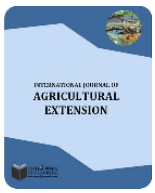

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PERCEIVED PREFERENCE OF RADIO AS AGRICULTURAL INFORMATION SOURCE AMONG SMALLHOLDER FARMERS IN UGANDA

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A B S T R A C T

In the scarcity of agricultural extension agents providing service to farmers, radio comes handy due to its wide geographical coverage. However, not all radio stations are preferred by farmers and hence identifying the right station should be a prerequisite prior engaging them. The objective of this study was to determine radio station preference, choices of broadcasting languages, favourite radio shows, radio listening behaviour including time and place of listenership by smallholder farmers of eastern Uganda. The study involved 210 respondents from seven districts. Data collected include; household characteristics, preferred radio stations, broadcasting language, radio listenership, favourite radio shows. The data were analyzed using STATA (version 13). Results unveiled that a total of 19 radio stations were identified to be favourite across seven districts with no single preferred radio station that serves all the districts. With regard to broadcasting language preferences, selections varied depending on the predominant language spoken in a district. However, Luganda seems to be among the choices of the respondents in several districts. Respondents tune into the radio from 3 – 6 hours daily with no significant difference among male and female listeners. Although respondents tune into the radio throughout the day, best preferred time was in the evening. Radio shows such as educational programs related to health and agriculture, News and, entertainment featured among the favourite programs. For agricultural programs to be more attractive there is a need to improve, formats, program content that involves farmers throughout.

Keywords: Radio, striga, stemborer, maize, radio campaign, push-pull technology, Uganda.

INTRODUCTION

In Agricultural technology transfer pathways vary depending on the type of technology, scale of the reach and available resources. Thus, the success of technology transfer largely depends on the application of efficient and effective extension service delivery. The impact achieved using the conventional agricultural extension agents is limited due to lack of sufficient manpower limited capacity to address rather complex problems farmers are facing (Zijp, 2003). Limited access to agricultural information was identified as one of the significant hindrances for agricultural development mainly for the smallholder farmers (CTA,1996). This gap can only be filled through the use of mass communication tools such as radio and modern ICTs.

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Radio was and still is one of the most accessible communication media for the rural people (Balan & Norman, 2012; Okwu & Daudu, 2011; Mayers, 2008). Nakabugu (2001), states that radio has a vast geographical coverage with diverse broadcasting languages which has the potential to reach a large number of audience.

The study conducted in Northern Ghana concluded that radio can be efficient in delivering agricultural information if it is broadcasted in the local language applying a participatory technique involving farmers in the process (Chapman *et al*., 2003). They further suggested that conducting targeted audience research regarding the format, content, and schedule will help improve the program. This principle was later developed by Farm Radio International with an elaborate guide on participatory radio campaign (Farm Radio International, 2011). As the name implies, it involves the farmers from

the start and throughout the program, it is interactive and broadcasted at the time the farmers wish to tune into their radio. Furthermore, the method was proven to work after testing it in five countries with 25 radio stations (Sullivan, 2011).

One of the key factors influencing uptake of agricultural technology is the exposure of farmers to information (Musingafi & Zebron, 2014). About 80% of the farmers seem to have radio and mobile phones in eastern Uganda and those who do not own one claim to have access (Girma *et al.,* 2017). This makes radio and mobile phones as the most abundant mass communication tool. Reports have shown that radio can effectively be used to aid extension service delivery however, it is important to radio station which is highly preferred by the target audience. Moreover, information on preferred language and broadcasting time are crucial to ensure success. In Uganda alone, over 130 FM radio stations are available, and sieving which radio station is best preferred by the target audience and if that radio station has the capacity to produce agricultural programs efficiently should be the prerequisite to make decisions. Thus the objective of this study was to determine radio station preference of farmers, their preferred language of broadcast and time to tune in agricultural programs as well as for how many hours they listen and places where they tune into the radio.

MATERIALS AND METHODS

Study design and study area: The study used a cross-sectional design majorly employing a quantitative research method through the use of a questionnaire. The study was conducted in seven districts in eastern Uganda with a population of 2,806,104 according to the census made in 2014 by Uganda Bureau of Statistics, 2016).

Eastern Uganda has a bimodal rainfall where crops such as maize, sorghum, beans, cassava as well as fruits and vegetables are produced. The study districts were predetermined as they included where ICIPE was implementing the Push-pull technology to control striga and stemborer. These districts included Bugiri, Bukedea, Busia, Iganga, Mbale, Pallisa and Tororo (Table 1).

Table 1. List of surveyed districts in eastern Uganda, 2015.

No.	District	Population*			
		Male	Female	Total	Area (km2)
1	Bugiri	186400	196513	382913	1,045.9
2	Bukedea	99122	104478	203600	1,051.7
3	Busia	157415	166247	322662	730.9
4	Iganga	242543	261654	504197	1,019
5	Mbale	235624	253336	488960	518.8
6	Pallisa	189342	197548	386690	1,487.7
7	Tororo	251892	265190	517082	1,196.4

*- Population estimation according to the 2014 census.

Sample selection: Multi-stage cluster sampling was used to select sub-counties from the selected districts. In each of the districts, sub-counties were clustered based on proximity to the next sub-county. Therefore, the number of sub-counties in each district varies depending on the coverage of the program. In each Sub County, between one and three parishes were chosen using simple random sampling without replacement with due consideration given to the need for the push-pull technology. In each parish selected, all villages were reached to select respondents for the interviews.

Smallholder farmers from selected sites were randomly identified and information was solicited using structured questionnaire administered by well-trained field technicians based in each district by way of one-on-one direct interviews. The questionnaire was administered to all consenting farmers aged between 18 and 65 years. A total of 30 smallholder farmers were targeted in each district distributed across the identified sub-counties. Therefore, a total of 210 farmers were interviewed during the survey. The selection of farmers for an interview took into consideration the need to have the sample be fairly distributed along by gender and age groups.

The questionnaire was pre-tested for validity, consistency, clarity, timing, and reliability before it was finally used for data collection. The protesting was conducted within a nonstudy area and it was beneficial in strengthening the sequence of questions, ensuring that local language was adopted and relevant questions were consistently asked. The final revisions were made on the basis of feedback

from field technicians and this led to the version that was used to collect data in the main study after input from the pre-test. The questionnaire gathered information like 1) household characteristics, 2) Preference of radio stations 3) Place and time of radio listenership 4) Preference of broadcast language/s.

Data-collection analysis and ethical considerations: The lead scientist based at the ICIPE country office provided close supervisory support to the field technicians during data collection. Each data collection day ended with the team of technicians discussing with the lead scientist the interview processes to identify significant emerging issues and findings. For each district visited and data collection completed, the supervisor compiled field summaries of the data collection process on the basis of the daily debriefings.

Rights, anonymity, and confidentiality of the respondents were respected in all phases of the study. Informed verbal contents of the respondents were taken before starting data collection. The verbal consent process included providing information on 1) the type and purpose of the survey, discussion or interview; 2) issues of anonymity and confidentiality; 3) voluntary participation and freedom to discontinue the interview/discussion at any stage; and 4) absence of any known risk or personal benefit for participating in the study were explained. The research team ensured that the data is carefully managed (handling, transport, and storage) throughout the study period. Epidata (version 3.2) was used to enter the data. To ensure the quality of the data entry process, adequate checks were built into the design of the data-entry screen. The data entered was validated by the data analyst at ICIPE using a double-entry validation process built into Epidata, which allows for comparison of two data for consistency and accuracy. The data was then exported to STATA (version 13) for further cleaning and analysis. The analysis captured measures of central tendencies like averages, frequencies and distributions of all study variables by district and gender, the age of respondents, tables and graph. Cross-tabulation and chi-square tests of statistical association were computed to see the association between some socio-demographic variables with radio and/or mobile phone ownership, access to radio and mobile phone information, radio and listenership.

Quality-control processes started at the inception phase and continued through to analysis and report writing. Quality was maintained by ensuring the data-collection instruments met international standards both in terms of the kinds of issues and themes explored and the type of questions asked. The training of field research assistants (the technicians) also ensured they are aware of the key themes to be covered in the research. Piloting of tools provided further assurance that quality was maintained. Fieldwork supervision provided the opportunity for continued training and mentoring to prevent complacency and to reinforce standards.

RESULTS AND DISCUSSION

Household Demographic characteristics: The study involved 210 (132 male and 78 female) respondents across seven districts of eastern Uganda (Table 2). The majority (90%) of the respondents are married while the rest (10%) have female household heads. The survey results further showed that 17% of the respondents have post-secondary level education, 32% secondary level, 44% primary level of education, and the remaining 5% have no formal education. Most of the respondents (84%) of the respondents live out of farming while few (15%) earn a living from off-farm occupations. With regard to religious affiliation, 89% of the respondents were Christians while the remaining 11% were Muslims.

The household size was clustered in three groups those with less than five members; five to ten members, and more than ten members. Based on this clustering 19% households were with five or fewer members, 56% were having five to ten members at a household level and 25% have more than ten members (Table 2).

Preference of radio stations: Respondents were asked to name five radio stations they tune in and rank them according to their preference. Overall 19 radio stations were among the preferred ones with varying degrees of preference. Although, it was not possible to identify one radio station that is most preferred and cuts across the districts, UBC seems to have a wider area of coverage and selected as one of the five best radio stations by respondents from five districts 31% in Bukedea 25% in Pallisa, 20% in Tororo, 11% in Mbale and 9% in Bugiri respectively (Table 3). Similarly, Open gate FM happens to be tuned in by respondents in Mbale (38%), Busia (16%), Bukedea (14%) and (9%) in Bugiri. NBS FM was preferred by Iganga and Bugiri by about 31% of respondents in both cases (Table 3). The implication of not having a single radio station listened across the surveyed districts is the cost and the need to train several broadcasters to produce programs.

Table 2. Household demographic characteristics from seven surveyed districts of eastern Uganda.

Household characteristic (n=210)	Count	Percentage
Gender		
Male	132	63
Female	78	37
Marital status		
Single[1]	22	10
Married	188	90
Gender of household head		
Male	186	89
Female	24	11
Level of education of household head		
None	11	5
Primary	93	44
Secondary	69	33
Post-secondary	37	18
Main occupation of household head		
Farming	177	84.3
Other occupation[2]	33	15.7
Religion		
Christian	187	89.1
Muslim	23	10.9
Household size		
<5 members	39	18.7
5-10 members	118	56.5
> 10 members	52	24.9

[1]includes participants who are single, divorced and widowed respondents, [2]include participants who do off-farm business as an occupation, formally employed and informally employed.

Table 3. Five most preferred radio stations by smallholder farmers in eastern Uganda, 2015.

District	Preference rank	Radio station	Responses	Percent
Bugiri	1	Eastern Voice FM	27	31.8
	2	NBS FM	27	31.8
	3	Baaba FM	15	17.6
	4	Open gate FM	8	9.4
	5	UBC Radio	8	9.4
Bukedea	1	UBC Radio	24	31.1
	2	Continental FM	22	28.6
	3	Faith FM	12	15.6
	4	Open gate FM	11	14.3
	5	Etop Radio	8	10.4
Busia	1	Jogo FM	21	27.3
	2	Eastern Voice FM	20	26.0
	3	Rock Mambo FM	14	18.2
	4	Open gate FM	12	15.5
	5	Step FM	10	13.0
Iganga	1	NBS FM	30	32.3
	2	Baaba FM	28	30.1
	3	R FM	20	21.5
	4	Eye FM	11	11.8
	5	Impact FM	4	4.3

Mbale	1	Open gate FM	28	37.8
	2	Step FM	20	27.0
	3	Elgon FM	10	13.5
	4	UBC Radio	8	10.8
	5	Impact FM	8	10.8
Pallisa	1	Aisa FM	24	29.6
	2	UBC Radio	20	24.7
	3	Continental FM	13	16.0
	4	Veritas FM	13	16.0
	5	Etop Radio	11	13.6
Tororo	1	Rock Mambo FM	29	37.7
	2	Veros FM	19	24.7
	3	UBC Radio	15	19.5
	4	Step FM	8	10.4
	5	Capital FM	6	7.8

Preference of broadcasting languages: The three most preferred languages in Bugiri were Lusoga, Luganda, and English while the three most preferred languages in Bukedea were Ateso, English, and Luganda. In Busia, Ateso, Luganda, and Samiya were the three preferred languages of listenership while in Iganga, Lusoga, English, and Luganda were most preferred. In Mbale, English, Luganda, and Lugisu were most preferred while in Pallisa, Ateso, English, and Luganda were most preferred. In Tororo, Ateso, English, and Japadhola were the most preferred languages of listenership in the five most preferred radio stations.

The survey showed that language preference varied based on the predominant tribe residing in a given area. For example, in Bugiri (68%) and Iganga (87%), the best-preferred language was Lusoga (Table 4). For the 76% respondents of Bukedea and 79% Pallisa, the best-preferred language of the radio broadcast is Ateso. Moreover, 27% respondents in Busia and 13% in Tororo also chose Ateso as their preferred language. Busia and Tororo were unique as their preferred languages Samiya and Japadhola did not appear in the language preference list elsewhere (Table 4). The findings further showed that Luganda was one of the three languages preferred in six districts except for Tororo. Similarly, English was preferred by respondents from six districts except in Busia. Ateso was one of the languages preferred in four districts including; Bukedea, Busia, Pallisa, and Tororo while Lusoga was preferred in the districts of Bugiri and Iganga.

One tentative conclusion that can be drawn from the established language preferences of the various communities is that having broadcasts in English and Luganda can be the most cost-effective approach as people in all districts can understand the program. However, this will need further exploration including the ability and willingness of chosen radio stations to run the broadcast in the two languages.

Table 4. Three most preferred languages of radio listenership across seven districts of eastern Uganda, 2015.

District	Language	Rank	Responses	Percent
Bugiri	Lusoga	1	78	68.4
	Luganda	2	25	21.9
	English	3	11	9.6
Bukedea	Ateso	1	83	76.1
	English	2	21	19.3
	Luganda	3	5	4.6
Busia	Samiya	1	31	45.0
	Ateso	2	19	27.5
	Luganda	3	19	27.5
Iganga	Lusoga	1	92	86.8
	Luganda	2	11	10.4
	English	3	3	2.8

Mbale	Lugisu	1	76	80.9
	Luganda	2	13	13.8
	English	3	5	5.3
Pallisa	Ateso	1	90	78.9
	English	2	15	13.2
	Luganda	3	9	8.0
Tororo	Japadhola	1	39	54.9
	English	2	23	32.4
	Ateso	3	9	12.7

Language preference of the audience guides broadcasting language and also influences the choice of the radio station. Results in Table 5 below reveal the most preferred language of communication by the five most preferred radio stations in each surveyed district. Thus, language preference would also play a key role in determining the appropriate language to use for the dissemination of the push-pull technology (Table 5).

Table 5. Five most preferred radio stations by three most preferred languages per district.

District		language preferred (percentages)						
		Lusoga	Ateso	English	Japadhola	Luganda	Samiya	Lugisu
Bugiri	Baaba FM	19.6	-	15.6	-	11.8	-	-
	Eastern Voice FM	31.2	-	28.1	-	31.6	-	-
	NBS FM	31.2	-	34.4	-	26.3	-	-
	Open gate FM	8.8	-	6.3	-	19.7	-	-
	UBC Radio	9.2	-	15.6	-	10.5	-	-
Bukedea	Continental FM	-	28.8	17.5	-	28.6	-	-
	Etop Radio	-	10.8	2.5	-	0.0	-	-
	Faith FM	-	18.8	7.5	-	0.0	-	-
	Open gate FM	-	15.2	27.5	-	0.0	-	-
	UBC Radio	-	26.4	45	-	71.4	-	-
Busia	Eastern Voice FM	-	27.7	-	-	23.6	28.1	-
	Jogo FM	-	29.8	-	-	25.5	30.3	-
	Open gate FM	-	8.5	-	-	21.8	14.6	-
	Rock Mambo FM	-	32	-	-	3.6	12.4	-
	Step FM	-	2.1	-	-	25.5	14.6	-
Iganga	Baaba FM	28.7	-	33.3	-	27.8	-	-
	Impact FM	5.0	-	0.0	-	8.3	-	-
	NBS FM	30.4	-	33.3	-	30.6	-	-
	R FM	22.8	-	22.2	-	22.2	-	-
	Eye FM	13.2	-	11.1	-	11.1	-	-
Mbale	Elgon FM	-	-	6.7	-	5.7	-	17.6
	Impact FM	-	-	13.3	-	20	-	9.8
	Open gate FM	-	-	33.3	-	34.3	-	34.3
	Step FM	-	-	26.7	-	28.6	-	26.5
	UBC Radio	-	-	20	-	11.4	-	11.8
Pallisa	Aisa FM	-	29.3	23	-	33.3	-	-
	Continental FM	-	16.9	19.5	-	5.6	-	-
	Etop Radio	-	14.3	19.5	-	11.1	-	-
	UBC Radio	-	22.2	29.3	-	38.9	-	-
	Veritas FM	-	17.3	9.8	-	11.1	-	-
Tororo	Capital FM	-	0.0	13.0	8.2	-	-	-
	Open gate FM	-	0.0	1.9	1.2	-	-	-
	Rock Mambo FM	-	50	42.6	45.9	-	-	-
	Step FM	-	25	16.7	10.6	-	-	
	Veros FM		25	25.9	34.1			

In Bugiri district, for participants who cited Baba FM as their preferred radio station, 19.6% cited Lusoga as their preferred language of listenership while 15.6 and 11.8% cited English and Luganda respectively. In Bukedea, for participants who cited Continental FM as their preferred radio program, 28.8%, 28.6%, and 17.5% cited Ateso, Luganda, and English respectively as their preferred languages of listenership. In Tororo district, for participants who cited Rock Mambo FM, 50% preferred Ateso, 42.6% preferred English while 45.9% preferred Japadhola. In Pallisa, most participants preferred listening to Aisa FM in three most preferred languages of Ateso (29.3%), English (23%) and Luganda (33.3%).

In Mbale, most participants preferred listening to Open Gate FM with 33.3% of the participants preferring English programs, 34.3% preferring Luganda programs and Lugisu programs respectively (Table 5).

Most participants in Iganga preferred listening to NBS FM and Baba FM with language preference mainly being Lusoga, Luganda and English programs. According to the survey results on the preference of radio stations and language of broadcast, dissemination of push-pull technology using radio would target the use of Luganda, English, Ateso, and Lusoga since these languages are preferred across two or more districts. Similarly, two or more radio stations in each district use these languages for their radio programming. However, it is important to narrow down the radio stations and broadcasting languages to reach more farmers in a cost-effective manner. Table 6 presents the summary of these findings for the purpose of simplifying the applicability of participatory radio campaign in a cost-effective manner.

According to the summarized findings, therefore, Pallisa and Bukedea can be served by UBC radio station in Luganda, English or Ateso. And both of these two districts have severe striga and stemborer infestation. Similarly, in Bugiri and Iganga radio campaign could be launched by NBS radio using either, English, Lusoga or Luganda (Table 6). However, there was no match for Mbale, Tororo, and Busia and hence radio campaigns might require working with various radio stations to reach the audience.

Table 6. Summarized table for radio station and broadcasting language preferences in eastern Uganda, 2015.

Districts	Radio station	Preferred languages		
Pallisa Bukedea	UBC Radio	Luganda	English	Ateso*
Bugiri Iganga	NBS	English	Lusoga*	Luganda
Mbale	Open gate FM	Lugisu*	Luganda	English
Tororo	Rock Mambo FM	Ateso	Japadhola*	English
Busia	Jogo FM	Samia*	Ateso	Luganda

*- Main language of broadcast

Daily radio listenership of respondents: There are a number of factors including program quality and attractiveness, availability of different radio stations and availability of other communication media such as television, videos that affect radio listenership. Nevertheless, radio still stands as the main communication media for smallholder farmers in eastern Uganda. Farmers tune in their radio on average for five hours daily (Table 7). Compared to all the districts in the survey, farmers from Iganga spend more time (from 2 – 15 hrs) listening to their radio programs. On the other hand, respondents from Bugiri listen to their radio programs from 1 – 8 hrs per day (Table 7).

The survey also showed that radio listenership by men and women seems relatively similar across the districts. Although it used to be customary to think that men listen to the radio more, the survey found that in some districts women tend to listen to radio more than men. Yet, in general, there was no significant difference between men and women in terms hours of radio listenership (Table 8). Averaged over seven districts, men seem to tune to their radio 5.4 hrs compared to the female respondents who tune for about 4.2 hrs per day (Table 8).

Table 7. Daily radio listenership of respondents from seven districts of eastern Uganda, 2015.

District	N	Minimum	Maximum	Mean	Std. Deviation
Bugiri	28	1	8	2.96	1.503
Bukedea	28	1	9	4.54	2.426
Busia	28	1	12	5.54	3.350
Iganga	28	2	15	6.18	3.019
Mbale	29	2	13	6.28	2.789
Pallisa	30	1	10	5.20	1.901
Tororo	26	1	10	3.81	2.623

Outliers are excluded from the analysis (18 and 24 hours)

Table 8. Daily radio listenership of female and male farmers in eastern Uganda, 2015.

District	Gender	N	Minimum	Maximum	Mean	Std. Deviation
Bugiri	Female	5	2	8	3.6	2.51
	Male	23	1	5	2.83	1.23
Bukedea	Female	10	1	7	3.9	2.514
	Male	18	1	9	4.89	2.374
Busia	Female	15	1	12	4.4	2.874
	Male	13	2	12	6.85	3.484
Iganga	Female	7	3	9	5.57	1.902
	Male	21	2	15	6.38	3.324
Mbale	Female	17	2	13	6.29	2.801
	Male	12	3	12	6.25	2.896
Pallisa	Female	7	1	6	3.71	1.704
	Male	23	3	10	5.65	1.748
Tororo	Female	9	1	4	2.11	1.054
	Male	17	1	10	4.71	2.779
Average	Female	10	2	8	4.23	2.190
	Male	18	2	10	5.37	2.550

Preferred time of radio listenership: Broadcasting time of radio campaign is critical to have maximum reach and impact while promoting the push-pull technology. Choice of time could vary depending on the environmental and sociocultural practices of a given region or country. Identifying the time when most household members are assembled at the same place will help radio programs reach more farmers and initiate discussion among family members or friends. Across the seven surveyed districts, evening time was most preferred by respondents (Figure 1). Lunch and morning time preference was also high. Nevertheless, for the participatory radio campaign lunch hour is preferable because listeners give more attention to the broadcast at lunch than the morning rush hour (Figure 1). Participatory radio campaigns will eventually need a repeat of the program in the course of the week for the audience to have a good understanding of the content and to give opportunities for those who missed the program. This also initiates discussion among family members to internalize what was presented during the initial broadcast. Therefore, broadcasting the repeat during lunch break seems appropriate.

Most preferred radio tuning time disaggregated by gender showed a similar trend across all the districts (Figure 2). Most respondents, regardless of gender difference, prefer to listen to the radio in the evening. Slightly more male respondents seem to have time to listen to the radio in the morning as they prepare for the day. It appears both female and male are on par listening to the radio during lunch break (Figure 2).

Preferred place of radio listenership: Participants of the survey were asked where they prefer to listen to the radio as a place of radio listenership is one factor that should guide targeting different audience for agricultural information dissemination. The findings in figure 3 present the place of radio listenership by gender. An equal percentage of the female respondents stated that they would listen to the radio mainly alone when they are at home (23%) and with their families (23%).

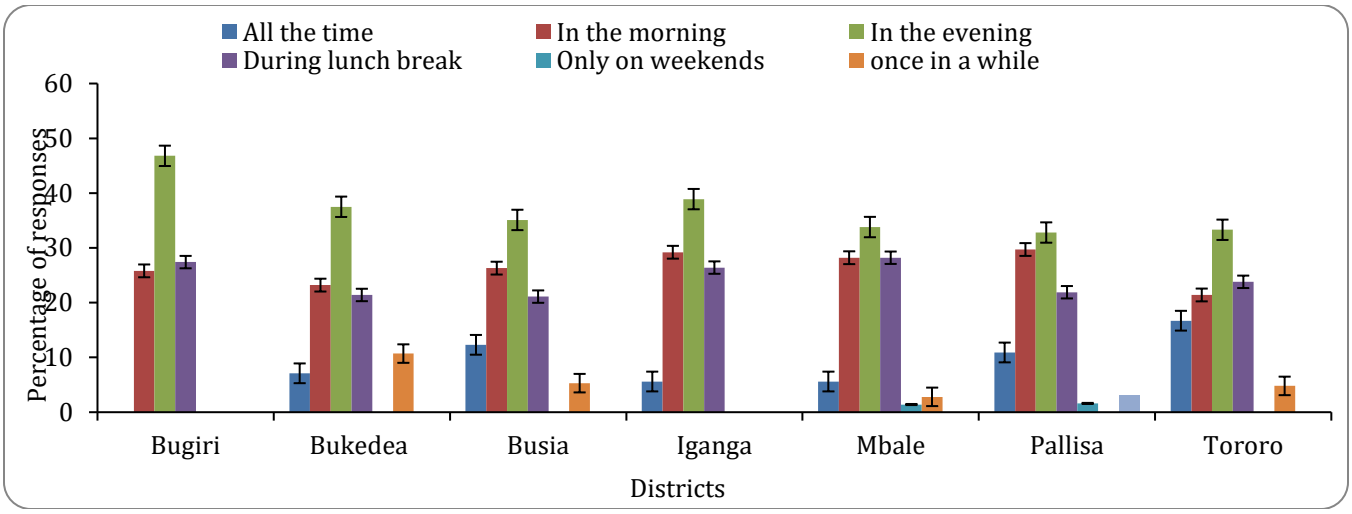

Figure 1. Preferred time of listening to the radio per district.

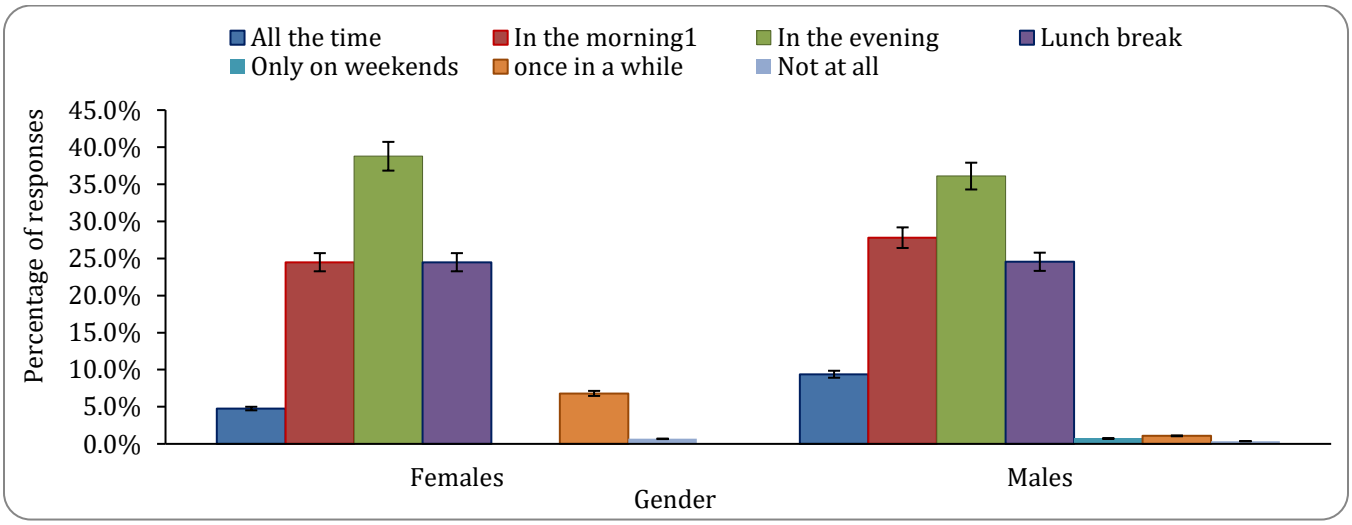

Figure 2. Preferred time of listening to the radio by gender.

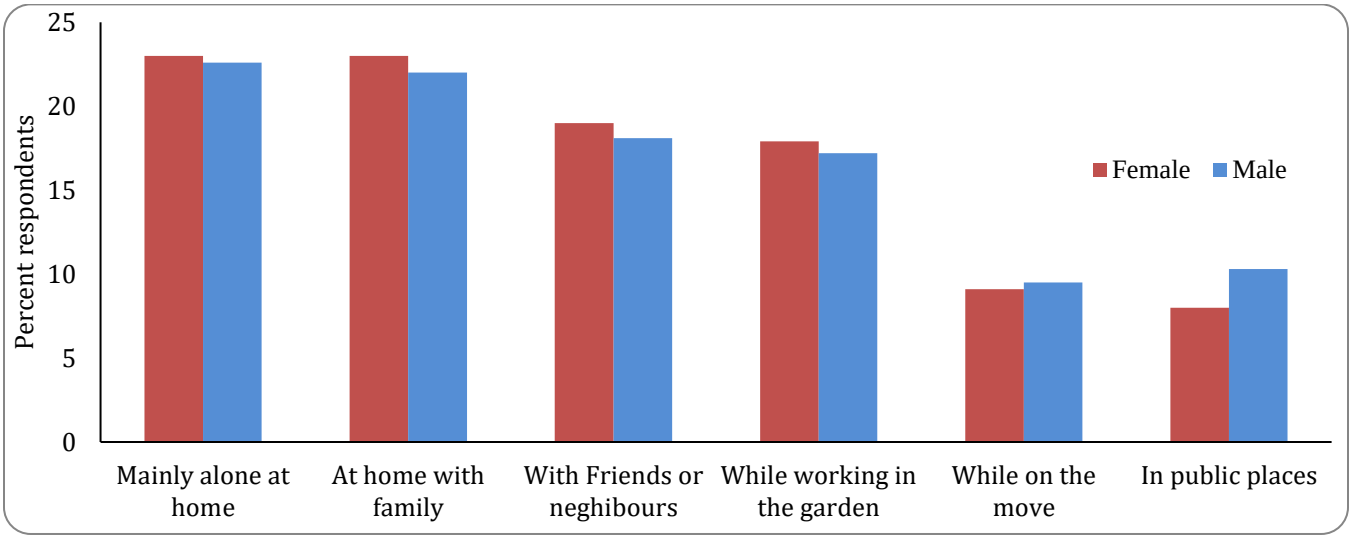

Figure 3. Preferred place of radio listenership of respondents in eastern Uganda, 2015.

About 19 and 17.9% of the female participants would listen to the radio when they are with friends or neighbors and while working on the farm. Only 9.1% and 8.0 % of the female respondents would listen to the radio while and in public places. With regard to the male respondents, 22.6% would listen to the radio mainly alone and 22.2% at home or with their family. Out of the male participants, 18.1% listen to the radio with friends or neighbors while 17.2% listen when they are working in their farm (Figure 3).

Favorite radio shows for smallholder farmers in eastern Uganda: The favorite radio shows commonly featuring in eastern Uganda include; news, politics, religious programs, songs/music, business information, educational programs and radio dramas. The respondents' preferences are as follows, an educational program such as health and agriculture (17%), News (16%), religious programs (15%), and songs, music, drama, and politics ranged from 12 to 14% (Figure 4). The findings of this survey indicated that in almost all the districts, news and education programs (mainly health and agriculture) were most preferred by the respondents (Table 9). Nevertheless, the listenership to the listed favorite shows seems well spread across the districts with some degree of variation. These differences could also be attributed to the availability and quality of programs the radio stations produced. Averaged across districts, educational programs ranked first with 17% followed by News (16.5%), religious programs (15.7%) and songs and dramas were preferred by about 14% of the respondents. Preference for political and business information was reported by about 12% of the respondents as illustrated in Table 9. The favorite radio stations as perceived by the respondents shows disaggregated by gender showed relatively similar results. There was a slight difference in the program preferences of male and female respondents. For instance, while 17% female respondents showed a higher preference for educational programs, 17% male respondents preferred news programs.

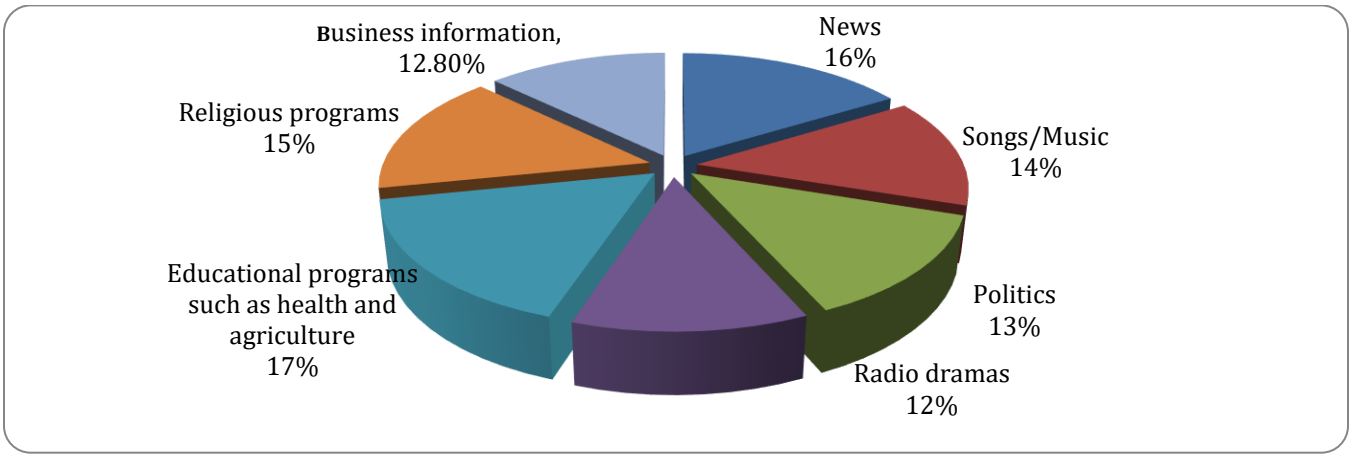

Figure 4. Favorite radio programs of respondents of eastern Uganda, 2015.
Figures in parenthesis are percentages.

Table 9. Favorite radio shows identified by the farmers from seven districts in eastern Uganda, 2015.

Favorite shows	Districts							
	Bugiri	Bukedea	Busia	Iganga	Mbale	Pallisa	Tororo	Average
News	29 (18.8)	29 (15.3)	21 (18.4)	30 (17.0)	30 (15.5)	30 (14.9)	30 (15.5)	28.4(16.5)
Songs/Music	19 (12.3)	26 (13.8)	16 (14.0)	21 (11.9)	28 (14.4)	30 (14.9)	29 (15.0)	24.1(13.8)
Politics	19 (12.3)	26 (13.8)	9 (7.9)	27 (15.3)	26 (13.4)	29 (14.4)	25 (13.0)	23.0(12.9)
Radio dramas	8 (5.2)	24 (12.7)	7 (6.1)	24 (13.6)	25 (12.9)	30 (14.9)	26 (13.5)	20.6(11.3)
Educational	29 (18.8)	29 (15.3)	28 (24.6)	30 (17.0)	30 (15.5)	28 (13.9)	30 (15.5)	29.1(17.2)
Religious	27 (17.5)	28 (14.8)	23 (20.0)	25 (14.2)	29 (14.9)	28 (13.9)	28 (14.5)	26.9(15.7)
Business info.	23 (14.9)	27 (14.3)	7 (6.1)	19 (10.8)	26 (13.4)	27 (13.4)	25 (13.0)	22.0(12.3)
Other	0 (0)	0 (0)	3 (2.6)	0 (0)	0 (0)	0 (0)	0 (0)	0.43(0.4)
Totals	154 (100)	189 (100)	114 (100)	176 (100)	194 (100)	202 (100)	193 (100)	174.6(100)

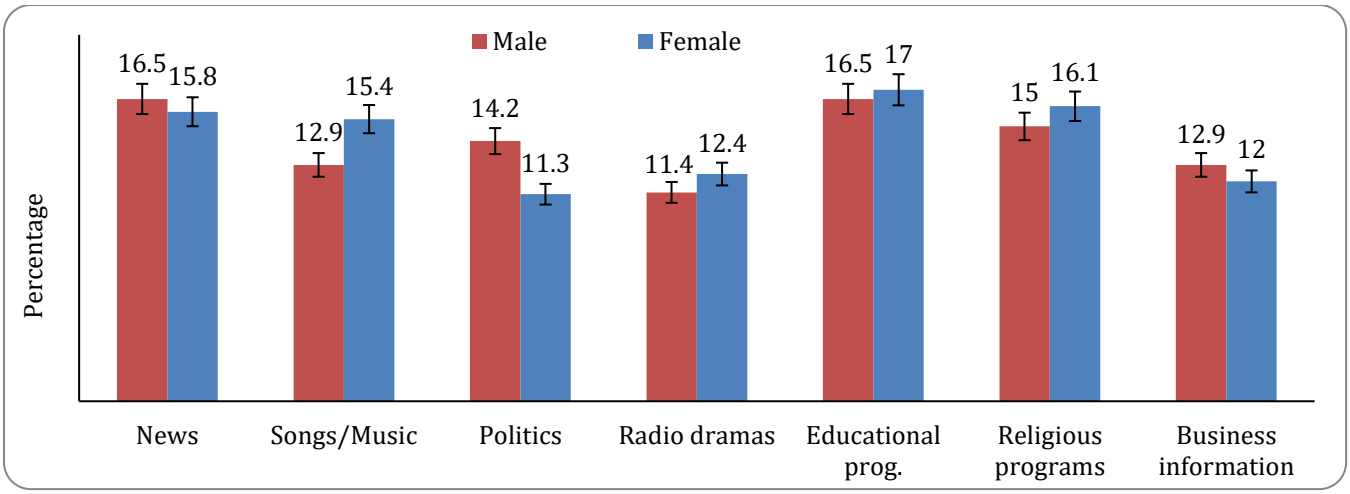

Figure 5. Radio show preference by gender.

CONCLUSION AND RECOMMENDATIONS

Radio and mobile phones are widely used communication media in the rural Uganda. Farmers are listening to their radio throughout the day with best preferred time being in the evening. Hence if the development practitioners, radio broadcasters, and extension agents work in collaboration mobile phones can transform radio from one to multiple way communication that helps interact, mobilize while radio strengthens the capacity and encourage practice of new or improved agricultural technologies. Preference of radio stations and broadcasting language seems complex in a very diverse community such as eastern Uganda. Although language differences and radio station preferences vary, farming systems and factors limiting agricultural productivity are essentially similar. Therefore, depending on resource availability, it is recommended to use two or more languages by one radio station or two or more radio stations should broadcast similar content with different languages. Most farmers in eastern Uganda tune in to their radio in the evening hours. Moreover, at this time most family members are together and hence it is easier to reach more listeners at this time. Radio listeners could also discuss the subject matter after the broadcast which will enhance knowledge retention and decision making to adopt or otherwise. It is also possible to for radio listening groups where the group members discuss about the program content and improve their understanding. Most farmers seem to tune in to radio throughout the day with some variations. Therefore, a repeat of a program can be broadcasted in the course of the day preferably around lunch time. Agricultural programs didn't rank the highest during the survey. Therefore, content development, the relevance of the subject matter presented by the radio and format of presentation should adhere to the capacity of the audience. Involving farmers throughout the program need to be well thought of to attract more audience and retain them throughout the radio campaign.

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