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Adoption of mass media for agricultural purposes by smallholder farmers in the Eastern Cape Province of South Africa

Mdoda, L.[1], Tshotsho, A.[2] and Nontu, Y[3]

Correspondence author: L. Mdoda, E-mail: MdodaL@ukzn.ac.za

ABSTRACT

Smallholder agriculture is one of the imperative segments in the South African economy and it remains the imperative sector for livelihood generation. Farmers use mass media to access information needed for agricultural purposes to enhance agricultural practice and profitability. This study investigates the socio-economic drivers of using mass media for agricultural purposes by smallholder farmers in the Eastern Cape Province of South Africa. The study applied a descriptive survey research design to interview 200 smallholder farmers using a semi-structured survey. Data engendered were analyzed using descriptive statistics and the Logistic regression model. The investigation outcome displays that 80% of the smallholder farmers currently use mass media for agricultural purposes. The study concludes that socioeconomic factors influence the use of mass media for agricultural purposes by smallholder farmers. Therefore, the study recommends the government to train farmers on the use of mass media usage and subsidize farmers so that they can purchase these modern technology tools.

Keywords: Agricultural purposes, Eastern Cape, Factors, Mass media, Smallholder farmers.

[1] Senior Lecturer: Discipline of Agricultural Economics, School of Agricultural, Earth and Environmental Sciences, University of KwaZulu-Natal, P. Bag X01, Scottsville 3209, Pietermaritzburg, South Africa, Email: MdodaL@ukzn.ac.za. ORCID: 0000-0002-5402-1304.

[2] Masters Candidate: Department of Agricultural Economics and Extension, Faculty of Science and Agriculture, University of Fort Hare, P. Bag X1314, Alice, 5700, South Africa, Email: tshotshomvano@gmail.com.

[3] PhD Candidate: Discipline of Agricultural Economics, School of Agricultural, Earth and Environmental Sciences, University of KwaZulu-Natal, P. Bag X01, Scottsville 3209, Pietermaritzburg, South Africa, Email: nontuyanga@gmail.com. ORCID: 0000-0003-4843-9437.

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1. INTRODUCTION

Smallholder agriculture plays a pivotal role in the provision of better livelihoods and food security in developing communities, in sub-Saharan Africa (Akinola, 2017). Also, Smallholder agriculture helps in sustaining livelihoods for farmers and communities through income generation and employment in rural South Africa (Jabri, 2011). According to International Fund for Agricultural Development (IFAD) and United Nations Environment Programme UNEP (2013) smallholder farmers make up about 80% of home consumption (food), employment, and poverty reduction in many developing economies worldwide. Additionally, Musungwini (2018) points out that in line with achieving food security through the eradication of hunger and poverty alleviation as contemplated in the UN Sustainable Development Goals (SDGs), it is imperative for smallholder agriculture to be feasible, productive, and sustainable. However, this realization is impeded by the continued reliance of smallholder farmers on indigenous knowledge and traditional methods of farming that affect productivity.

Information is an imperative apparatus used in the comprehension of whichever impartial or goal is set by the individual and remains the essence of any discrete. Information is one of the valuable resources which is required in any society, sectors, especially the agricultural sector for acquiring and essential for improving agricultural production (Brugger, 2011). Information is essential for social survival as it leads to an affirmative change in one's state of knowledge (FAO, 2011). Agricultural output can disputably be enhanced by pertinent, consistent, and expedient evidence and information. Agricultural information impacts production in a multiplicity of methods and is often managed through specific information systems designed by agricultural organizations. These organizations circulate information to farmers that assist in the decision-making processes that allow for more beneficial access to market opportunities. Mass media, which is made up of both electronic and print media such as newspapers, Facebook, television (TV), radio, and mobile phones, play a significant part in crafting sentience about novel agricultural expertise among agricultural societies transversely the world. There is a wide usage and reliance of mass media in the transference and transformation of agricultural information in sub-Saharan Africa, to interrelate and unlock unexplored opportunities in support of trade (Chitsa, 2014).

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The efficiency of using mass media in easing admission to agricultural information amongst growers is far-reaching since it offers some communiqué linkages even in isolated environments, and utilities in realization the farmers living in isolated regions (IFAD & UNEP, 2013). It has been evident from current literature that mass media play a significant role in disseminating effective information to smallholder farmers so that they can improve their livelihoods (Musungwini *et* al., 2014; Sikundla *et al*., 2018)**.** Mass media usage does facilitate agricultural decision-making, as it helps in providing necessary information related to farming, high-yielding seeds, fertilizers, bio-pesticides, soil fertility, pest and disease diagnosis, and market information (Wooldridge, 2009).

Despite the massive potential of mass media in linking smallholder farmers to remunerative markets and improving agricultural output, smallholder growers still fail to fully utilize this medium (Mdoda & Obi, 2019). As a result, the majority of smallholder farmers are still less productive and profitable. Reports indicate that rural households have moved away from smallholder farming due to a shortage of inputs, farming techniques, and low agricultural production (Mdoda *et al*., 2019). The major constraint affecting smallholder farmers is the lack of information and skills gaps that oblige approval of available technologies and technology-enabled management practices. In most cases, smallholder farmers often trust mediators who normally exploit their lack of knowledge of agricultural information. Past studies have signposted that altered sources of information have a diverse impact on the approval of agricultural technologies and practices across various stages by farmers. The explosion of using mass media worldwide has made an efficient and effective delivery of agricultural information to the farming community. Seeing the protruding role of information adoption by smallholder farmers in decision-making, it is essential to understand factors impeding the use of mass media for agricultural purposes. Therefore, the study investigates socio-economic drivers of the use of mass media-based information for agricultural purposes among smallholder farmers in the Eastern Cape Province of South Africa.

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2. MATERIAL AND METHODS

2.1 Study area

The study was conducted in Eastern Cape, South Africa. Eastern Cape is the second biggest province in the nation, and it's estimated at 168 966 km2. The Province was established from Xhosa homelands of Transkei and Ciskei, in the year 1994. Eastern Cape Province is the third supreme inhabited Region in the republic with a population of 6,562,053 which represents 12.7% after Gauteng and KwaZulu Natal provinces with an estimated population size of 12,272,263 (23.7%) and 10,267,300 (19.2%) million respectively (Baiphethi, 2019; Awili *et al.*, 2016). The Province is comprised of pastoral areas that derive their livelihood through practicing agriculture, tourism, and formal employment.

The study area climatic condition lies between the sub-tropical in KwaZulu-Natal and the Mediterranean climate of Western Cape Province. The Province parades a bimodal precipitation pattern, with a winter precipitation zone to the west, and a summer rain zone in the east. Due to unpredictable rainfall seasons, growing times differ throughout the Province. The Province's climatic conditions favor agricultural production, especially crop, vegetable, citrus, and livestock (cattle and sheep) production. The Province is dominated by smallholder farmers who are practicing farming as their source of living and deriving their livelihoods from farming.

2.2 Sample size and sampling procedure

For this research, the innovative use of media technologies that the study focuses on were cell phones, newspapers, radios, Facebook, and television in their farms. The study made use of both qualitative and quantitative approaches to gather and analyze the data set. A descriptive research design survey was conducted, and data were collected using semi-structured questionnaires. A purposive sampling method was equally employed to select the respondents who participated in the study. Joe Gqabi District Municipality was selected based on active participation in agricultural production. Two local municipalities were selected namely, Elundini local municipality and Senqu local municipality. 18 villages were purposively selected from both local municipalities based on the numbers of active smallholders in these villages. Respondents were selected randomly from the list of farm households from the targeted villages. A sample of media usage and non-media

usage for agricultural purposes by smallholder farmers, representing 70% of the sample size (140), were randomly selected from the farmers who are using media for agricultural purposes and 30% of the sample size (60), were selected randomly from the non-media usage. Consequently, the method of sorting is imperative since a substantial sample size of media use and non-media use are essential to evaluate the choice to use media and the effect of using media for agricultural purposes on the farmers who use media.

2.3 Data Collection

Primary data was collected for this study through face-to-face interviews. Following that, a semi-structured questionnaire was designed by the researchers based on the review from the literature. The semi-structured questionnaire was first pre-tested and was overseen to the interviewees with the help of highly skilled enumerators who speaks the local languages (IsiXhosa) fluently. The final version of the questionnaire was later administered to the farmers' head and in the absence of the head, the oldest member of the farm was chosen. The information on the semi-structured questionnaire includes farmers' demographic features, asset endowments, access to media, use of media for agricultural purposes, impact media usage have on smallholder farm productivity and welfare, factors influencing the use of media and challenges smallholder farmers to face in accessing and using media in the farm, information's related to risk and attitude to towards media usage by farmers. The farm survey was conducted between 1 July and 20 August 2019 in the Eastern Cape Province.

2.4 Data

This section represents data which was collected from smallholder farmers in the Eastern Cape Province.

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TABLE 1. Description of variables used in the study

Variable	Description	Measurement
X_1	Gender of the farmer	1= male, 0 = otherwise
X_2	Age of the farmer	Actual years
X_3	Marital status of the farmer	1= married, 0 = otherwise
X_4	Family size of the farmer	1 = > 4, 0 = otherwise
X_5	Years spent in school by the farmer	1= actual years spent in school, 0 = otherwise
X_6	Household source of income by the farmer	1= social grants, 0 = otherwise
X_7	Farming years by the farmer	Actual years of farming
X_8	Distance to the agricultural marketing center	1= 10 km, 0 = otherwise
X_9	Access to extension agents by the farmer	1= access to extension agents, 0 = otherwise
X_{10}	Access to a financial institution by the farmer	1= access to finance, 0 = otherwise
X_{11}	Member of farm organization	1= member of farm organization, 0 = otherwise
X_{12}	Household monthly income	1=> 1500, 0 = otherwise
X_{13}	Occupation by the household head	1= full time farmer, 0 = otherwise
X_{14}	Farming as the only source of income	1= farming as an only income source, 0 = otherwise

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3. ANALYTICAL FRAMEWORK

This section explores 2 types of analytical frameworks. Firstly, the descriptive statistics like frequencies, percentages as well as mean value were calculated to summarize the farmers' profiles and characteristics in the study area while the Logistic regression model was used in determining factors influencing the use of media for agricultural purposes by smallholder farmers.

Logistic regression

This study adopted the Logit model to measure socio-economic factors influencing the use of mass media for agricultural purposes by smallholder farmers in the study region. The word "logit" denotes the log-likelihoods which stipulates the likelihood of declining interested in 1 of 2 groups on the detailed elastic of concentration (Singh *et al*., 2016). Besides, the logistic regression dimension may be used to evaluate the likelihood relationship for autonomous variables in a model (Ugochukwu *et al*., 2020; Mapiye *et al*., 2020). The logit model was used for this study because of the dichotomous nature of the dependent variable; meaning the respondents are categorized into adopters and non-adopters. In this research, the usage of media is referred to as farmers who have implemented and use media for any agricultural purposes. The regression scrutiny is comprised of two distinct substitutes. This study customs a binomial logistic model given that the reliant on the variable is binary: 0 when a farmer did not use media on the farm and 1 when use media on the farm.

For this paper, the two choices are "adopting modern farm technologies" or "not adopting modern farm technology". A twofold regression was established to explain Y=1 for a state anywhere the farmer did retrieve media usage in the farm and Y=0 for states wherever the farmer did not retrieved media usage in the farm foundations. Based on the assumption that X is a trajectory of eloquent variables and p is the likelihood that Y=1, dualistic probabilistic associations as quantified by (Awili *et al*., 2016). This can be measured as follows:

$$p\,(Y=1) = \frac{e^{\beta\chi}}{1+e^{\beta\chi}} \quad \text{.....1}$$

$$p\,(Y=0) = 1 - \frac{e^{\beta\chi}}{1+e^{\beta\chi}} = \frac{1}{1+e^{\beta\chi}} \quad \text{.....2}$$

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Where

Calculation (2) is the lesser answer level, that is, the prospect that smallholder farmers did use media in their farm, this will be the likelihood to be demonstrated through the logistic technique by settlement. Together, the calculations demonstrate the consequence of the logit alteration of the likelihoods proportions which can otherwise be symbolized as:

$$\log it\ [\theta(x)] = \log\left[\frac{\theta\,(x)}{1-\theta\,(x)}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots \ldots\ldots\ldots \beta_n X_n \ldots\ldots\ldots\ldots\ldots\ldots 3$$

Besides thus authorizing its estimate as a direct regression for which the ensuing descriptions relate:

Ɵ = logit alteration of the likelihoods fraction; = the interrupt span of the model

β = explanatory variables exhibited and

Xi = forecaster variables.

The previous processes were possible within the STATA. In relative to Calculation (3), the examination created the odds relations exhausting the supreme probability technique. The logistic deterioration in this study can be stated as follows:

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \ldots U_n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

Where

Yi (use of media) = the reliant on variable distinct as use of media = 1 and 0 otherwise

α = constant and capture of the equation

β = slope of the discrete predictor (or instructive) variables demonstrated

Xi = forecaster variables.

U_n= alteration error term.

4. RESULTS AND DISCUSSION

This section is divided into two sections, where the first one involves descriptive results and the last part involves empirical results.

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4.1 Socio-economic characteristics of smallholder farmers

This part presents the results of the socio-economic features of the respondents who participated in the research. Of the 200 smallholder growers, 160 respondents reported the use of mass media information for agricultural purposes and cultivation decision-making, i.e., 80% of the total smallholder farmers. The study result reveals that most of the smallholder farmers in the Province were females with a proportion of 62% while the male is 38%. These results agree with (Hlomendlini, 2015) that farming is practiced mainly by females as men' are migrating to cities to work in non-farm industries. The results reveal that the farmers' head average age is 52 years indicating a mature group involved in smallholder cultivation. However, the average age of both media users (42 years) and non-users (43 years) are showing no significant differences. These results were in line with (Singh *et al*., 2016) that farming is practiced by aging, and this will have serious repercussions on the sustainability of agriculture among the younger generation who are thought to succeed the older farmers. The majority of the smallholder farmers spent 9 years in school, which specified that farmers had formal education. This means farmers were literate and were able to analyses information and use innovative technologies for their farms. The majority of the farmers were married with a proportion of 64% and had an average family size of 4 people per household.

The majority of the farmers (81%) were agreeing when asked that farming is their main source of income and farmers claimed that social security grants received from the government as the main source of income with 80%. Farming was their main occupation with 86% and farmers were landowners through inheritance with a proportion of 90%. Regarding farm size, the average landholdings of farmers were estimated to be 6 hectares and had a farming experience of 11 years. The results reveal that farm income per month was R 3 400.00 and implies that the majority of farmers in Eastern Cape Province earn a very low income. The majority of the farmers in the study area have access to extension personnel with 70% and were members of farm organization with 68%, which assisted them in adopting media usage for agricultural purposes.

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4.2 Sources of information by smallholder farming

Farming generally is changing rapidly due to technology advancement and growing population which needs to be fed. As a result, farming landscapes throughout the world, especially developing countries have adopted innovative technologies in their farming. Such information on technological change and new practices in the farming system is dispersed by several sources or communication agents. The use of media does play an imperative role in information delivery to the farming community. The use of media in the form of radio and television is the most effective media for spreading scientific knowledge to the masses (Chauke *et al*., 2013). Newspaper and magazine, cell phones, Facebook, and Twitter are other media being used by literate farmers and increasing the rate of literacy in the country offers new opportunities for using the print medium as a means. Table 2 below illustrates sources of information by smallholder farmers.

TABLE 2. Sources of information by smallholder farmers

Variable	Frequency	Percentage (%)
Use mass media (TV, Radio, newspaper and magazines, Facebook and Twitter)	180	90
Relative/ Friends/ Progressive Farmers	110	55
Farm Organizations	80	40
Extension Personnel	75	38
Input dealers and output procurers	94	47

Table 2 offers the details of kinds of information used by smallholder farmers in decision-making for various agricultural purposes. The results reveal that mass media usage is the most used tool for dissemination of information to farmers throughout the Province with 90%. This is widely used because the majority of young people make use of innovative platforms that assist smallholder farmers in accessing information, marketing their products, and update on new agricultural

techniques. The second source is relative/friends/progressive farmers with 55% for agricultural purposes such as high-yielding seeds, fertilizers, and market information. Input dealers and output procurers are other sources with 47% for agricultural purposes such as high-yielding seeds, fertilizers, and pesticides are primarily acquired. Farm organizations are another source of information for agricultural purposes with 40% as it allows farmers a chance to share information and assist others. The last source of information is extension personnel with 38%.

5. BENEFITS OF USING MASS MEDIA FOR AGRICULTURAL PURPOSES BY SMALLHOLDER FARMERS

Farmers are benefiting a lot from the use of innovative technologies being used in farming, especially media use for agricultural purposes. As a result, most farmers throughout the world have experienced an increase in their productivity which ultimately enhances their farming profitability and farm welfare. Table 3 below shows the benefits of media usage by smallholder farmers in the study area.

TABLE 3. Benefits of using media by smallholder farmers

Variable	Frequency	Percentage (%)
High-yielding seeds	120	60
Fertilizer use and price	100	50
Change in agro-policy	98	49
Market information and price of produce	160	80
Crop and livestock production techniques	130	65
Pesticides use and prices	80	40
Training from Agricultural extension services	90	45
General agricultural news	90	45

Table 3 above shows the benefits experienced by smallholder farmers from using media and such adoption of media usage for agricultural purposes have yielded positive fortunes to farmers. The most noticeable benefit of using media by farmers is the increase in marketing information and the price of products with 80%. This has allowed many farmers to change their farming to be a business and access markets that have generated profit for them as well as understanding the pricing of their produce. The majority of farmers managed to make use of updated agricultural techniques in their crop and livestock farming with 65% which resulted in an enhancement in their agricultural productivity. Smallholder farmers started using high-yielding seeds in their farming which have changed their farming landscape immensely and improve their income returns as well as household welfare by 60%.

Another benefit found in the study was the procurement of fertilizer and price with 50% and has brought much improvement in smallholder farming as they were relying on manure coming from their livestock for crop farming and lack knowledge of fertilizer prices as well as fertilizer benefits. The use of media has improved farmers' knowledge in agricultural policies by 49%, especially change policy which affects their farming through being published and discussed in the media platforms. This provides farmers with general agricultural news with a proportion of 45% which assists farmers in running and operating the farm business for better yields and profitability. Some farmers have specified that media usage is beneficial in getting training about farming and other agricultural techniques from extension personnel with 45%. This training has improved farming skills and record-keeping by smallholder farmers. Lastly, the media provided farmers with pesticides that help farmers in fighting the spread of diseases on both crop and livestock farming through using them and providing their prices in order farmers can make an imperative decision.

6. CHALLENGES TO MASS MEDIA USAGE AMONG SMALLHOLDER FARMERS

As much as farmers are benefiting from the use of media which resulted in many positive impacts. There are challenges associated with the use of media. Table 4 below illustrates the challenges associated with media usage for agricultural purposes.

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TABLE 4. Challenges of using media by smallholder farmers

Variable	Frequency	Percentage (%)
Lack of adequate ibfrastructure and network coverage	150	75
Poor electric supply	120	60
Lack of training on the use of mass media	170	85
Finance	130	65

Table 4 is indicating the result of the challenges encountered by farmers in their use of media shows that lack of training on the use of mass media (85) ranked highest and this was followed by lack of adequate infrastructure and network coverage (75). This is the case because these farmers have secondary education which they find hard in using media for agricultural purposes and are located in pastoral areas where network coverage is a nightmare. These results agree with Akhter *et al.* (2021). Finance is the third challenge farmers face with 65% as they do not have access to any finance to assist in purchasing some of the mass media for agricultural purposes. The lowest by a mean score rating is Poor electric supply (60%) as the majority of farmers have no electricity while others have electricity but load shedding is impacting their use of media for agricultural purposes.

7. ESTIMATES OF SOCIO-ECONOMIC DRIVERS OF USING MEDIA FOR AGRICULTURAL PURPOSES BY SMALLHOLDER FARMERS

This research made use of the Logit regression model to investigate socio-economic drivers influencing the use of media for agricultural purposes by smallholder farmers in the Eastern Cape Province. Table 5 shows the estimated results from the Logit regression analysis and further explains the model fit. An earlier rustle to econometric evaluation and results and different measurement traditions were subjected to test. Encountering heteroscedasticity and multicollinearity challenges is almost inevitable in a cross-sectional data set. To verify and discourse the multicollinearity issue, a pair-wise association environment was made and led to dropping some of the variables showing multicollinearity. Likewise, a robust standard error calculation of the Logit regression model was used as a proxy and resolution for the Brush Pagan

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test (hettest) of discovering heteroscedasticity. The Variance Inflation Factor (VIF) was engaged to test the existence of multicollinearity among independent variables. Secondly, the presence and elimination of immaterial and pertinent variables were correspondingly tested by link and OV (Omitted Variable) tests. The issue of heteroscedasticity was further examined with the use of the Breusch-Pagen test (hettest). The unequal variance was unfortunately detected; therefore, the robust standard error estimate was used as a treatment. The Pseudo R^2 indicates that the dependent variables in the Logit regression explained 86.4% variations in the adoption of modern farm technology probability. The likelihood ratio Chi-square value of 502.711 with a p-value of 0.001 expresses that the model used is statistically sub substantial.

Table 5 illustrates the explanatory variables that influenced the adoption of modern farm technology. These variables comprise socio-economic, farm characteristics, and institutional factors. The explanation of the significant independent variables presented in the table above is based upon the predictor variable. The gender of the farmer has a negative coefficient and was statistically significant at 5%. This suggests that a unit increase of 1% in the gender of the farmer will induce a decrease in the use of media for agricultural purposes by 0.287%. This implies that relative to male farmers, female farmers are 21% points less likely to use media for agricultural purposes. These results agree with Adam & Hassan (2015) who discovered that female farmers are more like to adapt to innovative technologies which will improve their farming as they use cell phones for marketing purposes.

Farming as the main source of household income had a negative coefficient and was statistically significant at 1%. This implies that there is an inverse relationship between farming as the main household income and the use of media for agricultural purposes. This suggests that a unit increase of 1% in farming as a source of household income led to a decline in the use of media for agricultural purposes by 0.256%. This implies that farming as a source of household income is 24% points less likely to use media for agricultural purposes. This is mainly because the household will not afford to purchase and use media for agricultural purposes as they will diversify their income for household activities.

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TABLE 5. Factors influencing the use of media by smallholder farmers

Variable	Coefficient	Std. Error	Significance	dy/dx
intercept	-1.948	0.613	0.002***	0.2123
Gender	-0.287	0.651	0.043 **	0.1542
Farming as the main source of income	-0.256	0.856	0.000***	0.2413
Social grant as a source of income	-0.617	0.423	0.012**	0.2231
Family size	0.163	0.058	0.004***	0.1903
Farm size	-0.095	0.021	0.001***	0. 1312
Farming experience	0.991	0.259	0.023**	0.1230
Household income level	0.423	0.145	0.008***	0.2056
Farmers' attitudes	0.943	0.556	0.001***	0.1820
Farmers risk behavior (Risk prefers)	0.715	0.365	0.044**	0.1623
Social category of farmers (1= general/other backwards, 0= otherwise)	−0.737	0.0562	0.026**	0.1845
Number of observers = 200		-2 Log Likelihood 502.711		Prob (Chi-square)= 0.001
Pseudo R^2 = 0.8642		Adjusted R Square = 0.6823		

Standard errors in parentheses (p < 0.05 ** p < 0.001 *)**

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Farming experience has a positive coefficient and was statistically significant at 5% level. This implies that a unit increase of 1 year in farming experience will induce an increase in the use of media for agricultural purposes by 0.991%. This suggests that the more experienced the farmer is, the more innovative it becomes for agricultural purposes. This implies that farming experience is 12% points more likely to use media for agricultural purposes. These results were in line with these findings that state farm experience influences the use of mobile phones for agricultural information in Nigeria. Farm size has a negative coefficient and was statistically significant at 1% level (Adam & Hassan, 2015). This implies there is a negative relationship between farm size and the use of media. This implies that a unit increase of 1 hectare in farm size will induce a decrease in the use of media for agricultural purposes by 0.095%. This means that the larger is the farm size used by farmers for farming, the lesser usage of media for agricultural purposes to enhance productivity. This implies that farm size is 13% points less likely to use media for agricultural purposes. These results are similar to Wooldridge (2009) who noted that farm size reduces the adoption and use of mobile phones for marketing purposes in South Africa.

Family size has a positive coefficient and was statistically significant at 1% level. This implies that a unit increase of 1 member in the family size will induce an increase in the use of media for agricultural purposes by 0.163%. This suggests that the greater the family size, the more media usage for agricultural purposes by farmers. This implies that family size is 19% points more likely to use media for agricultural purposes. The social category of farmers had a negative coefficient and was statistically significant at a 5% level. This implies that a unit increase of 1% in the social category of farmers led to a decrease in the use of media for agricultural purposes. This implies that the social category of farmers is 18% points less likely to use media for agricultural purposes. These results are similar to the findings of (Musungwini, 2018) that the social category of farmers' adoption of mass media information for decision-making among vegetable growers in Uttar Pradesh.

Social grant as a source of income had a negative coefficient and was statistically significant at 5% level. This implies that a unit increase of 1% in social security of social grants will induce a decrease in the use of media for agricultural purposes by 0.617%. This implies that social grants

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as a source of income are 22% points less likely to use media for agricultural purposes. Household-level of income have a positive coefficient and was statistically significant at a 1% level. This implies that a unit increase of 1% in households' income levels will induce an increase in the use of media for agricultural purposes by 0.423%. This suggests that the higher is the household income levels, the greater is the use of media for agricultural purposes by smallholder farmers. This implies that household income levels are 21% points more likely to use media for agricultural purposes.

Farmers' attitudes had a negative coefficient and were statistically significant at 1% level. This means that a unit increase of 1% in the farmers' attitude will induce a decrease in the use of media for agricultural purposes by 0.943%. This suggests that farmers' attitudes would result in a decrease in the use of media for agricultural purposes. This implies that farmers' attitudes are 18% points less likely to use media for agricultural purposes. These results are in line with (Brugger, 2011) as they specified that farmers' attitude would result in a decrease in effective communication of agricultural information in South West Kisumu Ward, Kisumu County. Farmers' risk behavior has a positive coefficient and was statistically significant at a 5% level. This implies a positive relationship between farmers' risk behavior and the use of media for agricultural purposes. This suggests that a unit increase of 1% in the farmers' risk behavior will induce an increase in the use of media for agricultural purposes by 0.715%. This implies that farmers' risk behavior is 16% points less likely to use media for agricultural purposes.

8. CONCLUSION

The study was investigating the socio-economic drivers of using media for agricultural purposes by smallholder farmers in the Eastern Cape Province of South Africa. The study results reveal that smallholder farmers in the Province are female-headed farmers with an average age of 52 years and a family size of 4 people in the household. The majority of the farmers are married which assists in farm operation through the provision of family labor and spent 9 years in school which makes them literate to understand innovative technologies that are used in farming. The study found out that farming is their main source of income as they are full-time farmers and have no access to any funding for farm operation as result they rely on social grants and farm income to

operate the farm. They have access to extension personnel and are members of farm organizations. The study results reveal that majority of the farmers are using media for agricultural purposes and that they have enhanced smallholder farming in terms of enhancing productivity, participate in markets, and increase farm profitability. The study can conclude that the use of mass media methods for agricultural purposes has the potential to greatly help the farming community. This study has found that the socio-economic characteristics are the drivers influenced by the use of media for agricultural purposes by smallholder farmers in the study area. It is very important that as mass media platforms are rolled out their content or the message that is sent out is validated to ensure authenticity of the knowledge and information to sustain the interest of users. Government officials are encouraged to intervene on the expansion of base stations between mobile network, television and radio and other mass media platforms, as this will empower the reception of adequate signals in rural communities.

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