

Gender-differentiated farmers' perception of climate risk and its impact, access to climate information, and adaptation strategies in Senegal

Shalander KUMAR | Soumitra PRAMANIK | Adjani Nourou-Dine YESSOFOU |
Therese GONDWE | Omonlola Nadine WOROOU | Anthony WHITBREAD

DECEMBER 2022



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



Acknowledgement

This work is supported by the World Bank through the IDA (International Development Association) for their support of the AICCRA (Accelerating Impacts of CGIAR Climate Research for Africa) project. We thank the field staff and the rural communities for their cooperation during the field survey. Special thanks are due to Dr Aliou Faye for his support at various stages of the study.



Contents

SUMMARY	5
1. BACKGROUND AND INTRODUCTION	6
2. GENDER-WISE ANALYSIS	7
1.1. Gender-wise farm households' workforce and their participation	7
1.2. Gender wise labour involvement in crop production.....	8
3. PERCEPTION OF THE PHENOMENA AND IMPACT OF CLIMATE CHANGE	9
4. ACCESS TO CLIMATE INFORMATION AND TRAINING ON CLIMATE SMART AGRICULTURE	13
5. CONCLUSION	14

List of figures

FIGURE 1: AVERAGE LABOUR FORCE AVAILABILITY PER HOUSEHOLD BY SEX	7
FIGURE 2: MALE AND FEMALE INVOLVEMENT/PARTICIPATION IN PEANUT PRODUCTION	8
FIGURE 3: MALE AND FEMALE INVOLVEMENT/PARTICIPATION IN MILLET PRODUCTION	8
FIGURE 4: MALE AND FEMALE INVOLVEMENT/PARTICIPATION IN COWPEA PRODUCTION	9
FIGURE 5:PERCEPTION OF DIFFERENT DIMENSIONS OF THE TERM CLIMATE CHANGE	10
FIGURE 6: GENDER-DIFFERENTIATED FARMERS PERCEPTION ABOUT CLIMATE CHANGE PHENOMENA.....	10
FIGURE 7: GENDER BASED PERCEPTION OF CLIMATE CHANGE IMPACT ON CROPS PRODUCTION AND REVENUE...	11
FIGURE 8: GENDER BASED PERCEPTION OF CLIMATE CHANGE IMPACT ON LIVESTOCK	11
FIGURE 9: ACCESS TO CLIMATE INFORMATION ACCROS GENDER (FIRST FIGURE REPRESENTS THE TOTAL NUMBER OF RESPONDANTS AND THE SECOND THE PERCENTAGE PF RESPONDENTS	13

Abbreviations

AICCRA	ACCELERATING IMPACTS OF CGIAR CLIMATE RESEARCH FOR AFRICA
CGIAR	CONSULTATIVE GROUP ON INTERNATIONAL AGRICULTURAL RESEARCH
CIAT	CENTRE INTERNATIONAL D'AGRICULTURE TROPICALE
CSA	CLIMATE SMART AGRICULTURE



Summary

AICCRA (Accelerating Impacts of CGIAR Climate Research in Africa), started in 2021 in six (6) African countries (Ethiopia, Kenya, Zambia, Ghana, Mali, Senegal) with the ambition to build technical, institutional and human capacities needed to improve the transfer of climate-related information, decision-making tools and technologies in support of climate change efforts. The present study uses the AICCRA-Senegal baseline data to understand the gender-differentiated farmers' perception of climate risk and its impact, access to climate information, and adaptation strategies. The study covers 514 households in three regions of Senegal, namely Kaffrine, Louga and Thies. The analysis shows that though the in terms of knowledge and understanding about climate change there is no significant deviation between adult men and women respondents, but dissemination efforts on climate information services and capacity development related to CSA the significantly wide gap exists between men and women farmers.

The climate related literacy among the women respondents in the study regions was found that more than 80% of both women and men were aware of climate change. The majority of farmers both men and women perceived a strong to the very strong adverse impact of climate change on crop production in terms of yield and quality loss, water scarcity, new pests and diseases and the impact on soil health. Livestock production has been impacted by the adverse effects of climate change in terms of a decrease in milk yield, increased animal diseases, reduced feed, fodder and water availability for animals use. When it comes to access of climate-related information and capacity building on climate adaptation, the rate of participation of women members of the farm household was very low (5%). Although we found that more than 80% of the women respondents have perceived knowledge about climate change and its impacts and they form about 50% of the farm family workforce, their access to climate information and knowledge is very little. We conclude that poor integration of farm women into the climate adaptation programs is likely to have poor outcomes. Any climate adaptation program cannot achieve its objectives unless it equally builds the capacity of farm women for climate adaptation. This study has helped AICCRA-Senegal to make its interventions on improving climate information services and climate-smart agriculture more gender sensitive.

1. Background and Introduction

Global climate change has become the most significant challenge of modern times, confronting the lives and security of vulnerable societies around the world. Smallholder agriculture where women play a major role, is highly vulnerable to climate change. However due to variations in the nature of roles and responsibilities, access to knowledge and cultural norms, men and women respond and adapt to climate threats differently. Very little is known about how men and women perceive climate change and its causes; how it affects men and women differently and do we need different strategies and policies to support women to adapt to climate change? Therefore, the evidence of gender differences in climate susceptibility is considered as an important reason for the differences in climate risk adaptation by men and women. Often there are substantial differences between adaptation practices used by men and women farmers such as changing planting dates, use of drought tolerant cultivars, shade management, livestock rearing and income from assets disposal. Understanding the dynamics of how male and female farmers perceive climate change and resort to using of different strategies to adapt to climate variability can inform designing gender-sensitive climate-smart agriculture interventions and policies.

Accelerating Impacts of CGIAR Climate Research in Africa (AICCRA) program is being implemented with the ambition to build technical, institutional and human capacities needed to improve the transfer of climate-related information, decision-making tools and technologies in support of climate change efforts. The project started in 2021 in six African countries (Ethiopia, Ghana, Mali, Senegal, Kenya, Zambia), although in the present analysis is a case of Senegal cluster.

The aim of the present study was to understand the gender-differentiated farmers' perception of climate risk and its impact, access to climate information, and adaptation strategies. The study used primary data collected from more than 514 farm households from 18 villages of three sub-regions: Kaffrine, Louga, and Thies covering both Agro-sylvo pastoral and pastoral areas of Senegal. The aim was to examine if the women and men have different perception of climate change and its impact and whether the climate adaptation efforts by various stakeholders integrate gender perspective and women's' focus in commensurate with their role in the farming systems. This gender-disaggregated information and analysis would be useful to design gender sensitive climate adaptation strategies.

2. Gender-wise analysis

The study was conducted in may-june 2022 in three regions of Senegal, namely Kaffrine, Louga and Thies covering 514 households and selection of these study sites represents a diversity in the farming systems of the peanut growing basin of Senegal. First of all, we looked at the share of women in the total adult family workforce available for agriculture and animal husbandry, which is a proxy of the potential role women may be playing in the current farming systems.

1.1. Gender-wise farm households' workforce and their participation

Figure 1 depicts the average labour force availability by gender and clearly shows that women forms fifty per cent of the family workforce available for agriculture and animal husbandry. Each household on average had about 7 adult members available who can or are willing to participate in the workforce to undertake farm activities. Accrossthe three (3) regions, the share of women workforce available ranged from 46% to 52%. As women are being equally placed as the family workforce in agriculture, any climate adaptation strategy will be less effective unless it empowers women farmers with skills that would help them cope and adapt to climate risk. Therefore, gender-disaggregated information and analysis on perception of climate change and its impact and also whether the climate adaptation efforts by various stakeholders integrate gender perspectives and women's focus in commensurate with their role in the farming systems. This gender-disaggregated analysis would help to evaluate how and to what extent women are involved in different activities including households' decision-making and the climate adaptation strategies being implemented by various stakeholders.

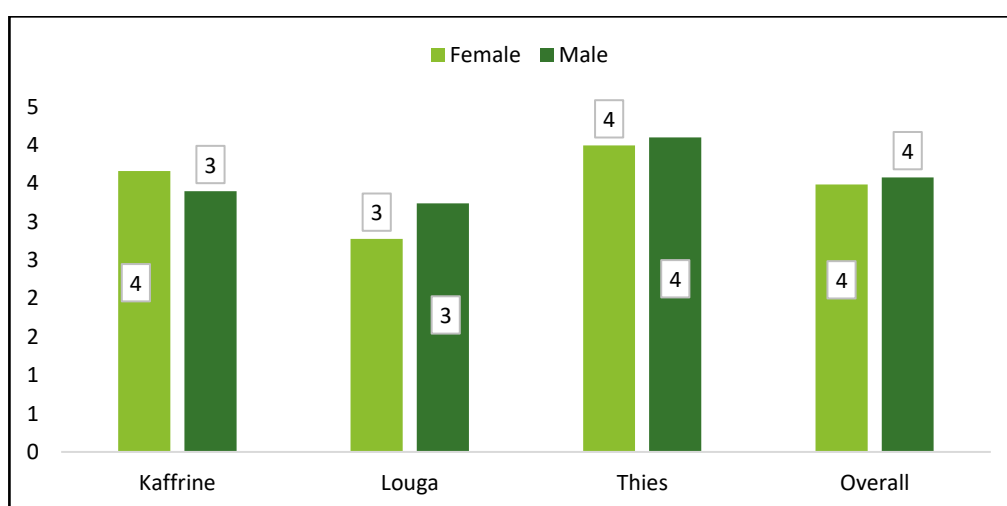


Figure 1: Average labour force availability per household by sex

Though the proportion of women-led households was very small of 2-3 % of the total households. However, among the survey respondents on average 13% were women. The share of women respondents was highest in Louga region (17%) followed by Kafferine (12%) and the Thies (11%). The personal interviews with women of the farm households helped in better understanding improve the qualitative interpretation of results.

1.2. Gender wise labour involvement in crop production

Millets, Peanuts and Cowpeas are the most important crops cultivated in the dryland region of Senegal. These are the crops which are impacted the most due to climatic variability and change. The data shows that the women of the farm family significantly contribute in performing all the major activities starting from land preparation, sowing, weeding, harvesting and threshing. The women's involvement was higher in the weeding, harvesting and threshing. Often women were involved in performing various activities jointly with the male members of the households (Figure 2, 3 and 4). A few activities like threshing of cowpeas and millets were exclusively undertaken by women in some of the households (12 to 14%). The level of presence and involvement of women workforce in the various agricultural activities shows that the climate adaptation efforts cannot be successful unless the capacity of the women workforce is developed and they are empowered.

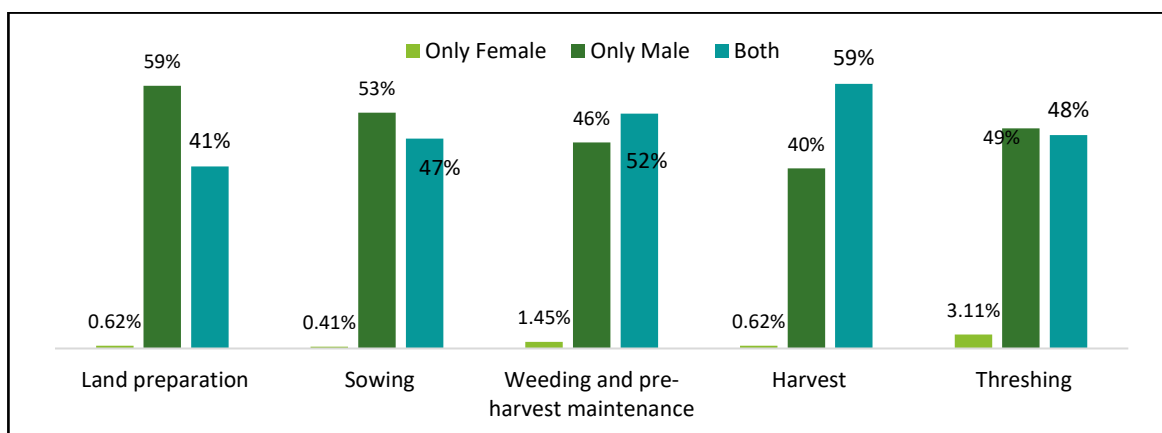


Figure 2: Male and female involvement/participation in peanut production

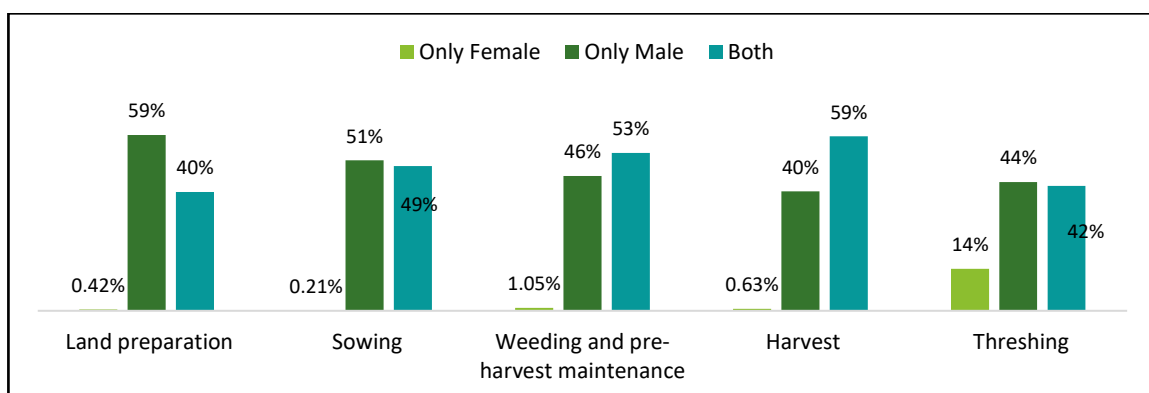


Figure 3: Male and female involvement/participation in millet production

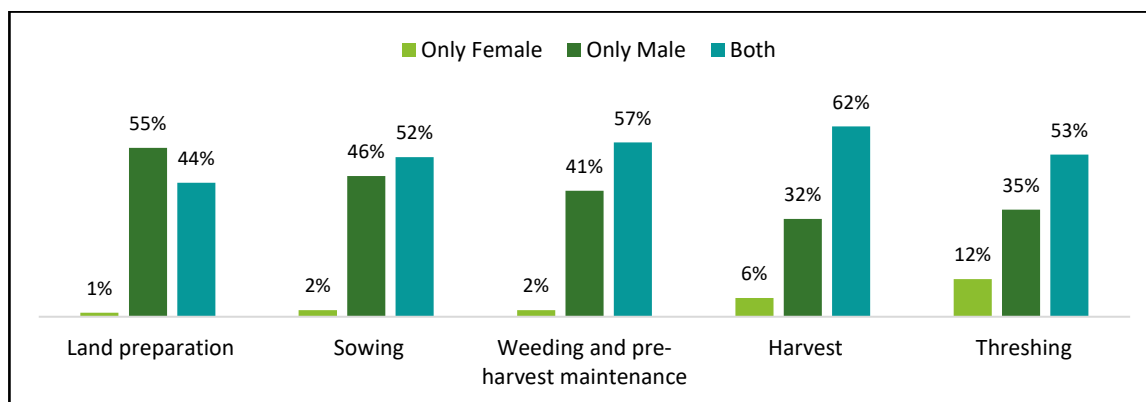


Figure 4: Male and female involvement/participation in cowpea production

3. Perception of the phenomena and impact of climate change

Understanding the gender-differentiated perceptions and awareness of agricultural/rural communities about the climate change phenomena and its current and future impacts is the first step in designing gender-sensitive climate adaptation strategies and programs. In this research we have attempted to understand the perception of men and women about the phenomena of climate change, whether it's happening. And how they perceive the impact of climate change on various components of agriculture and animal husbandry. The respondents were asked three following different questions:

- a) *Have you heard of climate change? (concept/phenomena)*
- b) *Do you understand what climate change means? (knowledge)*
- c) *Do you think climate change is a reality? (impact)*

Further, we asked a set of eleven questions to assess the perceptions of the respondents about the impact of climate change on crop production and a set of seven questions on its impact on livestock production. About thirteen per cent of the respondent were women.

Figure 5 shows that the level of overall climate literacy among respondents is quite high (88 to 93%) and most of them have heard about the phenomena of climate change happening; they were aware of climate change and could relate to the climate extremes. Figure 6 presents the gender-wise analysis where we have tried to figure out how climate literacy varies across gender. Among 67 female respondents, similar to their male counterpart, had very high level of climate literacy, 90% of them have heard about climate change, 85% are aware of what climate change may result in and 88% thought that climate change is real. The difference between men and women in terms of awareness of what climate change does could be attributed to limited access to information among women farmers.

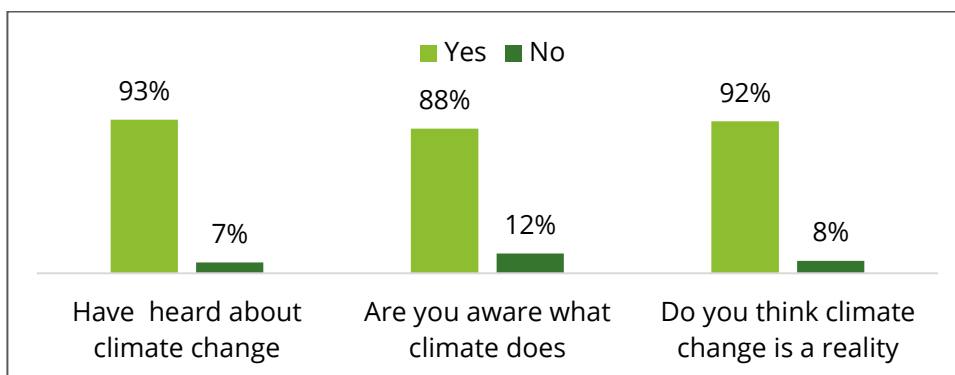


Figure 5: Perception of different dimensions of the term climate change

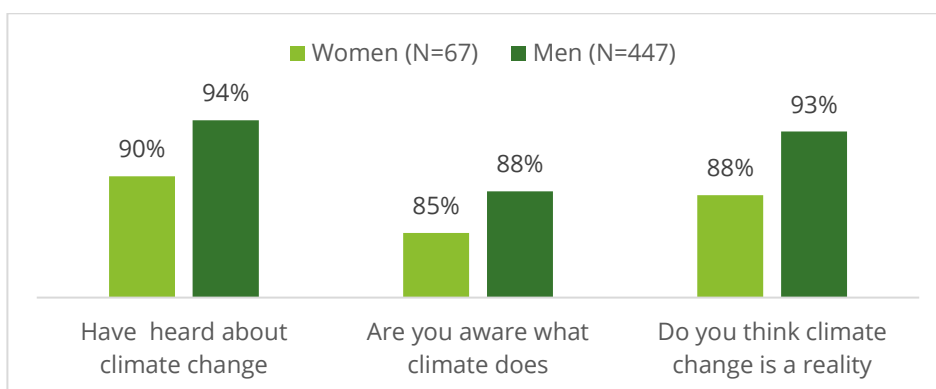


Figure 6: Gender-differentiated farmers perception about climate change phenomena

To assess the gender-differentiated farmers' perception on impact of climate change in crops and livestock, eighteen different questions were formulated out of which 11 were crop related and 7 questions were related to livestock. These questions were asked to each respondent. Figure 7 presents the farmers' perceptions of impacts of climate change on crop production and income by gender. The impacts were captured in the scale of moderate, strong and very strong. Majority of farmers (52% to 72 %) perceived a strong to very strong adverse impact of climate change on crop production in term of yield and quality loss, water scarcity, new pest and diseases and impact of soil health etc (figure 8). In most of the components the level of responses of men and women farmers were similar across three response categories. Among all the questions the highest impact found on 'Quality of agricultural product affected' for women whereas for men it was 'Decrease in crop yield' due to climate change.

Similarly, the farmers' perception on impact of climate change on livestock is depicted in figure 8. A majority of the farmers felt that there is strong adverse impact of climate change in term of decrease in milk yield, animal diseases, feed, fodder and water scarcity for animals. Relatively a little lesser proportion of women as compared men perceived the strong to very strong impact of climate change on livestock production. It might be due to the fact that climate change impacts the livestock often indirectly.

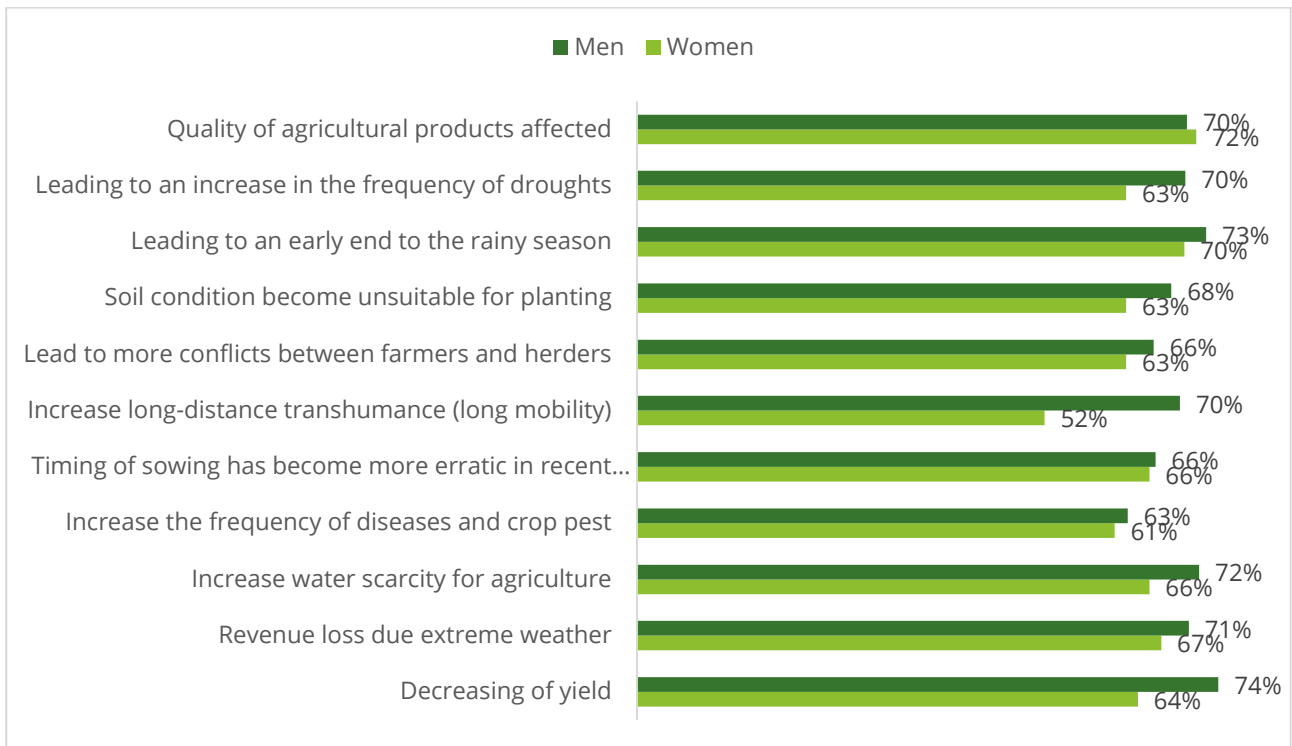


Figure 7: Gender based perception of climate change impact on crops production and revenue

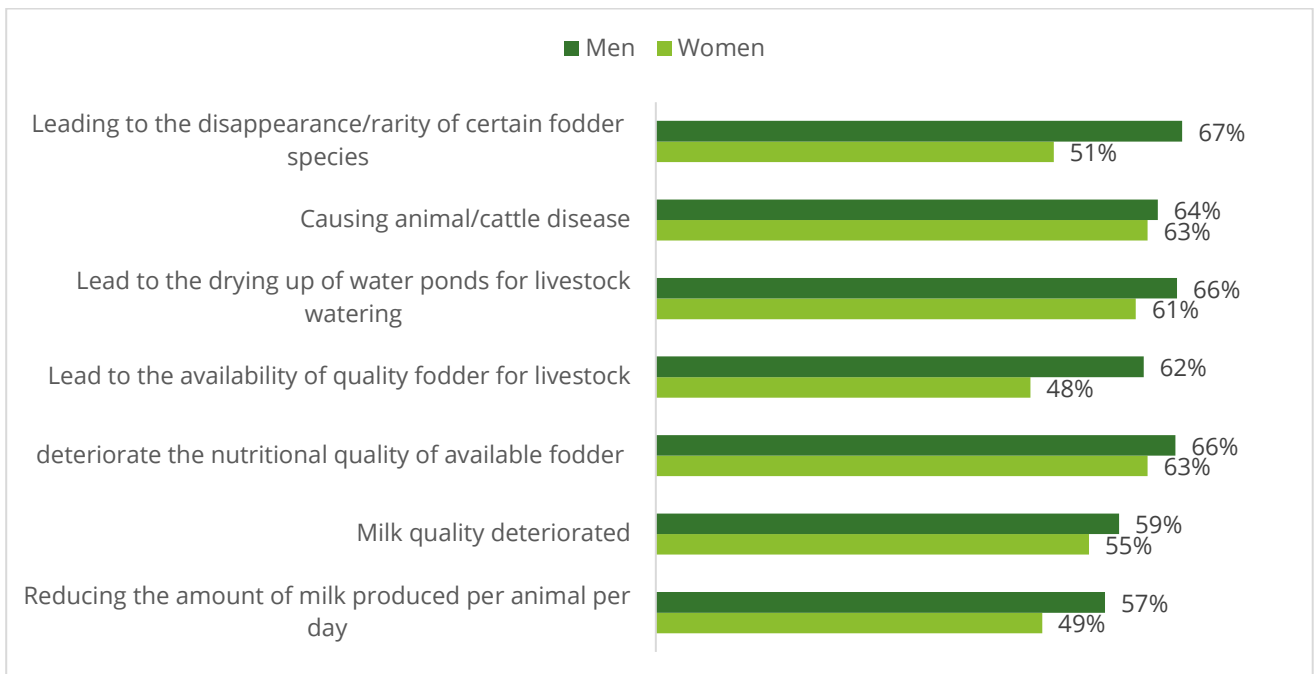


Figure 8: Gender based perception of climate change impact on livestock



4. Access to climate information and training on climate smart agriculture

There were a number of channels through which the households received climate related information and knowledge. In the study we try to analyze who among the households' members have access to and are receiving climate information whether it is a man or a woman member. It is found that out of 514 households about 78% of these households received climate information or some kind of training on climate adaptation from credible sources, while 22% of the households did not have any access to climate information. A total of 78% of the households have either access to climate information or got training on CSA and 22% did not have access. Among those 78% who had access to climate information services or CSA training, it were the male members in 73% households. Surprisingly only in 5% of the households the female members received climate-related information or training on CSA. (figure 9).

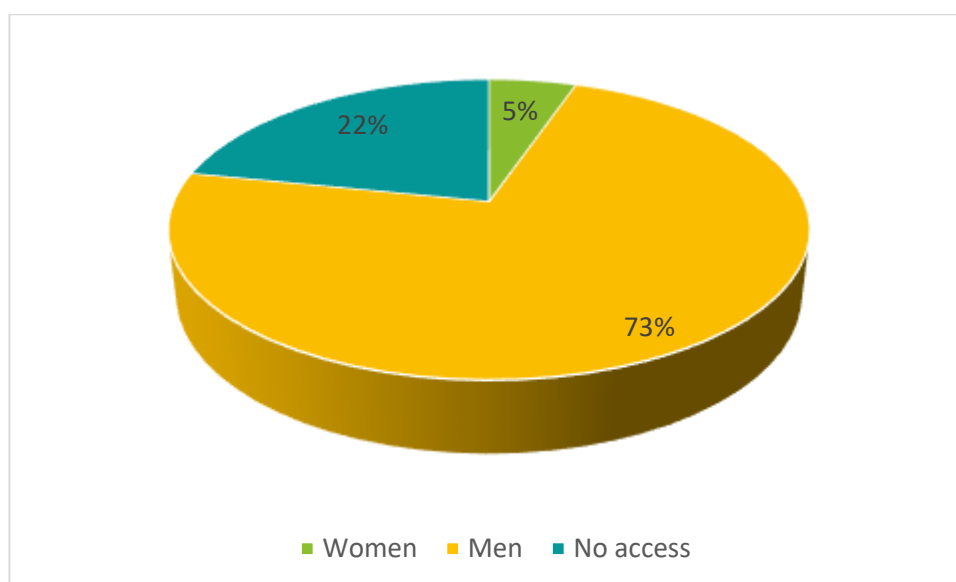


Figure 9: Proportion of household getting access to climate information/training on CSA and who receive it by sex



5. Conclusion

The present study attempts to understand the gender-differentiated farmers' perception of climate risk and its impact, access to climate information, and adaptation strategies. The climate-related literacy among the women respondents in the study regions was quite high; more than 80% of women and men were aware of climate change. The majority of farmers both men and women perceived a strong to very strong adverse impact of climate change on crop production in terms of yield and quality loss, water scarcity, new pests and diseases and the impact on soil health. And on livestock production in terms of decrease in milk yield, animal diseases, feed, fodder and water scarcity for animals. It has been found that when it comes to access to climate-related information and capacity building on climate adaptation, the rate of participation of the women members of the farm household was as very low which was only about 5%. Although we found that more than 80% of the women respondents have perceived knowledge about climate change and its impacts and they form about 50% of the farm family workforce. However, their access to climate information and training on CSA is very little. We conclude that poor integration of women farmers into the climate adaptation programs is likely to have poor outcomes. Any climate adaptation program cannot achieve its objectives unless it equally builds the capacity of women farmers on climate adaptation.

This study has helped AICCRA-Senegal to make its interventions on improving climate information services and climate-smart agriculture more gender sensitive.



AICCRA
Accelerating Impacts of CGIAR
Climate Research for Africa



About AICCRA

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

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

Discover more at aiccra.cgiar.org

AICCRA is led by:
Alliance



AICCRA is supported by the International

