

Role of Private Vernacular Radio in Facilitating Access to Agricultural Messages Required by Small-Scale Farmers in Kericho West Sub-County, Kenya

Joseph M Mithamo¹, Christopher A. Onyango², John G. Mwangi³
^{1,2,3}Department of Agricultural Education & Extension, Egerton University, Kenya

Abstract: *Radio is still the most popular and most accessible information communication technology medium in developing Countries and an important extension tool that can be used in sharing agricultural information with farmers in rural areas inexpensively. The use of vernacular in radio broadcasts makes programmes more acceptable to farmers and has been used to supplement public extension. However, the role of private vernacular radio stations in disseminating agricultural messages required by small-scale farmers in Kericho West Sub-County is not well understood or documented and the study sought to address this. A Cross-Sectional Survey research design was used to collect data from a sample of 152 rural households and three private vernacular radio stations. An interview schedule was used for data collection. Piloting was done in Buret Sub-County to determine the reliability of the tool. The null hypothesis was tested using Chi-square at 5% level of significance. The results showed that the most required agricultural messages were not necessarily the most accessed messages from the private vernacular radio. However as the messages required by small-scale farmers increased, access to the messages disseminated also increased. The more the messages that small-scale farmers required, the more they had access to from the private vernacular radio. Therefore, focus should be on the relevance rather than the number of agricultural messages disseminated.*

Keywords: *Small-scale farmers, household, agricultural messages, radio.*

I. Introduction

Agricultural information packaging and dissemination is crucial in agricultural development but it is usually lacking in most developing countries. Fortunately, dissemination of appropriate information can be achieved through use of information communication technology (ICT). The ICT environment in developing countries is generally not favourable due to poor human, infrastructural and financial resources devoted to agricultural information and communication [9]. Radio is still seen as a potentially effective method of information dissemination for it is a common feature of household and is accessible to many people compared to any other ICT [7].

In developed countries, many agricultural services that were in the past managed by the government are being managed and delivered by the private sector [31] and in developing countries, there is demand for a greater role by the private sector to participate in agricultural extension [3]; [28]. The premise is that the private sector is more efficient in extension services delivery [21]. According to [29] extension services are among the agricultural services that are headed for partial privatisation. Therefore, the private sector is expected to play an increasingly important role in rural knowledge systems.

Vernacular radio programmers are important in sharing information and opening up wider information networks for farmers [8]. This increases access to agricultural messages by small-scale rural farmers. As indicated by [5], people in rural areas, often find word of mouth information to be better than the written word. This helps in overcoming the problem of illiteracy prominent in rural areas. The strength of vernacular radio as an extension tool lies in its ability to reach illiterate farmers and provide them information relating to all aspects of agricultural production in a language they understand, and the accent of its community [8]; [12]; [26]. This appeals to listeners and makes the messages or the programme acceptable. Almost any type of information and advice can be prepared for radio transmission. However, most radio stations lack accurate statistics regarding the nature and composition of their audiences, in terms of demographic figures and listener preferences [23]. Further, the timing, sustainability and continuity of the programmes must be considered [8] and the content should be repeated at regular intervals to have the desired effect. Before the 1990s, Kenya's airwaves were ruled by the state broadcast, but radio has grown by 280 per cent since 2001[15] and by mid-2011, 319 radio stations had been licensed [7] majority of which were private vernacular radio stations. Small-scale farmers should therefore benefit from this tremendous growth in the sector.

Rural farmers are in great need of information, knowledge and skills to improve decision-making and increase productivity [16]; [22] and radio broadcasting in vernacular can meet this challenge inexpensively and supplement the government extension programmes. According to [22], radio has proved to be the most effective

media promoting agriculture and development in rural areas, particularly as a tool for delivery of quick information. [23] Noted that other than radio being an effective means of dissemination of knowledge, information and technologies, it also catalyses adoption of technologies.

1.1 Radio in Agricultural Extension

A lot of knowledge and information generated from research, commercial entrepreneurs or farmer experiments remains locked up from farmers who are supposed to benefit from it [24]. One reason for this may be dissemination of the information in English. There is a need therefore to look at exchange of information through use of private vernacular radio; that has the potential to reach illiterate rural farmers in the language they understand [26].

According to [19], there are about 319 licensed radio stations in Kenya [7] and in Kenya; radio is the most popular and most accessible medium in the provision of information and ninety five per cent (95%) of all Kenyans listen regularly to radio. The increase in the number of radio stations has created a wide range of choice for the audiences [11] hence farmers can choose which messages to listen to.

1.2 Small-scale Farmer's Agricultural Information Needs

Information is an essential ingredient in agricultural development programmes but farmers seldom feel the impact of agricultural innovations either because of poor access or because of poor dissemination. Information is needed because it affects individuals' living activities [2]. Most agricultural information providers give minimal attention to farmers' information needs.

[13] Noted that factors such as literacy or access to resources will have a large impact on farmers' information needs. However, the information needs of small-scale farmers revolve around production technologies and practices like cultivating, fertilizing, harvesting and the resolution of problems such as pest control, weed control, moisture insufficiency, soil fertility, getting farm credit, labour shortage, soil erosion problems and other crops and livestock management practices [25]. According to [13] farmers need information on production technologies, market and prices information, access to credit facilities, post harvesting processing and business development. [6] included the information needed by farmers as: optimal use of inputs, farming systems, input suppliers, collective action with other farmers, quality specification of produce, time of buying inputs and selling produce, income generation options, implication of changing policies and coping with climate change.

Agricultural information needs depends on the agricultural activities individual farmers are involved in, or intend to be involved in and their immediate environmental challenges. It can be said to vary from farmer to farmer. Access to relevant information enables farmers to make appropriate decisions and hence improve agricultural productivity [10].

1.3 Relevance of Agricultural Information to Small-Scale Farmers

Farmers consider agricultural information to be relevant if it is consistent to their information needs. Radio agricultural programmes are relevant if the knowledge gained helps farmers in improving their agricultural activities [4], therefore, the decision of whether agricultural information is relevant or not depends on individual farmer. When preparing the content of the agricultural programmes, the audience's subject priority should be paramount [8].

The amount of resources allocated to agricultural extension world over is decreasing especially in developing countries [21] making coverage of extension services and relevance of information provided to farmers inadequate [13]. This makes it increasing hard for small-scale farmers to access agricultural messages that they require. Vernacular radios are popular in rural areas [19] where farming is mainly confined and according to [30] respondents prefer to listen to radio stations broadcasting in vernacular than those broadcasting in English or Kiswahili. Majority of farmers rely on radio as their source of agricultural information compared to other extension services, [4]. Therefore dissemination of required agricultural messages through vernacular radio stations would increase access by listeners the messages they require and benefit the agriculture sector in the rural areas. In view of this, the private vernacular radio station which has seen a tremendous growth is expected to play a supplementary role in the provision of extension services. Therefore, there is need to assess their role in disseminating agriculture messages required by small-scale farmers.

II. Methodology

The study employed a cross-sectional survey research design and was conducted in Kericho West Sub-County, Kericho County in Kenya. An area predominately occupied by a community speaking the Kipsigis a dialect of the Kalenjin language. The Sub-County occupies an area of 515.6 km² and was divided in to Belgut, Kabianga and Sigowet divisions. The Sub-County's population was projected at 202,591 persons and 44,790

small-scale farmers' households by 2010. It had about 80.5% arable land excluding water mass, gazetted forests and urban areas. Ninety five per cent (95%) of the population in the Sub-County depends on agriculture for their livelihood and agriculture contributes 80 per cent of total household income.

The study's target population was the 13,096 households in Belgut division that was purposely selected. This population received radio programmes from private vernacular radio stations broadcasting in Kalenjin language. During data collection, there were three private Kalenjin vernacular radio stations broadcasting in Kalenjin language in the Kericho Sub-County.

Multistage sampling technique was used, where Kericho Sub-County and Belgut Division were purposively selected. The Sub-County and the Division were selected because they were agriculturally well endowed and classified as a high potential area. Proportionate random sampling technique was used to sample 152 small-scale farmers from the 12 sub-locations in Belgut division. A list of small-scale farmers obtained from the assistant chiefs, constituted the sampling frame; out of which, 152 households were selected using simple random sampling. The 152 small-scale households were above the 100 recommended for large populations like one of 13,096 households in Belgut Division. The higher number than the 100 was meant to take care of attrition. No sampling was done for the private vernacular radio stations broadcasting Kalenjin language since they were less than ten.

Structured interview schedules developed by the researcher with input from experts from Department of Agricultural Education and Extension at Egerton University were used in the study. Structured interviews schedule enable the interviewer to ask each respondent the same questions in the same way and ensure a way of collecting high quality data [17]; [18]. One of the interview schedules was for collection of data from the person in charge of programmes in the private vernacular radio stations while the other one was for collection data from the sampled small-scale farmers.

A pilot test of the interview schedules was administered to measure the pertinence of the tool; validate it; measure the approach and the understanding of the questions and verify the conformity of the answers with the expected results as recommended by [27]. A reliability coefficient of 0.77 was realised after analysis which was above the 0.7 recommended by [11]. The instruments were adjusted accordingly and pre-tested again to increase reliability.

The data collection tools were administered using face-to-face data collection technique and for small-scale farmers who were not proficient in English, the interviews were conducted with the help of a trained interpreter. Reports on radio types of programmes and schedule were used as secondary sources of data. Data was analysed by descriptive statistics and the hypothesis tested using chi-square; and inference made at 5% level of significance.

III. Results and Discussion

3.1 Farming Enterprise

The instrument had a list of three livestock production enterprises (Dairy, Poultry and Bees) and four crop production enterprises (Tea, Maize, Sugarcane and Coffee) that respondents were to state whether or not they practiced them in their farms. They were also given an option of giving one other crop or livestock they had in their farms.

Gender	Respondents keeping livestock	Respondents growing crops
	Number	Number
Male	80	85
Female	65	67
Total	145	152

All the respondents were involved in crops production while 7 or (4.6%) of the respondents did not practice livestock production (Table 1). Table 1 show that a slightly higher number of men (5 or 5.9 %) did not keep livestock in their farms compared to (2 or 3.1 %) for female respondents.

3.2 Livestock Production Enterprises

Table 2: Livestock kept by Small-Scale Farmers in Kericho West Sub-County (N=152)

Enterprise	No. of farmers keeping them		Those not keeping them		Total (%)
	No.	%	No.	%	
Dairy	141	92.8	11	7.2	100
Poultry	132	86.8	20	13.2	100
Bees	14	9.2	138	90.8	100
Goats	16	10.5	136	89.5	100
Sheep	6	3.9	146	96.1	100

Rabbits	6	3.9	146	96.1	100
Fish	7	4.6	145	95.4	100

The popular livestock enterprise in the area of study was dairy production that was practiced by 92.8 per cent of the respondents, followed by poultry and goats in that order. The least prevalent type of livestock was sheep and rabbit production. Any agricultural extension provider in the Sub-County should ensure that agricultural messages disseminated to the small-scale farmers in the area are related to the livestock they keep. Therefore most of the livestock related information should be on dairy cows and poultry production.

3.3 Crop Production Enterprises

All the respondents were involved in crop production. The three major types of crops grown in Kericho West Sub-County from the list of four specified crops in the instrument were maize, tea and sugarcane in order of popularity.

Table 3: Crop Grown by Small-Scale Farmers (N=152)

Enterprise	Number growing	%	Number not growing	%	Total (%)
Tea	142	93.4	10	6.6	100
Maize	148	97.4	4	2.6	100
Sugarcane	35	23	117	77	100
Coffee	12	7.9	140	92.1	100
vegetables	31	20.4	121	79.6	100
Fruits and Bananas	34	22.4	118	77.6	100
Fodder	1	0.7	151	99.3	100
Beans	7	4.6	145	95.4	100
Tobacco	1	0.7	151	99.3	100
Cassava	1	0.7	151	99.3	100
Potatoes	4	2.6	148	97.4	100
Trees	6	3.9	146	96.1	100
Millet	6	3.9	146	96.1	100
Stevia	6	3.9	146	96.1	100

Maize and tea were the most preferred crops; each was grown by over (93%) of the respondents. Other than the four listed crops in the small-scale farmers' instrument, respondents were also asked to state whether they grew other crops. As shown in Table 3 those crops were grown by less than 35 per cent of the respondents. It is expected that agricultural information providers should package information on maize, tea, bananas and vegetable production that majority of the farmers grew.

3.4 Access to Required Crop Production Messages

Respondents were given specific crop production messages and asked if they required them and whether they accessed them from the private Kalenjin vernacular radio stations.

Table 4: Specified Crop Production Messages Required and Accessed by Respondents (N=152)

Messages	Required		Not require		Access		Not Access	
	Yes		No		Yes		No	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Pest	152	100	-	-	129	84.9	23	15.1
Weed control	149	98	3	2	128	84.2	24	15.8
Disease	148	97.4	4	2.6	118	77.6	34	22.4
Market	148	97.4	4	2.6	100	65.8	52	34.2
Fertilizer	146	96.1	6	3.9	131	86.2	21	13.8
Planting	143	94.1	9	5.5	136	89.5	16	10.5
Grading	134	88.2	18	11.8	92	60.5	60	39.5
Preservation	118	77.6	34	22.4	87	57.2	65	42.8
Harvesting	116	76.3	36	23.7	86	56.6	66	43.4

In Table 4, messages on crop pests were required by all the respondents meaning that pest affected their production process most. On access to the information from the private vernacular radio stations, crop pest messages were the third most accessed agricultural message; accessed by (84.9 %) of the respondents. The most accessed messages on crop production was planting and planting materials, accessed by 89.5 per cent, types of fertiliser; methods of application, amount and time of application was second, accessed by 86.2 per cent and crop pest was the third, accessed by 84.9 per cent. The least required and accessed crop production messages disseminated by private vernacular radio stations broadcasting in Kalenjin language were on harvesting. Therefore, it could be said that the most required messages on crop production were not necessarily the most accessed message by small-scale farmers from private vernacular radio. All the listed messages on crop

production were required by over 76 per cent of the respondents. Therefore all the listed messages in the interview schedule were important to the small-scale farmers in the area of study.

3.5 Access to Required Livestock Production Messages

Respondents were given 6 specified livestock production messages and asked if they required them and whether they accessed them from the private Kalenjini vernacular radio stations. Their responses are presented in Table 5.

Table 5: Livestock Production Messages Required and Accessed by Farmers (N=152)

Message	Required		Not required		Accessed		Not accessed	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Disease control	146	96.1	6	3.9	119	78.3	33	21.7
Feeds and feeding	144	94.7	8	5.3	128	84.2	24	15.8
Parasite control	141	92.8	11	7.2	120	78.9	32	21.1
Market and prices	136	89.5	16	10.5	108	71.1	44	28.9
Calf rearing	124	81.6	28	18.4	98	64.5	53	34.9
Milking techniques	114	75	38	25	85	55.9	67	44.1

Data in Table 5 showed that each of the messages listed in the instrument were required by over 76 per cent of the respondents and the same messages were accessed through private Kalenjini vernacular radio stations by over 55 per cent of the small-scale farmers. Therefore, private vernacular radio stations facilitated access to agricultural information required by rural small-scale farmers. The most required messages on livestock production were; disease control (96.1%), different types of livestock feeds (ways of feeding various stocks that the farmers kept) (94.7%) and the control of various parasites (92.8%). The most required messages on livestock production (livestock diseases 96.1%) was not the most accessed message (livestock diseases accessed by 78.3% while messages on feeds accessed by 84.2%) by small-scale farmers. The most accessed livestock production messages were on feeds and feeding accessed by (84.2%), second was on livestock parasites and their control (78.9%) while the third was on livestock diseases (78.3%). Hence, the most required livestock production messages by small-scale farmers were not necessarily the most accessed information from private Kalenjini vernacular radio stations.

3.6 Agricultural Messages Required by Small-Scale Farmers

Small-Scale farmers were required to state the three agricultural messages they required most for their farming activities using an open ended questions.

Table 6: Messages Required by Small-Scale Farmers (N=152)

Message	Frequency	%
Field management	75	49.34
Market	31	20.40
livestock management	15	9.87
Crops varieties	9	5.92
Farm inputs	8	5.26
Breeds and breeding	6	3.95
Loans	3	1.97
Green house farming	2	1.32
livestock products processing and preservation	1	0.66
fish farming	1	0.66
soil conservation	1	0.66
Total	152	100.00

Field management practices, like weed control, pest and crop disease control, fertiliser and fertiliser application were ranked first (was listed as the first most required messages by 49.34%). Messages on marketing like; where to market crops produce, livestock products and the prices of agricultural produce was listed as the second most required messages by 20.40%), while livestock management practices was third.

Looking at specific messages, messages on field management practices were required by 49.34 per cent of the respondents; information on market for agricultural produce and their prices by (20.4%) while messages on livestock management was required by (9.87%). This had some similarity to the responses from respondents when they were asked if the required specified messages in the instrument as shown in Table 4. Messages on crop pest control were required by all the respondents, information on weeds and weed control was required by 98 per cent, 97.4 per cent required messages on crops diseases and their control and type of fertilizers and how they are supposed to be applied was required by 96.1 per cent. These messages are all field management practices in crop production. Agricultural messages on livestock production came third. This implies that in

Kericho West Sub-County, a majority of small-scale farmers required information on crop production more than livestock production messages.

3.7 Private Vernacular Radio as a Source of Agricultural Messages

Respondents were asked to name three vernacular radio stations broadcasting in Kericho West sub-county that disseminated agricultural messages starting with the one with the highest frequency of messages disseminated and the third being the radio station with the least frequency of agricultural messages. The vernacular radio stations the respondents mentioned were Kass FM, Radio Injili, Chamgei FM, Kitwet and Sema FM.

Table 7: Private Vernacular Radio as a Source of Agricultural Messages (152)

Private Kalenjin Vernacular Radio Station	Number of respondents	%
Kass FM	81	53.29
Chamgei FM	53	34.87
Radio Injili	3	1.98
Other radio stations	15	9.87
Total	152	100

The respondents who said that they mainly obtained the messages from Kass FM were (53.29%), Chamgei FM (34.87%) and Radio Injili (1.98%). Some respondents (9.87%) did not rank Kass FM, Chamgei FM and Radio Injili as their first source of agricultural messages.

Kitwet and Sema FM were mentioned by the respondents. However, they were either not broadcasting full-time in Kalenjin language or were subsidiaries of Kenya Broadcasting Corporation and therefore did not qualify to be included in the study. The study was only interested in private vernacular radio stations broadcasting in Kalenjin language in Kericho West sub-county. The information in Table 7 indicated that small-scale farmers obtained agricultural messages from the following private vernacular radio stations; Kass FM, Chamgei FM and Radio Injili in that order. Therefore Kass FM was the most important source of agricultural messages out the three private vernacular radio stations.

3.8 Dissemination of Agricultural Messages by Private Kalenjin Vernacular Radio

According to information provided by Kass FM, the radio station disseminated agricultural messages in form of short features of about 5 minutes, agriculture related advertisements and agricultural programmes that took about one hour. The station had a programme on farming on Wednesday called “Shield of the farmer” transmitted between 7:30 pm and 8:30 pm. The programme was sponsored by agricultural input manufacturers. The sponsors determined the content of the messages and used the programme to push their brand and products. Therefore, sometimes it may not be related to what some farmers may have requested through calling the radio station.

Radio Injili aired about 3 features per week of about 5 minutes each and a one hour programme on agriculture aired every Thursday between 7:30 pm and 8:30 pm. [1]; [32] observation that majority of farmers identified night time as their preferred time of listening to radio. They preferred 8 pm to 10 pm because they are often busy during the whole day.

A null hypothesis was tested to determine the relationship between the number of agricultural messages required by small-scale farmers and the level of access to the messages (by small-scale farmers) disseminated through private vernacular radio programmes. A farmer may access agricultural messages from private vernacular radio but may not be requiring the said messages for his or her farming activities or may require the messages and not access it from the radio station.

The 17 agricultural messages listed in the interview schedule for the small-scale farmers were converted into required information index and the same was done for the 15 accessed messages. It was assumed that each of the said messages carried equal weight and was assigned a score of one. A score of 0 was assigned to any message that respondents did not require. The labels assigned were, 0 – never; 1 to 4 – low; 5 to 8 – moderate; 9 to 12 - high and greater than 12 - very high. The same was done with the 15 accessed messages. 0 – Never, 1 to 4 – Low, 5 to 8 – moderate, 9 to 12 – High and greater than 12 – Very high. After categorisation, the data in Table 9 was generated using SPSS.

Table 9: Level of Required Information and Level of Access

Level of required	Level of access					Total
	Never	Low	Moderate	High	Very high	
Moderate	0	1	1	2	1	5
High	0	0	3	19	4	26
Very high	5	4	21	34	57	121
Total	5	5	25	55	62	152

Table 9 shows that majority of respondents who required the messages were in very high level (category). They were 121 out of 152 respondents or 79.61 per cent. Likewise, majority of the respondents were in very high level of access (62 out of 152 respondents or 40.79%) to agricultural messages disseminated by private Kalenjin vernacular radio programmes. Table 9 shows that as the level of messages required by small-scale farmers increased, the level of access to agricultural messages (disseminated through private vernacular radio) by small-scale farmers also increased. This can be interpreted that as the number of agricultural messages required by small-scale farmers increased, the number of the messages accessed by small-scale farmers from the private vernacular radio stations also increased. The required information index and the accessed information index as explained earlier were used to generate Table 10.

Table 10: Chi-Square Tests for Required Information and Level of Access

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.675	8	.002
Likelihood Ratio	23.557	8	.003
Linear-by-Linear Association	0.910	1	.340
N of Valid Cases	152		

$\chi^2 = 24.675$, d. f. = 8, $P = 0.002$

Comparison of $p = 0.002$ and $\alpha = 0.05$ show that $P < \alpha$, this implies that there is a statistically significant association between the level or number of agricultural messages required by small-scale farmers and the level of access to the agricultural messages disseminated by private vernacular radio programmes. The null hypothesis was hence rejected. This may be interpreted to mean that the more information there is; that is required by farmers, the more the farmers are able to access. This may be due to the fact that the farmers may be keener in listening to agricultural messages when they need the information being disseminated than when they do not need it.

IV. Summary

All respondents grew crops and kept livestock except 4.6 per cent who did not keep animals. The two major crops grown in the area of study were maize and tea while the livestock stocks reared were dairy cows and poultry. All the three private vernacular radio stations disseminated agricultural messages, Further, Kass FM, Changei FM and Radio Injili disseminated required agricultural message in the order of importance. The three most important agricultural messages small-scale farmers required for their farming activities were on field management practices, marketing and the third most required messages was on livestock management. Therefore, respondents required information on crop production more than on livestock production. The most required agricultural messages by the small-scale farmers were not necessarily the most accessed messages from the private vernacular radio programmes.

As the number of agricultural messages required by small-scale farmers increased, access level to the messages disseminated by private vernacular radio programmes also increases. This could be interpreted that the more there is, that is required by small-scale farmers, the more they are able to access. The Chi-square test showed that there was a statistically significant relationship between the number of agricultural messages required by small-scale and level of accessing the messages by the small-scale farmers from the private vernacular radio programmes.

V. Conclusions

Private vernacular radio stations were disseminating agricultural messages to small-scale farmers; however they were not necessary disseminating the most required messages through their agricultural programmes. The more messages that small-scale farmers required, the more they had access to from the private vernacular radio stations and the content of the agricultural messages was determined by the programme sponsor hence may not be related to what the small-scale farmers' require or request from the private vernacular radio stations.

VI. Recommendations

From the findings and conclusions of the study, the recommendations were that the focus of agricultural extension service provider should be on the relevance of the disseminated messages rather than, the number of agricultural messages the provider is disseminating through private vernacular radio programme.

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