



ACCESS AND USE OF CLIMATE RISK MANAGEMENT IN AGRICULTURAL EXTENSION (CRMAE)



Berhanu Belay, Gebermedihin Ambaw, Dawit Solomon

December 2024

To cite this report

Belay B., Ambaw G., Solomon D. 2024. AICCRA Training Report: Access and use of Climate Risk Management in Agricultural Extension (CRMAE). Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)

Acknowledgments

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.

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The 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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ABOUT AICCRA



AICCRA
Accelerating Impacts of CGIAR
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ABOUT THE AUTHORS

Berhanu Belay is a senior consultant at the International Livestock Research Institute, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)

Gebermedihin Ambaw is Research Officer at the International Livestock Research Institute, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)

Dawit Solomon is Eastern and Southern Africa Program Leader at the International Livestock Research Institute, Accelerating Impacts of CGIAR Climate Research for Africa (AICCRA)



CONTENTS

Introduction	1
Methods	1
results	2
Characteristics of the respondents	2
Use and access of CRMAE in the Watershed and SLM	2
Farmers’ reflection, as noted by the FF, DA, and SMS	4
Lessons and Way Forward	7
References	8



ACRONYMS

AICCRA	Accelerating Impacts of CGIAR Climate Research for Africa
CIS	Climate information services
CSA	Climate-smart agriculture
CRMAE	Climate Risk Management in Agricultural Extension
IRI	International Research Institute for Climate and Society



INTRODUCTION

Climate information services (CIS) and climate-smart agriculture (CSA) are integral to AICCRA's initiatives, offering significant potential for scaling through targeted capacity-building and collective action. AICCRA collaborates closely with development partners, agricultural extension offices, and higher education institutions to ensure widespread access to and effective use of CSA and CIS innovations, tools, and knowledge products.

AICCRA, in partnership with GiZ, Ethiopian public universities, and regional agricultural offices, conducted training sessions on climate risk management (Belay et al., 2024). These sessions equipped subject-matter specialists, development agents, and facilitators with the knowledge and skills to disseminate climate insights at the grassroots level and incorporate climate knowledge products into everyday farming practices.

An assessment was conducted to evaluate the relevance and contributions of the Climate Risk Management in Agricultural Extension (CRMAE) initiative. This evaluation aimed to promote sustainable practices, enhance future implementation, and refine training materials and methodologies based on participant feedback. By addressing these areas, the initiative seeks to expand training efforts nationally, strengthen the capacity of development agents, and amplify the impact of climate-smart practices in agricultural communities.

METHODS

Training under the Training of Trainers (ToT) modality was conducted in 16 cycles, reaching 814 development agents, subject-matter specialists (SMS), and farmer facilitators (FF) across 10 universities in Ethiopia. These institutions were strategically distributed across various regions and agroecological zones to enhance climate knowledge, community sensitivity, and the integration of climate considerations into sustainable land management practices (Berhanu et al., 2024). The initiative was spearheaded and supported by GiZ and AICCRA, aiming to strengthen climate-sensitive projects managed by the Ministry of Agriculture (MoA) and GiZ.

The training utilized a reference guide titled *Climate Risk Management in Agricultural Extension*, developed by the International Research Institute for Climate and Society (IRI) and AICCRA and validated by Ethiopian universities (Dinku et al., 2023). Recognizing the importance of continuous improvement, a feedback mechanism was established to evaluate the application of the training's knowledge in climate risk management, land management, and livelihood practices within watershed areas. This feedback also sought to refine the reference guide, enhance the learning methodology, and support efforts to integrate the material into national extension programs, thereby influencing policymakers.



A structured questionnaire was developed using a Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree). The survey collected data on trainees' demographic and educational backgrounds, the integration of Climate Risk Management and Adaptation Education (CRMAE) into watershed activity planning, improved access to and use of CRMAE resources (CIS and CSA), and the outcomes of the training on everyday practices. The survey was administered online to 10% (80) of the trainees, achieving an impressive 89% response rate.

The survey results are categorized and presented through thematic areas, offering insights into the impact of the training and identifying opportunities for further development.

RESULTS

Characteristics of the respondents

The respondents' educational qualifications ranged from Diploma to MSc levels, with 92.7% holding BSc or MSc degrees in agriculture. Female representation among respondents stood at 14.7%, with development agents (DAs) forming the largest job category, comprising 56% of the respondents. The training beneficiaries were classified into three main groups: development agents, subject-matter specialists (SMS), and university staff. Notably, 73.6% of the participants reported using Climate Risk Management and Adaptation Education (CRMAE) resources in their watershed-related activities.

Table 1. Characteristics of the respondents

Gender	Male	55 (80.9%)
	Female	10 (14.7%)
	Prefer not to say	3 (4.4%)
Age of the respondents	18-30	30 (44.1%)
	31-40	29 (42.6%)
	41-50	8 (11.8%)
	Above 51	1 (1.5%)
Level of education	Diploma	5 (7.4%)
	Bachelor's degree	44 (64.8%)
	Master's and beyond	19 (27.9%)

Use and access of CRMAE in the Watershed and SLM

The training was designed as a practical initiative to integrate Climate Risk Management into watershed planning. The training was followed by advisories that supported incorporating CRMAE practices into community farming and sustainable land management (SLM) activities. The training significantly improved access to and the use of CRMAE resources. Remarkably, 100% of respondents confirmed that CRMAE has been integrated into watershed workplans (Figure 1).

Participants reported receiving agro-advisories that facilitated the identification of steep, erosion-prone slopes for terracing and the preparation and maintenance of



terraces for soil and water conservation. Additionally, the training equipped them to adopt techniques to reduce soil erosion, further strengthening their capacity for sustainable land management.

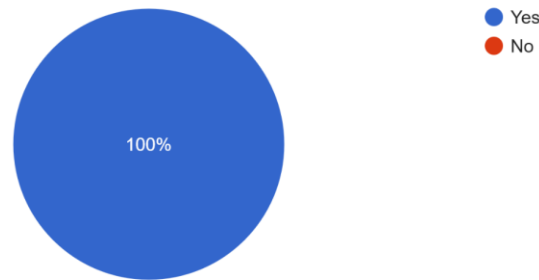


Figure 1. Integration of CRMAE knowledge in GIZ watershed work plans.

The training course was rated as either extremely relevant or relevant by 54% and 37% of respondents, respectively (Figure 2). Regarding the usefulness of the knowledge gained through CRMAE training, 61% of respondents rated it as very useful, while 34% considered it useful (Figure 3).

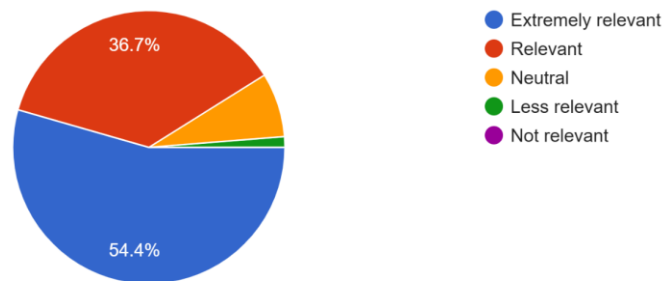


Figure 2. Relevance of CRMAE training.

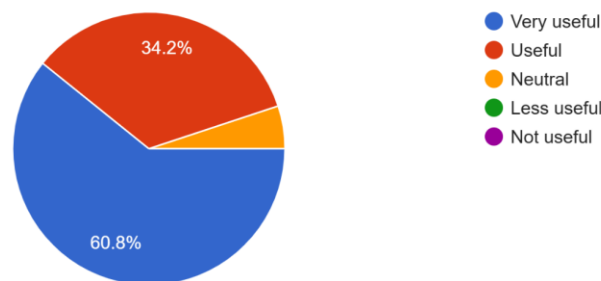


Figure 3. The usefulness of knowledge gained through CRMAE training.

The training was positively credited with enhancing the work performance of SLM technical staff, as 97.5% of respondents reported that the skills acquired through the program had significantly or moderately improved their performance.



However, 2.5% of respondents remained neutral regarding its impact.

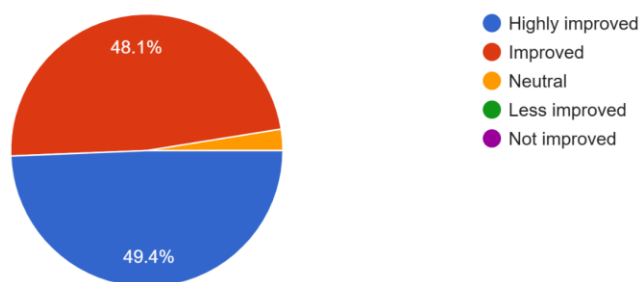


Figure 4. Improvement of performance due to CRMAE training.

A multifaceted approach was employed to disseminate information to farmers. Farmer training emerged as the most-used channel, with 80% of respondents utilizing this method. 48% of respondents reported direct consultations with farmers, while 41% indicated the use of demonstration plots or farms to teach farmers (Figure 5).

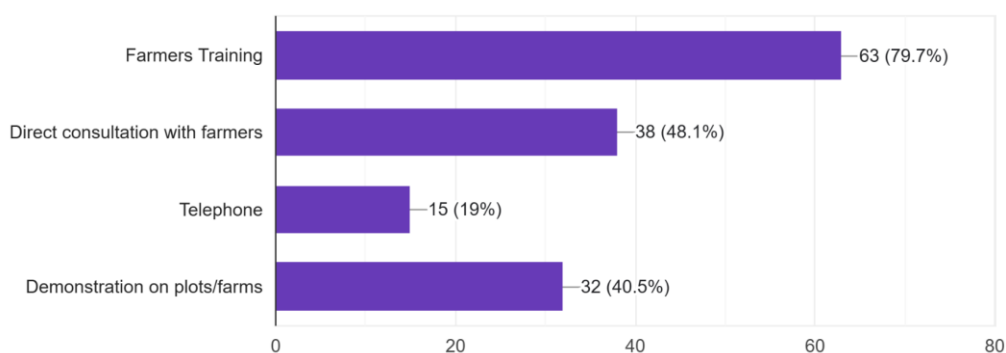


Figure 5. Dissemination channels

Farmers’ reflection, as noted by the FF, DA, and SMS

Farmers actively engaged with the climate information and advice provided by the trainees, showcasing the practical application of this knowledge in their agricultural practices. A notable 91.2% of respondents indicated that farmers are confident in implementing the advice extension agents offer (Figure 6). Furthermore, 92.4% of respondents reported that farmers actively utilize climate information and advice from extension agents to manage risks effectively.

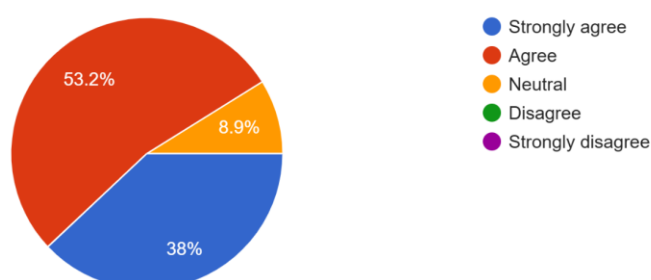




Figure 6. Confidence of farmers to implement the advice provided by extension agents.

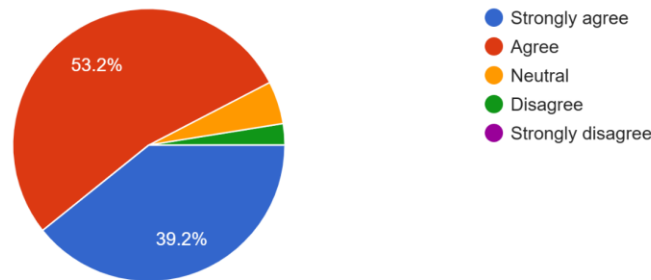


Figure 7. Engagement of farmers with the climate information and advice provided by extension agents.

The technical and trained staff have indicated that compared to farmers' practice before the training, they have better knowledge of managing climate risks after the training, as endorsed on a scale of strongly agree and agree (78.5%). Overall, the training was found to be impactful, and the impact was indicated as strongly agreeing and agreeing (98.5%).

The trained technical staff have reported a significant improvement in their knowledge of managing climate risks following the training, with 77.2% expressing strong agreement or agreement compared to their previous practices (Figure 8). Overall, the training was deemed highly impactful, with 98.7% of participants endorsing the program's effectiveness through strong agreement or agreement (Figure 9).

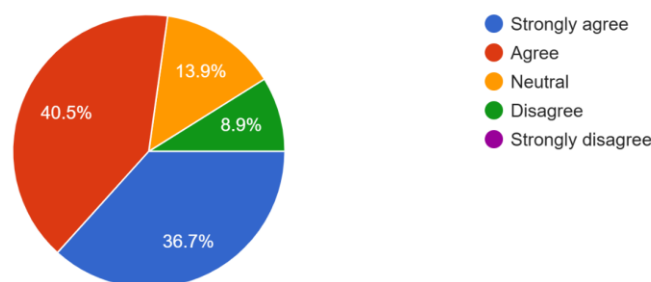


Figure 8. The knowledge of farmers on managing climate risk compared to before the training.

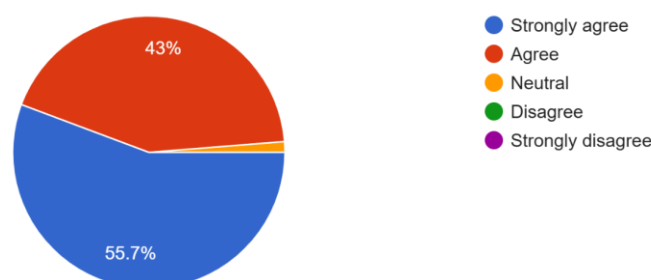




Figure 9. The impact of the training on farmer’s ability to manage climate risks.

After the CRMAE training, farmers made various decisions that positively impacted land management and enhanced their livelihoods. Figure 10 illustrates the climate-sensitive land management decisions made by farmers. Nearly 70% of respondents reported that farmers began selecting and planting native, fast-growing grasses, shrubs, or trees to stabilize the soil following the training. Additionally, 48% and 41% of respondents indicated that farmers focused on preparing and maintaining terraces for soil and water conservation and managing grasses, shrubs, or trees through practices like mulching and fertilization.

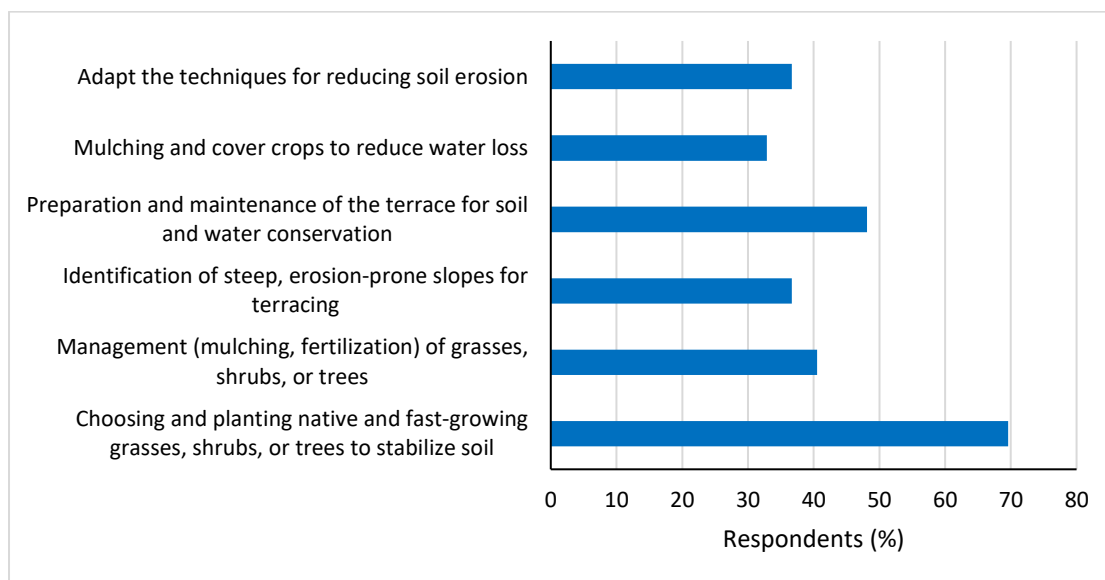


Figure 10. Reported decisions that farmers made based on agro advisories for climate-sensitive Land Management.

Regarding decisions that positively impact farmers' livelihoods, 61% of respondents reported that farmers adopted agroforestry practices following the training. Additionally, 53% and 41% of respondents noted that farmers began using climate forecasts to adjust tree and crop planting schedules in line with climate patterns and to better manage community forests (Figure 11).

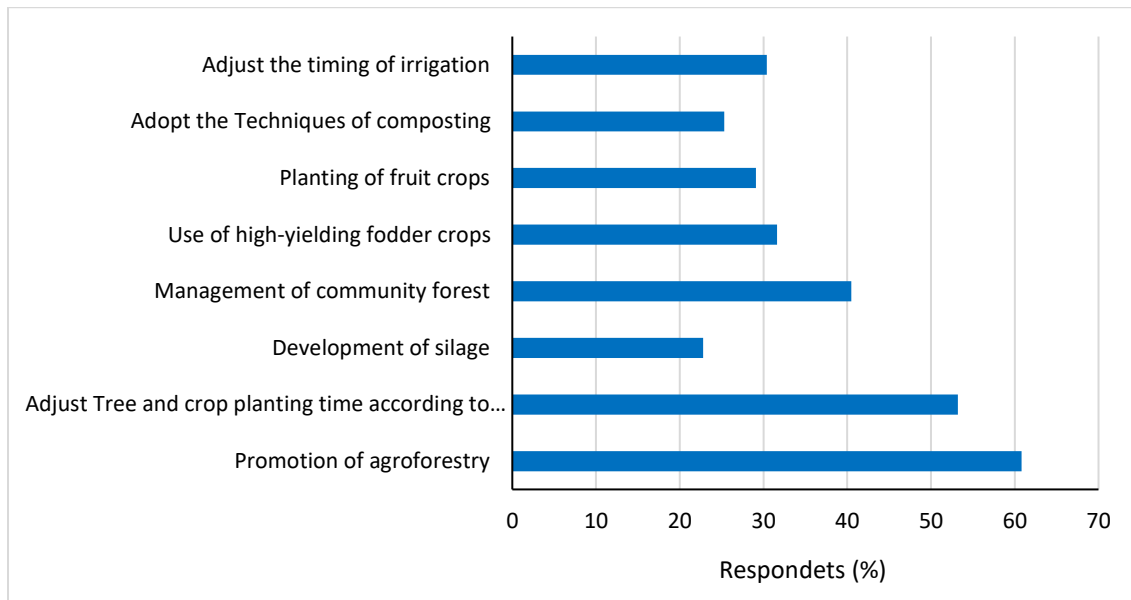


Figure 11. Reported decisions that farmers made based on agro advisories for improving livelihood through sustainable land management

LESSONS AND WAY FORWARD

- The partnership between AICCRA, public universities, and GIZ was crucial in leveraging local capacity to reach more beneficiaries and ensure access to Climate-Smart Agriculture (CSA) and Climate Information Services (CIS) practices.
- Effective capacity building in CDMAE, including training, requires carefully designed content and adequate time allocation to gather relevant feedback, ensuring the training's applicability to Sustainable Land Management (SLM) and Agro-Advisory.
- The practical implementation of post-training knowledge was evident in the inclusion of CRMAE in the sustainable land management plans for 69 watersheds.
- With over 70,000 Development Agents in Ethiopia, it is essential to promote the integration of CRMAE into the annual and strategic plans of districts and Kebeles by collaborating with the Ministry of Agriculture (MoA) and regional offices.
- To ensure broader reach, CRMAE should be customized, translated into local languages, and adapted to the local context.



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 aiccra.cgiar.org

 info@cgiar.org

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