

Content Analysis of Agricultural Information Dissemination by the Indigenous Language and National Print Media in Nigeria: Implications for Effective Communication

Toyin F. Ojo¹ and Gbenga F. Koledoye^{2*}

¹Department of Agricultural Extension and Rural Development, Obafemi Awolowo University
Ile Ife, Nigeria

²Department of Agricultural Extension and Rural Development, Adekunle Ajasin University
Akungba-Akoko, Ondo State, Nigeria

*Corresponding author's email: festus.koledoye [AT] aaua.edu.ng

ABSTRACT---- *The study conducted content analysis of indigenous and national newspapers (NP) published between 2014 and 2015 with respect to agricultural information disseminated to stakeholders in agriculture. Both purposive and stratified sampling technique was used to select Akede and Alaroye as the indigenous and the Nation and Punch as NPs because of their popularity and coverage in Nigeria. A total of 384 newspapers were used for this study. Results showed that the newspapers featured less of agricultural related information despite the fact that the available agricultural information was carried in form of hard news (5.7% and 81.7%), features (7.3% and 91.7%), photography (4.7% and 50.0%), opinion issues (2.1% and 64.1%), and advertisement (1.6% and 56.2%) for indigenous language and national newspapers respectively. Also, information such as employment in agriculture-related (4.7% and 52.6%), health issues related to agriculture (6.2% and 53.1%), crop production (5.7% and 52.1%), animal husbandry (4.7% and 51.6%) for indigenous language and national newspapers respectively among others were the commonly featured news. Only 6.8% and 80.2% of the indigenous and National newspapers allotted column inches ranging from 0.00-7.0 to agriculture. About 6.8% and 60.4% and 4.7% and 58.9% of indigenous language and national NPs targeted the general audience and Male farmer for disseminating agricultural information. Significant difference existed in the agriculture information featured between the indigenous and national newspapers with an F-test value of 44.882 at p= 0.01; indicating that national newspapers featured agricultural news more than the indigenous ones. It was recorded that limited space was allocated to the few available information on agriculture in the sampled newspapers. It was concluded that agricultural news were not adequately disseminated in the dailies especially the local dailies that farmers mostly have access to. It was recommended that agriculture-related information should be published on the platforms where the target audience can access for effective communication.*

Keywords--- content analysis, information, agriculture, effectiveness

1. INTRODUCTION

The importance of information and communication as essential ingredients for effective transfer of technologies, particularly designed to boost agricultural production cannot be underestimated. For farmers to benefit from such technologies, they must first have access to them and learn how to effectively utilize them in their farming systems and practices. This is the primary function of agricultural extension agencies all over the world. These extension agencies make use of different approaches, means and media in transferring improved agricultural technologies in form of information to the end users (Qamar, 2006).

Information generally, is considered as being an essential production factor in agriculture and rural development (Connell, 2005). To perform this role, there must be information exchange among agricultural stakeholders. Aina (2005) and Mooko and Aina (2007) have reported in their research findings that agricultural information is an essential recipe for successful farming. One therefore, sees that these same recipes can be used by Nigerian farmers to increase productivity. However, information per se cannot increase productivity unless farmers are provided with the right type of information and at the right time, using the right channels and with other necessary component in place, like telecommunication facilities, good road, education, good agricultural policies. There appears to be other externalities that have to be in place so that information can make an impact. These significant externalities include such things as money, favourable socio-political stability, good governance, etc. (Fashina, 2007). The exchange of information between people can occur in the following forms: writing, speaking, the use of common system of signs or behaviour, as well as the use of audio-visual aids. People

in organizations need to communicate in order to coordinate their work and to inform other people about their products and services, through advert (Olowu, 2000). These different forms of platforms where exchange of information can take place can be broadly categorized into mass/electronic media and individual/intrapersonal medium. Print media are among the common platforms where information diffuses into the society (Sopuru, 2015).

Print media are forms of technological apparatus which is capable of reproducing the same message simultaneously for a large number of people over a given period of time. In agricultural extension, it comes in form of newspapers, newsletters, success story, leaflets, fliers, posters among others. This is usually produced in large quantities because of the large population that they have to reach. The last decades have witnessed a growing awareness of the importance of mass media in the development of agricultural productivity overtime (Olowu, 2000). Print media have the capacity to uplift the knowledge and having significant impact on behaviour of target audience (Nazari and Hassan, 2011). The potency of modern electronic technology can be exploited for infotainment of farming community (Guenther and Swan, 2011). The cost of extension advice through print media comes to be considerably low as compared to individual and group methods (Oakley and Garforth, 2005). Therefore, Print media, due to their lesscost implications are playing very important role in creating awareness about new agricultural technologies among farmers. Mahmood and Sheikh (2005), Suman (2003); Abbas *et al.* (2008) stated that creation of awareness is the first step towards the adoption process. Khushk and Memon (2004) stated that production and distribution of printed material helps farmers in the transfer of new information and technologies. Printing helps in preserving the technologies in the shape of books/booklets, magazines, newspapers and brochures. According to a study conducted in the central Punjab, majority of the farmers consulted pamphlets, magazines, and newspapers for getting the information regarding sugarcane production technologies (Abbas *et al.*, 2008). These were regarded as the most suitable forms of print media for adoption of sugarcane production technologies.

Information disseminated through newspaper media houses can be on production, harvesting, processing, storage, marketing and source of micro and macro credits to farmers. The advantage of newspaper media houses over other media can never be undermined. The information recovered through newspaper can be documented for future references by the farmers which other mass media houses such as radio, and television houses (electronic mass media) cannot provide (John, 2002). This makes information available and accessible to the target audience as information on the prints can be achieved easily for several years in a save archive like the library.

Agumagu (2008) observed that the print media role in agriculture has long been recognized as an important tool in educating the society on agricultural development. Having adequate and well-presented information will improve the efficiency of rural development policies, projects and programmes and agricultural information provision should be the basic component of rural development programmes (Ibikunle, 2003). Oladele (2011) observed that lack of agricultural information is a key factor that has greatly limited agricultural advancement in developing countries. Thus, agricultural information interacts with, and influences agricultural activities in a variety of ways. This tends to imply that agricultural information can help inform decision-making regarding land, labour, livestock, capital and management. Interestingly, agricultural information is not static but, instead, needs replenishment through research and development. This is why Opara (2008) reported that agricultural activities can arguably be improved by relevant, reliable and useful information and knowledge system that meet peoples' needs and aspiration.

Agriculture is becoming increasingly information sensitive (Padre *et al.*, 2003) hence access to information has become a pre-requisite and a valuable resource of agricultural development. With the need for increase agricultural production, *there is therefore the need* for more agricultural information to be disseminated via media that allow farmers to make reference become imperative. Nigeria has print media that produce readable articles in either the national or local platforms. However, the extent at which agricultural information appears in both is grossly unknown in literature. Therefore, the study seeks to analyse the category of articles written on agriculture by the National and local newspapers between 2014 and 2015, examine the space allotted to the agricultural information disseminated and describe the target audience with a view to unveiling the efficacy of the use of print media in information dissemination and Nigeria status in the use of print media for increasing food production.

2. METHODOLOGY

The study was carried out using two national newspapers (The Nation and The Punch) and two indigenous language newspapers (Akede and Alaroye) that disseminate agricultural information to the farmers in Nigeria. Nigeria is a West-African country geographically located within Latitude 4° and 14°N and Longitude 2° and 15°E, with a total area of 923,768 sq km; 38.97 percent arable land, 3.4 percent permanent crops, and 57.57 percent used for other purposes. It has a population density of 184.2 persons per sq km and a total population of 160,431,790 people (Nigerian Population Commission (NPC), 2006), majority of which reside in the rural areas. The country which has its capital in Abuja, shares land border with Republic of Benin in the west, Chad and Cameroon in the east, Niger in the north, and in the south lies the Gulf of Guinea on the Atlantic Ocean. Nigeria has varying climate types; equatorial climate in the south, tropical

climate in the centre, and arid climate in the north; and rainfall that support several vegetations like savannah, mangrove, swampy forest and tropical forest (Fasina, 2014). Nigeria is administratively divided into 36 states with the country headquarters in Abuja. Christianity and Islam are the major religion in the country with over 65% of the population depending on agriculture as the mean of livelihood.

The population of this study includes two national newspapers (The Punch and The Nation) and two indigenous language newspapers (Alaroye and Akede) published between 2014 and 2015 in Nigeria. A total of 384 newspaper copies were sampled for this study. Purposive sampling technique was used to select the above national and indigenous newspapers because they are the most popular and widely read in Nigeria and stratified random sampling was used for further selection, that is, 384 newspaper copies. The procedure involved assigning a number or any other identifying symbol and then using the number or the symbol to select the sample size or percentage required. The most usual method is to use random numbers. Stratified random sampling creates sub-population (levels or strata) in the population. All strata were represented in the sample and the sample units were selected from each stratum at random. Proportionate allocation of sampling fraction or percentage was used to determine the number of units to be drawn from each stratum. In stratified random sampling, simple random sampling was exercised within the population stratum. The sampling unit in the stratified random sampling is the individual element within the stratum.

In this case, all National and Indigenous language newspaper copies for each the twelve months under survey were divided into four strata:

- (i) from 1st to 7th of every month,
- (ii) from 8th to 14th of every month,
- (iii) from 15th to 21st of every month
- (iv) from 22nd to end of every month.

And from each stratum, one copy was selected with simple random sampling, making a total of four copies per month for each publication (4x4) 16 samples were obtained. It should be noted that dates sampled for each month for both publications were deliberately made similar so as to enable effective comparative content analysis. All the sampled (384 selected) editions of the four publications for the period under the study were examined. These formed the sample, it was noted that the indigenous language newspaper used for the study, i.e. Akede was published every Monday while Alaroye was published every Tuesday. In a month therefore, four samples were obtained from each publication and in a year (16x12) 192 samples were obtained. The sample size for the study was therefore 384 (for two years) as shown in Table 1

Table 1: Total number of newspapers used for the research work

Newspapers	2014 Frequency	2015 Frequency	Total
The Nation	48	48	96
The Punch	48	48	96
Alaroye	48	48	96
Akede	48	48	96

Source: Field survey, 2019

Data on agricultural policy, programmes, extension services, food production and security, environmental sustainability, livestock production, marketing, processing, post-harvest handling, technology, rural development among others were collected in line with the study objectives. Data collected *analysed using* were described with descriptive statistics like frequency counts, percentage while t-test and Analysis of variance (ANOVA) were used to make inferences from the study.

3. RESULTS AND DISCUSSION

Categories of agricultural news captured

Results in Table 2 show that there were nine different categories of agricultural news captured in the print media used for this study within this stipulated period. They were identified as follows: hard news, features, and letters to the editor, editorials, photography, advertisement, book review, cartoons and opinion issues. Detailed results indicate that 5.7% of the sampled indigenous language newspapers selected for the study reported hard news while about 81.7% of the national newspapers reported hard news. This means that hard news was predominantly reported in the national dailies compared to the indigenous dailies. It was also reported that about 7.3% of the indigenous language newspapers reported features while 91.7% of these were reported by the national newspapers within the years under study. In the same vein, about 4.7% of the indigenous language samples selected for the study reported photography while 50% of the national newspapers also

reported photography. On advertisement, it was reported by only 1.6% of the indigenous language newspapers while 56.2% of the national papers reported this within the study periods.

In addition, about 2.1% of the indigenous language newspapers sampled reported opinion issues while 64.1% of the national newspapers indicated that opinions were published. For the letters to the editors, editorials, book review and cartoon, neither the indigenous language nor national newspapers did report any agricultural information within the study periods. Lack of editorials on agriculture in both dailies could be due to the editorial team's perception about agriculture and lack of editorial policy for agriculture in those newspaper organisations. Agricultural expert and other writers on letters to the editors, book review and cartoon were very few or may lack agricultural information to disseminate to the audience. Pages reserved for such letter to editor, editorials, book review and cartoon were occupied by non-agriculture stories despite agriculture being the most importance contributor to the Nigerian national economy after crude oil. The findings show the emphasis the print media placed on agriculture in Nigeria. This may be the reason behind the failure of many agricultural programmes by both the government and the non-governmental organizations on the need to bring agriculture back as the mainstay of the Nigerian economy since there is a high competition for crude oil at the world level. This finding is similar to the study of Abba (2016) that reported that 33 out of 1498 stories covered in daily trust and vanguard newspapers published between May, 2015 and May, 2016 only focused on agricultural issues. Similarly, Chijoke and Rasak (2018) found that only Agricultural Transformation Agenda (ATA) news appeared in the news regularly for the period it was implemented in Nigeria while other agricultural news received less attention.

Table 2: Category of agricultural news captured

*Category of agric news	Indigenous language		National	
	Frequency	Percentage	Frequency	Percentage
Hard news	11	5.7	166	81.7
Features	14	7.3	176	91.7
Letters to editor	-	-	-	-
Editorials	-	-	-	-
Photography	9	4.7	96	50.0
Advertisement	3	1.6	108	56.2
Book review	-	-	-	-
Cartoon	-	-	-	-
Opinion issues	4	2.1	123	64.1

Source: Field survey, 2019.

*Multiple responses

Types of articles where agricultural information appeared

Results in Figure 1 show that 6.8% of indigenous language newspapers selected for the study reported challenges in Nigeria economy, 6.2% only reported health issues, 5.7% reported crop production activities, 5.2% reported value addition while 4.7% reported crop processing, animal husbandry, news on agriculture, economy, employment opportunities respectively within the study frame. In the national newspapers, it was observed that challenges in Nigeria economy (57.8%), health issue (53.1%), employment (52.6%), crop production (52.1%), value addition (52.1%), news on agriculture (52.1%), animal husbandry (51.6%), crop processing (49.5%), and economy (46.4%) were reported in their article. This study therefore unveiled that national newspapers reported more on challenges in Nigeria economy, health issues, employment, crop production, value addition, news on agriculture, animal husbandry, crop processing and economy than indigenous language newspapers in the study period. However, the national newspapers paid a little above average (52.1%) attention to agricultural news items compared to the indigenous newspapers which paid less attention (4.7%) to agricultural news. The implication of this is that agricultural information on improved technologies that could enhance increased farmers productivity in crop and livestock production are not being circulated in the dailies. Hence, the audience may likely be ignorant of all these information. This might be one of those factors responsible for incessant food insecurity in form of hunger and malnutrition which have been ravaging Africa generally and Nigeria in particular for so many years. The fact that information is power and useful for economic development as opined by Owoeye and Abolarinwa (2016), appropriate and up to date information in the dailies would equally be good for both the farmers and the entire populace in increasing farm productivity and encouraging people to embrace farming especially in the cities where the price of food items is on the high side. Farmers would also hear and get acquainted with the improved farming technologies for better production. The results corroborate with the findings of Samuel (2002) which categorized the types of articles reported in the newspapers as health, employment, crop production, crop processing, animal husbandry, news on agriculture, value addition, economy and challenges.

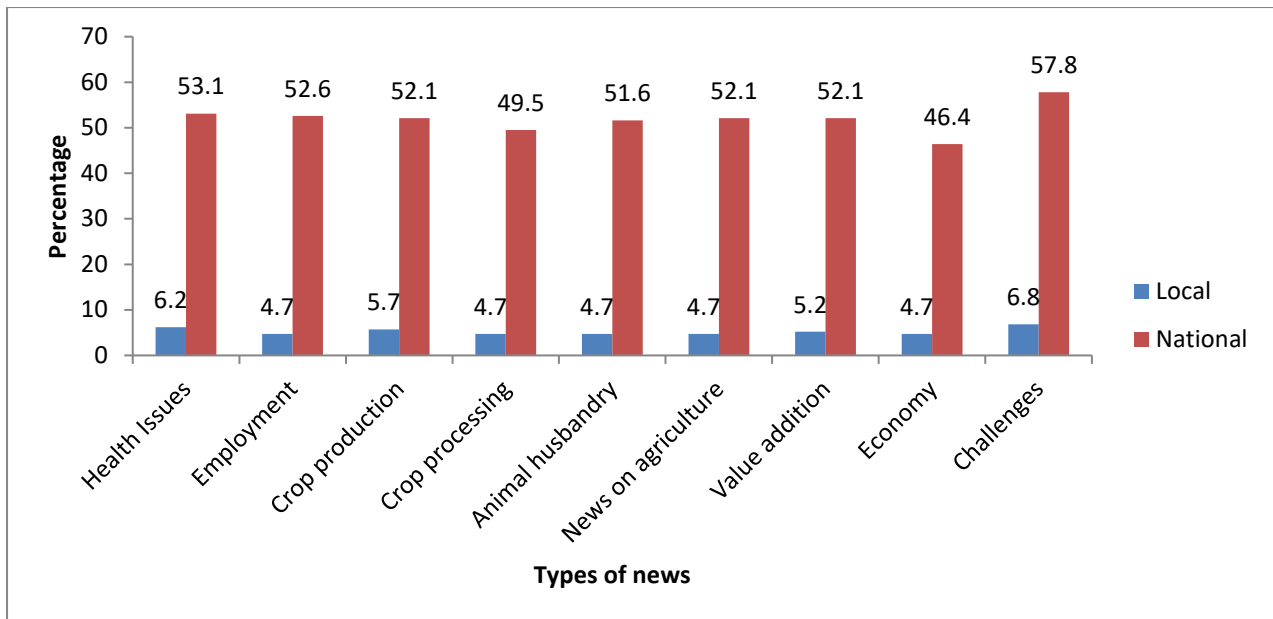


Figure 1: Types of articles where agricultural news appeared

Source: Field survey, 2019.

Space allotted to the agricultural information disseminated

Results in Figure 2 show that 6.8% of the indigenous language newspapers samples selected for the study had the column inches ranging from 0.00-7.0 allocated to agriculture, 2.6% had the column inches ranging from 7.01-50.0 while 2.1% of the samples had the column inches ranging from 50.01-100.0. This implies that only little space in column inches were allocated to the dissemination of agricultural information by indigenous language newspapers. However, it was revealed that 80.2% of the national newspaper samples selected for the study had the column inches ranging from 0.00-7.00 allocated to agriculture, 64.6% had the column inches ranging from 7.01-50.0 while 20.3% of the national samples had the column inches ranging from 50.1-100.0. Column space above 100 inches recorded no agricultural related news both in indigenous language and national newspapers. This might be connected to the fact that most of the space in these dailies is allocated to advertisement, sports, entertainment, and politics among other national issues. This may hinder or discourage interest in farming as lack of information has been seen as a retarding force against *agricultural* development (Abba and Song, 2013). This result concurs with the findings of Daramola (2006) submission that enough spaces were not allocated to agricultural information issues in Punch and Guardian (national newspapers) from 2007 to 2010 in Nigeria.

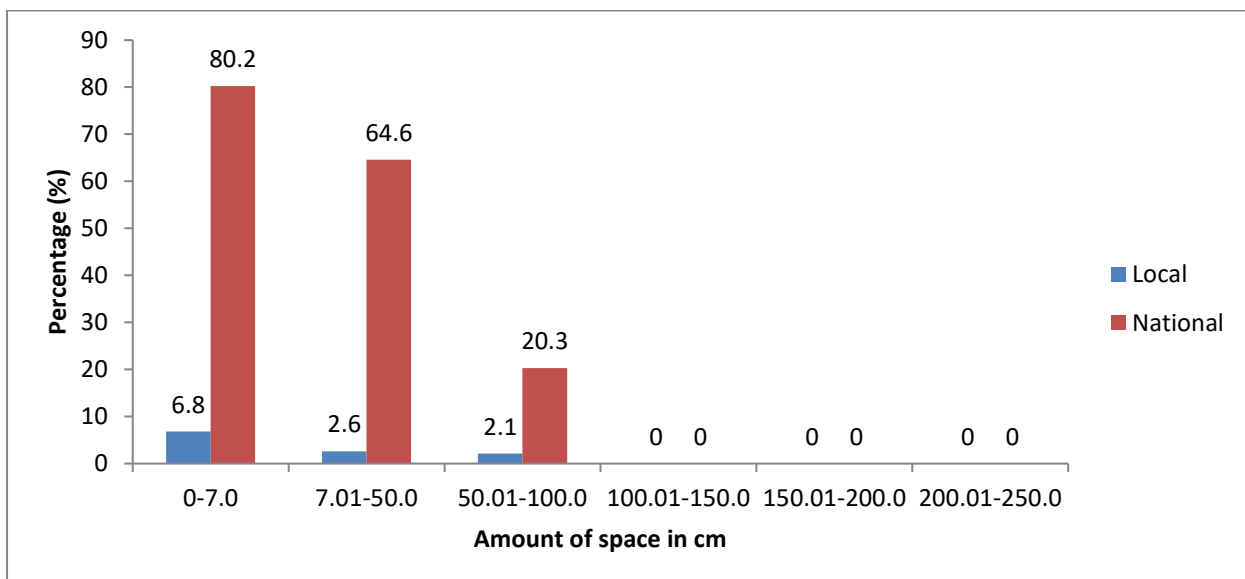


Figure 2: Amount of spaces in inches allocated to agricultural information on the selected dailies.

Source: Field survey, 2019.

*Multiple responses

The target audience

Results in Table 4 show that 6.8% of the indigenous language newspaper samples selected for the study targeted women as audience for disseminating agricultural issues, 3.6% targeted youths, 4.7% targeted farmers, 1.0% targeted extension agent, 5.7% targeted students, 1.6% targeted rural dwellers, 16.8% targeted the general audience. While for the national newspaper samples selected, it was revealed that 6.2% targeted children, 53.6% targeted women, 45.3% targeted youth, 58.9% targeted farmers, 40.6% targeted researchers, 40.6% targeted extension agent, 30.2% targeted educator/teacher, 39.1% targeted students, 20.3% targeted rural dwellers, 60.4% targeted general audience, 27.1% targeted private investor while 38.5 percent targeted policy makers. The overall findings showed that the national newspapers focused on the right audience better than the local dailies as more farmers, youth and women were directly targeted more with the few agricultural news in the national newspaper compared with the local newspapers. However, agricultural issues discussed within the national newspapers that are more expensive and inaccessible to the local people may only be of use to the elites who might not participate in farming as against the rural dwellers who would be able to understand and access these messages, if they were published in the indigenous newspapers with their local languages. Aina (2005) asserted that medium of communication with rural people have to be compatible with their socio-economic characteristics and must be such that have direct impact on them. In this case, language and accessibility were considered critical to fulfilling impact.

Table 3: Audience of agricultural issues or information reported

*Target audience	Indigenous language newspapers		National newspapers	
	Frequency	Percentage		
Children	-	-	12	6.2
Women	13	6.8	103	53.6
Youth	7	3.6	87	45.3
Farmers (Men)	9	4.7	113	58.9
Researchers	-	-	89	46.4
Extension agent	2	1.0	78	40.6
Educator/teacher	-	-	58	30.2
Student	11	5.7	75	39.1
Rural dwellers	3	1.6	39	20.3
General audience	13	6.8	116	60.4
Private investors	-	-	52	27.1
Policy makers	-	-	74	38.5

Source: Field survey, 2019.

*Multiple responses

Differences in agricultural issues discussed in the sampled newspapers

Results of Analysis of Variance (ANOVA) in Table 5 show that significant difference existed in agricultural issues disseminated in the four newspapers under study with the F value of 44.88; $p \leq 0.01$ (df) =3 (280). This shows that the newspapers contains agricultural issues differently. This is in-line with the earlier reports that stated that national newspapers carried more agricultural news than the local platform. The implication of this difference was attributed to failure in the utilization of agricultural news disseminated as the right audience was not being focused. This is because the socio-economic attributes of the target audience are germane to the utilization of any information as submitted by Afolabi (2015). Further analysis was conducted to know where the differences lie with the use of Post Hoc tests in Table 6. The results showed that differences existed in agricultural issues disseminated in The Punch, The Nation, Alaroye and Akede but there was no significant difference in the agricultural issues disseminated between Akede and Alaroye, which are the local newspapers that did not allocate much space for agricultural news.

As illustrated in the Table 6, the mean differences of approximately 3.08 for The Nation, -2.70 for Alaroye and -3.34 for The Punch newspapers were all significant at 0.05. This is an indication that there was significant difference in the agricultural issues disseminated between The Punch and the other three newspapers listed above. Considering the difference between Akede and the other two newspapers, results also show that the difference that existed in the agricultural issues disseminated was only between The Punch and The Nation. This illustrated that the mean difference of 0.65 of Alaroye was not significant at 0.05 level. This is an indication that there is no significant difference in the agricultural issues disseminated between Akede and Alaroye.

Table 5: Difference in the agricultural issues disseminated in the four sampled newspapers

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2474.729	3	824.910	44.882	0.01
Within Groups	6984.229	380	18.380		
Total	9458.958	383			

Source: Field survey, 2015.

Table 6: Results of Post Hoc tests showing differences in the agricultural issues disseminated in the newspapers

(I) category of articles	(J) category of articles	Mean Difference (I-J)	Std. Error	Sig.
The punch	The Nation	3.08333*	0.61880	0.000
	Alaroye	-2.69792*	0.61880	0.000
	Akede	-3.34375*	0.61880	0.000
The nation	ThePunch	-3.08333*	0.61880	0.000
	Alaroye	-5.78125*	0.61880	0.000
	Akede	-6.42708*	0.61880	0.000
Alaroye	ThePunch	2.69792*	0.61880	0.000
	The Nation	5.78125*	0.61880	0.000
	Akede	-.64583	0.61880	0.297
Akede	ThePunch	3.34375*	0.61880	0.000
	The Nation	6.42708*	0.61880	0.000
	Alaroye	.64583	0.61880	0.297

*. The mean difference is significant at the 0.05 level.

Source: Field survey, 2019.

4. CONCLUSION AND RECOMMENDATION

Information dissemination is the hallmark of agricultural extension services and this is very crucial to community development. Based on the findings of this study, agricultural news were captured on hard news, features, photography, advertisement and opinions in both the local and national newspapers but the national newspapers featured these agricultural news better than the local newspapers. News on health relating to agriculture, employment relating to agricultural as well as other agricultural news on processing, value addition, animal husbandry among others appeared but the national newspapers seemed to feature these types of news much better than the local newspapers. Although, both the newspapers never featured so much of these agricultural related information as limited spaces were allocated to even the ones featured in both media. Women, youths, farmers, extension agents, general public were the target audience in all the

information disseminated in the sampled newspapers but the national newspapers though with less of the news featured more of the information better than the local news outlets. It was therefore, established that significant difference existed in the agricultural related issues disseminated by both the local and national newspapers with the implication that rural farmers who are used to the local language may be unable to access the available information in the national news due to language barrier. The study therefore recommends that agricultural-related information that will impact the target audience should be disseminated via a platform that is readily available and accessible with language compatibility for effective communication.

5. REFERENCES

- Abba, T and Song, I. S (2013). Consequences of non-formulation of national information policy on library development in Nigeria. *PNLA Quarterly*, the official publication of Pacific North-west Library Association, 77 (2): 26-32.
- Abba, A. I. (2016). Reporting agriculture in the Nigerian press. *An unpublished B.Sc. project* submitted to the Department of Mass Communication, Bayero University, Kano in partial fulfillment of the requirements for the award of Bachelor of Science. Pg 23
- Abbas, M., Lodhi, T. E., Bashir, A. and Mahmood, M. A. (2008). Dissemination of wheat production technologies and interface of out-reach efforts with farmers. *Journal Agriculture Research*, 46 (1):23-29.
- Afolabi, A. (2015). A brief history of printing in Nigeria: a feature article in <http://m.thenigerianvoice.com> accessed on 6th August, 2015.
- Agumagu, A. C. (2008). Agricultural reporting in Nigerian newspapers: The case of Daily Times and The New Nigerian 1985-1986. *Nigerian Agricultural Journal* 18, 71-80
- Aina E. (2005). Communication dynamics of rural communication perspectives on Nigeria (pg 117).
- Chijoke, I. M. and Rasak, O. B. (2018). Coverage and content analysis of agricultural transformation agenda news in selected newspapers in Nigeria. *Journal of media and communication studies*, 10(1): 1-7
- Connel, B. (2005). Formal and non-formal instructions delivered to farmers by adult instructors, secondary agriculture teachers and extension agents. *Journal of Agricultural Education* 31(2) 68-73.
- Daramola, I. (2006). History and development of mass media in Nigeria. Lagos: Rothan Press Ltd. P.11.
- Fashina, S. A. (2007). Introduction to extension education. In: Memon, R. A. and Bashir, E. (eds.). *Extension Methods* (3rd ed.). National Book Found, Islamabad, Pakistan. pp. 3-32.
- Guenthner, J. F. and Swan, B. G. (2011). Extension learners' use of electronic technology. *Journal of Extension*, 49 (1). Available at: <https://www.joe.org/joe/2011february/a2.php>
- Ibikunle, H. (2003): Agricultural landowners' lack of preference for internet extension. *Journal of Extension and Rural Development*, 42(6): 23-32
- John, Z (2002). Factors affecting the use of ICTs by Iranian Agriculture Extension Specialists. *Journal of Extension System* 22(June): 1-15. Available at: <http://www.jesonline.org/2006jun.htm#Hedjazi>
- Khushk, H., and Memon, B. (2004). Facilitating the inclusion of the resource poor in organic production and trade: Opportunities and constraints posed by certification. Coventry:DfID/HDRA.
- Mahmood, S. (2005). Socio-economic characteristics of adopters and non-adopters of certain selected improved agricultural practices of tehsil Faisalabad. M.Sc. Thesis, Department of Rural Sociology, University of Agriculture, Faisalabad.

- Mooko, M. and Aina, K. (2007). Agriculture in Pakistan: Change and Progress 1947-2005. Vanguard Books (Pvt) Ltd., Lahore, Pakistan.
- Nazari, M. and Hussein, A. T. (2011). An Introduction to Agricultural Extension. Agricultural Development Council, New York.
- Oladele, H. M. (2011). Mass media. In: Memon, R. A. and E. Bashir (eds.). Extension Methods (3rd ed.). National Book Found, Islamabad, Pakistan. pp. 208-261.
- Olowu, M. R. (2000): The role of mass media in diffusing modern agricultural technologies in district Sheikhpura. M.Sc. Thesis, Department of Rural Sociology, University of Agriculture, Faisalabad.
- Opara, P. (2008). Extension's Big Bang and Genealogy: How long-run history can inform current and future practice. Available at: <http://www.regional.org.au/au/apen->
- Owoeye, J. and Abolarinwa, S. T. (2016). The role libraries in development and implementation of national information policy in Nigeria. *Information and Knowledge Management*, 6(5): 10-18.
- Oakley, P. and Garforth, C. (2005). Guide to Extension Training, FAO, Rome, Italy.
- Padre, S., and Tripp, R. (2003). Reforming farm journalism: The experience of Adike Parthrike in India Agricultural Research and Extension Network (AGREN). Network Paper No. 128. London: Overseas Development Institute) London, P:10
- Samuel, D. (2002): Effectiveness of four mass media channels on the knowledge gain of rural women. *Journal of International Agricultural Extension Education* 13(1): 73-79.
- Sopuru, J. C. (2015). Importance of the use of information systems by farmers in Africa. *International journal of scientific research in information systems and engineering*, 1(1): 37-43.
- Suman, H. (2003): Role of mass media in the effective dissemination and utilization of livestock production technology by the farmers in district Faisalabad. M.Sc. (Hons.) Thesis, Department of Agricultural Extension, University of Agriculture, Faisalabad, Pakistan.
- Qamar, Z. (2006): The adoption behavior of farmers regarding recommendations of sugarcane crop in Jaranawala tehsil. M.Sc. Thesis, Department of Rural Sociology, University of Agriculture, Faisalabad, Pakistan. Pg. 82.