

ANALYSIS OF ACCESS AND USE OF INFORMATION AND COMMUNICATION TECHNOLOGY AMONG PIG FARMERS IN IMO STATE, NIGERIA

Ekweanya, N. M , Bassey J, Aboh ,J.A, Ibeawuchi, B.O and Okringbo, J. I.

Department of Rural Sociology and Extension, Michael Okpara University of Agriculture, Umudike Abia state, Nigeria

Corresponding Author's email address: amakahyginus7@gmail.com

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ABSTRACT

This study analyzed the access and use of information and communication technology among pig farmers in Orlu Local Government Area of Imo State, Nigeria. Multi-stage sampling techniques were used to elicit information from 120 pig farmers. Data were collected using structured questionnaire and analyzed with descriptive and inferential statistics (Z-test). The result shows that pig farmers had access to CDRom/VCD/DVD ($\bar{x}$ =3.23), video player ($\bar{x}$ =3.48), telephone ($\bar{x}$ =3.78), radio ($\bar{x}$ =3.68), internet ($\bar{x}$ =2.65) and television ($\bar{x}$ =3.62) were the various ICTs technologies. The usage of information and communication technologies indicate; video player ($\bar{x}$ =2.71), radio ($\bar{x}$ =2.81), television ($\bar{x}$ =2.80), newspaper ($\bar{x}$ =2.55), pamphlets ($\bar{x}$ =2.30), magazine ($\bar{x}$ =2.11), computer ($\bar{x}$ =2.10), Internet ($\bar{x}$ =2.08). Some identified constraints against access and use of information and communication technologies are; low infrastructure for agriculture (92.5%), inadequate training (87.5%), erratic power supply (86.7%), lack of effective management (86.7%), high cost of computer hardware maintenance (85.0%), unstable connectivity (85.0%) and inadequate source of information (82.5%). The result of the z-test showed that there was significant difference between farmer's level of access and use of ICTs at 5% level. The study concluded that pig farmers in Orlu Local Government area have significant access to the ICT facilities. Hence, the study recommended that ICT facilities should be installed very close to the pig farmers especially in the rural areas to enable the pig farmers have sustained access.

Keywords: Information, communication, Technology and farmers

INTRODUCTION

Information and Communication Technology (ICT) play inevitable roles in every aspect of human activities today, including agriculture. The key players in agriculture are the farmers and their ability to use the technologies defines the roles of ICT in agriculture generally (Nwagwu and Opeyemi, 2015). They further noted that livestock accounts for one third of Nigerian agricultural gross domestic product (GDP). In 2010, livestock production contributed substantially to Nigerians economy, accounting for about 11% of the total GDP (Encyclopedia of the Nation (2010). Agricultural information creates awareness among farmers about agricultural technologies for adoption. These information are indispensable step of an adoption process (Agbamu, 2006; Aina (2007).

A major challenge to agricultural development in Nigeria and other African countries has been the low level of agricultural information exchange among the different

stakeholders in the agricultural sectors as a result of limited access to current and relevant information in the form of primary document and machine readable databases (Agwu and Uche-Mba, 2010).

Over the years, farmers depend on primary information from indigenous or local knowledge documents to improved pig farming practice. Such knowledge (indigenous or local knowledge) refers to skill and experience gained through oral tradition and practices over many generations. Acquisition of such primitive skill by the pig farmers helped to improve pig farming.

Agricultural development in most developing countries like Nigeria (Imo state inclusive) has been hampered by low level adoption of agricultural innovation, poor extension service delivery, poor extension farmer's ratio, poor infrastructural development and poor agricultural information exchange which has resulted to limited access to current and relevant information in the form primary

documents, machine-readable databases (Ozor and Maduekwe, 2009).

Technological information on agriculture are meant to get to rural farmers through extension agents, libraries, newspapers, radio, television, agricultural pamphlets, state and government agencies. Although, piggery farmers have made some efforts to access and use this agricultural information available to increase their level of production. Still, the level of access and use of Information and Communication Technology among pig farmers in Imo state is apparently unknown, there is therefore need ascertain the extent of access and usage of information and technology by pig farmers.

The specific objectives were to:

- i. ascertain the pig farmers level of access to information and communication technologies in the study area;
- ii. to ascertain the pig farmers level of use to information and communication technologies and;
- iii. identify the constraints associated with the access and use of information and communication technologies in the study are

Hypothesis

H₀₁: There is no significant difference between farmers level of access and use of ICTs in the study area.

MATERIALS AND METHODS

The study was conducted in Orlu Local Government area Agricultural Zone in Imo State. Orlu Local Government Area is one of the Local Government Areas that make up the twenty-seven (27) local government areas present in Imo State. Multi-stage sampling procedure was used in selecting sample for the study. Communities, which are Amaifeke, Okporo, Umuowa, Mgbe and Eziachi were selected from the 16 communities in Orlu LGA, using simple random sampling technique (Ekweanya, Omiye, Ifenkwe, and Apu, 2017). Second stage involve the selection of two villages from each community using simple random sampling techniques, and this gave a total of ten villages.

The third stage involve the selection of (12) pig farmers from each of the (10) villages, using simple random sampling techniques. This gave a total of one hundred and twenty (120) pig farmers.

Objectives 1, 2 and 3 were realized using simple descriptive statistics such as percentage and means scores.

Decision rule: A 4-point rating scale of $4+3+2+1 = 10/4 = 2.5$. Hence, the cut-off point is 2.55 as the upper limit

Model Specification

The paired treatment test was used to determine the significant difference between farmers level of access and use of ICTs was adopted by Ezech and Nwachukwu (2010)

$$Z = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\delta_1^2}{n_1} + \frac{\delta_2^2}{n_2}}}$$

$\bar{X}_1$ = mean of access,

$\bar{X}_2$ = mean of use

δ_1^2 = standard deviation of access

δ_2^2 = standard deviation of use

n_1 = sample size of access

n_2 = sample size of use

RESULTS AND DISSCUSSION

Level of Access to Information and Communication Technologies

Result in Table 1 shown the level of access to information and communication technologies. The mean rating on a 4-point scale shows that CDRom/VCD/DVD ($\bar{x}$ =3.23); video player ($\bar{x}$ =3.48), telephone ($\bar{x}$ =3.78), radio ($\bar{x}$ =3.68), internet ($\bar{x}$ =2.65), television ($\bar{x}$ =3.62), magazine ($\bar{x}$ =2.61), newspaper ($\bar{x}$ =3.44) and pamphlets ($\bar{x}$ =2.60). This implies that telephone, radio, television, video-player, CDRom/VCD/DVD, Internet, pamphlets and magazines play an important role in information

transfer and were considered most accessible facilities to pig farmers in the area. The internet is a formidable source of information on recent

developments in the field of agricultural extension (Agwu and Chah, 2007).

Table 1: Distribution of respondents based on their access to ICT facilities

Information Communication Facilities	Frequency (n=120)				$\Sigma F\bar{X}$	Mean
	Very often	Often	Not often	Not at all		
Scanner	10(40)	22(66)	25(50)	63(63)	219	1.83
E-mail	27(108)	24(72)	35(70)	34(34)	284	2.37
Computer	29(116)	26(78)	33(66)	32(32)	292	2.43
Cinema	5(20)	17(51)	21(42)	77(77)	190	1.58
Digital receiver	17(68)	13(39)	17(34)	73(73)	214	1.78
CDRom/VCD/DVD	63 (252)	30(90)	18(36)	9(9)	287	3.23
Video player	73 (292)	32(96)	10(20)	3(3)	411	3.48
Telephone	103(412)	9(27)	7(14)	1(1)	454	3.78
Radio	89(356)	25(75)	4(8)	2(2)	441	3.68
Internet	43(172)	22(66)	25(50)	30(30)	318	2.65
Magnetic Board	6(24)	15(45)	18(36)	81(81)	186	1.55
Flash Drive	21(84)	14(42)	26(52)	58(58)	240	2.16
Television	93(372)	14(42)	8(16)	5(5)	435	3.62
Newspaper	76(304)	25(75)	15(30)	4(4)	413	3.44
Pamphlets	27(108)	38(114)	35(70)	20(20)	312	2.60
Magazine	34(140)	23(69)	41(82)	20(20)	311	2.61
Visual electronic library	12(48)	15(45)	23(46)	61(61)	208	1.75
Multimedia hardware	10(40)	9(27)	19(38)	82(82)	187	1.56
Grand mean						2.56

Source: field survey, 2016.

Level of Use to Information and Communication Technologies

Result in Table 2 shown the levels of use to information and communication technologies. The mean rating on a 4-point scale shows that CDRom/VCD/DVD ($\bar{x}$ =2.56), video player ($\bar{x}$ =2.71), radio ($\bar{x}$ =2.81), television ($\bar{x}$ =2.80), newspaper ($\bar{x}$ =2.55), pamphlets ($\bar{x}$ =2.30), magazine ($\bar{x}$ =2.11), computer ($\bar{x}$ =2.10), Internet ($\bar{x}$ =2.08). This implies that pig farmers always used information and communication

technologies to increase their production level. This is in line with the (Omotayo, 2011; ADB, 2003) who noted that is due to the changing paradigms in agriculture, where linear information flows are being replaced by pluralistic information flows new actors and to make ICT more effective in agricultural development. Still, ICT has become a powerful tool in providing developing countries with unprecedented opportunities to meet vital development goal.

Table 2: Distribution of respondents according to level of use to ICT facilities

Information Communication Facilities	Frequency (n=120)			$\Sigma F\bar{X}$	Mean
	Always	Sometimes	Never		
Scanner	12(36)	42(84)	66(66)	186	1.55
E-mail	32(96)	53(106)	35(35)	237	1.98
Computer	41(123)	50(100)	29(29)	252	2.10
Cinema	15(45)	23(46)	82(82)	173	1.60
Digital receiver	28(84)	27(54)	65(65)	203	1.68
CDRom/VCD/DVD	77(231)	33(66)	10(10)	307	2.56
Video player	87(261)	31(62)	2(2)	325	2.71
Telephone	113(339)	5(10)	2(2)	351	1.93
Radio	100(300)	17(34)	3(3)	337	2.81
Internet	48(144)	34(68)	38(38)	250	2.08
Magnetic Board	21(63)	20(40)	79(79)	182	1.52
Flash Drive	31(93)	26(52)	63(63)	208	1.73
Television	97(291)	16(32)	7(7)	330	2.80
Newspaper	71(213)	44(88)	5(5)	306	2.55
Pamphlets	30(90)	75(150)	15(15)	255	2.30
Magazine	34(102)	65(130)	21(21)	153	2.11
Visual electronic library	9(27)	25(50)	86(85)	163	1.36
Multimedia hardware	6(18)	27(54)	87(87)	159	1.33
Grand mean score					2.09

Source: Field survey, 2016

Constraints Associated with the Access and Use of Information and Communication Technologies

The constraints associated with the access and use of information and communication technologies is presented in Table 3. The result showed that low infrastructure for agriculture (92.5%), inadequate training (87.5%), erratic power supply (86.7%), lack of effective management (86.7%), high cost of computer hardware maintenance (85.0%), unstable connectivity (85.0%), inadequate source of information (82.5%), affordability (82.5%), low level of income (81.7%), marketing of ICT to

farmers is non-evidence (77.5%), lack of awareness (76.7%), farmers isolation with extension agents and services (75.8%) and language barrier (66.7%) were the constraints associated with the access and use of information and communication technologies among pig farmers in Imo state. This is in line consistent with the assertion (Arokoyo, 2003; Bertolimi, 2004) who observed that the adoption and utilization of ICT in agriculture are constrained among other problems by inadequate infrastructure, limited human resource capacity, absence of national policies and low ICTs literacy.

Table 3: Distribution of respondents based on the constraints to the access and use of ICT

Constraints	Frequency	Percentage
Affordability	99	82.5
Language barrier	80	66.7
Unstable connectivity	102	85.0
Erratic power supply	104	86.7
Lack of awareness	92	76.7
Low level of income	98	81.7
Low infrastructure for-agriculture	111	92.5
Inadequate training	105	87.5
High cost of computer hard ware maintenance	102	85.0
Farmers isolation with extension agents and services	91	75.8
Inadequate source of information	99	82.5
Marketing of ICT to farmers is non-evidence	93	77.5
Lack of effective management	104	86.7

Source: field Survey, 2016. Multiple responses recorded

Z-test result on the significant difference between farmers level of access and use of ICTs in the study area.

Table 4 show z-test result on the significant difference between farmer's level of access and use of ICTs in the study area. The table shows the result for the access to information communication technologies and use of information communication technologies with a mean score of 2.5707 for access to information

communication technologies and 2.0937 for use of information communication technologies which is significant at $P < 0.05$ level of significance with z-value (14.651). From the result this therefore implies that the hypothesis which stated that there is no significant difference between farmer's level of access and use of information communication technologies was rejected. Thus the study concludes that there is a significant difference between farmer's level of access and use of ICTs in the study area.

Table 4. Z-test result on the significant difference between farmers level of access and use of ICTs in the study area

Parameters	Mean	Std Deviation	Std Error Mean	Df	Z-stat.	Z-tab
Access to ICTs	2.5707	0.52811	0.04821			
Use of ICTs	2.0937	0.34459	0.03146			
Difference	0.47699	0.35664	0.03256	119	14.651***	1.96

Source: Field survey, 2016

CONCLUSION AND RECOMMENDATIONS

Based on the finding, the study concluded that pig farmers in Orlu Local Government area have significant access to the ICT facilities and the extent of use ICT facilities was high. The study also identified; unstable connectivity, electric power supply, low level of income, low infrastructure for e-agriculture, inadequate training, high cost of computer, inadequate source of information and lack of effective management as problems militating against the access and use of information communication technologies facilities.

The study therefore recommends that;

- i. ICT facilities should be installed very close to the pig farmers especially in the rural areas to enable the pig farmers have sustained access
- ii. Provision of infrastructure for e-agriculture should be made available in the area for pig farmers to have access and use these ICT facilities effectively

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