

The Impact of Mass Media on Rice Production in Anambra State, Southeast Nigeria

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Abstract: The study on the impact of mass media usage on rice production in Anambra State primarily focused on identifying the farmers' socio-economic characteristics and determining the significant sources of mass media used by rice farmers to access agricultural information. A multi-stage random sampling technique was employed, and a well-structured questionnaire was used to gather information from 337 farmers. The study employed descriptive statistics, regression models, and inferential statistics to analyse the data using SPSS version 23.0 and Excel software. The study suggested that males (60%) are more involved in rice farming in Anambra State. The mean age and farming experience were 39 years and 12 years, respectively. The study reveals that the majority (43.64%) of the farmers attended primary school, with a mean farm size of 1ha, and an average output of 4.813 tons/ha. The study shows that the mean household size is 7. Thus, we must emphasise the importance of mass media in disseminating agricultural information.

Keywords: Rice; production; farmers; mass media; farm size.

INTRODUCTION

Users of mass media, especially electronic media, worldwide have at one time or another tended to ascribe immense power to these instruments of mass information dissemination. Mass media refers to technology designed to reach a large audience. The most common platforms for mass media include newspapers, magazines, television, and the Internet. Sustainable development is people-oriented and people-centred, which is why it can be referred to as being from the people, by the people, and for the people [1, 2]. However, in a general sense, people often refer to rural development as agricultural development; this is understandable, given that almost 80% of Nigeria's rural population is engaged in agriculture and agricultural-related activities, and nearly 80% of the nation's population resides and works in rural areas of the country [3].

Nigeria has enormous resources to back a self-sufficient agricultural production. In fact, out of the 98.321 million hectares of land available in Nigeria, approximately 75.3% is arable land, and 10% is under a forest reserve. In contrast, the remaining 14.7 % can be regarded as permanent pasture built around uncultivated waste [4]; this

underscores the importance of Nigeria's rural sector in making or maring Nigeria's rural economy; especially since agriculture contributes 37.4% of Nigeria's gross domestic product, estimated at US \$50.2 billion, and provides employment for 40% of the economically active population [3]. Information and communication are essential ingredients for the effective transfer of technologies designed to boost agricultural production. For farmers to benefit from such technologies, they must first have access to them and learn how to utilise them effectively in their farming systems and practices. In developing countries, the latest mass media have established a role in supporting the agricultural sector through extension activities [5]. Mass media can enhance knowledge and have an impact on behaviour [6]. The cost of extension advice through mass media is considerably lower compared to individual and group methods [7]. However, the mass media involve one-way communication from the information source to the receivers. They permit limited and delayed feedback, which, of course, is essential for effective communication [8]. In Nigeria, various communication media are being used to transmit agricultural information to farmers in line with the coun-

try's national agricultural policy. Another advantage of the mass media programme is that it can be done almost anywhere through the use of a tape recorder [9]. It is likely due to these advantages of mass media that many governments accord high priority to it as a means of reaching farmers. Among other sources of information, mass media and TV also play a significant role in disseminating values. Agricultural agencies should harness the potential of TV to communicate information that benefits farmers [6]. Authors [10] also emphasise that mass media beats literacy barriers as it can tie into the local language of the community as well as reach people who cannot read or write, especially the rural farmers, whom it would be difficult or expensive to visit face-to-face, yet who urgently need to be informed, motivated and mobilised [11].

Rice is the seed of a monocot plant, *Oryza sativa*. As a cereal grain, it is the most important staple food for a large part of the world's human population, especially in East, South, Southeast Asia, the Middle East, Latin America, and West India. It is the grain with the second-highest worldwide population after maize [12]. Since a large portion of maize crops are grown for purposes other than human consumption, rice is probably the most essential grain in terms of human nutrition and caloric intake, providing more than one-fifth of the calories consumed worldwide by the human species [12]. Therefore, it is imperative to understand the bottleneck associated with rice production by rice farmers in Anambra State, Nigeria. The objectives of this study include describing the socio-economic characteristics of rice farmers and identifying the significant sources of mass media used for accessing agricultural information in the study area.

METHOD

Research design. This study adopted the survey research design. Authors [13] described survey research design as those studies that aim to collect data and explain, in a systematic manner, the characteristics, features, or facts about a given population. This type of design uses a questionnaire to collect data from the respondents.

Area of the study. Anambra State is located between latitudes 6o45'1" and 5o44'1" N and longitudes 6o36'1" 7o20'1" E of the Greenwich Meridian. The climate is humid, with a mean annual rainfall of 210mm and an average temperature of 85°F, along with an average relative humidity of 24-

25%. It has a weak soil that is easily eroded. The State has 21 Local Government Areas, which include Aguata, Awka North, Awka South, Anambra East, Anambra West, Aniocha, Ayamelum, Dunukofia, Ekwusigo, Idemili North, Idemili South, Ihiala, Njikoka, Nnewi North, Nnewi South, Ogbaru, Onitsha North, Onitsha South, Orumba North, Orumba South, and Oyi. The State is subdivided into four agricultural zones: Aguata, Awka, Anambra, and Onitsha. Anambra State is bounded to the north by Kogi State, to the South by Imo and Abia States, to the East by Enugu State and to the West by Delta State.

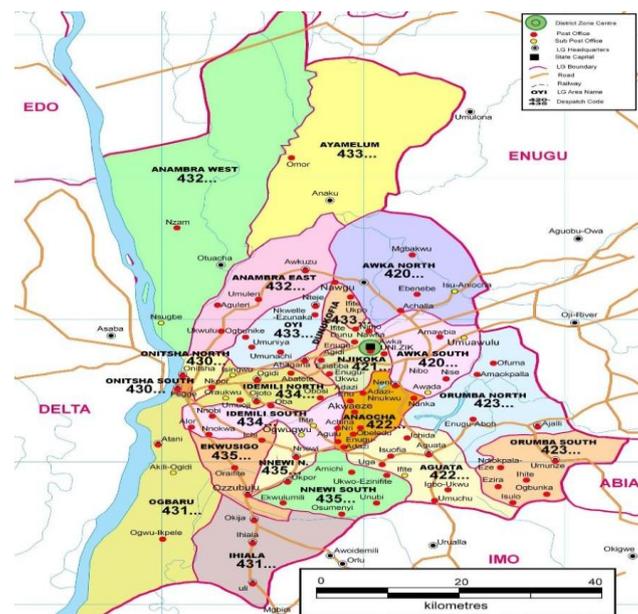


Figure 1 – The Map of Anambra State

Population of the study. The target population for this study include all the registered rice farmers in Anambra State. Anambra agricultural zone has four extension blocks and forty-five circles. According to the information supplied by the Programme Rural Institution Gender Youth Mainstreaming Officer (RIGYMO) database (September 2018), the rice-planting farmers in the Anambra Agricultural Zones included 2,968 males and 2,428 females, totalling 5,396 rice farmers. The study chose this area because many rice crop farmers live there. Table 1 further displays the information above.

Table 1 – Distribution of Anambra State rice farmers according to Agricultural Zones

S/n	Local government	Male	Female	Total
1	Ayamelum	1450	1108	2558
2	Oyi 34	534	532	1066

S/n	Local government	Male	Female	Total
3	Anambra east	236	200	436
4	Anambra west	556	471	1027
Total		2776	2311	5087

Sampling technique and sample size. The Anambra Agricultural Zone comprises Anambra East/West, Oyi, and Ayamelum. The researchers purposively selected these areas for the study because many rice farmers live there. Since not all residents in the study area are rice farmers, the researchers considered and investigated only the farmers and the extension agent residing in the area. They then drew a representative sample of respondents from the population. To determine the sample size for the study, the researchers applied the Taro Yamane formula, stated as follows:

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

where n – sample size; N – population; e – margin error (5% or 0.05); 1= constant.

Substituting in the above formula:

$$\begin{aligned} n &= \frac{2.273}{1+2272(0.05)^2} = \frac{2.273}{1+5.683} = \\ &= \frac{2.273}{6.683} = 340.12, n= 340 \end{aligned}$$

Similarly, 40% of the sample size (340) was selected, resulting in 110 farmers who are heads of their households. According to authors [14], a sample size of 40% from a large population distribution of over 100 respondents is considered an appropriate representation of the entire population. They further noted that the minimum sample size for a survey study is 30 respondents. Based on this assumption, the researcher deemed the sample of 110 respondents appropriate for this study.

Instrument for data collection. The researchers used a structured questionnaire as the primary instrument for data collection to gather detailed information from the respondents. They allowed the respondents adequate time to complete the questionnaire items. When necessary, the researchers explained the items in the Igbo language to ensure understanding and appropriate responses. They divided the questionnaire into

sections, each containing relevant questions related to the specific objectives of the study.

Validity and reliability of the instrument. The instrument for data collection was face- and content-validated with the help of the project supervisor and two other lecturers in the Department of Agricultural Economics and Extension. A reliability test was conducted using the Cronbach-Alpha technique. A reliability outcome of 0.60 or above indicates that the instrument is reliable.

Administration and Collection of Data of the Instrument. The researchers, with the assistance of five opinion leaders, distributed questionnaires to the respondents. The researcher followed up with the research assistants to ensure they carried out their duties appropriately. A total of 110 copies of the questionnaire were distributed to the respondents using a face-to-face approach and on-the-spot completion. However, the researchers revisited those who could not complete it on the spot within one week to retrieve it.

Method of data analysis. The researchers used statistical tools to analyse the collected data and achieve the stated objectives. The study utilised a combination of descriptive and inferential statistics. The descriptive statistics included mean, median, frequency distribution and percentages.

Measurement of variables. Deciding how variables will be measured is the first step in organising the observation of a study. In this study, the researcher assessed the impact of mass media usage on rice production among rice farmers in Anambra State.

The operational measures were:

Independent variables: An independent variable is a variable whose variation does not depend on that of another. The variables under this category for the study include:

Age: Respondents were asked to state their actual age in years

Sex: The respondents were asked to indicate whether they are male or female. Males and females were assigned 1 and 2, respectively.

Marital status: The respondents were asked to indicate whether they are single, married, divorced or widowed. Numbers 1, 2, 3, and 4 were assigned, respectively.

Educational attainment: The respondents were asked to indicate their level of education, which included non-formal education, primary educa-

tion, secondary school, and tertiary institution, and were assigned the corresponding numbers 1, 2, 3, and 4, respectively.

Family size: Respondents were asked to indicate the actual number of people in their household.

Farming experience: Respondents were asked to indicate the number of years they have been farming.

Farm size: Respondents were asked to evaluate their entire farm land as follows: less than one hectare, 1 hectare-3 hectares, and more than 3 hectares.

Factors affecting usage of mass media:

Dependent Variable. A dependent variable varies in response to another variable, and researchers obtain it by manipulating that variable.

Mass Media Usage: Respondents were asked to indicate their levels of mass media usage from a list of options. The responses were rated on a four-point Likert scale: Very High Extent (4 points), High Extent (3 points), Low Extent (2 points), and Very Low Extent (1 point). Based on the mean score (3.0), those above the mean score were categorised as Strongly Agree (5 points), Undecided (4 points), Agree (3 points), Disagree (2 points), and Strongly Disagree (1 point).

Model Specification

a) Descriptive statistics for objective one were mathematically stated thus

$$\bar{x} = \sum Fx/n \tag{2}$$

where \bar{x} = mean; x = variable outcome; n = sample size; F = frequency.

b) The mean threshold of 5 on the point Likert scale for objective two was stated thus:

$$\bar{x} = \frac{1+2+3+4+5}{5} = 3.0 \tag{3}$$

where \bar{x} = Mean threshold (≥ 3.0 = satisfaction < 3 = rejection); 4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree.

RESULTS AND DISCUSSION

Socio-economic Characteristics of the Respondents. The socio-economic characteristics examined in the respondents included sex, marital

status, household size, farming experience, level of education, farm size, access to extension agents, and occupation.

Table 2 – Distribution of the rice farmers according to their socio-economic Characteristics

Socio-economic Characteristics	Frequency	%	Mean
Sex:			
Female	44	40	
Male	66	60	
Age (years):			
<= 29	26	23.6	
30 – 39	27	24.5	39
40 – 49	33	30	
50 and above	24	21.8	
Marital status:			
Single	14	12.7	
Married	71	64.5	
Divorced	18	16.4	
Widowed	7	6.4	
Household size:			
1 - 3 persons	29	26.4	
4 - 6 persons	22	20	7
7 - 9 persons	28	25.5	
10 persons and above	31	28.2	
Farming experience			
1-5	9	8.18	
6-10	35	31.82	12
11-15	58	52.73	
15 and above	8	7.27	
Level of Education:			
Non formal	14	12.73	
Primary	48	43.64	
Secondary	42	38.18	
Tertiary	5	4.55	
Postgraduate	1	0.9	
Farm size:			
0-0.5	9	8.18	
0.6-1.0	62	56.36	1
1-1.5	31	28.18	
1.6 and above	8	7.27	
Access to extension agents			
Yes	78	70.91	
No	32	29.09	
Primary occupation			
Farming	98	89.09	
Trading	12	10.91	
Total	110	100	

Sex of the Rice Farmers: Table 2 showed that the majority (60.0%) of the respondents were male, while the remaining 40.0% were female; this

suggests that the study was predominantly composed of male respondents.

Age of the Farmers: Results from the findings in Table 2 revealed that a greater proportion (30.0%) of respondents fell within the age bracket of 40-49 years, 24.5% fell within the age bracket of 30-39 years, 23.6% fell within 29 or less and the remaining 21.8% fell within the age bracket of 50 and above years. On average, the respondents' age was approximately 39 years; this means that most respondents are at their most productive age, enabling them to be actively involved in rice farming.

Marital status of the farmers: The study reveals that the majority (64.5%) of the respondents were married, 16.4% were divorced, 12.7% were single, and 6.4% were widowed (Table 2). This result indicates that married farmers were the most prevalent among the respondents in the study area.

Household size of the farmers: Entries in Table 2 reveal that a greater proportion (28.2%) of the respondents had a household size of 10 persons and above, 26.4% had a household size of 1-3 persons, 25.5% had a household size of 7-9 persons and finally, 20.0% had a household size of 4-6 persons. The mean household size was approximately seven persons. The household size is enough for the labour needed in rice farming.

Farming experience: The results showed that a large proportion (52.73%) had years of experience in rice farming ranging from 11 to 15 years, 31.82% had experience between 6 and 10 years, 8.18% had experience of less than 1 year, while the remaining 7.27% had 15 years of experience or more. The mean farming experience was 12 years. It is noteworthy that farming experience is essential for performing activities profitably, and a lack of farming experience can negatively impact the business's profitability.

Level of education of the farmers: Table 2 shows that a majority (43.64%) of the respondents had primary education, 38.18% had secondary education, 4.55% had tertiary, and 0.9% had post-graduate education. Only about 12.73% of the rice farmers had no formal education; this indicates that a significant number of respondents are educated in the study area. It is noteworthy that education is one of the major socio-economic factors that impact the output and productivity of farmers. Farmers with formal education are privileged to have early contact with

innovations and improved technologies, which are designed to enhance production and productivity. Moreover, such farmers are early adopters, and their risk-aversion tendency tends to reduce with formal education. This finding aligns with authors [15], who suggest that education plays a vital role in agricultural growth and enhances the standard of living for respondents. The level of education also determines the level of opportunities available to improve food security and reduce poverty. Education opens the farmer's mind to knowledge. The higher education status of farmers will enable them to acquire knowledge and skills, adopt new inputs such as high-yielding varieties, chemical fertilisers, and pesticides, and also embrace extension services.

Farm size: The results also showed that the majority (56.36%) of respondents had a farm size between 0.6 and 1 hectare, while 28.18% had a farm size ranging from 1 to 1.5 hectares. The remaining 8.18% of the farmers had a farm size ranging from 0 to 0.5 hectares. The remaining 7.27% of the farmers had a farm size of 1.6 hectares or above; this implies that the farmers in the study area were operating on a small scale.

Access to extension contacts: The results also showed that the majority (70.91%) of respondents had extension contacts, while approximately 29% did not. Access to extension agents plays a massive role in information and technology transfer. Farmers who lack access to extension agents are unlikely to adopt innovations that could improve their production and profits. A considerable number of farmers have access to extension agents; however, further work is needed in the study area to ensure that all farmers have access to extension services.

Primary occupation: The results also showed that the primary occupation of the majority (89.09%) of the respondents was farming, while the remaining 10.91% were engaged in trading; this affects rice production in the study area because the more a farmer is devoted to rice production on a full-time basis, the greater the possibility of improving output and profit.

The researchers analysed the mass media used by the rice farmers in the study area and presented the results in Table 3. The results indicated that phone calls (97.27%) ranked first among the major media used by rice farmers to access agricultural information in the study area, followed by radio (89.09%), SMS via phone (46.36%), and social media (37.27%). However,

television (21.82%), newspapers (16.36%), posters and leaflets (13.64%), and email (10%) were the least frequently used mass media by the rice farmers in the area; this shows that phone calls, radio, SMS, and social media were the major mass media used by the rice farmers in the study area; this occurs because electronic media disseminate agricultural information to farmers more quickly than other print media.

Table 3 – Types of mass media used by the rice farmers in accessing agricultural information

Types of mass media used	Frequency	%	Rank
Radio	98	89.09	2nd
Television	24	21.82	5th
Newspaper	18	16.36	6th
Email	11	10	8th
Social media	41	37.27	4th
Phone SMS	51	46.36	3rd
Phone call	107	97.27	1st
Posters and leaflets	15	13.64	7th

Aside from being portable, affordable, and useful during emergencies, this is the reason for their popularity/availability in the study area. The finding aligns with that of authors [16], who re-

ported that the affordability and capacity of some devices to convey information visually and audibly make them more beneficial to people.

CONCLUSIONS

The socio-economic characteristics of the rice farmers influenced their usage of mass media. Most activities of rice production in the area were undertaken by aged farmers, primarily males, and those who were educated and had experience in rice production. This study also concluded that the component connection factors, economic factors, and farmers' attitudes collectively influenced farmers' use of mass media. The government and other relevant bodies should install ICT facilities in rural communities and provide information in formats tailored to the specific needs of rice farmers. The cost of mass media tools and formats, as well as ICT infrastructure, should be subsidised for rice farmers to increase their access to information beneficial for rice production. Training should be organised for rural people on the use of mass media and ICT tools/formats to help boost their confidence and reliance on mass media for information.

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