

# Relationship Between Socio-Economic Characteristics of Rural Women Farmers and Their Adoption of Farm Technologies in Southern Ebonyi State, Nigeria

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## ABSTRACT

The major focus of this paper was to analyse the relationship between the socio-economic characteristics of rural women farmers and their adoption of farm technologies in Southern Ebonyi State of Nigeria. Four hundred rural women farmers served as respondents to this study. A structured interview schedule was used in collecting data from the respondents. The tools of analyses were percentages and correlation coefficient( $r$ ). The major findings were that the mean adoption for all the technologies was 26.2% and that it was only education variable that had significant relationship with the adoption of most of the technologies studied, while age, marital status and farming experience were not significantly related to adoption. It was suggested among others that the research extension system should be made to address the problems of inappropriateness and unavailability of technologies to women farmers.

**Key Words:** Socio-economic; Rural women; Farmers' adoption

## INTRODUCTION

The importance of technology to agricultural development especially in less developed countries is widely recognized. This is predicated on the observed impact of this technology and its potential and actual contributions to the development of agriculture. In developing countries like Nigeria where a greater proportion of the population lives in rural areas, agricultural technology could also provide a potential means of increasing production and subsequently raising incomes of farmers as well as their standard of living (Ani, 2002).

It is common to observe among Nigerian farmers that they have relatively small sizes of farms, family labour is the predominant production factor; there is relative use of capital investment inputs as fertilizer, improved seeds, chemicals or farm machineries (Ani, 1999). However, traditional method of farming predominates in most localities, resulting from a perennial low input-low output relationship. An attendant low productivity constitutes the hall mark of traditional agriculture as practiced in Nigeria; and farming based entirely upon traditional agriculture is inevitably poor (Okoye, 1988).

It has been established by many authors (Boulding, 1977; Ajay, 1997; Bzugu & Kwaghe, 1997) that the involvement of rural women in agricultural production has been of significance to the country's economic development. Empirical evidence has revealed that women perform such works as hoeing, sowing, and weeding, harvesting, processing and other activities related to agricultural production. The socio-economic and cultural activities of Nigerian rural women could vary across

regions. The predominant occupation of rural women, especially Igbo women in the South Eastern Nigeria is farming. Women agriculturalists are associated with traditional subsistence and low-yield food crops, poverty, lack of influence and the inability to adopt crop and husbandry innovations (Youssef, 1995).

Ebonyi State of Nigeria is blessed with great agricultural potentials necessary for the production of agricultural crops. Among the many crops produced in this state are yam, cassava, rice, maize, groundnut, cocoyam and vegetables. Women in the area are known to significantly participate in the production of these crops. A number of production technologies are made available to farmers in this area for improved production (Ebonyi Diary, 1999).

It is therefore, the focus of this study to determine the relationship existing between socio-economic characteristics of rural women farmers and their adoption of agricultural technologies in Southern Ebonyi State, Nigeria. Specifically, the objectives are to: determine the level of adoption of agricultural technologies by the respondents; establish the relationship between the socio-economic characteristics of respondents and adoption of technologies.

## METHODOLOGY

This study was carried out in Southern Ebonyi State of Nigeria. Ebonyi State is located in the South Eastern part of Nigeria. Ebonyi State has thirteen (13) Local Government Areas (LGAs). The state has three (3) Agricultural Zones, namely, North (four LGAs), Central (four LGAs) and South (five LGAs). Virtually, all the zones have similar physical features in terms of topography, vegetation, soil type as well

as the type and nature of agricultural activities carried out. The state is also homogeneous in terms of culture, religion, social and economic activities performed.

This study purposely covered the southern agricultural zone comprising five LGAs namely Afikpo North, Afikpo South, Ivo, Ohaozara and Onicha. The choice of this zone was purely on convenience and familiarity of the area on the part of the researcher, since the zones are virtually the same.

In this study, stratified and systematic sampling procedures were used in selecting the respondents (women farmers). In the first instance, from the southern agricultural zonal headquarters of Agricultural Development Programme (ADP), a list comprising all the villages in these LGAs was obtained. Secondly, from this list, four villages were selected from each LGA, using random sampling technique by balloting method. This brings the total number of villages chosen to be twenty (20). Subsequently, in order to get the respondents, village extension agents (VEAs) working in respective locations of the selected villages were requested to provide list of rural women farmers. Based on this list, twenty (20) rural women farmers were finally selected from each chosen village, by using simple random technique. This therefore, brings the total number of respondents to four hundred (400).

The data were collected by means of interview schedule which was developed and validated. The data collected were analysed by the use of percentages and correlation coefficient ( $r$ ). The set of technologies studied were those being disseminated by ADP of the state which include use of fertilizer, improved seeds, and mechanized farm operation, use of insecticides, herbicides, seed dressing chemical and storage chemicals.

## RESULTS AND DISCUSSION

**Level of adoption of technologies.** The result of level of adoption of farm technologies by the respondents is presented in Table I. The data indicate that out of the seven farm technologies studied, it was only the use of fertilizer that could be adjudged as the one most significantly adopted by the respondents, where majority (96.3%) of the respondents had fully adopted the practice. It is to be recognized that for this technology (use of fertilizer), all the respondents (100%) were aware and interested to use it but not all did. The respondents indicated that even though they were interested in using it, the technology was not always available and when it becomes available, it is limited in quantity and consequently, the price would not be within the reach of most poor rural women farmers.

The use of improved seeds was known to majority (84.0%) of the respondents while only few (22.0%) eventually adopted the technology. It could be posited here that the non significant adoption of this technology could be attributed to non ready availability of the seeds, lack of affordability on the part of the respondents due to high cost, lack of satisfaction derivable from the use of seeds

comparable to the conventional types the respondents were used to.

Similar reasons could be adduced for non significant use of mechanized farm operations where only 1.6% of the respondent's adopted and as many as 72.6% were aware of the technology. An added reason to this could be that in the study area we have predominantly small-scale rural women farmers whose farm holdings could not be economically viable for mechanical farm operations.

The table also shows that the use of insecticides, herbicides, seed dressing chemical and storage chemical were only adopted by 23.0, 23.5, 7.0 and 1.2%, respectively. This indicates low adoption rates for these technologies. All the practices as a complete package were adopted by only 26.2% of the respondents. It should be observed from the table that in all the farm technologies studied, the respondents were more aware, interested and tried more of them than they adopted them. This goes to prove that awareness of technology, interest in it and even trial of it do not automatically guarantee adoption. There could be other factors that interfere with adoption of technologies.

Farmers may be desirous of adopting new practices but may be constrained by inadequate information about that particular innovation, which may in part be caused by the inability of the extension personnel to reach the farmers. It has been reported that why most farmers stick to old practice may be as a result of economic inability on the part of the farmers to afford the cost of innovations, risk involved, ignorance of existence of innovations plus their conservative attitude (Onyewaku, 1988).

There may not be much difficulty coping with technology transfer among women farmers if the technologies are well presented, appropriate or relevant as well as profitable in the view of women farmers. It therefore, appears from the study results that the women were not very much convinced about the merits of some of the technologies or even aware of some of them being promoted. From this trend, failure to adopt or practice some of the technologies may be due to some educated women preferring other more lucrative professions. It may also be attributed to the unavailability of the technologies, the inability and poor disposition of the women farmers as well as the inability of extension agents to facilitate their adoption. Non adoption of some of these technologies could also be as a result of high prices, relative scarcity and indivisibility of the technologies.

**Relationship between socio-economic characteristics and adoption level of the respondents.** Table II presents the correlation matrix between selected socio-economic variables of the respondents and adoption of farm technologies. The correlation test carried out shows that out of the four variables (age, marital status, educational level & farming experience) studied, it was only educational level of the respondents that could be said to have significant relationship with adoption. For instance, educational level had significant relationship at 5% level of confidence with

**Table I. Level of adoption of technologies by the respondents**

Technology	Level of Adoption			
	Aware	Interested	Trial	Adoption %
Use of fertilizers	100	100	98.1	96.3
Use of improved Seeds	84.0	40.7	22.6	22.0
Mechanised farm operations	72.6	54.0	2.9	1.6
Use of insecticides	68.5	38.6	25.1	23.0
Use of herbicides	68.0	37.0	26.4	23.5
Use of seed dressing chemical	56.4	33.9	13.7	7.0
Use of storage chemical	24.9	8.7	2.4	1.2
Mean Adoption=26.2%				

**Table II. Correlation Matrix between socio-economic characteristics and adoption level**

Technology	Age	Socio-economic Characteristics		
		Marital Status	Educational Level	Farming Experience
Use of fertilizers	-00.06	-0.08	0.46*	-0.03
Use of Improved Seeds	0.09	-0.04	0.80*	0.90*
Mechanized farm operations	0.16	0.13	0.38*	0.02
Use of insecticides	-0.06	0.16*	0.90*	-0.08
Use of herbicides	-0.03	0.12	0.51*	0.07
Use of seed dressing chemical	0.12	0.11	0.11	0.10
Use of storage chemical	0.15*	0.10	0.12	0.06

\*= Significant at 5% level ( $P \leq 0.05$ )

adoption of use of fertilizer, improved seeds, mechanized farm operations, use of insecticides and herbicides respectively.

This significant relationship between level of education and adoption level implies that the educated farmers adopted more than the less or non-educated ones. This agrees with *a priori* expectation. Education enhances the ability to derive, decode and evaluate useful information for agricultural production (Ani, 1998). The low educational level of most Nigerian farmers can inhibit agricultural productivity. The rate at which one can assimilate and idealize new knowledge could depend on the educational level of the individual. Thus, low level of education tends to foster unfavorable attitudes towards the acceptance of improved farm practices.

The table indicates that age was not significantly related to adoption of most of the farm technologies studied. It was only on the use of mechanized farm operations and use of storage chemical that age could be said to have somewhat significant relationship. This agrees with the finding of Osuntogun and Adeyomo (1986) and Ani (1999) that age was not significantly related to the adoption of new recommended farm practices.

The relationship between adoption of farm technologies and marital status of the respondents was infinitesimally negligible, as it was only adoption of one technology (use of insecticides) that has significant relationship with marital status (Table II). The general perception is that due to socio-cultural factors, women may have little decision-making authority in farming (Ani, 2002). Hence, marital status of women could be an important factor in technology adoption. The farming

experience had no significant relationship with adoption of most technologies, apart from use of improved seeds (where a significant relationship exists with farming experience). This negative relationship between farming experience and adoption of those other technologies implies that new entrants into the farming business adopted more than older farmers. This result is contrary to *a priori* expectation that the more experienced the farmer was the more he would be willing to face risks associated with a new farming method. Ani (1998) and Iheanacho (2000) had indicated that farming experience of farmers to a large extent affects their managerial know-how and decision making. Besides, it influences the farmers' understanding of climatic and weather conditions as well as socio-economic policies and factors affecting farming. In this study, the finding indicates that the length of farming experience among the respondents is not a very important determinant of adoption of technologies. This can be attributed to the fact that farmers who have been long in the business are usually older, less educated and are more resistant to change than new entrants.

## CONCLUSION

Technological development has long been a central feature of Nigeria's agricultural development strategy. Many measures have been taken throughout the country to strengthen the performance of agricultural sector by diffusing new technologies. However, it seems that adequate attention has not been given to developing appropriate technologies for women. It is therefore, imperative that technological policies must now, more than

ever, focus on creating technology suitable to the special needs of women.

This study was intended to draw the attention of the Research Extension System to the need to be more gender sensitive in designing research agenda and extension programmers that would meet the needs of women farmers in adopting technologies. Policy-makers and government are also to be more sensitive in the formulation of policies that would favour women farmers. However, the research-extension system should be made to address the problems of inappropriateness and unavailability of messages and technologies for women farmers. This could be achieved by identifying the information and technology needs of women farmers, their constraints and objectives through baseline socio-economic and agricultural surveys disaggregated by gender and feed-back from extension. This assumably would go a long way in ensuring for adoption of farm technologies among women farmers.

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