



Formative research report: Interactive radio
to scale-up agriculture and nutrition
technology in Africa RISING, Mali
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Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three regional projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads the program's monitoring, evaluation, and impact assessment. <http://africa-rising.net/>



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Background

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit and non-partisan organization that carries out agricultural research for development in Asia and sub-Saharan Africa with a wide range of partners around the world. ICRISAT and its partners empower the poor as part of efforts to fight poverty, hunger, and environmental deterioration through better farming.

Some of these activities are implemented in Sikasso. According to a UNICEF report published in 2014 approximately one child in five in the whole region of Sikasso suffers from acute malnutrition and risks death. Also about one child in five suffers from chronic malnutrition or is stunted. Malnutrition not only implies hunger but also poor diet, lack of access to clean drinking water and health services, and poor hygiene and sanitation. Low productivity, soil erosion, and inadequate soil fertility management are among other serious constraints to people's well-being.

To overcome these constraints, the USAID Feed the Future "Africa RISING" project works in Bougouni and Koutiala counties in Sikasso to find a range of technologies and methods that can help households solve these major problems. These technologies and methods include: a) an outline of the bund technology; b) multipurpose sorghum varieties; and c) strip-cropping corn and grain legumes. The first phase implemented from 2012 to 2016 targeted four technology parks where many technologies were tested and introduced to villages with a view to them being adopted by those populations. Following a successful evaluation, a second phase of five years (2017–2021) has just started and aims at scaling-up innovations from the previous phase. It should be mentioned that technology in the context of Africa RISING doesn't concern only the variety but a full range of actions including good agronomic practices, best intercropping combinations, and other alternatives aimed at adding value to nutrition.

Farm Radio International (FRI), a Canadian NGO, is the only non-profit organization that specializes in serving African farming families and rural communities through the innovative use of radio and mobile phones. Our network currently brings together 650+ radio partners in 40 sub-Saharan African countries. Building the skills of these stations and their local partners is crucial for our strategy aiming at developing viable communication platforms for a sustainable development in the long run. We have seven offices in sub-Saharan Africa and run major projects in Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Tanzania, and Uganda.

As part of this project, FRI has helped Africa RISING to reach target households in Mali by designing and broadcasting a short participatory radio series made up of eight × 30-minute episodes. These promote the dual-purpose variety of sorghum according to its approaches and methods, including a prior collection of information called formative research. This research provides FRI with information on people's preferences (regarding radio use and listening) and their empirical knowledge on speculative commodities to be promoted. The formative research done within the framework of this project on dual-purpose sorghum was implemented from 10 to 15 September 2017 in four villages: Djèba (in the district of Danou), Sibirila (in the district of Faranguara), Flola (in the district of Faradiélé), and Madina (in the district of Kouroulamini).

Objectives

This formative research aimed at the following:

- Determining whether sorghum was really grown in the area, the preferences for sorghum varieties, and the production challenges.
- Assessing the knowledge levels of farmers on dual-purpose sorghum varieties (knowledge on suppliers, technical itinerary of production, productivity, importance for human food, importance for animal feed, and other economic benefits).
- Knowing varieties from which the residues are mostly used for animal feed.
- Knowing opportunities and constraints related to gender as far as the production of dual-purpose sorghum varieties is concerned.
- Knowing the radio stations farmers prefer in the project area.
- Knowing the listening preferences of farmers in the project area, as well as their use of mobile phones.

The survey team was:

- Amadou Tangara, value chain expert, FRI-Mali
- LamineTogola, ICT officer, FRI-Mali
- Mr Maiga, supervisor at FENABE Bougouni, supported the team.

Analysis of participants

A total of 157 members of the eight focus groups from the four villages participated in this study.

The projection of 15 participants per focus group was slightly exceeded. This might be due to the information broadcast by KAFO KAN Radio and the support of FENABE that together contributed to the mobilization of people for this study.

Women made up 58% of participants.

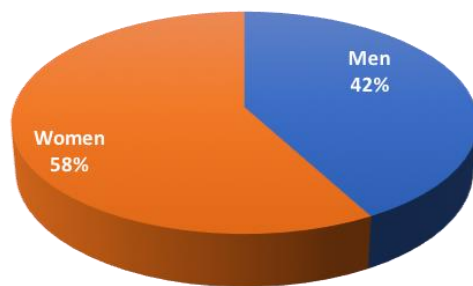


Figure 1. Participation in interviews by sex.

The chart below shows that most participants were aged between 31 and 45 years so they were part of the working population.

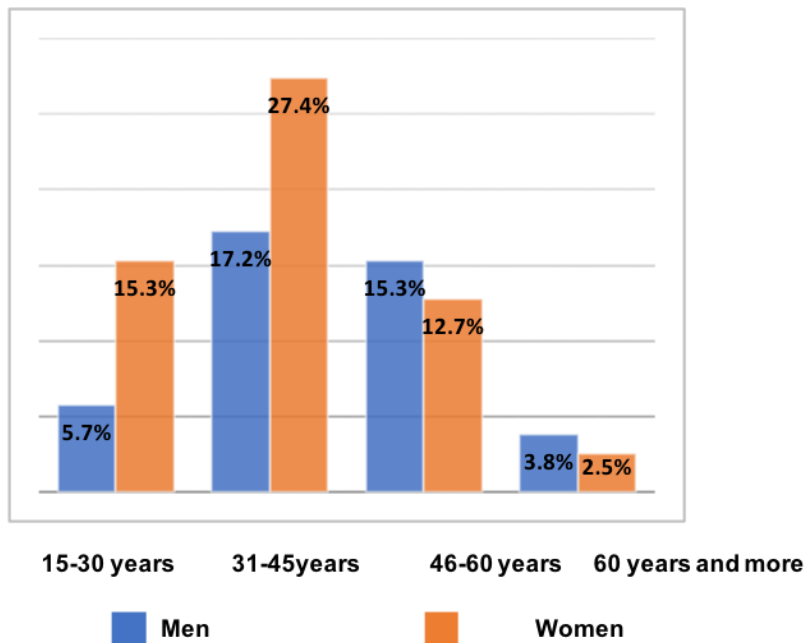


Figure 2. Breakdown of participants by age group.

Questions

How is sorghum grown in this area?

(How is sorghum grown in your village? Which portion of your farm is dedicated to sorghum? What are its social, economic, nutritional, and health benefits? (Provide data where possible). What do you think of the development of sorghum production in the area (is it increasing or decreasing) and why?)

According to focus group participants, in each of the 10 ha of their farms they allot to rainfed crops, the portion of sorghum does not exceed 1/4.

Indeed, according to these participants, sorghum was one of the main crops grown in the area 30 years ago. It was used a lot for human and animal consumption, social events (weddings, funerals, and other rituals) and the excess was sold for health care expenses. Sorghum production started to decrease in favor of maize and cotton because cotton and sorghum reach maturity at the same period and should be harvested on time to avoid substantial losses with either crop. This is not the case with maize that can be harvested and piled to await the end of the cotton harvest.

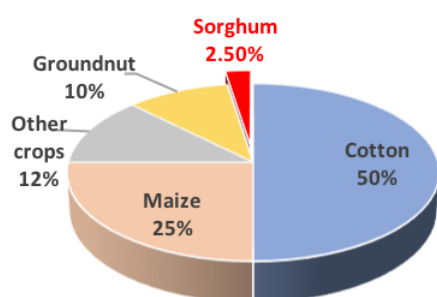


Figure 3. Land planted to various crops by farmers in the study area.

Mali Textile Development Co. (CMDT) is an organization which supports cotton production in Mali and promotes maize production by granting loans for inputs. The survey team also noted the scarcity of sorghum fields during their different visits.

Farmers listed the following challenges:

- Need to find early varieties that don't mature at the same time as maize.
- Birds attack sorghum more often than other crops.
- Need for improving yields.
- Inadequate access to seeds.
- Farmers need information about the different varieties of sorghum.

What do you use sorghum for?

Participants listed the following uses:

- Seeds: human consumption
- Stalk: forage (consumption in fields, stored straw, crushed straw)
- Mat construction (stalks)
- Making granaries to store shea nuts (stalks)
- Building sheds (stalks)
- Seeds are used for poultry farming (poultry feed)
- Cobs got after threshing are used to feed livestock.

Specific interests of women in sorghum

Considering the low sorghum production, members of the groups were not able to bring out women's interests in sorghum. However, they noted the following:

- Residues from sorghum threshing belong to women. The sale of seeds derived from these residues helps women buy seasonings and meet other needs of their families.
- Sorghum is easier to cook than maize.

To what extent do sorghum varieties meet your needs?

Table 1 is a summary of sorghum varieties grown in the area. In the five listed varieties, three are local and two are improved varieties introduced in the area with the support of IER and ICRISAT.

Even though farmers may have seeds of an improved variety these must be renewed every three years. This renewal is made by ICRISAT and IER.

Table 1. Sorghum varieties grown in the study area.

N°	Varieties grown	Type	Seed supply
1	Gnojonani	Local	Local
2	Pablo	Improved	ICRISAT, IER
3	Kende	Local	Local
4	Grinkan	Improved	ICRISAT, IER
5	Gadiaba	Local	Local

Graphs below show that the varieties Gnojonani (local) and Pablo (improved) are grown more than others.

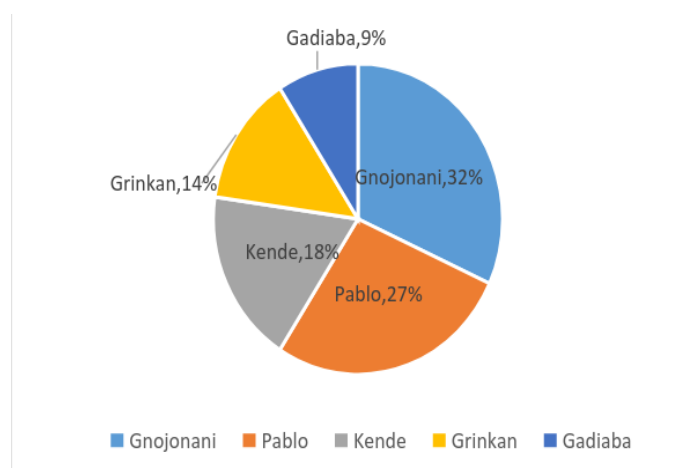


Figure 4. Sorghum varieties cultivated by farmers in the study area (%). Respondents explain this situation as follows:

- Gnojonani variety is liked for maturing early, its yield, and its palatability for animals although its forage yield is not as high as that of Pablo variety.
- Pablo” variety is characterized by its seed and forage yields which are higher than those of Gnojonani and for its palatability by animals.
- Kende variety is mainly produced by women who grow it on the edge of the fields.

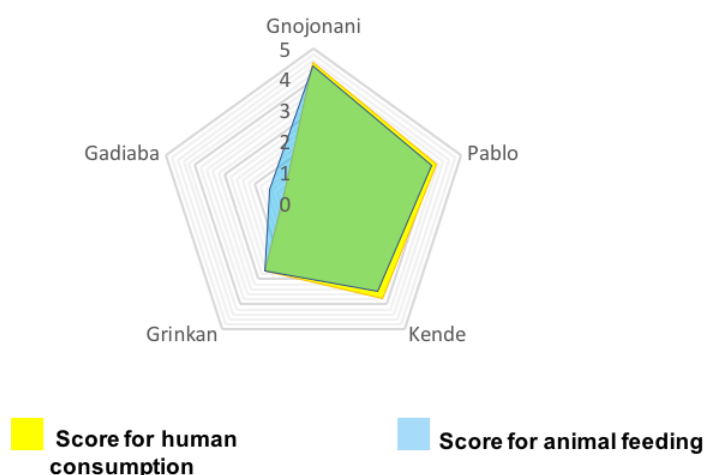


Figure 5. Use of sorghum for human food and animal feed.

Other varieties

Table 2 is a summary of varieties which farmers had heard about. These varieties are currently being tested on demonstration plots in villages. Two of these varieties are local varieties that had been abandoned.

Table 2. Sorghum varieties that farmers had heard about.

N°	Other varieties	Status
1	Sewa	Tested
2	Fada	Tested
3	Tiendougoukoura	Tested
4	Pèguè	Tested
5	Soubatimi	Tested
6	Sèguètana	Abandoned
7	Zarajè	Abandoned

Do you know other higher yielding sorghum varieties?

Groups unanimously declared that they didn't know any other higher yielding sorghum varieties. But they stated that varieties currently being tested are doing better than those they grow now.

Do you know other crops with residues that are mostly used in animal feeding?

Interviewed men and women mainly listed cowpea, groundnut, rice, and maize among crops with residues that are used as animal feed. Although rice, maize, and groundnut represent the large portion of forage, leaves of bean and groundnut are mostly used for cooking.

Sorghum varieties grown today were not listed much as being used as forage because they yield less than other varieties.

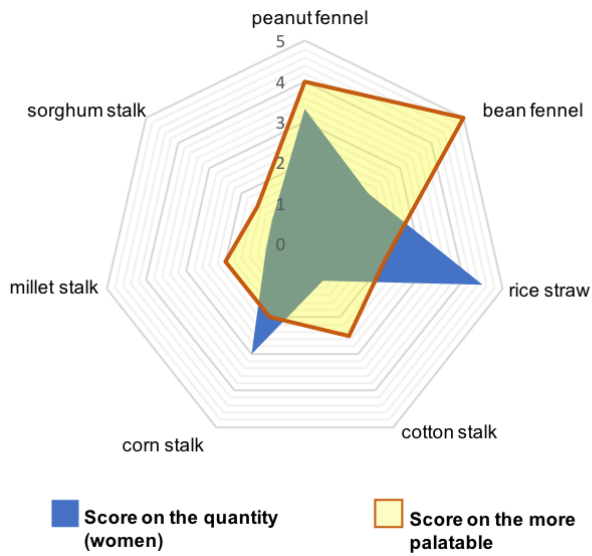


Figure 6. Other crops ranked by quantity and palatability of yield.

The graphs below show the importance of crops with residues that are used as animal feed as well as their palatability.

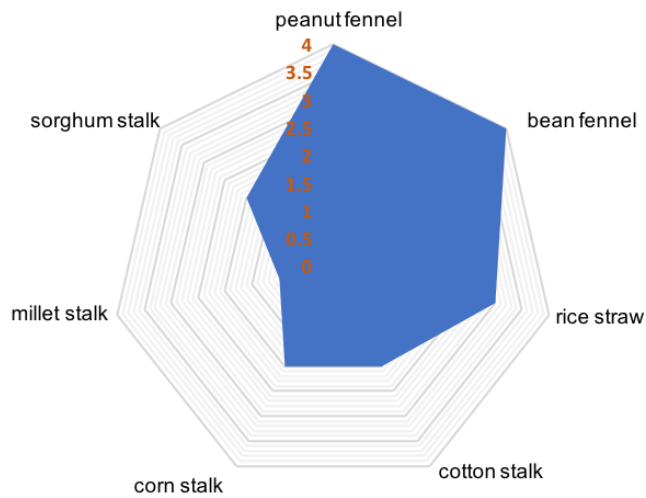


Figure 7. Dual-purpose crops currently used by farmers and their palatability.

Gender equality

Think about the last crop year—from land preparation to production, postharvest management, and marketing—and see how responsibilities were divided between you and your husband/wife concerning sorghum.

Table 3 portrays the typical case of sorghum production activities of one agricultural production unit (UPA). This table does not include possible cases of small plots of sorghum owned by women.

In an agricultural production unit, the man—owner of the land—oversees nearly all production activities. However, we should note the strong contribution of women to all the stages of production.

Responsibilities regarding decision-making, as well as product and by-product control remain the prerogative of men only. Women control just a few things. Participants justify this fact with reference to social factors mostly due to gender stereotyping.

Men and women groups agree that the decision of introducing a new sorghum variety lies primarily with men.

This situation reveals that many gender inequalities should be considered when implementing this project, particularly regarding the gender division of labor and issues of access to and control of resources and benefits. Clearly, there is a difference in men and women's need for information since they take up different roles in sorghum production and management but women's work is also considered as informal. Issues related to women's rights to be owners and to participate in decision-making processes regarding the adoption of new practices could hinder changes in practices. Given the leading role of women in the kitchen and the cooking of this cereal, nutrition and food preparation issues should be addressed in program content.

Table 3. Sorghum production activities.

Activities	Responsible	Women's contribution	By-products	Who is in control?	Do women have access?	Influential factor
Search for seeds	Men					Stereotype
Collection of stalks	Men	Cooking				Stereotype
Plowing	Men	Cooking				Stereotype
Sowing	Men	Cooking				Stereotype
Weeding and thinning	Men	Cooking				Stereotype
Hilling	Men	Cooking				Stereotype
Harvest	Men	Harvest, cooking	Stalks	Men	Granary for shea nuts	Stereotype
Piling	Women	Piling				Stereotype
Threshing	Men	Cooking				Stereotype
Winnowing	Women	Winnowing	Seeds	Men	Residues of seeds	Stereotype
Transport	Men					Stereotype
Cooking	Women	Cooking	Dishes	Women	Distribution of dishes	Stereotype
			Bran	Women	Animal feeding	Stereotype
Selling	Men		Money	Men		Stereotype

Information

Getting feedback on the following statement: “I can easily get quality information on dual-purpose sorghum”.

Although a few members of focus groups considered they had no difficulties getting quality information on dual-purpose sorghum, most participants said they didn't have enough information.

Those who considered it is easy to get quality information referred to ICRISAT trainings on dual-purpose sorghum, farmers' days, and a word-of-mouth strategy.

Most participants who said they didn't have enough information indicated that trainings did not concern everyone.

For them, radio offers a chance for good information to be shared with everyone.

ICRISAT, IER, AVRDC, and FENABE were mentioned as programs operating in the area that could help people get quality information on farming in general and on dual-purpose sorghum in particular.

As a farmer, what kind of information do you need on dual-purpose sorghum?

Focus groups were asked to provide information on the following topics:

- Process of production
- Importance for human and animal consumption
- Information on seeds
- Information on nutritional value
- Bird-management strategies
- Differences from other sorghum varieties
- Information on yield
- Feeding children with sorghum

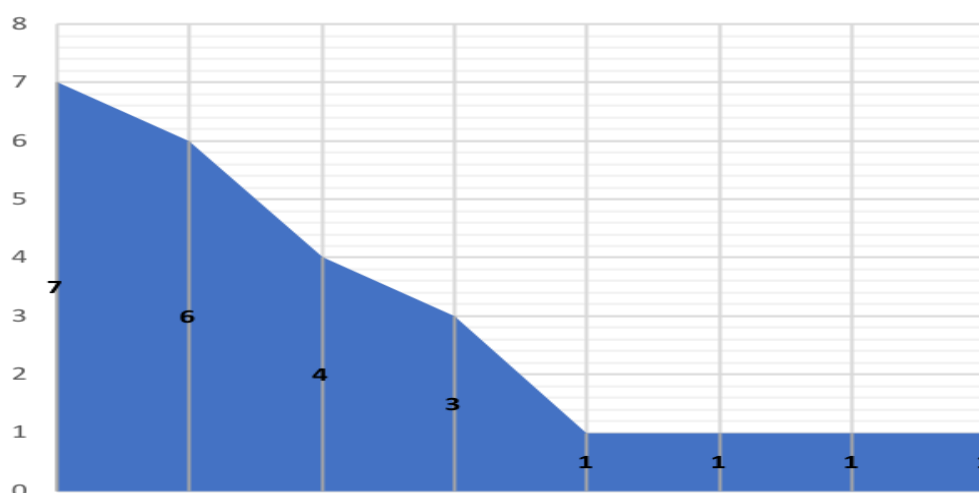


Figure 8. Number of repetitions of information requests on dual-purpose sorghum.

What do you think is the best way to get information on dual-purpose sorghum in your situation?

According to respondents, at different levels and based on the number of repetitions, the best ways to get information on dual-purpose sorghum are:

- Radio
- Family members
- NGOs
- Extension services
- Telephone
- Seed cooperatives

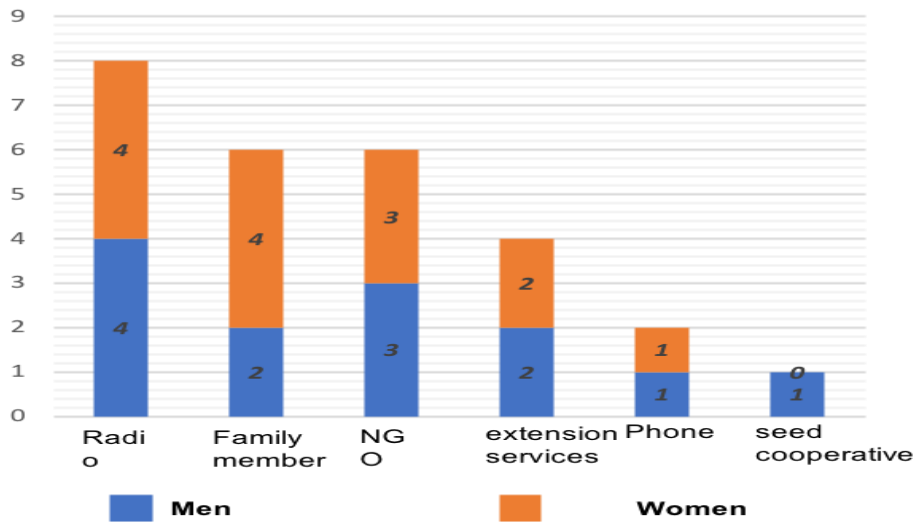


Figure 9. Number of repetitions of information requests on dual-purpose sorghum.

Radio and phone

Do you listen to the radio regularly?

All members of the focus groups said they listen to the radio.

The main opportunity is that there is at least one radio in each family.

The graph below shows that few women own a radio but have access to it through their husband, their children, or another member of the family.

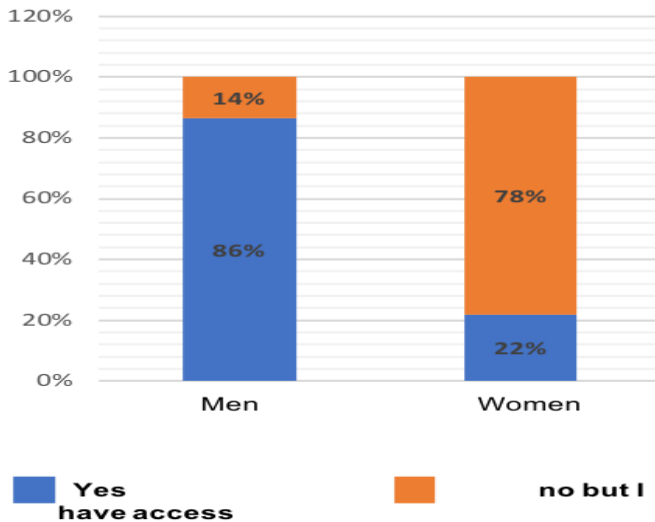


Figure 10: Do you own a radio?

Which radio stations do you listen to and what do you like about radio?

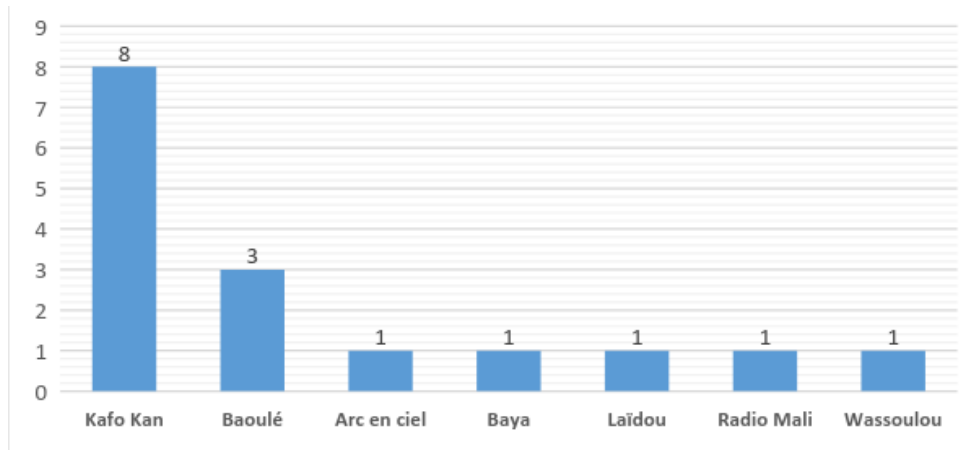


Figure 11. Radio stations most often listened to.

All groups of men and women named KAFO KAN Radio in Bougouni.

For them, the best moment to tune in everyday is between 7 am and 7 pm.

According to respondents, they tune in to KAFO KAN Radio because of the quality of the sound and the content of shows which helps them get practical information they need for farming. Some groups mentioned programs on chickens that KAFO KAN Radio produced with the support of FRI as part of the chicken value chain from 2015 to 2017.

Their preferred segments are:

- *Baboukènè* (meaning “Information space” in the local language)
- Radio news
- Local music
- Announcements (public notices, ...)

Do you interact with the radio programs with mobile phones or other devices?

Only 21% of women have a mobile phone compared to 82% of men.

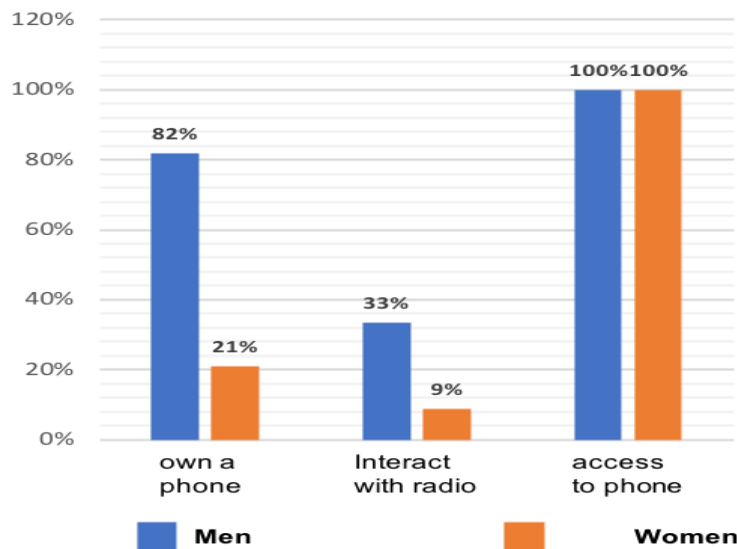


Figure 12. Interactions.

Those women who don't have a phone ask their husband, their children, or other relatives and friends to lend them one.

Respondents say they use phones to:

- Make calls
- Listen to music
- Listen to the radio
- Send and receive money

The main challenges in using a phone in the area include:

- The poor phone networks
- The cost of calls
- The quite high illiteracy rate

However, respondents say they are ready to use a mobile phone to interact with radio programs on dual-purpose sorghum.

Conclusion

This research enabled a first contact to be made between the FRI team and local people who will receive and be targeted by radio programs. It helped us know their preferences and the habits concerning radio and phone use, as well as the time devoted to listening and the listening hours. In addition, people made comments on sorghum regarding knowledge, farming practice, ways of using it (by men and women), etc. It is obvious that sorghum was an important speculative commodity, which had lost its first position in favor of maize (due to the environment being suitable for maize), but we noticed people are showing interest again in sorghum. Radio programs broadcast confirmed our findings considering levels of participation and interaction.