of respondents who said they realized 5 –

10 tons/hectares was eleven percent (11%) before the adoption of farm inputs but increased to 46.50% after the adoption of selected strategies. The calculated F-ratio (variance error ratio) from the Analysis of variance (ANOVA) is 143.70 and is significant at 0.05 levels indicating that the yield obtained by the farmers before and after the adoption of effective management of farm inputs are not the same, that is they are significantly different.

Table 5: Percentage distribution of income realized by the Respondents before and after effective management of selected farm inputs strategies.

Before			After		
Income(₦) per annum	Frequency	Percentage	Income(₦) per annum	Frequency	Percentage
< 400,000	20	19.80	< 400,000	0	0.00
400,000 – 500,000	28	27.72	400,000 – 500,000	12	11.9
501,000 – 600,000	23	22.77	501,000 – 600,000	13	12.9
601,000 – 700,000	27	26.73	601,000 – 700,000	41	40.6
701,000 – 800,000	3	2.97	701,000 – 800,000	21	20.8
> 800,000	0	0.00	> 800,000	14	13.9
Total	101	100		101	100

Source: Field Survey, 2006

$F_{cal 0.05} = 256.73$

Table 5, Depicts the income of the respondents before and after the adoption of effective management of selected farm inputs. A greater proportion (40.6%) of the respondents testified that they had an increase in income from yam produce ranging from N601,000 to N700,000 compared with about 27% of the respondents who realized the same amount before the adoption of input strategies respectively. A small proportion of about 13.9% of the respondents had realized more than N800,000 after the effective management of selected strategies compared with no respondent before the management of effective strategies. The variance error ratio (F-ratio) was also computed to establish that the incomes realized by the two groups of farmers were different statistically. The $F_{cal} = 256.73$ which is significant at 0.05 level, indicating that the yield obtained by respondents before and after effective management of selected farm inputs were not the same, that is, they are significantly different.

Conclusion and Recommendations

Based on the findings, it can be concluded that small-scale farmers in the selected villages in the study area made good use of selected farm inputs strategies. The number of respondents (11%) claimed to have realized over 10 tons/hac without the use of farm input strategies. However, the number of respondents increased to 46.50% when they (farmers) used the input strategies in their farm operations.

Considering the foregoing, it is recommended that:

- i. development of agriculture should always be based on extension strategies that will increase crop yield of farmers;

- ii. to improve the quality of life of small-scale farmers adequate agricultural inputs such as fertilizers, tractor hiring services, improved variety of planting materials and agrochemicals among others should be made available to small scale farmers at subsidized and affordable price; and
- iii. efforts should be made to have well qualified extension personnel to assist small-scale farmers in managing farm inputs judiciously.

REFERENCES

- Adeyeye, V. A. and Carim, A. A. (2002). Food Crisis and Rural Poverty in Nigeria: Implications for Programming Community level Participation in Rural Developments. *Nigeria Journal of Rural Sociology*. Vol. 3, Nos 1 and 2: 118 – 129.
- Gana, F. S. and Yisa, E. S. (2004). Effectiveness of Adoptions of Innovations among small-scale rice farmers. *Journal of Extension Systems* Vol. 20, No. 1. The University of North Carolina, U. S. A. 80 – 88.
- Gana, F. S. (2005). Irrigated Crop Production in Upper Niger River Basin and Rural Development Authority; Implication for Poverty Alleviation in Niger State, Nigeria. *Nigerian Journal of Rural Sociology* Vol. 5, No. 1 and 2.
- Ikejikmba, D. U. and Umeh, D. U. (1992). Resource Poor Farmers, Farm Technology Adoption and Productivity in Structural Adjustment Period. *An empirical evident from Kwara Agricultural and Rural Development* Vol. 2, No. 1: 48 – 59.
- Kehinde, J. K. (1989). A Diagnostic Survey of Farming System of Zone II of the Niger State Agricultural Development Project.
- Mijindadi, N. B. (1991). Unified Agricultural Extension Service Workshop held on February 11 – 14, 1991 at Gateway Hotel, Ijebu-ode.

- Agriscoppe, Newsletter of the Federal Department of Agriculture Vol. 10, No. 1: 1 – 2.
- Nwosu, A. C. (1992). Structural Adjustment and Nigerian Agriculture. An initial Assessment. Agriculture and Trade Analysis Division. Economic Research Service. Department of Agriculture. Staff Report No. AGES 9224, United State Department of Agriculture, Washington D. C: 43.
- Okigbo, B. N. (1985). Strategies in Research on Improved Farming Systems to Facilitate Adoption and Management by the Nigerian Farmer, 2nd ARMTI, Annual Lecture held at Ilorin, 31st March, 1984.
- Okoro, F. U. (1998). Strategies for Effective Extension Services to Promote Sustainability in Agricultural Production in Nigeria. Department of Agricultural Extension and Rural Sociology, Federal University of Agriculture, Umudike. Proceedings of the 32nd Annual Conference of the Agricultural Society of Nigeria held at Federal College of Agriculture, Ishiagu, Ebonyi State: 13 – 16.
- Oladeinde, J. (1991). Unified Agricultural Extension Service Workshop held on February 11 – 14, 1991 at Gateway Hotel, Ijebu-ode. Agriscoppe News letter of the Federal Department of Agriculture Vol. 10, No. 1:1.
- Olayide, S. O. (1998). Nigerian Small Farmers'. Problems and Prospects. Integrated and Rural Development: 258 – 291.
- Salako, E. A. (1988). Fertilizer use and recommendation for rice, maize, sorghum, soyabean, groundnut and simple calculations of A. E. R. L. S. A. B. U. Zaria.
- Williams C. E. (1972). Bulletin of Rural Economics and Sociology University of Ibadan, Department of Agricultural Economics and Extension, Ibadan, Vol. 7 No. 1.