

Available Online at ESci Journals

International Journal of Agricultural Extension

ISSN: 2311-6110 (Online), 2311-8547 (Print)

<http://www.escijournals.net/IJAE>

ASSESSING THE RADIO PROGRAMMING AND POTENTIAL ROLE OF PREFERRED BY FARMERS RADIO STATIONS TO DISSEMINATE AGRICULTURAL TECHNOLOGIES IN EASTERN UGANDA

^aGirma Hailu*, ^bZeyaur R. Khan, ^aJimmy O. Pittchar, ^bNathan Ochatum

^a International Centre of Insect Physiology and Ecology P.O. Box 30772-00100 Nairobi, Kenya.

^b International Centre of Insect Physiology and Ecology (icipe) Thomas Odhiambo Campus, P.O. Box 30 -40305, Mbita Point, Kenya.

ABSTRACT

The study evaluated the potential of 19 radio stations to promote new or improved agricultural technologies to strengthen agricultural extension services. Key informant interviews were conducted with the station and/or program managers of the selected radio stations. Two female respondents i.e. from UBC Radio, and Impact FM and 17 male respondents from the remaining radio stations were interviewed. The survey used semi structured questionnaire to determine broadcasting languages, radio transmitter capacity, geographical coverage and audience, major programs and scheduling, use of modern ICT, staff capacity and feedback mechanism from the audience as well as experience in agricultural programming using participatory radio campaign. The collected data was analyzed using content analysis. 16 of the radio stations are commercial while the remaining three belong to public, community and religious radio stations. The potential audience of the surveyed radio stations varied from one to ten million. Seven broadcasting languages (English, Luganda, Lugisu, Lusoga, Japadhola, Ateso and Samia) were predominant, while English and Luganda cut across all communities. The estimated number of audience for each radio station varies from one to ten million listeners. The results also indicate that agricultural programs are not a major component of radio program with time allocation for agricultural programs comprising only 15 percent of total time allocation. However, ten radio stations had previous collaboration with international, regional or national NGOs to promote specific agricultural technology. Radio broadcasters of these radio stations had some form of agricultural programming including participatory radio campaign. Building on this experience, it is possible to reach more farmers through radio to strengthen adoption of recommended agricultural technologies.

Keywords: Radio, agriculture, Uganda, agricultural extension

INTRODUCTION

Low levels of agricultural productivity are linked directly with low levels of adoption of improved agricultural technologies which is also influenced by availability of inadequate information (Aker, 2010). Inadequate vital services including recommended inputs, loans and inefficient marketing exacerbate the problem (Salami *et al.*, 2010). Although the conventional pathway of technology dissemination through agricultural extension service providers was one of the prominent methods; the service provision through

extension agents is often beyond the reach of farmers (Rutarora & Matee, 2001; Isinika, 2005). For example, a fact sheet on extension services published by the Global Forum for Rural Advisory Services (GFRAS) showed that in India over 36% of the vacancy for extension staffs are not filled and the available staff can only reach about 7% of the communities (GFRAS, 2012). This acute shortage is felt in most countries in Sub Saharan Africa (SSA) (Agunga, 2014; Sanga *et al.* 2013; Stilwell & Ngulube, 2011). In Uganda, National Agricultural Advisory Services (NAADS) is responsible for the promotion of food security, nutrition and household incomes through increased productivity and market oriented farming (NAADS). Moreover it also intent to empower farmers to

* Corresponding Author:

Email: ghailu@icipe.org

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access and utilize contracted agricultural advisory services. However, NAADS faced implementation challenges and the government intervened through the creation of Operation of Wealth Creation (OWC) using the army wing (ACODE, 2015). According to the Uganda Forum for Agricultural Advisory Services (UFAAS) in their resolutions on Uganda's agricultural extension and advisory services stated that disbanding of NAADS and laying off staff caused acute shortage of extension staff at the grassroots where over 50% of the sub-counties have no agricultural extension staff (UFAAS, 2014). Due to the acute shortage of extension service delivery, farmers are not able to get benefit from available new or improved agricultural technologies.

Insect pests, weeds and diseases are among the major limiting factors of cereal production in East Africa. A loss in cereal grain yields due to stemborers alone ranges from 44-50% while the loss due the parasitic weed striga is estimated to be 7 billion US Dollars (Robert *et al.* 2014). The magnitude of striga problem is immense which is estimated to affect over 300 million farmers covering over 50 million ha of land in sub-Saharan Africa (SSA) (Mboob, 1986, Parker, 2008 Lagoke *et al.*, 1991). Severe infestation by cereal stemborers and striga can cause a total loss of maize yield (Hassan *et al.*, 1994; Kifir *et al.*, 2002; Khan *et al.*, 2008). One of the promising technologies to control both striga and cereal stemborers while maintaining soil fertility and providing high quality fodder is push-pull technology (Khan *et al.*, 2008a; Khan *et al.*, 2008b; Midega *et al.*, 2010).

Push-pull, a novel technology was developed by the International Center of Insect Physiology and Ecology (ICIPE) in collaboration with Rothamsted Research (Khan *et al.* 2008). Maize or sorghum is intercropped with a stemborer moth-repellent legume, Desmodium, surrounded with Napier grass, or Brachiaria planted as a trap plant for stemborers. Desmodium intercropped with maize or sorghum also reduces striga population by inducing suicidal germination (Khan *et al.* 2008, Khan *et al.*, 2014, Midega *et al.*, 2010).

Striga and stemborers being landscape level problems require concerted efforts of institutions and affected farmers to identify and apply effective control measures. Moreover, effective and efficient information dissemination pathways are needed to reach farmers in the shortest time. In the light of this, several studies attempted to understand the role of ICTs to aid agricultural extension services (Ratnam *et al.*, 2006;

Colle, 2005; Sanga *et al.*, 2007; Eicher, 2007). Apart from availability and reach, capacity of extension agents is also limited to respond to emerging issues in various sectors. Radio and modern ICTs can aid the extension service delivery (Kaaya, 1999; Gakuru *et al.*, 2009) through hosting experts, policy makers, entrepreneurs, etc. Due to the availability of modern technologies such as computers, mobile phones, MP3 players, etc., radio ceased to be a one way communication medium and now can facilitate a more inclusive, interactive and participatory approach (Chapman *et al.* 2003, Kumar, 2004).

Radio is increasingly becoming an important communication medium to promote new or improved agricultural technologies in Africa. It is the single most abundant, low cost communication medium in rural Africa (Myers, 2009; Omenesa, 1997). Radio can reach all community members irrespective of their literacy level. Radio can also be listened to alone or with a group without significant distraction to the daily activities of farmers, aiding agricultural extension service delivery significantly (Nakabugu, 2001, FAO, 2005; Chapman *et al.*, 2003).

Chapman *et al.* (2003) reported that the growth of rural radio stations reflects both the improvements in information technologies and the shifting of the development paradigm towards a more participatory style of information and knowledge transfer. Kumar (2004) identified radio as an avenue for participatory communication and as a tool relevant in both economic and social development.

The findings from the African Farm Radio Research Initiative (AFFRI) showed how and in what ways radio and modern ICTs such as mobile phones and MP3 players can be used to strengthen the extension service delivery in a participatory manner (FRI, 2011). Participatory Radio Campaign (PRC) is a time bound systematically designed radio campaign involving multiple stakeholders that helps farming community to make an informed decision on adopting new or improved agricultural technologies (Doug Ward, 2009). The objective of this study was therefore, to assess the potential of 19 radio stations to promote new or improved agricultural technologies in eastern Uganda.

METHODOLOGY

The survey was conducted across 19 radio stations. The radio stations for this survey were identified based on the previous study where farmers from seven districts of

eastern Uganda were interviewed to provide their best preferred radio stations. According to this survey each respondent gave five preferred radio stations ranking from highly preferred radio as one and least preferred five.

The 19 radio stations selected for this survey were most preferred by farmers ranking from one to three. This study examined the capacity and readiness of these radio stations to promote new or improved agricultural technologies such as push-pull technology in a participatory radio campaign method.

The lists of variables used as indicators of readiness included:

- Radio transmitter capacity (immediate spatial reach)
- Staff capacity
- Use of modern ICT media such as mobile phone, digital recording, internet, etc.
- Geographical coverage of the radio station
- Audience number (approximate population reached)
- Programming schedule with special emphasis on agriculture
- Feedback mechanism from audience

- Knowledge and experience of promoting technologies using ‘participatory radio campaign’

Key informant interviews were conducted with the station and/or program managers of the selected radio stations selected purposively because they are responsible for design and management of programs within the radio stations. Two female respondents i.e. from UBC Radio, and Impact FM and 17 male respondents from the remaining radio stations were interviewed. The survey used a semi structured questionnaire that comprised a predetermined set of both open and close ended questions to generate the needed information where the above listed indicators were well captured. The questions designed prompted discussions and provided the interviewer to explore particular themes and responses. The collected data was analyzed using content analysis (Patton, 2002). This mainly involved preparing and organizing the data into sub indicators (themes) based on the research questions and reporting. The study clearly sought to examine the potential of the preferred (selected) radio stations in the use of dissemination of push pull technology.

Table 1. List of surveyed radio stations best preferred by respondents from seven districts in eastern Uganda, 2016.

No	Radio station	No	Radio station	No	Radio station
1	UBC Radio-Butebo channel	8	NBS FM	15	Jogo FM
2	Capital Fm	9	Baaba FM	16	Etop Radio
3	Open Gate FM	10	Continental FM	17	Kyoga Veritas FM
4	Step FM	11	Aisa FM	18	Veros FM
5	Elgon FM	12	Eastern Voice FM	19	Rock Mambo FM
6	Impact FM	13	Eye FM		
7	Faith FM	14	R FM		

RESULTS AND DISCUSSION

Most of the surveyed radio stations are located within eastern Uganda except Capital FM which is a Kampala based station. Five Radio stations namely Open Gate FM, Step FM, Elgon FM, Impact FM and Faith FM are situated in Mbale District (Table 2). NBS FM and Baba FM operate from Jinja district. Veros and Rock-Mambo FM stations are based in Tororo Districts; Etop and Kyoga Veritas FM are situated in Soroti district, while Jogo FM is situated in Busia district. Continental FM is situated in Kumi district. Iganga, Soroti and Tororo districts each host two radio stations (Table 2). Most radio stations are privately owned operating on commercial basis. Only Elgon FM and Etop Radio regard themselves as community radio stations where their programming is designed to address the needs of the community (Table

2). UBC Radio is a public radio broadcaster in the country. It is the oldest radio station and broadcasts in all regions of the country. UBC Butebo Channel is a substation of UBC that broadcasts in the eastern and north eastern parts of Uganda. It broadcasts in all dominant languages spoken in the eastern and north eastern regions of the country. Impact FM is a religious radio station but runs commercial advertisements to earn income. Baaba FM is a community radio station established by Busoga Kingdom to promote the values Busoga culture. The station is housed at the Busoga kingdom headquarters in Jinja. However, it also runs advertisements and programs to earn income.

Capacity of the Radio Stations

Radio transmitter capacity, coverage and modern ICT usage: Radio stations visited do not easily divulge

information about their transmitter capacities. However, a few radio stations that were providing this information showed that their transmitter capacity ranged from 1 kilo watt (1000 watts) to 3.5 kilo watts (3500 watts) of transmitter capacity. Areas of coverage of the radio stations varied based on the location. of the radio stations. Most of the radio stations covered a distance of 70 – 250 km radius with an average coverage of 166 km. Moreover, radio stations with sub stations have a much wider area of coverage. For example, capital FM in Kampala with a substation in Mbale and Mbarara and Radio Uganda in Kampala with a substation in Pallisa (Butebo Channel) cover a distance of between 250 – 400 km radius. Data depicted in Table 2 further elaborate that all radio stations except capital FM are located in the eastern districts of Uganda. Therefore, their coverage was throughout the region and/or in more than one

district from its point of location. The population coverage of the radio stations also varied due to the capacity of the transmitter used, and the popularity of the radio stations. Radio stations with a low transmitter capacity reached an estimated population of 1,000,000 – 5,000,000 while popular radio stations backed with high transmitter capacity reached a large population, about 5,000,000 – 10,000,000 people (Table 2). Information about population coverage is obtained by radio stations through internal research conducted by the radio station itself and through events organized by the some radio stations like Etop Radio, Eye FM, Baaba FM, NBS FM, Capital FM among others, where they access attendance. External sources included external surveys conducted by an independent research firm (IPSOS Synovate) but contracted/facilitated by the Uganda Communications Communication (UCC), (IPSOS SYNOVATE Report, 2014).

Table 2. List and typology of surveyed radio stations, locations and frequencies.

No	Name of Radio station	Location	Frequency	Type of radio
1	UBC Radio-Butebo channel	Pallisa	97.5 FM	Public radio station
2	Capital Fm	Kampala	91.3 FM	Commercial radio station
3	Open Gate FM	Mbale	103.2 FM	Commercial radio station
4	Step FM	Mbale	99.8 FM	Commercial radio station
5	Elgon FM	Mbale	101.4 FM	Community radio station
6	Impact FM	Mbale	103.7 FM	Religious radio station
7	Faith FM	Mbale	90.5 FM	Commercial radio station
8	NBS FM	Jinja	89.4 FM	Commercial radio station
9	Baaba FM	Jinja	87.7 FM	Community radio station*
10	Continental FM	Kumi	94.7 FM	Commercial radio station
11	Aisa FM	Ngora	92.3 FM	Commercial radio station
12	Eastern Voice FM	Bugiri	102.3 FM	Commercial radio station
13	Eye FM	Iganga	94.6 FM	Commercial radio station
14	R FM	Iganga	91.1 FM	Commercial radio station
15	Jogo FM	Busia	93.8 FM	Commercial radio station
16	Etop Radio	Soroti	99.4 FM	Community radio station
17	Kyoga Veritas FM	Soroti	91.5 FM	Commercial radio station
18	Veros FM	Tororo	90.2 FM	Commercial radio station
19	Rock Mambo FM	Tororo	106.8 FM	Commercial radio station

*radio station founded by the Busoga kingdom

Table 3. Geographical coverage and estimated number of audience of 19 radio stations in 2016.

Radio Station	Geographical coverage (Region)	Estimated population reached (Million)	Approximate distance of coverage (km radius)
UBC Radio-Butebo*	Eastern	5 – 10	250 – 400
Capital Fm	Eastern Central and Western	5 – 10	300 – 400
Open Gate FM	Eastern and part of north eastern	5 – 7	100 – 250
Step FM	Eastern and part of north eastern	3 – 5	200
Elgon FM	Eastern	3 – 5	80 – 150

Impact FM	Eastern	3 – 5	80 – 150
Faith FM	Eastern	3 – 5	70 – 150
NBS FM	Eastern and part of central	3 – 5	250
Baaba FM	Eastern and part of central	4 – 6	200
Continental FM	Teso **	1 – 2	70 – 100
Aisa FM	Teso	1 – 2	80 – 100
Eastern Voice FM	Eastern	5 – 6	100 – 200
Eye FM	Eastern	1 – 3	80 – 150
R FM	Eastern	1 – 3	80 – 150
Jogo FM	Eastern Uganda and Western Kenya	1 – 2	70 – 100
Etop Radio	Eastern and north eastern	4 – 5	100 – 250
Kyoga Veritas FM	Eastern and north eastern	4 – 5	100 – 250
Veros FM	Eastern Uganda and Western Kenya	3 – 4	100 – 200
Rock Mambo FM	Eastern Uganda and Western Kenya	4 – 5	100 – 250

*Butebo is a substation of UBC in Pallisa district, Eastern Uganda

**Teso includes Pallisa, Ngora, Kumi, Bukedea, Soroti, Amuria, Serere, Katakwi districts in eastern Uganda.

All of the radio stations surveyed partner with telephone companies in such a way that the radio stations play advertisements and promotions for the companies in exchange of airtime and internet bundles. Therefore, all radio stations had an internet connection provided by a partnering Telecommunication Company. Radio stations who previously collaborated with the common telecom companies that support radio stations were Africell-Uganda and Airtell Uganda.

Equipment used for live broadcasts and to produce programs include transmitters, sound/voice amplifiers/recorders/mixers, Omni-directional and cardioid microphones, FM tuners, DAT/cassette/CD/MP3 players monitor speakers and telephone systems as well as computers. Surveyed radio stations however face technical challenges in producing and broadcasting their programs. These include: power outages, equipment failures which forces them to pause broadcasting. Moreover, some radio

stations faced with colliding waves due to closeness in frequencies. Apart from technical glitches, most radio stations also faced with financial problems that did not allow the staff to carry out field recordings.

Capacity of staff qualification and experience: The radio stations have staff members with varying qualifications from university degree graduates to certificate holders. Staff recruitment for most radio stations is not based on the university qualification obtained but on talent to present programs and years of experience working in radio station broadcasting either with the host radio station or any other radio station. Besides their university degrees, most employees of the radio stations had additional trainings particularly in broadcasting and multimedia.

All of the radio stations are members of the Uganda Broadcasting Council (UBC) and regulated by the Uganda Communications Corporation (UCC). (IPSOS SYNOVATE survey, 2014)

Table 4. Higher level of education and experience of technical staff in the surveyed Radio station in terms.

Name of Radio Station	Number of staff	Number of university graduates	Number of diploma graduates	Years of staff working experience
UBC Radio-Butebo Channel	-	-	-	-
Capital Fm	36	36	0	> =5 years
Open Gate FM	25	17	8	> =3 years
Step FM	23	16	7	> =3 years
Impact FM	18	13	5	> =3 years
Faith FM	11	5	4	> =2 years
NBS FM	32	20	12	> =5 years
Continental FM	12	7	4	> =2 years
Eastern Voice FM	15	7	8	> =3 years

Eye FM	22	10	12	>=2 years
R FM	12	10	2	>=2 years
Etop Radio	27	21	6	> =3 years
Kyoga Veritas FM	19	14	5	>=4 years
Veros FM	16	10	5	>=2 years
Rock Mambo FM	21	9	8	>=4 years

*.. Information was not available

Some of the surveyed radio stations have collaborated with various institutions to promote educational programs. Radio stations such as UBC Radio, Capital FM, Open gate FM, NBS, Continental, Eastern voice FM, R FM, Etop Radio, Kyoga Veritas and Rock Mambo FM are/have benefited from international organizations in the form of staff training in disseminating information of the organization, sponsorship of programs as a means of advertising/marketing the organization or its program.

A few radio stations like Kyoga Veritas, Rock Mambo FM, Eastern Voice FM, Rock Mambo FM, among others were supported by Non-Governmental Organizations. These organizations design programs and work with the radio stations to disseminate the required information. International organizations cited include: International Fertilizer Development Centre (IFDC), Farm Radio

International mainly conducting participatory radio campaigns (PRC), Mariestopes International promoting health awareness campaigns, Plan International promoting girl child education and protection (BECAUSE I AM A GIRL) campaign among others. Non-governmental organizations radio stations have worked with include; World Vision, CEEDU promoting civic education (Obulamu Campaigns), human rights and encouraging people to participate in elections, Plan-Uganda, OXFAM, AMREF, RHU, among others.

Different government Ministries and departments also work with radio stations to promote new government programs and initiatives. Table 5 shows some of the national and international organizations who collaborated with radio stations to reach the target communities.

Table 5. List of organizations the radio stations collaborated with in the past.

Name of Radio	Organization (International, NGO, Local)
UBC Radio-Butebo Channel	NARO (National Agricultural Research Organization)
	FRI (Farm Radio International)
	UNICEF
	Water-AID
	Netherland Development Organization (SNV)
Capital Fm	Farm Radio International
	CEEDU (...)
	OXFAM
Open Gate FM	AMREF
	IFDC
NBS FM	IFDC
	Farm Radio International
Continental FM	Farm Radio International
	Uganda Debt Network
	IFDC
Eastern Voice FM	Uganda Debt Network
	CEEDU
R FM	IFDC
	Farm Radio International
Etop Radio	Uganda Debt Network
	Plan Uganda

Kyoga Veritas FM	CEEDU Marie-stopes International Straight Talk Foundation Soroti Catholic Diocese (SOCADIDO) Teso Anti-corruption Coalition Plan International
Rock Mambo FM	CEEDU UNICEF TASO

Radio programming and languages of broadcast: The radio programming is mainly structured to follow the platform of education, awareness creation, politics, advertisement and entertainment. The programming is also designed to suit the preference of the listener. The languages of broadcast vary depending on the program and the location of the radio station targeting the main audience. For example, Capital FM based in Kampala is mainly targeting the urban population and the major language of broadcast is English while Luganda is also used to reach their audience (Table 6). Luganda is the main broadcasting language for Step, Open gate and Impact FM Radio stations. Veros and Rock Mambo FM

who are based in Tororo use Japadhola whereas Continental and Aisa FM who are based in Kumi and Ngora districts use Ateso as their main broadcast language. Moreover, two radio stations (Etop and Kyoga Veritas) based in soroti also use Ateso as the main language of broadcast. Three (Eastern, Eye and R FM) radio stations based in Bugiri and Iganga districts use Lusoga as their main language of broadcast. Jogo FM provides its main service to Samia speaking communities.

It was also observed that all of the surveyed Radio stations use English as the second or third language of broadcast (Table 6).

Table 6. Broadcasting languages of 19 surveyed radio stations in Uganda, 2016.

Name of Radio	Languages of broadcast
UBC Radio-Butebo Channel	All languages spoken in Eastern Uganda
Capital Fm	English* & Luganda
Open Gate FM	Luganda, English, Lumasaba, Lugwere & Lusoga
Step FM	Luganda-, English & Lumasaba
Elgon FM	Lugisu-, English & Luganda
Impact FM	Luganda- English
Faith FM	Lugisu-, English & Luganda
NBS FM	Lusoga-, English & Luganda
Veros FM	Japadhola -, English, Luganda, Ateso & Samia
Rock Mambo FM	Japadhola -, English, Luganda, Ateso & Samia
Baaba FM	Lusoga-, English & Luganda
Continental FM	Ateso- & English
Aisa FM	Ateso-& English
Eastern Voice FM	Lusoga-, English & Luganda
Eye FM	Lusoga-, English & Luganda
R FM	Lusoga-, English & Luganda
Jogo FM	Samia- Ateso, English & Luganda
Etop Radio	Ateso-, English, Kumam & Karamojong
Kyoga Veritas FM	Ateso-, English, Kumam & Karamojong

*Languages written in Bold and italic are the main broadcasting languages of the radio station

Programming schedule and preferred time of allocation: Radio stations design and follow a particular program schedule that runs throughout the week. The naming of the programs in radio stations varies

depending on the location of the radio station. Most radio stations name their programs following the dominant language spoken in the area of location. The preferred allocation time of broadcast and the

percentage allocated on themes is determined by the audience preference for a particular program. Radio stations analyze their audiences to establish their preference for the programs. Some of the approaches used to analyze audiences include annual organized events where the audiences are asked to identify preferred programs, internal surveys where the radio stations collect data about their programming, and social media posts on platforms like Facebook, twitter, whatsapp; among others. There are direct call lines, where listeners' views on the programs are sought through telephone calling. Programs are also designed to target particular age groups. Across the surveyed radio stations entertainment was regarded as the key component particularly for programs that targets the youth. All the radio stations design their programs considering times of high listenership and low listenership. The design of programs common for most radio stations follows four time segments;

- 0500hrs to 1000hrs – Morning prime time when radio listening is high. Advertisements run at this time segment, advertisers therefore get high exposure, thus high opportunity to be heard. A few radio stations run agricultural programs during the morning times.
- 1000hrs to 1800hrs – Standard time of the day. Listening not as high as in the morning though with good listenership figures as well.
- 1800hrs to 2200hrs – Evening prime time. Radio listening is high (evening time) as listeners drive back home after work and are at home listening to radio. Most radio stations hold talk shows however; few radio stations air agricultural programs at this prime time.
- 2200hrs – 0200 hrs – Night time. Most radio stations design and air programs focusing on relationships (Love); searching and linking, problem discussions and solving-among other issues at this time of the day. These are usually well-linked interactive and exciting shows. The shows play slow music to help wind down the day.

Available programming and program schedules: Radio stations have different program schedules. However their programs are designed to cater for aspects presented in Table 7 below. Some radio stations have the listed aspects as programs well as others have these aspects as a component of another program. For example, a few radio stations have a program dedicated

for children where they are invited into the radio stations to make presentations, debates, but this is captured as an education program in some radio stations. The proportion per week of broadcast of the program is defined by the content of the program and the time allocated for the program. For example, in all the radio stations, programs such as education, health, agriculture, and talk shows are allocated an average of one hour during the day of broadcast with a maximum time of two hours of broadcast. These programs are also scheduled one day in a week. Talk shows, however, are scheduled for up to six days in a week with particular times chosen as appropriate by the individual radio station. Usually, in most radio stations, talk shows are scheduled during the evening times. The percentage allocated on the theme of broadcast also varies in each of the radio stations. This is dependent on the preference of the programs. For example, in all the radio stations, entertainment where songs/music is played take a bigger proportion because music is played throughout the day, either as a program or between a program inform of interludes. Radio stations such as Capital FM, Faith FM, Impact FM and Eye FM do not have constant agricultural programs. Overall, for most of commercial radio stations, entertainments occupy averagely 40% allocation in the programming components while Agricultural programs take up to 15% allocation in programming. However, it is common to find agriculture as a major component of programming for radio stations that promote community identity. This is so for public radio stations such as UBC Radio and community radio stations like Baba FM, and Etop Radio. Agriculture on the contrary may not be allocated more broadcast time unless air time is sponsored by government or other NGOs. If financial and technical support is provided, the community radio stations could allocate more time.

Time allocated for agricultural programs for every radio station: Agricultural programs form part of radio programming for most of the radio stations but is not a major component of radio programming because of its audience. The programs may broadcast as a “stand-alone” or captured as part of other programs. The themes vary across radio stations depending the need and urgency. Designed programs may take the form of discussions, talk shows, features, interviews or magazines. Most of the surveyed radio stations run agricultural programs for between one to three hours and in various languages depending on the location of

the radio station. The agricultural programs are designed to inform, educate and encourage the farming communities to improve agricultural practices. Issues of discussion in agricultural programming among others include;

- New agricultural innovations and enterprises
- Seasonal information (changes in seasons and weather patterns)
- New methods of improving agricultural production
- Agricultural farm preparation and farm management
- Input prices and market
- Post harvest handling and value addition

According to the results of the survey, agricultural programs are scheduled in different hours and dates. Radio stations such as UBC Radio, Open Gate, NBS, Jogo, Etop, and Kyoga Veritas feature agricultural programs twice a week. For example, Open gate FM produces its agricultural programs in the morning from 7 – 9 am on Monday and Saturday. Other radio features feature agricultural programs once in a week (Table 8). Radio stations such as UBC, Step, Baba, Etop and Rock Mambo broadcast agricultural programs mid morning between 10 am and 1 pm all allocating one hour except UBC and Etop who allocate two hours. Days of the broadcast ranges from weekdays to weekends. Furthermore, Elgon

and Veros choose to broadcast agricultural programs in the afternoon between 2 pm and 4 pm on Friday and Sturdays respectively. Continental, Eastern, R-FM and Kyoga Veritas broadcast their program between 7 and 9 pm. Radio stations such as Capital FM, Impact FM, Faith FM, and Eye FM, do not feature agriculture in their programming (Table 8). The major limiting factor for radio stations not to allocate sufficient amount of time and broadcast at a convenient time for listeners is linked with sponsorship of the programs.

The percentage allocation on the theme is estimated from the overall percentage allocation of the programs of the radio station. Based on the findings the highest (15%) percentage share from the overall programs is offered by radio stations such as UBC Butebbo, Continental FM, Etop, and Kyoga Veritas FM. The percentage share of eight radio station was about 10% while Rock Mambo FM has 5% share (Table 8). Agricultural programs are mainly preferred by farming community. The time allocation for the agricultural programs and content and/theme of the program for the day can greatly influence farmers practices or create demand for more extension support. Following from feedback received by the radio stations, agricultural information broadcast is considered credible, authentic and trustworthy.

Table 7. Average time allocation for the following programming components for all radio stations.

Program	Preferred allocation time of broadcast (Average)	Proportion per week of broadcast (Days)	Percentage on theme of broadcast (Average %)
Education	1 hour	1	10
Politics	2 hours	2	15
Advertisements	20 minutes per hour	7	10
Health	1 hour	1	10
Agriculture	1 hour	1	15
News	10 minutes every hour	7	5
Songs/music	7 hours	7	40
Dramas	10 minutes	1	5
Talk shows	1 hour	6	10
Weather information	10 minutes	5	5
Market information	10 minutes	1	5
Business information	10 minutes	1	5
Religious programs	2 hour	2	15
Civic education	5 minutes	1	5
Sports	2 hour	6	10
Others(cultural, children's)	1 hour	1	10

Table 8. Time allocated for agricultural program and days of broadcast .

Name of Radio station	Preferred allocated	Hours of	Days of broadcast	Percentage allocated
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	time of broadcast	broadcast		on theme
UBC Radio-Butebo Channel	11am – 1 pm	2	Any day	15%
Capital Fm	-	-	-	-
Open Gate FM	7 am – 9 am	2	Monday and Saturday	10%
Step FM	11 am – 12 pm	1	Friday	
Elgon FM	3 pm – 4 pm	1	Saturday	
Impact FM	-	-		
Faith FM	-	-		
NBS FM	2 pm-3 pm	2	Thursday and Friday	10%
Baaba FM	10 am – 11 am	1	Saturday	10%
Continental FM	8 pm – 9 pm	1	Sunday	15%
Aisa FM	4 pm-5 pm	1	Sunday	10%
Eastern Voice FM	6 pm- 7 pm	1	Saturday	10%
Eye FM	-	-	-	-
R FM	7 pm – 8 pm	1	Tuesday	10%
Jogo FM	6 pm – 7 pm	2	Tuesday and Friday	10%
Etop Radio	10 am – 12 pm	2	Monday to Friday	15%
Kyoga Veritas FM	7 pm – 8 pm	2	Monday to Friday	15%
Veros FM	2 pm – 4 pm	1	Friday	10%
Rock Mambo FM	10 am – 11 am	1	Monday to Friday	5%

Feedback on programs: Feedback from audiences on programs broadcast is based on preference for a particular program. All radio stations receive feedback on their programs. This is mainly through telephone calls received appreciating a program, through SMS platforms and through the social media platforms. A number of radio stations have face book and twitter accounts seek the views of their listeners about their programs and/or segments of particular programs. The table below ranks three programs where most feedback is received for every radio station. UBC Radio and Open Gate FM receive most feedback from listeners on the Table 9. programs of most feedback and Rank of feedback for every radio station.

agricultural program (Table 9). Radio stations such as NBS, Continental, Eastern voice, R FM, Jogo, Kyoga Veritas and Rock Mambo ranked agricultural programs as second in terms of feedback, while Etop FM, Elgon and Aisa FM ranked agricultural programs as third in terms of feedback. Programs such as entertainment, politics and talk shows in these radio stations are ranked first in terms of feedback.

Apart from agricultural program however, most feedback is received on programs such as entertainment, politics and talk shows etc which are ranked first in terms of feedback (Table 9).

Name of Radio Station	Programs of most feedback	Rank of preference for Agricultural programs
UBC Radio-Butebo Channel	Agriculture program, Health program, Education	1
Capital Fm	Entertainment, Talk show (Capital Gang)	-
Open Gate FM	Farmers voice, Talk show, politics	1
Step FM	Entertainment, Talk show, Sports	-
Elgon FM	Talk show, Health, Agriculture	3
Impact FM	Entertainment, Religious program	-
Faith FM	Entertainment, talk show	-
NBS FM	Talk show, Agriculture, Sports	2
Baaba FM	Politics, Culture, Sports	-

Continental FM	Talk show, Agriculture, Health program	2
Aisa FM	Health program. Talk show, Agriculture	3
Eastern Voice FM	Politics, Agriculture, Sports	2
Eye FM	Talk show, Culture, Sports	-
R FM	Education, Agriculture, Talk show	2
Jogo FM	Politics, Agriculture, Talk show	2
Etop Radio	Talk show, Health, Agriculture	3
Kyoga Veritas FM	Entertainment, Agriculture, Talk show	2
Veros FM	Education, Health, Politics	-
Rock Mambo FM	Talk show, Agriculture, Health program	2

Programs in bold and italics receive most feedback

Participatory Radio Campaign: The concept of participatory Radio Campaigns is only known to few radio stations. Four of the radio stations have a good experience in participatory radio campaign through the collaboration of Farm Radio International (FRI). FRI is a Canadian based International NGO that works with radio stations in Africa to promote the farmers voice and contribute to knowledge about new innovative agricultural technologies/enterprises. FRI designed participatory radio campaign which aids the agricultural extension service. Two of the radio stations however do not have direct link but have good idea on how the campaign works (Figure 1). Most (13) of the surveyed radio stations however have no idea about participatory radio campaign. For those who claimed to have knowledge about participatory radio campaign, further queries were made about their knowledge and the source.

The responses as stated by different Program managers interviewed are presented in table 11 below.

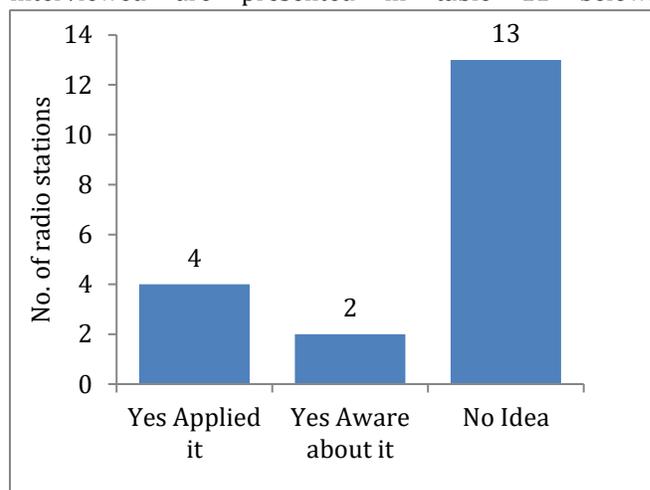


Figure 1. No. of radio stations aware of participatory radio campaign

Table 11. Knowledge and experience of surveyed radio stations on applying Participatory Radio Campaign.

Radio station	Understanding of participatory radio campaign	Source of knowledge on PRC
Capital FM	A campaign in which radio stations work with the listening community in promoting community radio broadcasting with a focus of promoting innovations to reach as many people as possible for example, while working with the farming community, concerns of the farmer are identified and good practices are broadcast.	Farm Radio International Journals and Publications
UBC Radio	An approach to information dissemination in which a well designed radio program is used to share knowledge about a particular subject of interest but with direct involvement and participation of a targeted listener, for example, while working with UBC, FRI used mini-dramas to contribute to increasing knowledge and consumption of the Orange Flesh Sweet Potato in Uganda	Farm Radio International
NBS FM	A radio communication approach where the radio station works directly and involves the listening community in broadcasting. it focuses on holding live discussions with the	Read from a publication

	listener to directly pass knowledge to the listener about an initiative or subject of interest	
ETOP Radio	A holistic participatory approach where the listeners and the radio collaborate and work together in broadcasting	Farm Radio International The new vision
Continental FM	The community is directly involved in a program by holding a community live studio and their views are sought about a particular subject of interest, for example promoting the cultivation and consumption of Orange Flesh sweet potato by FRI while working with Continental FM	Farm Radio International
Rock Mambo FM	This is an issue based highly interactive communication approach which directly involves the listener working very closely with the radio station for the purpose of the listeners gaining knowledge about a subject that an entity would like to promote.	Read from a publication

CONCLUSION AND RECOMMENDATION

The study provided important information about the potential of the surveyed radio stations to disseminate agricultural technologies. According to the survey, radio is not fully utilized to create awareness, educate and inform farmers about agricultural technologies. Agricultural programs are not featuring as important programs and the broadcast time of the day is not taking into consideration convenient time of listenership. The fact that there is no National language that can be used throughout the country, involvement of various community radio station might be required for large scale promotion of agricultural technologies. With effective radio programming that takes into account the preference of the audience with the broadcasters' ability to translate scientific jargon into an everyday language and share the knowledge at an appropriate time can have a far reaching impact.

For agricultural programs to remain attractive to the audience and effective in promoting agricultural technologies, radio broadcasters require periodic training. Moreover, the programs also should be designed in an entertaining and participatory manner. Availability of modern Information Communication Technologies (ICT) such as mobile phones and MP3 Player can significantly improve the program quality by making radio two way of communication media Most of the programs featuring in the radio are sponsored programs. Thus agricultural programs also require sponsors that are willing to fund the broadcast for an extended period while the extension service providers and radio broadcasters reach to the communities to ensure effectiveness of the program and to respond emerging issues. Moreover, inputs such as seeds,

fertilizers e.t.c. should be at the disposal of the farmers who are willing to adopt the technologies.

To ensure adequate and timely listenership of agricultural programs, radio stations should ensure adequate advance announcement about the agricultural programs before kick-off. This will help farmers to plan their times to listen to the program. Radio stations need to have the capacity to monitor audience and receive feedback about their programming through SMS or free call in to constantly improve on the quality of their programming.

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