# Effect of disseminating of co-produced climate advisory services on knowledge, attitudes, and practices in climate-smart livestock farming in Senegal

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# Background

Sustainable and efficient livestock production requires regular access to adequate quantities of quality resources for fodder, pasture and veterinary services (Nangole et *al*., 2013). Small-holder farmers are constrained by natural resources scarcity associated with climate variability manifested by seasonality in rainfall, poor fodder production techniques (Bosire, et *al*., 2016). This is particularly true for Senegal, where pastoral communities in arid and semi-arid regions face increasing climate-related challenges, necessitating effective adaptation measures (Alessandro et *al*., 2015, Houessionon et al., 2022). In response to these challenges, the dissemination of climate advisory services has emerged as a vital strategy to empower farmers with the knowledge and tools necessary for climate-smart practices. This study seeks to investigate the multifaceted impact of disseminating climate advisory services on the knowledge, attitudes, and practices of livestock farmers engaging in climate-smart approaches. This InfoNote advances our understanding of the role and impact of climate advisory services in fostering climate-smart livestock farming practices by providing valuable insights into the effectiveness of current dissemination strategies and identify areas for improvement.

# How do we co-generate and co-disseminate the climate informed advisory?

Co-generating and co-disseminating climate-informed advisory involves a collaborative process that integrates scientific knowledge, local expertise, and community engagement. This approach ensures that the advisory is not only scientifically accurate but also relevant, culturally appropriate, and readily accepted by the communities it serves. Since January 2023, AICCRA Senegal has engaged a Community of Practice that brings together stakeholders, including scientists, local practitioners in extension system, community leaders, and representatives from the target communities from various national institutions, NGOs and livestock farmers and actors' associations to co-produce knowledge for better managing climate risks in livestock farming through climate informed advisory service (Houessionon et *al*., 2023). Engaging the community of practices in the production of climate advisory and dissemination process from the beginning of the project ensures that, along with assuring that the product is catered to producers' needs, community members feel a sense of ownership and increases the likelihood that producers will adopt the advisories (Vedeld et al, 2019). The members of the CoP translate and validate the climate advisories in local language Pular, the most popular in the pilot area, and disseminate them each decade via Interactive Voice Response (IVR) to help farmers in managing preseason for planning for fodder production, in season fodder cropping management, reserve of fodder, pasture use, access to water ponds, animal health monitoring and veterinary services.

# Target beneficiaries

The pilot study started in June 2023. For the wet season 2023, i.e from July to October, over around 1243 livestock farmers were reached via IVR, of which 42% are female in the department of Linguere, Region of Louga. Additionally, over 24 000 agro-pastoralists and pastoralists were reached through the radio.

# Data

The study used quantitative data collected in from 20 villages of the department of Linguere, region of Louga. The selected study sites were part of another larger study that was assessing the impact of adopting co-produced climate informed advisory service for livestock farmers in the region of Louga. A subsample of 298 livestock farmers was achieved. Data collected on household demographics, access to climate informed advisory during the wet season, the level of knowledge of information, change in attitude and practices in livestock farming upon access to climate advisory. Data were collected and entered using computer-aided personal inter- views application Kobo collect. Using Likert scale questions with the range of 1 (strongly disagree) to 5 (strongly agree). Descriptive statistics were then conducted for the different modalities using Stata.

### Characteristics of respondent

In the figure 1, it stands out that most respondents are women, representing 66% of the sample. The age range of the respondents are 20-60+ years of age. Most of the respondents are between 35 and 59 years old, count for 60% of respondents followed by 28 % of those of more than 60 years. Moreover, the age range of 20–34-years-olds make up to 12 % of respondents.

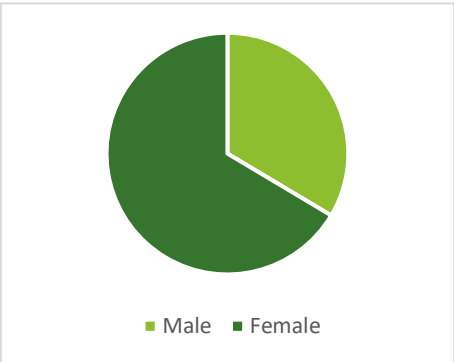


***Figure 1:*** *Respondent by sex*

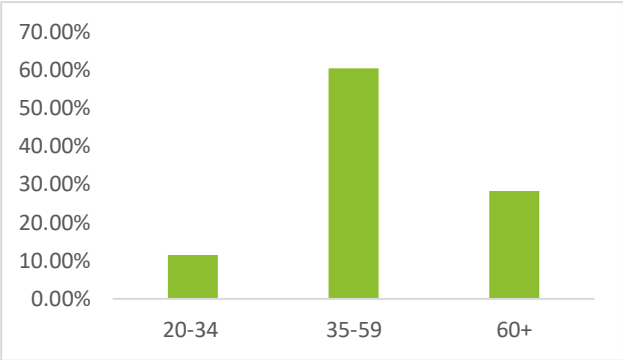


***Figure 2:*** *Categories of age of respondents*

# Knowledge of climate informed advisory

Figure 3 indicates the different levels of satisfaction of respondents for climate informed advisory services. Overall, 96% of respondents are extremely satisfied with the

dissemination channel for their livestock farming activities. The content of the advisories has been well understood by 97% of respondents (figure 4). However, some of the respondents who didn't understand the content felt that may be due to the speed of the call at some point. Notably, 97% stipulated that message frequently reached them at the right time. On the other hand, some would prefer receiving the advisories in the evening. It is interesting to note that almost all (99 %) of the breeders who took part in this study expressed their willingness to continue receiving this climate informed advisories services for their livestock farming.

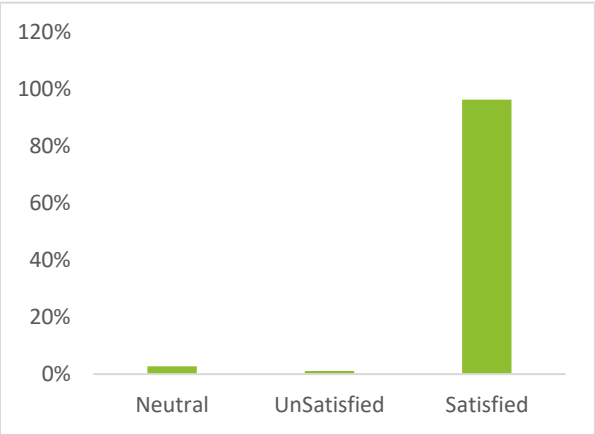


***Figure 3:*** *Perception of dissemination channel*


***Figure 4:*** *Knowledge of climate advisory services.*

## Relevance of climate informed advisories for climate risks management

Figure 5 shows that the content of climate advisories is of interest to around 98% of those surveyed, and their relevance extends to various decision-making guidelines on adapting livestock to help farmers manage climate risks.

On average, around 95% of respondents revealed that climate advisories were extremely accurate for decision-making purposes.

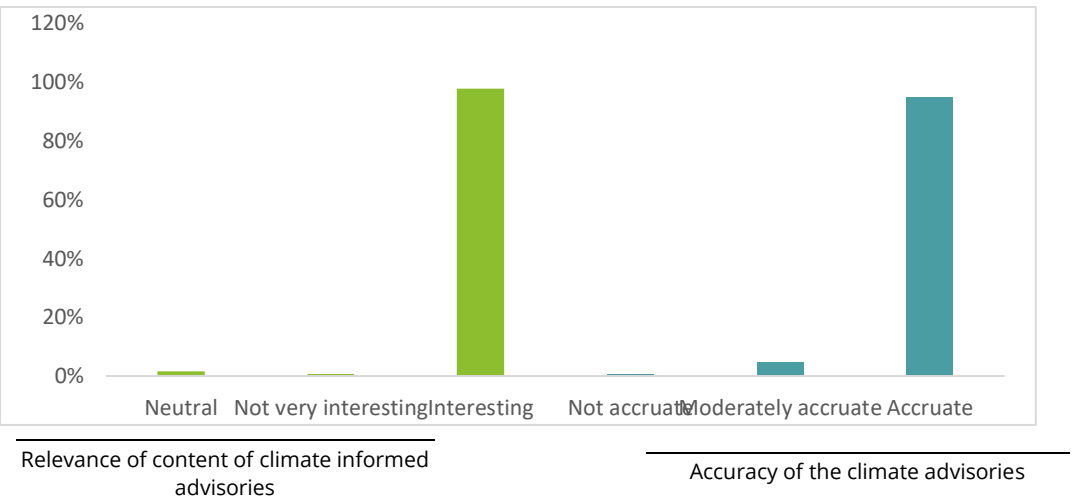


***Figure 5:*** *Relevance of content of climate informed advisories and Accuracy of the climate advisories*

In terms of networking influence and spillover effect, most of the respondents shared the advisories with their peers (figure 6). Indeed, 81% of respondents revealed that they shared the content with their livestock farmers who are members of their family. However, around 78% of the beneficiaries shared the knowledge from the advisories content with livestock farmers living in their villages and around 18% shared with livestock farmers from other villages.


***Figure 6:*** *Networking influence and spillover effects*

## Decision making: attitude and practice

The access to climate advisory services for livestock farming has guided decisions of the beneficiaries, as show the results of post wet season surveys in the figure 7. The access to advisories has contributed to change attitude and practices of beneficiaries as confirmed by around 78% of beneficiaries strongly agree that access to advisories has guided them for access to boreholes and ponds for livestock watering. Furthermore, 64% of beneficiaries revealed that they can better take advantage of the available resources by using them more efficiently. Thus, 62% of livestock farmers strongly agree that they have learnt on feed formulation for better feeding their animal. Livestock farmers confirmed that the access to advisories assisted them in a range of pre-season planning activities and dry season management, such as time to sow forage, reserve of forage for dry season, delaying departure to transhumance.

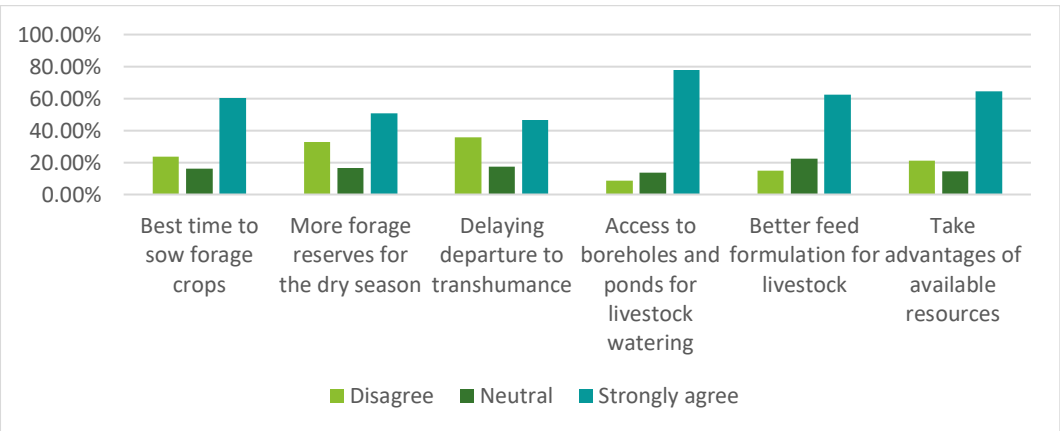


***Figure 7:*** *Usefulness of climate informed advisories for livestock farmer*

*Feedback from the focus group discussions:*

*"It is necessary to use climate-informed advice for several reasons:*

*Major challenge is the shortage of rainfall in some localities,*

*Even when it does rain, conditions remain difficult.*

*We lack quality pasture in the area.*

*When you get the message, you understand the urgence to take steps quickly to produce and build up fodder reserves,*

*We got awareness of the last water ponds dry..... ".*

*Photo 1: Discussion group in the village of KOJOLELE*

*Photo 2: Discussion group in the village of KOURKOK*

# Conclusion

This pilot study reveals the relevance of climate advisory service and has proven instrumental in significantly increasing the knowledge base of livestock farmers. This heightened awareness encompasses not only an understanding of climate-related risks but also the practical knowledge needed to implement climate-smart practices to adapt to climate risks. Livestock farmers, empowered by the knowledge develop attitudes through co-produced advisory services, and actively incorporated climate smart techniques into their practices. The approach of adopting a community of practice has proven the multi-faceted impact of collaborative efforts among scientists, local practitioners, and the farming community in shaping a more adaptive and informed livestock farming to adapt to climate change. The co-production approach ensures that the information is not only accurate but also culturally relevant, thereby facilitating a more effective uptake by the farming community. In addition, the implementation of co-produced advisory services can bring positive change in fodder crops productions.

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Titles in this series aim to disseminate interim research on the scaling of climate services and climate-smart agriculture in Africa, to stimulate feedback from the scientific community.

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