Assessing the reach of climate and agricultural related content via community radio stations in Senegal

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Accelerating Impacts of CGIAR Climate Research for Africa

Aknowledgement

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Abbreviations

AICCRA	ACCELERATING IMPACTS OF CGIAR CLIMATE RESEARCH FOR AFRICA
CGIAR	CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
ANACIM	AGENCE NATIONALE DE L'AVIATION CIVILE ET DE LA METEOROLOGIE
ANCAR	AGENCE NATIONALE DE CONSEIL AGRICOLE ET RURAL
CCAFS	THE CGIAR RESEARCH PROGRAM ON CLIMATE CHANGE, AGRICULTURE AND FOOD SECURITY
CERAAS	CENTRE D'ETUDE REGIONAL POUR L'AMELIORATION DE L'ADAPTATION A LA SECHERESSE
CIAT	CENTRE INTERNATIONAL D'AGRICULTURE TROPICALE
CINSERE	CLIMATE INFORMATION SERVICES FOR INCREASED RESILIENCE AND PRODUCTIVITY
ICRISAT	INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS
ILRI	INTERNATIONAL LIVESTOCK RESEARCH INSTITUTE
ISRA	INSTITUT SENEGALAIS DE RECHERCHE AGRICOLE
URAC	UNION DES RADIOS COMMUNAUTAIRES DU SENEGAL

Summary

The aim of the study was to evaluate the reach of AICCRA supported community radio programs in Senegal cluster intervention areas. The methodology is a combination of both quantitative and qualitative methods of data collection and analysis. It was found that the four community radio partners (Pakala FM, Jubu Jula Fm, Ngaye FM, Ya Gaye FM) reached a population of around 865,385 individuals aged 15 and over, which is 75% of the potential reach. Within this population, 274,677 individuals have actually been reached by programs with AICCRA related content, which is 99% of the target.

During the last six (6) months (July to Dec), these community radios have been sharing through more than 95 radios shows, climate related information, climate and agricultural advisories with the ultimate aim to help smallholders take decisions that increase the resilience and productivity of their farms. While 76% of the population reached found the programs very useful for their activities, some 20% found the content of little use. Many reasons have been referred to justifying how the information received through radio is useful. Among the most frequent is the fact that farmers can postpone the use of fertilizer, weeding or other farming related activities depending on an information received about the weather conditions from the radio. The farmers also learnt through the radio programs how to efficiently use organic manures to increase the production while helping minimize the need for chemical fertilizers. As a whole, listeners suggest: more radio program content with a focus on agriculture related topics; more adaptation of existing radio programs to times where farmers are available to listen (after 6pm for female, before 9am and between 12 and 3pm for men); content on sourcing quality seed and fertiliser; to invite farmers to the shows; use only experts for content creation; to design shows for livestock keepers on how to feed their animals and how to provide health care to these animals.

1. Background and Introduction

AICCRA (Accelerating Impacts of CGIAR Climate Research in Africa), started in 2021 in six (6) African countries (Ethiopia, Kenya, Zambia, Ghana, Mali, Senegal) with the ambition to build technical, institutional and human capacities needed to improve the transfer of climate-related information, decision-making tools and technologies in support of climate change efforts. With a three-year fund from the World Bank the project is based on several components among which are: strengthening the partnership for the delivery of climate-smart innovations in agriculture and validate and promote climate-smart agriculture innovations through piloting.

Led by ILRI since January 2022, with CGIAR and international research partners such as Alliance Biversity and CIAT, ICRISAT, IRI, AICCRA-Senegal builds on existing work implemented by CCAFS projects and the National Agency for Civil Aviation and Meteorology (ANACIM). Building on results and partnerships of these projects, AICCRA-Senegal has been assessing and promoting CSA (Climate-Smart Agriculture) options for building resilient agricultural systems.

Collaboration with the Center for the Improvement and Adaptation to Drought (CERAAS), which is part of the Senegalese Institute of Agricultural Research (ISRA) made it possible to validate a set of Climate Smart practices and innovations. These innovations include new varieties of seed adapted to the drylands of SENEGAL. The partnership with the Agence Nationale de Conseil Agricole et Rural (ANCAR) helped strengthening the outreach and to devise a new newer generation of extension and agro-advisory services.

In 2022 in particular, one of the most important activities has been the partnership with the private sector which is an indisputable stakeholder not only for the up-scaling of innovations but also for the sustainability of achievements. These partnerships include JOKALANTE and the Union des Radios Communautaire (URAC).

The partnership with URAC has been established with the aim of facilitating the large-scale dissemination of climate information and the adaptation knowledge generated and valued by research institutions and extension services. The work of URAC was expected to significantly contribute to achieving the target of 275,000 beneficiaries set for the year 2022.

The purpose of the survey of the radio audience was to assess the reach of targeted community radio programs to the farmer audience which are being broadcasted by community radio stations that are partners of the AICCRA project. It was also aimed at understanding the appreciation that the beneficiaries have of the programs broadcasted via these different radios in order to improve content for next years.

Specific results expected include:

- The technical coefficient giving the listening rate of the radios;
- The technical coefficient giving the listening rate of the AICCRA programs;
- The total number of individuals reached by AICCRA;
- The level of satisfaction of listeners on AICCRA radio programs;
- Preference of listeners for future radio broadcasts.

As part of the implementation of the activities of the (AICCRA) project, a number of activities were carried out by URAC. More details are provided in the next section.

2. Community radios activities in 2022

In 2022 four URAC community radios worked in AICCRA project. The choice of the radios was made in relation to the beneficiaries' locations, which allowed to choose the radios that the populations of the localities listen the most.

Table 1 : Community radio stations accessible per village

RÉGION	DÉPARTEMENT	COMMUNE	VILLAGE	RADIO
KAFFRINE	BIRKILANE	NDIOGNIK	NANDJIGUI	PAKALA FM
		NDIOGNIK	DAROU NANDJIGUI	
		NDIOGNIK	KEUR SAWELY	
		NDIOGNIK	DAGA BIRAM	
		MBEULEUP	MBEULEUP	
		MBEULEUP	DIATTA FAKHA	
		MABO	SIMBARA	
LOUGA	LINGUÈRE	THIEL	DAROU NAHIM DANÉDJI	JUBU JULA FM
		THIEL	TOUBA DANÉDJI	
		THIEL	THIEL	
		THIEL	MOLA	
		THIEL	TOUBA NDIAGNE	
		THIEL	HODIOLDÉ	
THIES	TIVAOUNE	MÉOUANE	NDOMBIL	NGAY FM
		MÉOUANE	AINOUMANE	
		MÉOUANE	MBORINE	
THIES	TIVAOUNE	MÉOUANE	KEUR MADIEYE MAR	YA GAY FM
		MÉOUANE	NDIANÉ	
		MÉOUANE	MBELGOR	
		MÉOUANE	DIOUFÉNE	

During the last six months, a wide range of programs were broadcasted. From the more than 92 programs produced and broadcasted, subjects of these have been defined by the stakeholders in the targeted villages. The below figure summarizes programs broadcasted by the four partner community radios.

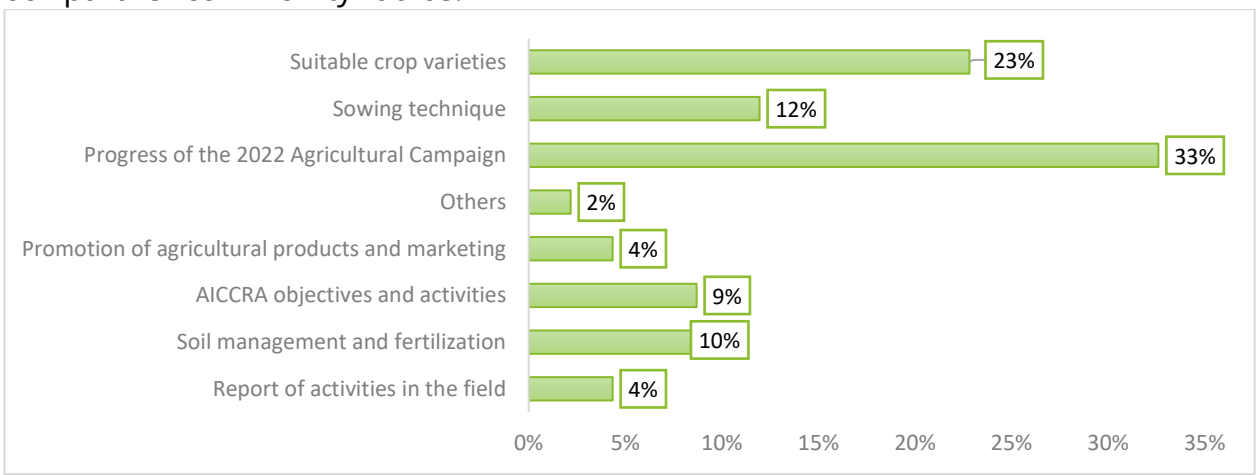

Figure 1: Topics of programs broadcasted through radio shows

It turned out that 33% of radio shows were focused on the progress of the 2022 agricultural campaign. Then comes the descriptions and explanation on the newly introduced and existing improved seed varieties which happened to be the subject of 23% of all shows. Apart from these two main topics, the other topics were on sensitization about climate change and AICCRA, sowing, soil management and fertilization, promotion of agricultural products and marketing and other related information. The project implemented an innotative approach to sensitise and inform on its upcoming events such as farmer field days by providing communication content distributed through JOKALANTE platform.

Considering the coverage radius of the different radio stations, it was observed that the villages reached by the radio programs were far beyond the project villages. In order to assess the level of reach of these AICCRA programs a survey was conducted in the three (3) sub-region of the project area. The subsequent sections presents methodology and major results of this investigation.

3. Characteristics of sample and covered populations

A survey using a stratified sampling was conducted covering a sample of 141 individuals (37% in Kaffrine, 33% in Louga and 30% in Thies sub-region). The respondents considered were aged 15 years and above. The survey covered the rural areas around the antennas of the four community radio stations members of URAC (Union of Community Radios of Senegal*)* and partners of the AICCRA project *in Senegal cluster*.

Men and women were almost equally represented in the overall sample (51% of men and 49% women) which is consistent with the inner structure of the population provided by the National Agency of Statistics and Demography of Senegal for surveyed areas and for the specific age categories.

The population in the sample is very young with around 66% below 45 years old (see Figure 1). It shows that younger people appears to more interested in the radio programs hence they form a larger share in eth sample. One person out of ten declared to be a student. Within this population, agriculture appears to be the most practiced activity by 67 % of individuals. How however it can be noticed that 83% of individuals belong to a household where at least one member was doing agriculture. Then comes trade, arts and crafts and livestock husbandry respectively 15%, 12% and 8%.

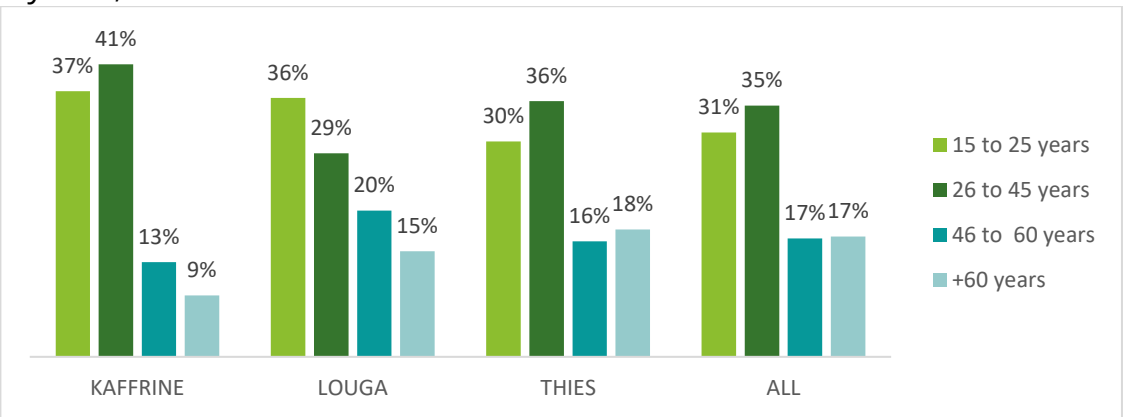

Figure 2: Distribution of the population by age

4. Radio listening habit

Slightly more than half of the population possess a radio (54%). However more than 80% have at least one member of their household listening to radio. In the cases where a radio is not owned, survey respondants indicated that they utilise their mobile phone (34% of cases) to access the radio. This leads to a very high rate of radio listeners, that is 92.4%. While we have 72% of the population listening to radio every day, 24% listen at least twice a week and very few reported not to listen at least once a week.

As for the radio stations that are accessed, this varies depending on the areas. In Kaffrine where PAKALA FM is established as community radio, 84% of potential listeners have been reached which is more than 62 000 listeners during the last six months. In LOUGA, JUBU JULA FM (AICCRA partner) is known as RFM (Radio Future Media) with 53% of potential listeners (more than 81 000 listeners). In THIES, NGAYE FM and YA GAY FM (AICCRA partners) came first with respectively 37.6% and 40.2% (more than 300 000 listeners of each radio station).

Table 2: Proportion of the respondents listening to the AICCRA radio programs by region, in %

Radios	KAFFRINE region	LOUGA region	THIES region
PAKALA FM	84.2	0.0	0.0
JUBU JULA FM	0.0	53.4	0.0
NGAYE FM	0.0	0.0	37.6
YA GAY FM	0.0	0.0	40.2
RFM	6.3	53.4	33.6
National Stations	2.3	25.5	17.4
WALF	7.9	1.7	11.8
OTHERS	15.7	1.7	10.0

We have been interested in knowing at what time do respondents listen to radios. Results are summarized in the Table 2. In all the three regions, there was a maximum concentration of listeners during three periods of the day: Before 9a.m (54%), after 6p.m (65%) and between 12 and 3p.m (48%). However there are statistically significant differences with respect to gender[1]. Indeed, 70% of female listen to radios after 6p.m and less than 40% of them do listen other times. As for men, they are more available to listen radios before 9p.m. According to their own declaration, listeners chose these times to listen radio because they are available at this time or it's the time for rest. Others chose these moments because they are targeting a particular program (mostly information, and rarely other programs). There is no significant defference in this behavior by gender.

[1] Pr(Chi-square)<1%

Table 3: Times for radio listening (% of radio listeners)

Time slots	REGIONS				GENDER	
	KAFFRINE	LOUGA	THIES	ALL	MALE	FEMALE
Before 9H	78	45	54	54	72	38
Between 9H and 12H	32	17	29	28	16	39
Between 12H and 15H	71	28	49	48	69	29
Between 15H and 18H	46	6	23	22	26	19
After 18H	67	84	62	65	59	70

Doing the same analysis by age reveals a significant difference within the different age categories (Pr(Chi-square) <1%). As shown in the table 4, elders tend to have more specific time to listen to radios than the young people.

Table 4: Farmers time preference for radio listening by age categories, in %

Time slots	15-25 years	26-45 years	46-60 years	+60 years
Before 9H	46	33	66	97
Between 9H and 12H	28	39	6	29
Between midi and 15H	38	48	55	59
Between 15H and 18H	15	36	2	29
After 18H	58	55	73	87

Finally, more than half of radio listeners (52%) in the study areas allot a dedicated time to listen radios. This is more the case in LOUGA area where 82% of individuals allotted a dedicated time for it.

5. AICCRA interventions reach in covered areas

5.1. Methodology

AICCRA is working in SENEGAL with four radio stations : PAKALA FM, JUBU JULA FM, NGAYE FM and YA GAY FM (see positions on maps, Figure 3). Based on information provided by radios and counter-checked on the ground we came to know the radius of coverage around the antenna for each of them.

Table 5: Coverage radius around the antenna

Radios	Radius 1	Radius 2	Areas (sq-km)
PAKALA FM	30 km	-	2 176
JUBU JULA FM	45 km	60 Km	6 284
NGAYE FM	30 km	-	4 677
YA GAY FM	40 km	60 km	

The radius 1 gives the coverage with a good and audible signal for the radio while after this radius and before reaching radius 2, the signals become weaker resulting in poor audio quality. But depending on some uncontrolled factors the signal may come or go back within this area. In order to avoid a double count and because NAGAY FM and YA GAY FM share a common coverage area, we have merged them and estimated their coverage area together (4 677 km²).

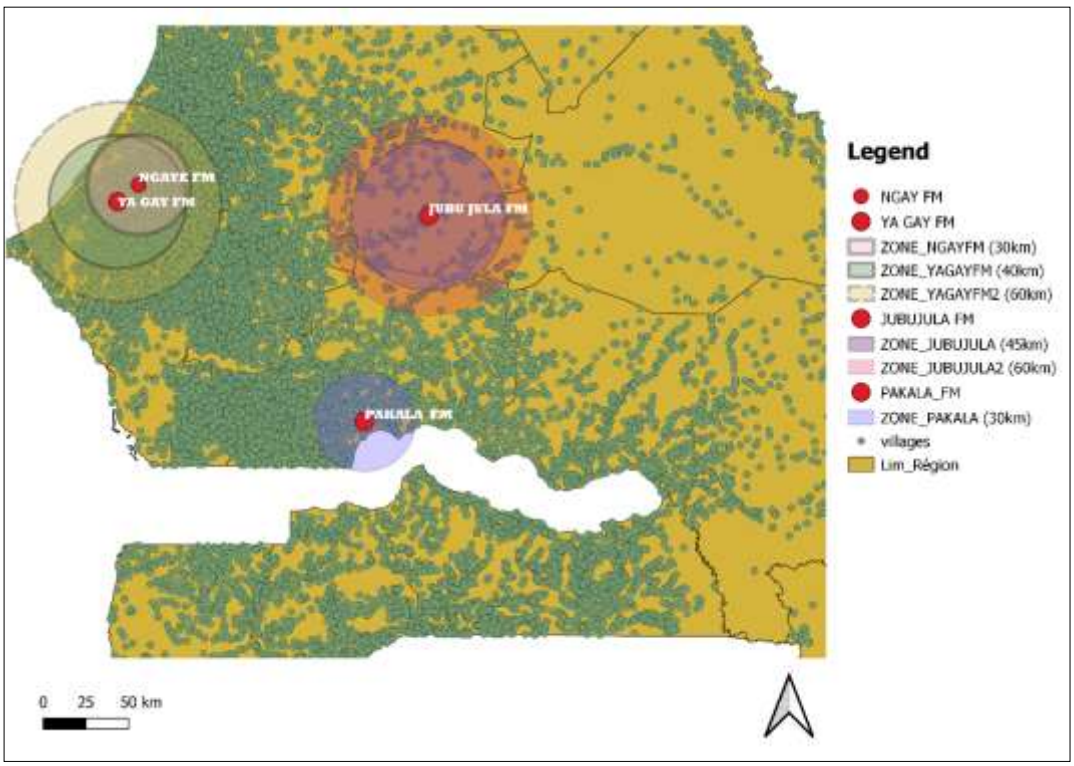

Figure 3: Community radios coverage

Source : Author

Assuming a uniform distribution over the covered area of each radio and using the population data provided by the national agency of statistics and demography (ANSD, 2022), we estimated the potential reach of each radio within the population aged 15 years and above which is 1,154,486.

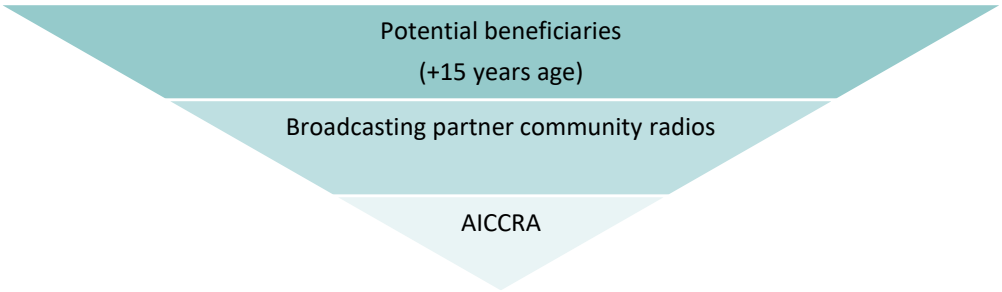

Figure 4: Potential reach of AICCRA messages through community radios coverage

Within the population of potential listeners, we distinguish between those who listen to the community radio partners of AICCRA project (i.e. those potential listeners in the 3 focal regions for 2022). Among those potential listeners, there is a further differentiation between those who actually listened to AICCRA coordinated programs broadcast via the radio stations during the last six months. At this stage we use the estimated percentage of AICCRA reach and apply it to the potential listeners population.

5.2. Audience of AICCRA programs on partners radios

Specific questions were asked to the surveyed population to determine if they have been reached or not by AICCRA programs. The variable that has been chosen here is question to respondents if he/she listened during the last six months any radio show on a program called AICCRA - with the indication that it's a project on climate change, climate information services and climate smart agriculture. During the survey on the field and depending on the location, the project has been referred to as "Daga Bireme's project on climate change" or "Meouane's project on climate change" or "Thiel's project on climate change" by enumerators. This is because, some individuals do not necessarily remember the exact name of the project but do remember the name of the pilot village or at least the topic of climate changes.
As a whole, 865,385 individuals aged 15 year and above listened to at least one of the partner community radio stations during the last six month in their influence zone.

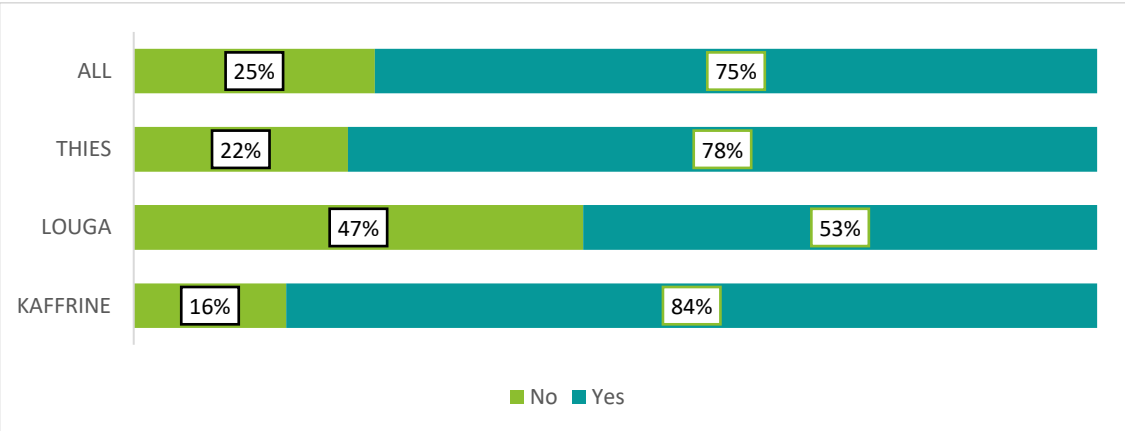

Figure 5: Listening rate of the four community radio partners in targeted areas

As for those actually reached by AICCRA supported programs, the results are summarized in the table below. With a percent reach of 24% throughout all regions, AICCRA reached through community radios, 274,677 individuals, 137,904 being men and 136,773 women.

Table 6: Coverage radius around selected community radios

Catégories	Région	Potential listeners	Reach of AICCRA Programs (%)	Estimates AICCRA Reached population
ALL	KAFFRINE	73,922	50	37,184
	LOUGA	152,559	26	38,908
	THIES	928,005	21	198,585
	ALL	1,154,486	24	**274,677**
MALE	KAFFRINE	36,162	57	20,664
	LOUGA	74,240	28	20,480
	THIES	459,610	21	96,760
	ALL	570,012	24	**137,904**
FEMALE	KAFFRINE	37,760	44	16,520
	LOUGA	78,319	24	18,428
	THIES	468,395	22	101,825
	ALL	584,474	23	**136,773**

The maximum population has been reached in THIES (198,585) not only because of high population density of this region but maybe because of the presence of two community radios. Moreover, the radio YA GAY FM located in THIES is the one reaching the most listeners among the three partner radios.

Among the 274,677 reached by AICCRA through community radios, 76% (209,300) found the information received very useful and 20% found it somewhat useful. These percentages are lowest in KAFFRINE (see Figure 6).

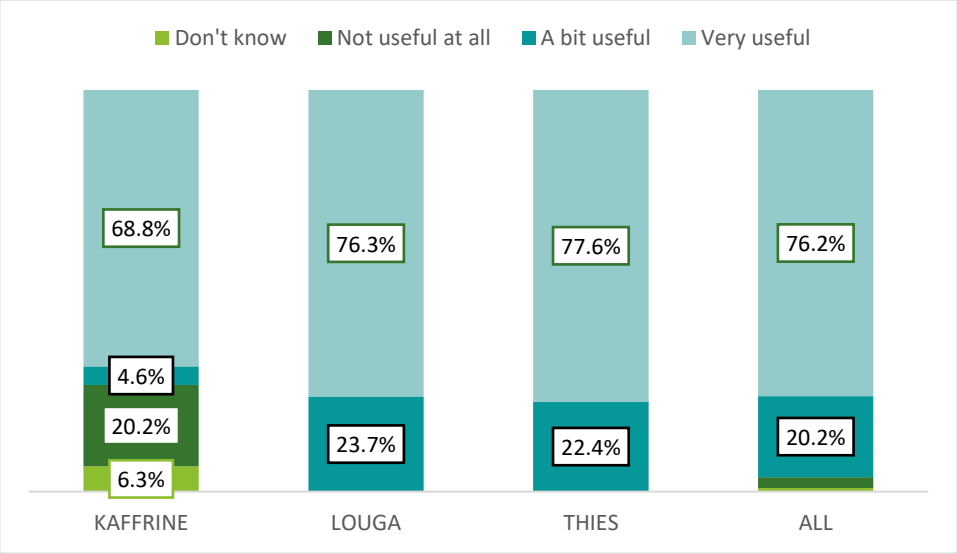

Figure 6: How useful are the information received from AICCRA programs through community radios

The information is useful most of the time in the sense that it helps individuals adjust their farming and non-farming decisions. As a matter of fact, many respondents mentioned that, following a climate information on rain forecast, they decide the timing of fertilizer application to another day to avoid potential leaching losses. This is the same for other farm related activities like weeding. They also take informed decisions regarding the storage of their products to avoid any spoilages due to the rain. This information also helps them to know which strategy is the best for them in terms of what crop to plant this season to avoid any losses and maximise their earnings. People also take some family decisions like whether they should travel or not, making sure all children are home before the rain starts, deciding on the time to go on the farm. Apart from climate related information, some individuals mentioned that they learnt about some technics to enrich the soil with organic manure in order to reduce the use of chemical fertilizers while increasing their production yield. There is no evidence to state a significant gender difference in the usefulness of information received.

5.3. Advice from listeners

Respondents were asked about what they suggest to their community radios in order to get the best from radio shows for their activities. It is clear that most of the suggestions made are closely linked to the various difficulties they face. The most frequent suggestion is to include programs on suitable seeds, fertilizers and farming materials and particularly information on how to get access to these improved inputs and then how to use them efficiently. More than half of the respondents were interested to get more information on access and use of suitable seeds and underlined that they can do nothing with agricultural advisories if they cannot source quality seed. A second suggestion is to adjust the time slots of agricultural shows to a time when farmers are available. According to the previous results presented, the best times slots may typically be at early morning (before 9am), at night (after 6pm) or between 12 o'clock and 3pm. However because of the significant difference by gender, for programs targeting women specifically, after 6pm is the best moment while for men, it's better to do it before 9am. Thirdly, respondents suggested to broadcast more programs on techniques and innovations to improve the soil fertility and health. Fourthly, they suggested farmers and experts in agriculture to be invited on radio shows in order to share their experience and knowledge. Fifthly, they suggested programs on the conflicts between farmers and livestock keepers and how these can be minimized. For the livestock more frequent suggestions included: content on animal feeding, animal health. Most respondents suggested content on livestock husbandry and fattening. Finally, respondents suggested that radios should replay some of their important shows on a predefined day and time slot to allow more persons to benefit from it.

This study on assessing the reach of climate and agricultural related content via community radio stations under dryland region of Senegal has been helpful for the AICCRA team and partner community radios to make the AICCRA radio programs more effective and useful to the stakeholders.

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About AICCRA

Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA) is a project that helps deliver a climate-smart African future driven by science and innovation in agriculture.

It is led by the Alliance of Bioversity International and CIAT and supported by a grant from the International Development Association (IDA) of the World Bank.

Discover more at aiccra.cgiar.org

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