



Behavioural Change Communications for Climate-Smart Feed and Forage Innovations: Three Years of Radio and Mobile Outreach in Ethiopia



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Authors


Kindu Mekonnen | Million Gebreyes | Melkamu Bezabih | Aberra Adie | Haimanot Seifu | Fikadu Tessa | Temesgen Alene | Hailemariam Mesfin | Anthony Whitbread

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Patron: Professor Peter C Doherty AC, FAA, FRS

Animal scientist, Nobel Prize Laureate for Physiology or Medicine—1996

Box 30709, Nairobi 00100 Kenya
Phone +254 20 422 3000
Fax +254 20 422 3001
Email ilri-kenya@cgiar.org

ilri.org
better lives through livestock

ILRI is a CGIAR research centre

Box 5689, Addis Ababa, Ethiopia
Phone +251 11 617 2000
Fax +251 11 667 6923
Email ilri-ethiopia@cgiar.org

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Introduction

The world's climate changes over time, creating significant challenges to life on earth. The livestock sector is one of the sectors most heavily affected by climate change. In Ethiopia, beyond the impact of climate change, the livestock sector faces additional challenges, including scarcity of livestock feed, traditional management practices, and inadequate animal health and marketing services. All these hinder the country from fully benefiting from its livestock potential.

In response to these challenges, researchers from the International Livestock Research Institute (ILRI) have implemented various projects and initiatives. Some of these include Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA), Mixed Farming Systems (MFS), Diversification in East and Southern Africa Initiative (UU) and Technologies for African Agricultural Transformation (TAAT). Through these projects and initiatives, and in collaboration with partners, we have been introducing and promoting various climate-smart feed and forage innovations, including different forage varieties, improved feeding troughs, improved forage storage and seed system development in three regions of Ethiopia -Amhara Region (North Shewa), Sidama Region (Hawassa Zuria) and Central Ethiopia (Hadiya).

Objectives

1. To document the contributions of radio broadcasts and mobile voice messages in enhancing Behavioural Change for climate-smart feed and forage innovations among farmers in Ethiopia.
2. To estimate the number of farmers reached through radio broadcasts and mobile voice messages to promote Climate-Smart Feed and Forage Innovations.
3. To understand the benefits of radio broadcasts and mobile voice messages in promoting Climate-Smart Feed and Forage Innovations.

Methodology

Both primary and secondary sources were used to write this report. These include Process tracing, Review of relevant documents and In-depth interviews

The reviewed documents include: reports on media assessment, farmer's field day and training reports on climate smart – feed and forage innovations: baseline study on behavioural change communication for climate – smart feed and forage innovations scaling, knowledge, attitude, and practice (KAP) assessment; end line survey on behavioural change communication for climate – smart feed and forage innovations scaling, and other audio materials/radio programs and mobile voice messages broadcasted,

In-depth telephone interviews were conducted with a total of 18 key stakeholders, including 3 partnered media managers, 3 radio program producers, 6 extension experts and 6 farmers in Amhara (North Shewa), Central Ethiopia (Hadiya) and Sidama (Hawassa Zuria) regions, where the project is implementing its initiatives.

Scaling Innovations through Use of Radio Broadcasts and Mobile Voice Messages

Our team scales initiatives using media engagement to raise farmer awareness of climate-smart feed and forage innovations. Awareness leads to interest, then demand, and finally adoption. For 2-3 years, researchers and partners have used media, mainly radio, to inform farmers about these innovations, aiming to improve their knowledge, attitudes, and practices. Key media activities include:

Media assessment

Researchers conducted media assessment in Amhara (Debre Birhan), Oromia (Bale), Central Ethiopia (Hadiya) and Sidama (Hawassa Zuria) regions to identify suitable regional radio partners and the training needs of journalists for project initiatives.

Baseline study

A total of 360 farmers participated in the baseline study: 130 from North Shewa (100 within the project intervention area and 30 outside), 130 from Hadiya (100 within the project intervention area and 30 outside) and 100 from Sidama, all within the project intervention areas.

The baseline survey assessed various issues, including current sources of livestock feed and forage which farmers depend on, the type of cultivated forages grown by farmers, and farmers' knowledge about the benefits of cultivated forages, farmer's knowledge and practices on improved feeding troughs and feed storage practices, ownership of radio, television, and mobile phones by farmers, and their preferred sources of information.

Regarding farmers' main sources of livestock feed and forage, farmers were asked to mention one or more sources of livestock feed and forage from the following list: grazing, crop residues, hay, cultivated forage, agro-industrial byproducts, and local drink residues. The result showed that almost all respondents (98.06%) use crop residues as the primary source of livestock feed and forage. Only 32.78% of farmers rely on cultivated forage as their main source. Besides that, many farmers are also using grazing (75.56%), hay (56.94%) and agro-industrial byproducts (18.89%). Some other farmers (11.39%) use different sources like local drink residues (yetela ena yeareqi atela).

In terms of cultivated forages grown by farmers in the three Woredas, farmers were also asked to choose one or more cultivated forage types from the list provided. Oat-Vetch mixture is the most grown cultivated forage in North Shewa (Basona Worena Woreda), followed by Tree Lucerne, Fodder beet, Elephant grass, Desho grass, Alfalfa. Farmers in Basona Worena Woreda don't cultivate Brachiaria grass, Rhodes grass, Cow pea, Lablab and Pigeon pea.

In Hadiya (Lemo Woreda) Desho grass, Elephant grass, Oat-vetch, Tree Lucerne, Alfalfa, Fodder beet, Brachiaria grass, Rhodes grass, Cow pea, Lablab and Pigeon are some of the forage types that farmers grow and feed to their animals. In Sidama (Hawassa Zuria), Cow pea Lablab are the most grown cultivated forages followed by Elephant grass, Desho grass, Brachiaria grass, Rhodes grass and the rest, Oat-Vetch, Fodder beet, Tree Lucerne, Alfalfa and Pigeon pea.

Farmers who grow improved forages have a good understanding of their benefits, including increased livestock body weight and enhanced milk production. However, only a small number of farmers were aware of the contribution of cultivated forages for soil fertility.

Regarding knowledge and practice of improved feeding trough and storage of forage, 49.44% of the farmers were aware of the feeding trough innovation, while 50.56% of the farmers didn't know about the feeding trough even though there is a variation of exposure of farmers to this technology from site to site. Additionally, 50.56% of the farmers were aware of improved forage storage and 49.44% were not aware of improved forage storage.

Concerning land usage, 64.72% of farmers were not willing to use a large part of their land (more than $\frac{1}{4}$) for forage production, and 32.22% were willing to use a large part of their land (more than $\frac{1}{4}$) for forage production. The remaining 3.06% remained neutral. On the other hand, 63.89% of farmers were willing to allocate a smaller portion (less than $\frac{1}{4}$) of their land for forage production, whereas 32.5% of farmers still were not willing to use even a smaller portion of their land for forage production. The remaining 3.61% remained neutral.

Farmers, who produce different types of cultivated forage, and asked about their skills in land preparation and cultivation, harvesting and postharvest handling, and feeding. Most farmers rated their skills in these areas as good. A small number of farmers rated

themselves as very good, while a very small number of farmers rated themselves as poor in land preparation and cultivation, harvesting and postharvest handling, and feeding skills of cultivated forage.

Regarding ownership of radio and television, the baseline study showed that 50% of farmers own only a radio, while 9.72% have only a television. Some farmers (15.83%) have both radio and television. The remaining 24.44% do not own either radio or television. Those farmers who do not own a radio or television, development agents / agricultural extensions are their source of information about livestock and agriculture.

Regarding mobile phone ownership, the result showed that 85.28% of the farmers owned a mobile phone, while 14.72% did not own a mobile phone. Also, 66.94% of mobile phone owners have a radio feature on their mobile phones, while in 18.33% the radio is not available on their mobile phones.

Farmers were further asked about the preferred method of message receipts on mobile phones (text, audio, or video format). The results showed that many farmers prefer receiving audio messages 69.44%, followed by text messages 23.61% and 13.06% preferred video messages.

Finally, we asked farmers about their preferred sources of information from the following list: development agents, radio, TV, mobile text, mobile voices, friends and neighbours, farmer groups or cooperatives and local churches. The result showed that development agents are the most preferred source of information on livestock and agriculture-related information (86.11%). Other results showed that 60.56% preferred radio, 54.72% preferred mobile voice, 26.39% preferred television, 22.78% preferred friends and neighbours, 8.61% preferred farmer groups and cooperatives, 8.89% preferred mobile text, 2.78% preferred local church, and the remaining 3.33% preferred other sources like development agents.

Knowledge, Attitude, and Practice (KAP) Assessment

For the Knowledge, Attitude, and Practice (KAP) Assessment, 14 in-depth interviews were conducted with scientists from ILRI and regional partners (universities, research institutes, and agriculture/livestock offices). Key informants identified target stakeholders and necessary changes in their knowledge, attitudes, and practices regarding improved forage production and utilization.

The key informants highlighted the following stakeholders who require changes in knowledge, attitude and practice (KAP).

- Farmers
- Extension workers / technical experts
- Local administrators at the Woreda and kebele levels
- Seed producers and suppliers
- Organizations engaged in similar activities within the ILRI campus and outside
- Journalists/media: they are important stakeholders to reach out to other stakeholders.
- Agricultural Research Institutions / Livestock feed and forage researchers
- Universities
- Donors- organizations that provide funding (or that might do so in the future)
- Decision makers at higher level – Ministry of Agriculture, regional agricultural bureaus

While all listed stakeholders are important for livestock feed and forage development in Ethiopia, the KAP assessment specifically focused on farmers, extension workers, and seed producers/suppliers, whom key informants identified as the primary targets for changes in knowledge, attitude, and practice.

Knowledge changes required for farmers

- Farmers need to be informed about improved forage varieties and their economic and environmental benefits. Varieties recommended high milk production, increased body weight, climate resilience and high biomass.
- Farmers should know which forage varieties grow best in their specific areas.
- Farmers should give as much attention to improved forage production as they do to crop production.
- Farmers should value improved forage as much as they value concentrate feed.
- Farmers need to understand that producing improved forage can be as profitable as producing crops, encouraging them to allocate more land for forage production.
- Farmers should recognize that producing and selling improved forage can be a source of income.
- Farmers need to know that improved forages can be produced using irrigation, just like crops.

- Farmers should be aware that livestock need sufficient feed to be productive.

Attitude changes required for farmers

- Farmers need to believe that it is possible to be successful by breeding livestock.
- Some farmers think that “grass is grass,” whether it is crop residue, hay, or improved forage. Such attitudes need to be changed.
- Farmers allocate more land and time for crop production. They need to change their attitude and allocate more land and time to improve forage production.
- Many farmers believe grazing and crop residue are sufficient for livestock production. They should change such attitudes and start producing improved forages, understanding that animals need nutritious food.
- Farmers need to give more attention to storing forage, just as they do with crops.
- Some farmers are producing improved forages on degraded lands. This attitude needs to be changed; forages need fertile land just like crops.
- In some areas, selling grass in the market is seen as an indicator of extreme poverty. Such attitudes need to be changed.
- Farmers need to believe that they can be successful when they breed livestock selectively and feed them improved forages.
- In some parts of the country, like Lemo Woreda/Hosanna, men do not sell livestock products such as milk and eggs in the market, as this is considered women’s work. Such attitudes need to be changed.

Practice changes required from farmers

- Farmers need practical knowledge, such as where to get forage seeds, how to prepare the land for planting, the distance between each plant, how to use the forage, which type of forage is suitable for which animal and growing niches, which animals need more care, how to chop forage, and how to mix forage with crop residue.
- They should minimize feed wastage by using feed troughs and proper cultivation, harvest, and post-harvest handling techniques.
- Farmers should produce improved forage not only for home consumption but also for the market.

- There is a feed gap in the country. To fill this gap, farmers should not always wait for the rainy season to cultivate improved forages; they should use irrigation to produce forages.
- Farmers should produce improved forage and mix it with other crop residues to feed their animals.
- Farmers should allocate land specifically for forage production.

Knowledge changes required for extension workers / Local administrators

- To promote the technology, extension workers need comprehensive knowledge about it, including improved forage varieties.
- They should understand the benefits of each improved variety, whether for biomass or nutritional value. They need to know which forage varieties are sources of protein and which are sources of carbohydrates.
- They should be familiar with technologies suitable for different agro-ecological zones (forage varieties for highland, midland, and lowland areas).
- They should know how to formulate balanced forages and assist farmers in providing balanced forages to their animals.
- Extension workers should also be knowledgeable about forage production, feed utilization, and conservation techniques.
- Extension workers should know how to formulate feed.
- All resources for extension workers come from local administrators. Therefore, to gain their support and commitment, local administrators need to be informed about improved forage varieties. Local administrators should understand the economic and environmental benefits of each improved forage variety and its contribution to the economy.
- If local administrators recognize the benefits of improved forages, they can easily mobilize the public, allocate more land for improved forage production, and provide more resources for extension services.

Attitude changes required for extension workers / Local administrators

- Extension workers and local administrators promote crop production more than improved forage production. They allocate fertile lands for crop production and degraded lands for forage production. Improved forage production should be promoted equally to crop production. Extension workers should mobilize farmers to allocate more land and time for improved forage production.

- Forage production does not receive enough attention. Experts at the woreda level who work in the livestock sector are often preoccupied with extension on crop production. Some extension workers even question the need for fertilizer in forage production. This attitude needs to change. But recently, there has been a chance to work with an opportunity like *Yelemat Tirufat*.

Practice changes required for extension workers / Local administrators

- Woreda extension workers have detailed plans for crop production but lack detailed plans for the livestock sector. Therefore, they need to develop plans for livestock as well.
- Woreda extension workers have theoretical knowledge of forage varieties and their benefits but have limited practical experience.
- Extension workers should engage directly with farmers to teach them about improved forage varieties and their benefits, providing practical support.
- Extension workers need to offer continuous guidance to farmers on plantation, cultivation, harvesting and post-harvesting.
- Local administrators and extension workers need to assess feed balance. How many animals are there? How much feed do they have? What is missing, and what do they need?
- Local administrators should mobilize farmers for improved forage production. *Yelemat Trufat* is an opportunity.

Knowledge changes required for improved seed producers and suppliers

- They need to know if improved forage seed production and supply is profitable. Need to know the market gap and demand for improved forage seeds. Currently, they focus on crop seed multiplication and supply. If they identify the market gap or demand for improved forage seeds, they will work hard on forage seed production and supply like that of crop seeds, which will help the forage seed system to grow.
- They need to know how to produce standard improved forage seeds.

Attitude changes are required for improved seed producers and suppliers

Improved forage seed producers'/suppliers/ enterprises do not give enough attention to the improved forage seed production and supply as they give to crop seed

production and supply. They are constantly working and improving crop seeds like maize and wheat. They also supply improved crop seeds in bulk to farmers. So, improved seed producers/suppliers'/ enterprises should change their attitude towards improved forage seed production and supply. They should also work hard on forage seed production and supply, like that of crops, which will help the forage seed system to grow.

Practice changes are required for improved seed producers and suppliers

The producers are actively working in crop seed production and supply. They need to work on improving forage seed production and supply. Woreda level seed system should be developed and need to be encouraged to get into the system.

Behavioural change communication strategy

Researchers developed a communication strategy to promote climate-smart feed and forage innovations in three regions of Ethiopia: Amhara (North Shewa), Sidama (Hawassa Zuria) and Central Ethiopia (Hadiya) regions. During the development of this strategy, two key issues were identified as bottlenecks in livestock forage production and utilization.

1. Inadequate knowledge and attitudinal challenges among farmers, extension workers, local administrators, and seed producers and suppliers regarding improved livestock forage varieties, their benefits, production, and utilization.
2. Weak coordination and networking among stakeholders in the livestock sector in Ethiopia.

To address these issues, the following objectives were set:

1. Enhancing knowledge and building positive attitudes among farmers, extension workers, local administrators, seed producers, and suppliers about improved livestock forage varieties, their benefits, production, and utilization by the end of 2027.
2. Strengthen coordination and networking among stakeholders in the livestock sector to influence decision makers to give adequate attention to livestock and forage production by the end of 2027.

Core messages were drafted for farmers, extension workers, and seed producers/suppliers, and suitable communication channels were identified. The communication strategy includes an implementation plan with activities, leads, and timelines.



A Farmer in the Hadya zone listening to the feed and forage radio program. Photo: credit Fikadu Tessema/ILRI

Execution of behavioural change communication strategy

The communication strategy identified regional radios, mobile audio messages, and training for engaging farmers and stakeholders. We then began implementing this strategy with the following activities:

Partnership agreement

We partnered with three regional radio stations (Debre Birhan Fana FM 94.0, Hossana FM 95.3, and Shashemene Fana FM 103.4) to produce weekly 20-minute programs on climate-smart feed and forage. We also partnered with Ethio Telecom to broadcast related audio messages via mobile phones.

Journalists training



Journalists' training in Addis Ababa. Photo credit: Haimanot Seifu/ILRI

The media assessment report conducted showed that journalists' awareness of climate-smart feed and forage innovation was limited. Many of them also responded that they have never produced stand-alone programs on both livestock and livestock feed and forage innovations. Thus, journalists requested an awareness-raising training for them to understand the sector in general and climate-smart feed and forage innovation. Therefore, before starting the production and broadcast of the radio programs, training is organized for journalists and livestock experts in Addis Ababa (June 7 and 8, 2022). Refresher training workshops were also organized for journalists in Addis Ababa (27-28 March 2023 and 20-2 June 2024). During the training workshops,

journalists and researchers identified radio program topics/contents to be produced and broadcast by the partnered regional radio stations.



Speaking about journalists' training, Abebe Yeshevaleul, senior reporter at Debre Birhan Fana FM 94.0 explains,

"I have participated in two trainings and received documents about climate-smart feed and forage innovations, gaining a good understanding of the topic. For journalists new to the sector, these trainings play a significant role in raising journalists' awareness. I believe that most journalists are not aware of climate-smart feed and forage innovations. These trainings are crucial for raising awareness among journalists new to this sector, as many are likely unaware and need this information to include it in their reporting."

Abirham Mogoro, a news and program reporter at Hossana FM 95.3 also explains,

"After attending three ILRI trainings, I went from being unaware of livestock feed and forage innovations to confidently producing radio programs and feeling able to teach others about them."

Radio production and broadcast

Following the training, journalists at the three regional radio stations (Debre Birhan Fana FM 94.0, HossanaFM 95.3, and Shashemene Fana FM 103.4) commenced producing and broadcasting content developed with researchers. In 2024, they aired 39 weekly 20-minute programs on climate-smart feed and forage. We then sought feedback from radio producers about listener responses, especially from farmers.

“The station has been receiving direct feedback from listeners via telephone following broadcasts on livestock feed and forage innovation. Listeners have noted that these radio programs have introduced them to various forage varieties that are new to their area.” Said Abebe YesheWaleul, reporter at Debre Birhan Fana FM 94.0

“We have received feedback from listeners about our radio program, and farmers have shared that they gained significant knowledge about forage technologies and requested the expansion of these technologies to other areas and kebeles.” Said Tamene Arega, a journalist at Shashemene Fana FM 103.4

Wubishet Wolde Mikaela, a farmer at Debre Birhan, Abamote Kebele, mentioned that farmers in his village listen to the radio. He said that the programs on Debre Birhan Fana FM 94.0 are very helpful in reminding them of the forage technology information they forget. The audio messages received through mobile phones are useful in raising awareness about different forage technologies. Wubishet currently produces forages such as tree lucerne, elephant grass, oat and vetch. He has been trained in feed and forage innovations and many farmers in his village also started producing forage by observing and learning from him.



Zenebech Yarkebo, a farmer from Lemu Woreda in Hadiya Zone, shared that she

listens to radio programs about forage and related topics on HossanaFM 95.3. She was also interviewed by the station, where she shared her experience with the production and utilization of different forage varieties with other farmers. The radio programs have been very helpful to her. She applies what she learns from both the radio and development agents. Zenebech produces alfalfa, desho grass, oats, elephant grass, cowpea, and other forage varieties. She advised farmers to cultivate forages and benefit from the results.

Habtamu Forsido, Livestock expert at Hadiya, mentioned that HossanaFM 95.3 broadcasts on climate-smart feed and forage innovations and related issues raising awareness among farmers. The radio broadcast also saves time, money and energy on the extension services by promoting the technology. Training each farmer individually on feed and forage innovations would require more resources. However, the radio broadcast makes it accessible to all farmers at once.

Mobile voice message production and broadcast

A baseline study showed that 85.28% of farmers in project areas owned mobile phones, with 66.94% having radio features. To leverage this, we partnered with Ethio Telecom to broadcast short audio messages on climate-smart feed and forage innovations. In 2024, we collected about 6,000 phone numbers from North Shewa, Hadiya, and Hawassa Zuria, produced eight messages in Amharic, Hadiyisa, and Sidama, and broadcast 47,936 one-minute audio messages. Ethio Telecom reported a 61.36% success rate, meaning 29,157 messages were listened to by farmers and experts

“The audio messages delivered through mobile phones were excellent. We received positive feedback from farmers who appreciated them greatly. I listened to the audio messages and the topics were both current and inspirational. This initiative should

continue in the future.” Said Zegeye Wondimagegnehu, Livestock expert at Basona Worena Woreda

“The audio messages produced and broadcast through mobile phones about forage innovations are like an alarm ring. After receiving the information, farmers also seek additional information from the local extension experts.” Said Tsedeke Zewudie, livestock expert group leader at Hadiya Zone Agriculture office

Tekle Alemayehu, a farmer at Debre Birhan, Abamote Kebele, mentioned that he listens to most of the radio programs produced and broadcast by Debre Birhan Fana FM 94.0 as well as the audio messages broadcast through mobile phones focusing on forage and related issues. He found these programs very helpful for learning more about forage varieties and their benefits. Takle added that the audio messages are more accessible than the radio broadcasts because, while the radio stays in the house, the mobile phone is always with them, making it easy to pick up and listen to the messages wherever they are. He also mentioned that they discuss the radio broadcast in groups after listening. Takle produces and uses oats, vetch, fodder beet and tree Lucerne.



Habtamu Forsido photo credit: Fikadu Tessma/ILRI

Livestock expert Habtamu Forsido noted that some farmers in Hadiya received both radio broadcasts and mobile audio messages, while others only had radio access. Farmers without the mobile messages inquired why they were excluded, stating that they missed information if they missed the radio broadcast. Habtamu added that many farmers preferred the mobile audio messages for their anytime, anywhere accessibility compared to scheduled radio broadcasts.

Number of farmers reached through the media engagement

Each regional media institution partnered with us has its broadcast area coverage and an estimated number of listeners. We consulted the managers of these partnered regional media houses to gather information about their broadcast area coverage and estimated number of listeners. Additionally, we contacted extension experts in three areas where the project operates —North Shewa, Hadiya, and Hawassa Zuria Woreda, to obtain estimates of the population or farmers living in each Woreda, as well as the estimated number of farmers who listen to the partnered radio stations.

Debre Birhan Fana FM 94.0

Debre Birhan Fana FM 94.0 Manager Gebrehana Sahlie stated their broadcast reaches North Shewa, South Wollo, and East Gojjam (Amhara), an estimated 12 million listeners, over half likely farmers/pastoralists. While targeting all demographics, their programs mainly focus on youth and adults.

Livestock expert Zegeye Wondimagegnehu noted North Shewa Zone's population is around 1.8 million, with Basona Worena Woreda having about 101,611 people (18,874 households). He estimates 80-85% of these households listen to Debre Birhan Fana FM, often via radio or mobile phones.

HossanaFM 95.3

HossanaFM 95.3 Manager Silesh Haile said their broadcast covers Central Ethiopia, parts of South Ethiopia (to Arba Minch), some Oromia areas (including Jimma), and small parts of Addis Ababa, reaching an estimated 10 million listeners in six languages, with about 4.5 million farmers. In Hadiya Zone, there are roughly 2.6 million Hadyisa speakers. The station produces and broadcasts radio programs tailored to both men and women aged 18 and above

Livestock expert Tsedeke Zewudie (Hadiya Zone Agriculture office) estimated Hadiya Zone's population at about two million, with around 100,000 household-head farmers, of whom about 10,000 listens to Hossana FM 95.3.

Hadiya livestock expert Habtamu Forsido noted that in Lemo woreda (project area, population 181,022, ~65% farmers), about 29,416 farmers listen to HossanaFM 95.3.

Shashemene Fana FM 103.4

Shashemene Fana FM 103.4 Manager Getachew Muleta reported their station covers Oromia, Sidama, Central, and Southern regions, reaching an estimated 11 million listeners (15+ years) in Afaan Oromo, Amharic, and Sidama (1.5 million Sidama listeners), mostly farmers, with programs for all demographics.

Dr. Amare Argaw (Sidama Agricultural Research Institute) noted the project operates in five Kebeles of Hawassa Zuria Woreda, which has a total population of about 182,000 (60% farmers).

Hawassa Zuria livestock expert Nadew Lalamoya (Mekibasa Korike Kebele) shared that about half the population are farmers, and those who understand Sidama prefer the Shashemene Fana FM 103.4 radio program.

Findings from the endline survey on media engagement with farmers

From May to October 2024, we surveyed 355 farmers in project Woredas—North Shewa (Basonaworena, 130 farmers), Hadiya (Lemu, 130 farmers), and Sidama (Hawassa Zuria, 95 farmers)—to determine how many received information on climate-smart feed and forage innovations and their benefits.

Farmers were asked questions regarding the information they received about forage technologies and their benefits in the past six months. We presented a list of some forage technologies, including Oat- Vetch, Elephant grass, Fodder beet, Tree Lucerne, Lablab. Cow pea, Maize forage legume intercropping, climate change and cultivated forage, Forage harvesting and post-harvesting practice /improved forage storage, feeding trough and its importance, Forage production and marketing, Livestock health problems and their solutions. This was to examine the information delivered to farmers through different communication channels over the six months.

Farmers were asked to choose one or more sources of information from the following list: development agents, training, mobile voice message, radio, television, farmers groups or cooperatives and others. The result showed that almost all farmers received information about forage technologies through different communication channels. The majority received information from development agents, followed by training,

mobile voice message and radio. A small number of farmers also received information from television or other sources.

Among those who received the information, many said they used the information they received. Some farmers indicated that they had not yet used the information they received but planned to do so in the future, while a few farmers were uncertain if they would use it in the future. (Annex 2)

The survey result estimated the number of farmers who listened to the radio programs about forage innovations in three Woredas, where the project operates, over the last six months (May to October 2024).

According to local extension experts, the estimated total populations of the Woredas are: Basona Worena woreda total population 101,611, of which 81,288 are farmers, Lemo Woreda total population 181,022, of which 117,664 and Hawassa Zuria Woreda total population 182,000, of which 109,200 are farmers.

Based on these estimates, the survey calculated the number of farmers who listened to the radio programs. Lemo Woreda, approximately 24,853, Basona Worena woreda, approximately 16,865 and Hawassa Zuria Woreda, approximately 49,953. The total estimated number of farmers who listened to the radio programs in the three Woredas is 91,671.

While these estimates are specific to the three Woredas where the project operates, the partner radio stations broadcast cover a much wider area. Across these areas, millions of farmers could potentially listen to radio broadcasts focusing on climate-smart feed and forage innovations.

Stakeholders view on the impacts of media engagement activities

Extension workers

Local extension workers found media engagement supported their promotion of climate-smart feed and forage innovations. Zegeye Wondimagegnehu (Basona Worena) noted that radio and audio messages increased farmer awareness and demand for new forages like alfalfa. Nadew Lalamoya (Hawassa Zuria) added that the Shashemene Fana FM 103.4 radio broadcast effectively raised awareness about maize-forage legumes intercropping, generating interest and inquiries from farmers, even in areas where it wasn't yet practiced.

Tsedeke Zewudie (Hadiya Zone Agriculture office) noted farmers integrate radio information into their work, with HossanaFM 95.3 raising awareness and demand for new technologies, thus aiding extension services. Habtamu Forsido (Hadiya livestock expert) added that farmers within and even outside project areas contacted Kebele experts for more information and support after hearing radio broadcasts.

Journalists

Journalists were among the stakeholders who actively participated in the media engagement activities aimed at promoting climate-smart feed and forage innovations in different parts of Ethiopia. According to these journalists, the media engagement activities conducted over the last two to three years in different regions have positively impacted the livestock development work in different areas.

HossanaFM 95.3 Manager Silesh Haile explained that before their three-year partnership, the station lacked specific livestock programs, focusing on general agriculture. Post-partnership and journalist training, they started broadcasting livestock-specific content, increasing farmers' awareness of forage technologies and modern livestock management, which they are now beginning to adopt. Shashemene Fana FM 103.4 Manager Getachew Muleta added that their new partnership provides an opportunity to extensively cover livestock feed and forage innovations, an area they hadn't previously focused on.

Hossana FM 95.3 reporter Abirham Mogoro noted a significant change in Hadiya Zone: farmers are now producing various forages and are well-aware of feed and forage

innovations. When the station features farmers' experiences (sometimes with contact details), it leads to inquiries and farm visits from other farmers seeking to learn more.

Debre Birhan Fana FM 94.0 senior reporter Abebe Yeshelewaleul stated their partnership brought new experiences, as they previously focused mainly on crops with limited livestock coverage and no specific focus on feed and forage. This initiative allowed journalists to learn about these innovations, motivating them to cover these topics and build networks with livestock experts.

Shashemene Fana FM 103.4 journalist Tamene Arega reported that farmer feedback and field observations show inspiration from new forage innovations, with farmers starting to save seeds for future production and working to implement expert advice

Discussion and Conclusion

Key lessons learned from the process

Ethiopia's livestock sector involves many stakeholders (farmers, extension workers, administrators, seed suppliers, researchers, media, etc.), all crucial for promoting climate-smart feed and forage. Farmers, extension workers, and seed suppliers particularly need knowledge, attitude, and practice changes regarding these innovations, as current understanding is inadequate. To address this, communication channels like radio/TV, mobile audio messages, field days, and farmers recognition events are essential for enhancing knowledge and positive attitudes.

For the past few years, we've used radio broadcasts and mobile audio messages with regional partners to successfully raise farmer awareness and interest in climate-smart feed and forage. To achieve widespread adoption, these efforts need to be complemented by other communication channels like television, field days, and farmer recognition events. Additionally, we need to enhance the knowledge and attitudes of extension workers, local administrators, and seed producers/suppliers through various communication methods.

To enhance the knowledge and attitudes of extension workers/local administrators, we'll use capacity building training, social media (YouTube/Telegram), inter-regional experience sharing, and recognition events for top-performing areas. For seed producers/suppliers, we'll use sensitization workshops, present research on profitability, provide evidence briefs, and share international experiences. We also need to strengthen stakeholder coordination to influence decision-makers to prioritize the livestock sector and climate-smart feed and forage innovations.

Farmers reached through radio broadcasts and mobile voice messages

Pinpointing the exact number of farmers reached by radio is difficult due to multiple stations and listener switching. While partner radio managers and local experts provided estimates, and a survey of 355 farmers in project woredas (North Shewa, Hadiya, Sidama) asked about listening over six months (May-Oct 2024), precise figures remain challenging. Triangulating these sources helped estimate reach. Future efforts will focus on structured feedback collection using government channels and development groups.

Conversely, tracking reach via mobile voice messages is easier, as Ethio-telecom provides reports on successful calls to collected farmer phone numbers

Regarding mobile voice messages, it is much easier to determine the exact number of farmers reached. We collect farmers' phone numbers from the regions and broadcast audio messages through the collected mobile phones in partnership with Ethio-telecom. Then, Ethio-telecom provides a report that identifies successful and unsuccessful calls.

Benefit of radio broadcast and mobile voice messages in the promotion of forage innovations

Radio broadcasts and the mobile voice messages on climate – smart feed and forage innovations have been very helpful for farmers. They enhanced awareness and created demand among farmers by introducing new technologies that are not commonly used in their area and supporting extension services. Farmers have started saving forage seeds to produce more in the coming year and are striving to implement the advice given by local experts.

Engaging radio and mobile voice message have supported the extension system in many ways, saving time, money and energy by promoting the technology. Training each farmer individually on feed and forage innovations would require more resources. However, the radio broadcast and mobile voice message make information accessible to all farmers at once. Many farmers have expressed interest in adopting feed and forage innovations practice in the future. Farmers from other woredas / Kebeles where the project does not operate have called experts, seeking support to implement the technologies they learned on the radio.

The partnership agreement has brought new experiences to the radio stations. Previously, the stations primarily covered crop-related issues and some livestock-related topics, they had not focused on feed and forage innovations, which significantly contribute a lot to livestock development. The new partnership with offers them an opportunity to work widely in livestock feed and forage innovations

For the radio program producers, the experience provided an opportunity to learn more about the livestock sector, particularly feed and forage innovations. Learning about these innovations has motivated journalists to plan and cover these topics in their media. After receiving trainings on climate – smart feed and forage innovations and producing many radio programs on these topics, journalists feel confident in teaching others about these innovations.

Challenge

- Media engagement activities faced implementation delays (e.g., contract signing), sometimes pushing radio broadcasts to less ideal times (mid- or post-rainy season), affecting timely output delivery.
- Delays in field data collection posed challenges, impacting the timely completion of the final output, which relies on the prompt submission of data. Late data submission consequently delayed the delivery of the results.
- Hossana FM experienced broadcasting delays due to a generator issue that disrupted transmission. Ethio Telecom's voice call system changes initially caused a delay, but an alternative system was provided after consultation, allowing voice message broadcasts to proceed.
- Instability in some project areas restricted journalists' movement to grassroots levels, hindering their ability to gather input for radio program

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Annex

1 Estimated number of farmers who listened the radio program produced and broadcasted in forage innovations in three areas / Woredas where the project operates

Debre Birhan Fana FM 94.0				
No-	Sample Radio programs broadcasted on Forage Innovations	No. of farmers interviewed in Basona Worena Woreda / North Shewa	No. of farmers listened to the sample Radio programs broadcasted	Remark
1	Oat – vetch	130	44	
2	Fodder beet	130	21	
3	Tree Lucerne	130	31	
4	Feeding trough and its importance	130	17	
5	Animal Health	130	13	
6	Climate change and cultivated forage	130	13	
7	Alfalfa	130	5	
8	Forage harvesting and post-harvesting practice/improved forage storage?	130	22	
	Total No. of farmers who listened to the sample radio programs broadcast on Debre Birhan Fana FM		166	
	Average No. of farmers who listened to the sample radio programs on Debre Birhan Fana FM		20.75	Total No. of farmers who listened to the sample radio programs broadcasted on Debre Birhan Fana FM divided by eight sample radio programs broadcasted on Debr Birhan Fana FM
	Estimated Population of Basona Worena Woreda / North Shewa		101,611	Data received from local extension experts
	Estimated No. of farmer population in Basona Worena Woreda / North Shewa		81,288	Data received from local extension experts

	Estimated No. of farmers listened to the radio programs Basona worenna woreda	16,865	20.75% of 81,288
Hosaen FM 95.3			
1	Elephant grass	130	1
2	Oat – Vetch	130	1
3	Tree Lucerne	130	0
4	Forage harvesting and post-harvesting practice/improved forage storage?	130	6
5	Forage production and marketing	130	51
6	Feeding trough and its importance	130	2
7	Climate change and cultivated forage	130	106
8	Animal Health	130	2
	Total No. of farmers who listened to the sample radio programs broadcasted on HossanaFM	169	
	Average No. of farmers who listened to sample radio programs on HossanaFana FM	21.13	Total No. of farmers who listened to the sample radio programs broadcasted on HossanaFM divided by eight sample radio programs broadcasted on HossanaFM
	Estimated Population of Lemu Woreda /Hadiya	181,022	Data received from local extension experts
	Estimated No. of farmer population in Lemu Woreda / Hadiya	117,664	Data received from local extension experts
	Estimated No. of farmers listened to the radio programs in Lemu woreda	24,853	21.13% of 117,664
Shashemene Fana FM 103.4			
1	Lablab	95	46
2	Cow pea	95	48
3	Maize forage legume intercropping	95	46

4	Climate change and cultivated forage	95	47	
5	Forage harvesting and post-harvesting practice/improved forage storage?	95	46	
6	Feeding trough and its importance	95	46	
7	Forage production and marketing	95	44	
8	Animal Health	95	43	
	Total No. of farmers who listened to the sample radio programs broadcast on Shashemene Fana FM		366	
	Average No. of farmers who listened to the sample radio programs on Shashemene Fana FM		45.75	Total No. of farmers who listened to the sample radio programs broadcasted on Shashemene Fana FM divided by eight sample radio programs broadcasted on Shashemene Fana FM
	Estimated Population of Hawasa Zuria Woreda /Sidama		182,000	Data received from local extension experts
	Estimated No. of farmer population in Hawasa Zuria Woreda /Sidama		109,200	Data received from local extension experts
	Estimated No. of farmers listened to the radio programs in Hawassa Zuria woreda		49,953	45.75% of 109,200
	Total estimated farmers listened to the radio programs in the three woredas where the project operates		91,671	

Summary of Farmers' Access to Climate-Smart Feed and Forage Innovation Information / messages in the Last Six Months (from May to October 2024)

Have you received any information or messages about the following forage technologies and their benefits in the past six months?	Yes, I have received information and messages about the following technologies and their benefits in the past six months.	No, I haven't received any information or message about the following forage technologies and their benefits in the past six months.	Where did you receive the information about the forage technology and its benefits?	%	Did you use the message you received about the stated forage technology?		
					Yes, I used the message I received about forage technology .	I did not use the message about the forage technology , but I have a plan to use it.	I did not use the message about the forage technology, and I am not sure if I will use it.
Oat- Vetch	68.45%%	31.55%	Development agent	67.04%	60.85%	7.32%	0.28
			Training	22.82%			
			Mobile voice message	19.72%			
			Radio	12.96%			
			Television	1.13%			

			Farmers groups or cooperatives	1.13			
			Other	-			
Elephant grass	56.9%	43.1%	Development agent	54.37%	41.13%	14.93%	0.85%
			Training	13.52%			
			Mobile voice message	4.23%			
			Radio	1.97%			
			Television	0.28%			
			Farmers groups or cooperatives	-			
			Other	0.28%			
Desho grass	65.92%	34.08%	Development agent	61.97%	53.52%	10.7%	1.69%
			Training	24.51%			
			Mobile voice message	15.77%			
			Radio	4.79%			
			Television	1.13%			
			Farmers groups or cooperatives	1.13%			
			Other	-			
Fodder beet	29.86%	70.14%	Development agent	26.48%	19.15%	10.7%	-
			Training	21.69%			
			Mobile voice message	19.15%			
			Radio	6.2%			
			Television	1.41%			
			Farmers groups or cooperatives	0.28%			

			Other	-			
Tree Lucerne	41.13%	58.87%	Development agent	38.7%	33.8%	6.76%	0.56%
			Training	21.97%			
			Mobile voice message	20%			
			Radio	8.73%			
			Television	0.85%			
			Farmers groups or cooperatives	0.56%			
			Other	-			
Lablab	25.07%	74.93%	Development agent	10.99%	21.69%	1.97%	1.41%
			Training	17.18%			
			Mobile voice message	13.52%			
			Radio	12.96%			
			Television	-			
			Farmers groups or cooperatives	1.13%			
			Other	3.94%			
Cow pea	30.7%	69.3%	Development agent	15.21%	26.76%	1.97%	1.97%
			Training	17.75%			
			Mobile voice message	14.37%			
			Radio	13.8%			
			Television	-			
			Farmers groups or cooperatives	0.28%			
			Other	4.51%			

Alfalfa	33.24	66.76%	Development agent	30.7%	19.72%	13.52%	-
			Training	15.77%			
			Mobile voice message	10.99%			
			Radio	1.69%			
			Television	0.85%			
			Farmers groups or cooperatives	0.28%			
			Other	-			
Pigeon pea	0.85%	99.15%	Development agent	0.85%	0.85%	-	-
			Training	-			
			Mobile voice message	-			
			Radio	-			
			Television	-			
			Farmers groups or cooperatives	-			
			Other	-			
Maize forage legume intercropping	62.54%	37.46%	Development agent	42.25%	58.59%	2.54%	1.41%
			Training	39.44%			
			Mobile voice message	13.24%			
			Radio	13.24%			
			Television	-			
			Farmers groups or cooperatives	1.13%			
			Other	4.51%			
	72.11%	27.89%	Development agent	48.17%	55.49%	15.21%	1.41%
			Training	20%			

Climate change and cultivated forage			Mobile voice message	18.59%			
			Radio	48.45%			
			Television	3.66%			
			Farmers groups or cooperatives	2.25%			
			Other	1.13%			
Forage harvesting and post-harvesting practice /improved forage storage	89.86%	10.14%	Development agent	70.99%	72.39%	15.77%	1.69%
			Training	36.9%			
			Mobile voice message	22.54%			
			Radio	20.85%			
			Television	1.13%			
			Farmers groups or cooperatives	1.41%			
			Other	2.54%			
Feeding trough and its importance	86.2%	13.8%	Development agent	69.58%	54.37%	30.14%	1.69%
			Training	38.59%			
			Mobile voice message	29.01%			
			Radio	18.59%			
			Television	0.56%			
			Farmers groups or cooperatives	1.13%			
			Other	0.28%			
Forage production and marketing	78.31%	21.69%	Development agent	54.93%	45.92%	30.42%	1.97%
			Training	24.79%			

			Mobile voice message	16.62%			
			Radio	27.89%			
			Television	1.41%			
			Farmers groups or cooperatives	0.56%			
			Other	3.38%			
Livestock health problem and their solutions	94.65%	5.35%	Development agent	77.75%	78.59%	14.37%	1.69%
			Training	30.14%			
			Mobile voice message	21.97%			
			Radio	16.52%			
			Television	1.41%			
			Farmers groups or cooperatives	2.54%			
			Other	1.69%			

