

Baseline Study of the Resilience Food Security Activities (RFSAs) in Niger: Final Report



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IMPEL | Implementer-Led Evaluation & Learning Associate Award



ABOUT IMPEL

The Implementer-Led Evaluation & Learning (IMPEL) Associate Award works to improve the design and implementation of Bureau for Humanitarian Assistance (BHA)-funded resilience food security activities (RFSAs) through implementer-led evaluations and knowledge sharing. Funded by the United States Agency for International Development (USAID) BHA, IMPEL will gather information and knowledge in order to measure performance of RFSAs, strengthen accountability, and improve guidance and policy. This information will help the food security community of practice and USAID to design projects and modify existing projects in ways that bolster performance, efficiency, and effectiveness. IMPEL is a seven-year activity (2019-2026) implemented by Save the Children (lead), TANGO International, Tulane University, Causal Design, and Innovations for Poverty Action.

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Sincerely,

Tim Frankenberger, President

TANGO International

TABLE OF CONTENTS

Acknowledgements	i
List of Tables and Figures	v
Acronyms.....	vii
Executive Summary	viii
1. Introduction	1
1.1 Overview of the Baseline Study	1
1.2 Background on RFSAs.....	1
1.3 Country context	3
1.3.1 Background	3
1.3.2 Overview of the Current Food Security Situation	3
2. Methodology and Limitations	6
2.1 Study Design.....	6
2.2 Sample Design.....	6
2.3 Questionnaire Design.....	8
2.4 Field Procedures.....	11
2.4.1 Timing of the Survey	11
2.4.2 Listing Exercise	12
2.4.3 Training.....	12
2.4.4 Pilot	13
2.4.5 Fieldwork.....	13
2.5 Data Analysis	14
2.5.1 Sampling Weights	14
2.5.2 Indicator Definitions and Tabulations.....	16
2.6 Study Limitations and Issues Encountered	16
2.6.1 Study Limitations.....	16
2.6.2 Issues Encountered During Fieldwork.....	18
2.7 Qualitative Data	19
3. Findings.....	20
3.1 Characteristics of the Study Population.....	20
3.2 Activity Participation	24
3.3 Household Food Security	25

3.3.1 Relationship Between Crops Harvested and Food Consumption Score	27
3.3.2 Practices Associated with Household Food Security	28
3.4 Agriculture	31
3.4.1 Type of Land Access and Farmland Size	31
3.4.2 Use of Financial Services	35
3.4.3 Use of Improved Post-Harvest Handling and Storage Practices	39
3.4.4 Use of Improved Crop Practices.....	40
3.4.5 Use of Improved Livestock Practices.....	51
3.4.6 Factors Affecting Adoption of Improved Practices	55
3.5 Water, Sanitation, and Hygiene.....	60
3.5.1 Drinking Water Source	60
3.5.2 Sanitation Facility	62
3.5.3 Handwashing Station	64
3.5.4 Knowledge of Critical Moments for Handwashing	64
3.6 Women’s Health and Nutrition.....	66
3.6.1 Women’s Minimum Dietary Diversity.....	66
3.6.2 Antenatal Care.....	70
3.6.3 Contraceptive Methods: Knowledge, Use and Decision-Making.....	70
3.7 Children’s Health and Nutrition	72
3.7.1 Children’s Minimum Dietary Diversity	72
3.7.2 Diarrhea and Oral Rehydration Therapy	76
3.8 Gender	77
3.8.1 Gender and Cash-Earning Activities	77
3.8.2 Gender and Group Participation	78
3.8.3 Gender Differences in Access to and Decisions About Credit.....	79
3.9 Resilience	81
3.9.1 Perceptions of Local Government Capacity to Respond Effectively to Future Shocks and Stressors.....	81
3.9.2 Social Capital	81
3.9.3 Household Participation in Group-Based Savings, Microfinance, or Lending Programs	83
4. Conclusions and Recommendations	84

Volume II Annexes

Annex 1: FFP Burkina Faso and Niger Baseline Protocol

Annex 1a: Revisions to Sampling

Annex 1b: Training Schedule

Annex 1c: Informed Consent Statement

Annex 2: Questionnaire

Volume III Annexes

Annex 3: 2020 Niger Baseline Study Personnel

Annex 4: Summary of Data Treatment and Analysis

Annex 5: Tabular Summary of Indicators

Annex 6: Descriptive Tables

Annex 7: Bivariate and Multivariate Tables

Annex 8: COVID-19 Awareness, Impacts, and Coping Strategies

LIST OF TABLES AND FIGURES

Table 1: Geographic coverage of RFSA, Niger	2
Table 2: Sampled households, by RFSA area	8
Table 3: Indicators measured in the 2020 baseline survey of the RFSA in Niger	9
Table 4: Response rates by sampling group and RFSA area, Niger 2020 RFSA baseline survey	15
Table 5: Household characteristics, total and by RFSA area	23
Table 6: Sex and age distribution of farmers, by RFSA area (%)	31
Table 7: Heat map of adoption of targeted improved crop practices and technologies, by RFSA area and crop	40
Table 8: Distribution of sorghum farmers by sex and age in the RFSA areas, Niger (%)	43
Table 9: Distribution of millet farmers by sex and age in the RFSA areas, Niger (%)	45
Table 10: Distribution of cowpea farmers by sex and age in the RFSA areas, Niger (%)	47
Table 11: Distribution of peanut farmers by sex and age in the RFSA areas, Niger (%)	49
Table 12: Sex and age distribution of goat, sheep, and poultry farmers by RFSA area, Niger (%)	51
Table 13: Heat map of adoption of targeted improved livestock practices and technologies – goats and sheep, by RFSA area	52
Table 14: Heat map illustrating adoption of targeted improved livestock practices and technologies – poultry, by RFSA area	52
Table 15: Targeted improved crop and post-harvest practices more likely to be applied by farmers using a financial service than farmers who are not, by RFSA area and commodity	56
Table 16: Targeted improved livestock practices more likely to be applied by farmers using a financial service than farmers who are not, by RFSA and commodity	57
Figure 1: Seasonal calendar for a typical year, Niger	5
Figure 2: Share of key demographic groups from the overall population, combined RFSA areas	22
Figure 3: Household receipt of social assistance among direct and indirect participants, by RFSA area ..	24
Figure 4: Mean Food Consumption Score and distribution of households by FCS group and RFSA area ..	26
Figure 5: Frequency of consumption of food groups, by RFSA area	27
Figure 6: Percent of harvest completed, by RFSA area	28
Figure 7: Summary of statistically significant findings from the bivariate analyses of household food consumption score	30
Figure 8: Type of land access by farmer's sex, combined RFSA areas	33
Figure 9: Type of land access by farmer's age, combined RFSA areas	33
Figure 10: Area of total farmland cultivated (hectares), by sex of farmer; combined RFSA areas	34
Figure 11: Use of any financial services, by sex of farmer and RFSA area	37
Figure 12: Use of agricultural credit and savings schemes, by sex of farmer and RFSA area	39
Figure 13: Sorghum farmers adopting targeted improved crop practices, by RFSA area (%)	44
Figure 14: Millet farmers adopting targeted improved crop practices, by RFSA area (%)	46
Figure 15: Cowpea farmers adopting targeted improved crop practices, by RFSA area (%)	48
Figure 16: Peanut farmers adopting targeted improved crop practices, by RFSA area (%)	50

Figure 17: Farmers adopting targeted improved livestock practices, by livestock type and RFSA area and percent	54
Figure 18: Household drinking water source facility, by RFSA area	62
Figure 19: Household sanitation facility, by RFSA area	63
Figure 20: Percentage of households with knowledge of the critical moments for handwashing, by RFSA area	65
Figure 21: Food groups consumed by women 15–49 years, combined RFSA areas	68
Figure 22: Statistically significant associations between MDD-W and intervention-specific factors.....	69
Figure 23: Knowledge of modern family planning methods among women 15–49 in a union, by RFSA area	71
Figure 24: Contraceptive use among non-pregnant women 15–49 years in a union, by RFSA area	72
Figure 25: Food groups consumed by children 6–23 months, combined RFSA areas.....	75
Figure 26: Gender gap in participation in cash-earning activities, by RFSA area	77
Figure 27: Gender gap in community group participation, by RFSA area	78
Figure 28: Gender gap in access to and decisions about credit, by RFSA area.....	80
Figure 29: Social capital and component indices, by RFSA	82

ACRONYMS

ANC	Antenatal care
BHA	Bureau for Humanitarian Assistance
DEMI-E	<i>Développement pour un Mieux Être</i>
DFAP	Development Food Assistance Program
DHS	Demographic and Health Survey
ECVM/A	Niger National Survey On Household Living Conditions and Agriculture
FAO	Food and Agriculture Organization
FCS	Food Consumption Score
FEWS NET	Famine Early Warning Systems Network
FFP	Food for Peace
FMNR	Farmer-managed natural resource generation
GIEWS	Global Information and Early Warning System
IMPEL	Implementer-Led Evaluation and Learning Associate Award
IP	Implementing partner
MDD-C	Minimum Dietary Diversity – Children
MDD-W	Minimum Dietary Diversity – Women
NRM	Natural resource management
OFDA	Office of Foreign Disaster Assistance
ORT	Oral rehydration therapy
RFSa	Resilience Food Security Activity
RISE	Resilience in the Sahel-Enhanced
PBS	Population-based survey
TANGO	Technical Assistance to NGOs
ToT	Training of trainers
USAID	United States Agency for International Development
VSLA	Village Savings and Loan Association
WASH	Water, sanitation, and hygiene
WFP	World Food Program

EXECUTIVE SUMMARY

This report is a baseline study of three Resilience Food Security Activities (RFSAs) funded by the United States Agency for International Development (USAID) Bureau for Humanitarian Assistance (legacy Office of Food for Peace [FFP] in Niger. Part of the Resilience in the Sahel-Enhanced (RISE) initiative, the RFSAs in Niger are: *Girma* in the Zinder region, implemented by Catholic Relief Services; *Hamzari* in the Maradi region, implemented by CARE; and *Wadata* in the Zinder region, implemented by Save the Children. The RFSAs aim to address critical challenges in food security, nutrition, and poverty, and to improve the resilience of households and communities.

The baseline study was conducted by Technical Assistance to Non-governmental Organizations (TANGO) International with its local partner, Bagna Solutions, under the Implementer-Led Evaluation and Learning (IMPEL) Associate Award. The purpose of the study is to provide baseline population-level estimates for a limited number of intermediate but critical outcome indicators as a comparison for the interim performance and final evaluations. Given that the study does not include a qualitative component, survey results are integrated with qualitative data and information from relevant recent studies conducted in Niger—namely, the 2020 USAID RISE I impact evaluation endline and the 2017 performance evaluation of USAID Title II Development Food Assistance Programs (DFAPs) in Niger. Secondary sources were used to gain additional context and understanding of prevailing conditions and perceptions in the RFSA areas and to inform conclusions and recommendations, which were further refined based on feedback received from implementing partners during a series of data utilization workshops.

Study Design

The baseline study included a representative population-based survey (PBS) of 2,325 households (775 households per RFSA area). Data collection was scheduled for May–April 2020 but due to the COVID-19 pandemic fieldwork was suspended until local regulations and conditions indicated that face-to-face interviewing could safely resume with COVID-19 mitigation procedures in place. The survey was conducted in September 2020 and ended at the start of the harvest period in October 2020. The sample was selected using a multi-stage clustered sampling design to provide a statistically representative sample of the three RFSA areas. The questionnaire was streamlined from the standard FFP questionnaire for a non-permissive environment. Estimates of impact-level indicators pertaining to poverty and anthropometry were expected to be derived from the RISE II baseline survey, scheduled to take place a few months after the RFSA baseline survey.

Study Limitations

Timing of the survey: Data collection was originally planned to take place in March–April 2020 but due to COVID-19 restrictions was re-scheduled to September, ahead of the main harvest season in October, to avoid an upward bias of food security estimates. Despite efforts to avoid spillover into the harvest period, data collection ended on October 11. Because of this and because RFSA interventions began before the survey could be conducted, the estimates may not necessarily reflect a true “baseline.”

Limitations of combining data sources: The original plan to derive poverty and anthropometry indicators not collected by the baseline study from the RISE II baseline survey was complicated by the

delay of RISE II baseline data collection to August–September 2021. While RISE II baseline timing coincides with about the same timeframe as this baseline, the impact-level indicator data will be separated from the current baseline data by approximately 12 months. This could result in differences in price and market data, which will also likely be affected by the COVID-19 pandemic.

Validity and reliability of self-reported data: Most data collected for the household survey are self-reported. The reliability of self-reported data is particularly challenging for questions related to agricultural yield because farmers may not be able to provide correct estimates. Steps taken to minimize the effect of errors include 1) applying conversion factors to render non-standard units suitable for analysis; 2) obtaining plausible weight ranges for goats and sheep and using these as a data reliability check; and 3) identifying outliers in plot size and livestock weights in the preliminary analysis of yield-related data. Several post-data collection-processing routines were performed to address outliers, but considering the measurement challenges described above, no further analysis of the yield data was performed.

Non-response: To account for potential non-response, the study design uses a higher-than-usual non-response factor of 25%. Field teams were also trained to explain to respondents the study objectives and measures to preserve respondents' anonymity and thus encourage participation.

Key Findings and Conclusions

Key findings are presented for each topic; each set of findings is immediately followed by conclusions and recommendations.

Food Security

Food Consumption Score (FCS) and FCS groups: Baseline estimates indicated higher-than-expected food consumption in the RFSA areas; most households across the three RFSA areas achieve an *acceptable* FCS (Girma, 75.6%; Hamzari, 76.5%; Wadata, 85.9%). The average FCS exceeds the standard threshold for acceptable food consumption (35) in each of the RFSA areas (Girma, 48.3; Hamzari, 51.5; and Wadata, 56.2). Statistical analyses did not indicate an association between the percentage of harvest completed and household FCS; however, it is possible that the timing of the survey, which overlapped with the start of the harvest period, may have resulted in inflated results since more than 80% of households had harvested at least some of their crops at the time of the survey. Other households may have received food items from households that harvested their crops, and/or may have purchased food items from the market.

The higher-than-expected levels of food security in the RFSA areas may also be related to the methodology of calculating the indicator. FCS is more likely to overstate food security compared to most indicators.¹ FCS factors in the frequency of consumption of eight food groups and assigns higher weights to more-nutritious, micronutrient-dense foods, but the weights and thresholds assigned to the FCS groups may need adjustment: the FCS does not consider quantities consumed, so food groups with a high weight (such as pulses and meat) that are consumed frequently but in small quantities will

¹ Maxwell, Daniel, Jennifer Coates, and Bapu Vaitla (2013). *How Do Different Indicators of Household Food Security Compare? Empirical Evidence from Tigray*. Feinstein International Center, Tufts University: Medford, USA.

artificially inflate the FCS value. Further analysis is needed to determine whether an adjustment in weights and/or thresholds is relevant for the Nigerien context.

Households across the RFSA areas consume staples almost daily. Pulses are consumed almost 5 days per week. Intake of animal-based proteins is infrequent (1–3 days per week across all households in the combined RFSA areas). Intake of fruits and vegetables is also rare (0–1 day per week). Agriculture-related trainings could focus on growing new types of fruits and vegetables. Limited financial resources, especially during the lean season, may constrain households' abilities to incorporate diverse food groups on a frequent basis, and households that grow more nutritious foods may opt to sell them. Increasing the use of improved post-harvest storage can help households extend food provisioning for a few months during the lean period. Qualitative research and/or cost-of-diet studies could help identify locally available nutritious wild foods and/or cheaper foods to promote for household consumption.

There is some evidence that household food consumption increases with access to financial services, certain livestock holdings, the application of soil-related fertility practices, and the adoption of improved post-harvest handling and storage practices. This underlines the importance of layering interventions that aim to improve food access and incomes through nutrition-sensitive agriculture programming.

Agriculture

The baseline survey collected information on size of farmland, use of financial services, and adoption of targeted improved crop, livestock, and post-harvest handling and storage practices for each commodity of interest (sorghum, millet, cowpeas, and peanuts) as well as on improved livestock practices for raising goats, sheep, and poultry. Enumerators interviewed all farmers with access to a plot of land over which they make decisions and all farmers with access to livestock over which they make decisions.

Use of financial services: Use of agriculture-related financial services is low in the RFSA areas (Girma, 36.6%; Hamzari, 23%; Wadata, 25.8%). Farmers are more likely to take loans than participate in saving schemes, and male farmers are more likely to take out an agricultural loan compared to female farmers. Agriculture-related meetings and trainings could focus on improving financial literacy and build on traditional community-based borrowing mechanisms to increase the use of financial services. There is a need to understand barriers on the demand side such as lack of financial literacy, lack of collateral, high interest rates, and household indebtedness, but also supply-side factors such as the willingness of formal lenders to facilitate access to agricultural credit to smallholder farmers.

Application of targeted improved management practices: The practices most commonly adopted by farmers across all four crops of interest are the application of organic manure, crop association, sowing after first useful rains, and delimiting animal corridors and pasture areas. Adoption rates for these practices range between moderate (about 20% to 49%) to widespread (about 50% or more). Less than 10% of farmers in the RFSA areas use improved seed varieties, pest and disease management practices, non-irrigation-based agricultural water practices, or climate adaptation and risk mitigation practices. Findings from the RISE I program suggest that farmers are more likely to adopt practices with demonstrable results and those that are passed down across generations, and less likely to adopt practices they perceive as risky or that require cash inputs. Encouraging experimentation and focusing on field demonstrations to raise the visibility of the efficacy of approaches could be useful, with benefits extending to the wider population. Knowledge of whether farmers are applying practices correctly

would be useful to determine the quality of implementation and whether the chosen practice suits their individual context, since these factors can affect agricultural productivity.

Locally made storage structures such as metal silos are the most-used type of improved post-harvest storage practice, followed by sealed/airtight bags. These structures are not equally effective at keeping out moisture, insects, pests, and rodents. Future interventions could focus on building capacity to use more-effective locally made storage structures. A better understanding of post-harvest loss per crop, drivers of loss, and the role of the myriad factors that can reduce loss would be helpful for informing future initiatives.

Vaccination of goats and sheep is at moderate levels (20%–49%) across the RFSA areas. Use of vaccination among poultry farmers ranged from 3.5% in the Wadata RFSA area to 18.8% in the Girma and 30.7% in the Hamzari RFSA areas. There was moderate use of antiparasitic treatment of goats and sheep (20%–49%). With a few exceptions, less than 10% of goat and sheep farmers used animal selection, improved fodder production, licking and multi-nutritional blocks, para-veterinary services, veterinary monitoring of food quality and quantity, weight monitoring, and optimum weight market prices. About 10% or less of poultry farmers use improved poultry breeds, improved feed, or improved shelters. Future initiatives should consider the extent to which livestock farmers are able to access existing veterinary services (such as government programs) on a permanent basis and farmers' ability to afford veterinary services and products. Further research should be undertaken to assess the extent of these potential barriers.

Relationship between application of targeted improved practices and use of financial services: There is some evidence from this baseline study that farmers who accessed agricultural credit are more likely to adopt targeted improved agricultural management practices such as using improved seed varieties, applying phosphatic manure or micro-doses of fertilizer, treating grains with agro-chemicals, and using community facilities or warehouses, sealed/airtight bags or triple bags to store grains. Use of licking and/or multi-nutritional blocks and paraveterinary services was higher among goat and sheep farmers who took out an agricultural loan compared to those who did not. Poultry farmers who took agricultural credit were more likely to use improved breeds and veterinary products compared to poultry farmers who did not. These results underline the importance of integrating interventions in financial services and agricultural techniques.

Water, Sanitation, and Hygiene (WASH)

Drinking water, sanitation, and hygiene facilities: Access to a basic sanitation facility is low across the RFSA areas (Girma, 5%; Hamzari, 13%; Wadata, 4.4%). The overwhelming majority of households have no basic sanitation facility and practice open defecation (Girma, 90.3%; Hamzari, 73.4%; Wadata, 87.7%). Because the survey did not collect information on year-round water access, the official indicator for access to a basic water source cannot be calculated. Instead, the percentage of households whose water source meets all other criteria (i.e., improved source; 30 minutes or less round trip; production of at least 20 liters per person per day; and no interruptions in the last 2 weeks) was calculated. Few households have access to a drinking water source that meets all four criteria (Girma, 22.7%; Hamzari, 30.8%, Wadata, 11.1%). The percentage of households with a handwashing station with soap or ash varied from 8.9% in the Girma RFSA area to 18.2% and 40.6% in the Wadata and Hamzari RFSA areas, respectively.

Results from studies of previous programs, such as the 2012–2017 DFAPs and the RISE I program, point to several barriers to achieving WASH objectives, such as the costs of materials and labor for building improved latrines, cost of purchasing soap or cleaning agents, engineering issues around certain latrine types, and cultural preferences. Future interventions could consider supporting approaches that finance the construction of WASH facilities through community-based savings and credit vehicles; marketing different design models that are accepted by the community; and supporting community-based service-provider models so that materials are locally available and affordable.

Nearly all households are knowledgeable about the importance of handwashing before eating. Households were less likely to report other critical moments for handwashing. Sensitization should focus on the latter, namely, before cooking and food preparation, before breastfeeding or feeding children, and when engaging in activities posing a risk of fecal contact. Additional research could be helpful to better understand which WASH messages households prioritize and why.

Women’s Health and Nutrition

Dietary diversity, antenatal care (ANC), and family planning: Less than one-half of women of reproductive age in the RFSA areas achieve a diet of minimum diversity. Findings from other qualitative studies indicate that kitchen demonstrations, in which women from the community show how to incorporate diverse, locally available, affordable food and wild foods into daily meals could be useful.

There is some evidence that household access to and use of financial services and the adoption of improved agricultural management practices translate into a higher likelihood of women achieving minimum dietary diversity. RFSAAs should thus continue to integrate activities that promote savings and access to credit with interventions that foster the adoption of improved agricultural practices.

More than one-third of the most-recent births that occurred in the 5 years prior to the survey received at least four ANC visits by a skilled health professional. Behavior-change communication efforts should continue to emphasize the importance of ANC, focusing on frequency and timing of the visits and who is qualified to provide those services. Behavior change communication should also target men via husband schools and/or husband-wife meetings so that fathers can support women in ANC visits and other aspects of pregnancy.

Knowledge of modern contraceptive methods among women in a union is widespread in the RFSA areas, ranging from 61.2% in the Wadata RFSA area to 71.6% and 74.5% in the Girma and Hamzari RFSA areas, respectively. In contrast, very few women use any form of modern or traditional family planning (Wadata, 14.1%; Girma, 14.8%; Hamzari, 21.8%). Most women who use modern contraception participated in the decision to use modern family planning (Girma, 81%; Hamzari, 77.3%; Wadata, 68.1%). Further exploration is needed to identify and address barriers to using family planning, including cultural or religious beliefs and affordability of consultation services and contraception. Sensitization efforts around contraception (e.g., role of family planning and benefits of birth spacing) should target both women and men and underscore the significance of family planning for the well-being of women and the overall family.

Children’s Health and Nutrition

Dietary diversity, diarrhea, and oral rehydration therapy (ORT): Grains, roots and tubers, vitamin-A-rich fruits and vegetables, and legumes and nuts are consumed by more than two-thirds of children aged 6–

23 months across the RFSA areas, but the prevalence of children aged 6–23 months achieving a diet of minimum diversity (MDD-C) is moderate and varied (Girma, 37.8%; Hamzari, 54.6%; Wadata, 46.3%). RFSA should continue to raise awareness among primary caregivers on the health benefits of complementary feeding and the appropriate time to introduce complementary foods without cutting back on breastfeeding. Sensitization around complementary feeding could be rolled into ANC and perinatal care visits and through mothers' groups with demonstrations on how to integrate diverse foods into children's meals.

About one-third of children under 5 years experienced diarrhea in the 2 weeks preceding the survey. Among children who experienced diarrhea, close to one-half received ORT. Bivariate analyses of the prevalence of diarrhea among children under 5 years indicated no difference in diarrhea prevalence by household WASH status except for lower prevalence with the use of basic sanitation facilities in the Girma and Wadata RFSA areas. While access to WASH facilities is generally correlated with use, access does not guarantee households are using those facilities. Although previous qualitative studies in the country have underscored growing awareness of the importance of WASH practices, there is a need to continue sensitization on the linkages between diarrhea and basic hygiene. Additional sensitization focused on how to prepare homemade alternatives to oral rehydration salts would be helpful given challenges in accessing health centers and the cost of those services.

Gender, group participation and access to credit: In each of the RFSA areas, the percentage of women in a union participating in paid work is less than one-half that of men in a union participating in paid work. Close to two-thirds of men in a union in the Hamzari (66.6%) and Girma (65.5%) RFSA areas are paid in cash or a combination of cash and in-kind, compared to one-third of women in a union (Hamzari, 37.5%; Girma, 35.6%). In the Wadata RFSA area, participation in cash-earning activities among individuals in a union is lower for men and women (47.6% and 21.4%, respectively), suggesting few cash-earning opportunities.

Between one- and two-thirds of women and men belong to community groups, and group membership is generally lower among women than among men. The most common groups for women are credit or microfinance groups, savings groups, mutual help or insurance groups, and mothers' groups. The most common groups for men are producers' groups, trade and business associations, water users' groups, communal grazing land groups, religious groups, youth groups, and conflict resolution groups. A better understanding of the barriers to group membership is needed. Women's time constraints may limit their ability to participate in community groups; sensitization of women and men on homemaking and childrearing as collaborative processes could free up women's time to participate in community groups and cash-earning opportunities.

Most women and men had some input into the decision to borrow and/or what to do with any loan taken by the household in the past 12 months. Joint credit decision-making is generally less prevalent than deciding alone, especially in the Hamzari RFSA area, where just 11% of men and 19% of women, decide jointly. Men are more likely than women to make credit decisions alone. Sensitization of men through fathers' groups or husband school could also enhance the sharing of household decision-making, including women's ability to decide whether to borrow and what to do with the loan.

Resilience

More than one-half of households across the RFSA areas believe that local government institutions can respond effectively to future shocks and stresses (Girma, 63.8%; Hamzari, 60.1%; Wadata, 55.6%). The bonding social capital index score is generally higher than the bridging social capital score, suggesting that social obligation networks are stronger within the community than outside. Few households in the RFSA areas participate in group-based savings, microfinance, or lending programs (Girma, 12.9%; Hamzari, 3.4%; Wadata, 2.8%). There is some evidence that household participation in community-based credit groups is associated with a higher FCS and that participation in community-based savings groups is associated with a higher percentage of women achieving a diet of minimum diversity. Further investigation is merited to understand better those linkages and how to expand access to financial services via community-based groups.

1. INTRODUCTION

1.1 Overview of the Baseline Study

In fiscal year 2018, the USAID Office of Food for Peace funded three 5-year Resilience Food Security Activities in the Maradi and Zinder regions of Niger. In 2020, FFP merged with the Office of Foreign Disaster Assistance (OFDA) to form the Bureau for Humanitarian Assistance (BHA) to streamline USAID humanitarian responses. BHA provides life-saving humanitarian emergency and non-emergency aid—including food, water, shelter, sanitation and hygiene, and nutrition services—to the world’s most vulnerable and hardest-to-reach populations. The goal of the 2018 RFSA awards is to address critical challenges in food security, nutrition, and poverty, and to improve the resilience of households and communities.

Technical Assistance to NGOs (TANGO) International was contracted under the IMPEL Associate Award to conduct a baseline study in the RFSA implementation areas. The baseline study includes a population-based household survey (PBS) and qualitative information from secondary sources. TANGO contracted a local firm, Bagna Solutions, to perform the data collection for the PBS. The primary purpose of the PBS is to provide baseline population-level estimates for a limited number of intermediate but critical outcome indicators and a limited number of additional indicators proposed by the USAID Mission and implementing partners (IPs). These indicators will serve as points of comparison for the interim performance evaluation and future endline PBS. The baseline study results will be used to refine program targeting and, where possible, inform program design by exploring relationships among variables based on the project theory of change.

1.2 Background on RFSAs

Part of the RISE initiative, the RFSAs in Niger are:

- *Girma* in the Zinder region, implemented by Catholic Relief Services (CRS) in partnership with *Développement pour un Mieux Être* (DEMI-E), Community Development Assistance, Education Development Center, International Crops Research Institute for the Semi-Arid Tropics, Institute for Reproductive Health at Georgetown University, Tufts University and Viamo;
- Hamzari in the Maradi region, implemented by CARE in partnership with L’Association pour la Redynamisation de L’Elevage au Niger, *Association Nigérienne pour le Bien-Etre Familial*, Karkara, DEMI-E and WaterAid; and
- *Wadata* in the Zinder region, implemented by Save the Children in partnership with the National Cooperative Business Association CLUSA, the Kaizen Company and DEMI-E.

Table 1 provides additional details on the geographic coverage of each RFSA.

Table 1: Geographic coverage of RFSA, Niger

RFSA/IP	Region	Communes	Number of villages	Number of Households	Number of individuals
Girma/ Catholic Relief Services	Zinder	Bande Dantchio Dogo-Dogo Dungass Gouchi Kaway Magaria Malawa Sassoumbroum Wacha Yekoua	689	153,271	1,072,897
Hamzari/ CARE	Maradi	Chadakori Guidan Roudji Guidan Sori	325	40,089	332,793
Wadata/ Save the Children	Zinder	Damagaram-Takaya Guidimouni Mazamni Guidiguir	641	45,493	263,804

Source: The information in this table is generated from the censuses performed by each of the IPs in their respective areas. In the case of Girma, the number of individuals was estimated using census information on the number of households and assuming an average household size of seven members.

Although the approach for each RFSA differs, all RFSA implement activities across technical sectors, layering and sequencing interventions at both the individual and household levels. Key interventions are designed around improving food access and incomes through agriculture and other livelihoods initiatives; enhancing natural resource and environment management; combating undernutrition, especially for children under 2 years and pregnant and lactating women; and mitigating disaster impact through early warning and community preparedness activities.

This report begins with an overview of the current food security situation in Niger. Section 2 describes the methods used for the PBS and limitations of the study design. Section 3 presents the PBS findings, organized by sector. Where possible, the results of the quantitative analyses are integrated with qualitative data and information from secondary sources to gain additional context and understanding of prevailing conditions and perceptions of the populations in the RFSA implementation areas. The report ends with conclusions and recommendations based on key findings.

1.3 Country context

1.3.1 Background

Niger has an estimated population of 24.2 million people (2020)² and is the second-least urbanized country in Africa (16% urban).³ The country ranks last of the 189 countries on the Human Development Index, with a Human Development Index score of 0.394 (2020).⁴ Niger's economy is highly dependent on agriculture, which constitutes 40% of the gross domestic product;⁵ three-quarters of the population (75.1%) work in agriculture.⁶ Agriculture is primarily rain-fed. Favorable agricultural conditions, along with investments in infrastructure and agricultural productivity, have supported a positive trend in national economic growth, which was 6.3% in 2019.⁷ Factors that may hinder Niger's future economic performance include insecurity, the impacts of COVID-19, lower prices for oil, fluctuations in global non-oil commodity prices, and vulnerability to climate shocks. Despite national economic gains in recent years, almost half the population (44.5%) lives below the national and purchasing power parity poverty line of \$1.90 U.S. Dollar per day).⁸ Just 11.7% of the rural population has access to electricity.⁹ Mean years of schooling is 2.1.¹⁰ Niger's fertility rate is seven births per woman, among the highest on the continent (birth rate in sub-Saharan Africa: 4.7).¹¹

1.3.2 Overview of the Current Food Security Situation

The Famine Early Warning Systems Network (FEWS NET) report at the time of the baseline survey shows minimal food insecurity (Integrated Food Security Phase Classification Phase 1) in Maradi and Zinder regions as of October 2020; the southwestern area of Maradi is categorized as Integrated Food Security Phase Classification Phase 2. In October, price trends for cereals were following seasonal norms, though they were also higher than recent years due to border closures that disrupted trade flow, high transport costs for imports, and low production in 2019. The improvement in food security is attributed to “the

² United Nations Population Fund. 2020. State of the World Population 2020. Available at <https://www.unfpa.org/data/world-population-dashboard>

³ United Nations, Department of Economic and Social Affairs, Population Division. 2019. World Urbanization Prospects: The 2018 Revision (ST/ESA/SER.A/420). New York: United Nations

⁴ United Nations Development Program. 2020. Human Development Report 2020. Available at <http://hdr.undp.org/en/countries/profiles/NER>

⁵ World Bank. 2021. Website accessed 5 March 2021: <https://www.worldbank.org/en/country/niger/overview> (Overview page, updated 17 April 2020)

⁶ United Nations Development Program. 2020. Human Development Report 2020.

⁷ World Bank. 2021. Website accessed 5 March 2021: <https://www.worldbank.org/en/country/niger/overview> (overview page, updated 17 April 2020)

⁸ United Nations Development Program. 2020. Human Development Report 2020.

⁹ Ibid.

¹⁰ Ibid.

¹¹ World Bank. 2018. World Bank database. Database query 5 March 2021.

generalization of harvests, the beginning of seasonal price declines, and increased income opportunities with the sale of crops, annuity products, and livestock.”¹² Citing above-average rainfall, the FEWS NET report gives a positive outlook for pastoral and agricultural areas during the main harvest season, October to May (see seasonal calendar in Figure 1), with average yields predicted for both cereals and cash crops. However, the rain also caused flooding in all regions, including Maradi, resulting in substantial losses of materials and rice, millet, and sorghum crops. Livestock production prospects are also positive due to good fodder production and favorable terms of trade, though livestock producers’ purchasing power is forecasted to decline from April to May 2021 due to below-average prices, a downstream effect of mobility restrictions and animal export sales. Favorable grazing conditions may start to decline in March due to “...high concentrations of herds in good and secure production areas, which will accelerate the depletion of fodder stocks and impact the body condition and market value of livestock.”¹³

An April 2020 Nigerien government analysis of the impact of the COVID-19 pandemic on food and nutrition security found that 2.7 million people were facing food insecurity at crisis or worse levels.¹⁴ As of October 15, 2020, near the time of the baseline survey, FEWS NET reported a favorable pandemic trajectory, with maintenance of social and sanitary measures and land border closures but opening of air borders with COVID testing provisions in place at airports.¹⁵ Nevertheless, the pandemic has had a steady impact on household livelihoods—especially in urban areas—and national economic opportunities. The Global Information and Early Warning System (GIEWS) quarterly reports leading up to the baseline survey indicated favorable growing conditions for 2020, yet still projected an estimated 2 million severely food insecure for the lean season (June–August), an increase from 1.2 million in 2019. This is due in large part to the persistent conflict and renewed violence by armed groups in the Diffa, Tahoua and Tillabery regions, as well as containment activities related to COVID-19. The three quarterly GIEWS reports on Niger from September 2020 to March 2021 have indicated worsening food insecurity; in March 2021 GIEWS categorized Niger as having widespread lack of access to food resulting from an increase in civil unrest that has disrupted agricultural and marketing activities and diminished households’ livelihood opportunities and food security. In addition to internal displacement due to conflict in Diffa, Tahoua and Tillabery regions, the substantial influx of refugees from neighboring Nigeria and Mali is also noted. The GIEWS considers Niger among those countries requiring external food assistance due to its food insecurity crisis (March 2021). In response to the crisis, by September 2020, the Government of Niger Food Crisis Unit had distributed cereals and cowpeas to more than 1.2 million Nigeriens under the Free Targeted Distribution program.¹⁶ It also provided fortified flour to

¹² FEWS NET. 2020. Food Security Outlook: *The ongoing harvests improve food security except in the conflict zones*. October 2020. Available at <https://fews.net/west-africa/niger/food-security-outlook/october-2020>

¹³ Ibid.

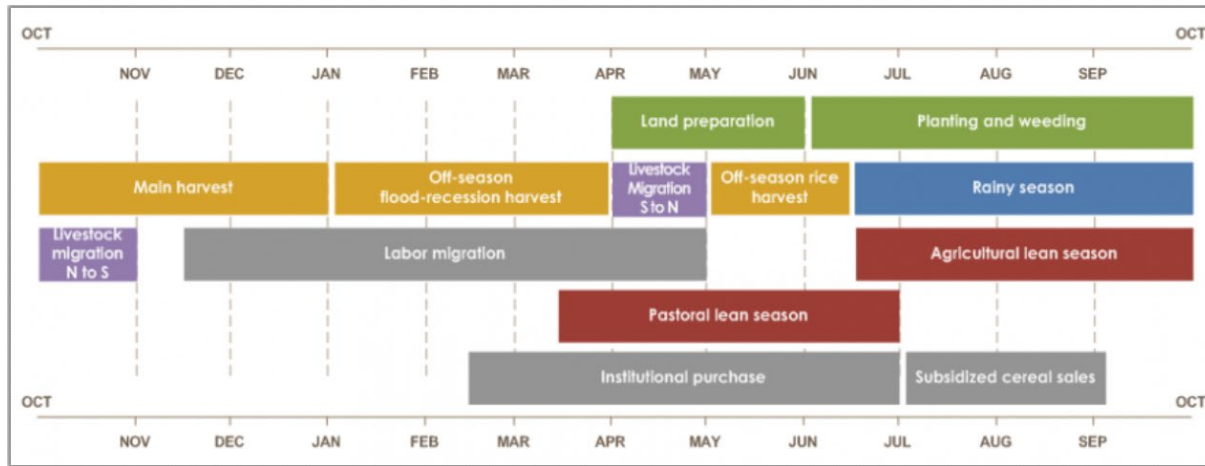
¹⁴ FAO. 2020. The Niger: Revised humanitarian response (May–December 2020): Coronavirus disease 2019 (COVID-19). Rome. Available at <http://www.fao.org/3/cb0180en/CB0180EN.pdf>

¹⁵ FEWS NET. 2020. Food Security Outlook: *The ongoing harvests improve food security except in the conflict zones*. October 2020. Available at <https://fews.net/west-africa/niger/food-security-outlook/october-2020>

¹⁶ FEWS NET. 2020. Food Security Outlook: *The ongoing harvests improve food security except in the conflict zones*. October 2020. Available at <https://fews.net/west-africa/niger/food-security-outlook/october-2020>

children in 21 communes in six regions, including Zinder and Maradi, through its Blanket Feeding program.

Figure 1: Seasonal calendar for a typical year, Niger



Source: FEWS NET

2. METHODOLOGY AND LIMITATIONS

2.1 Study Design

The baseline study is based on a pre-post (cross-sectional) design to allow for the detection of statistically significant change in key indicators between the baseline survey and interim performance evaluation, and between the baseline and endline surveys.

2.2 Sample Design

The baseline survey sampling is designed to power adequately a statistical test of differences between the baseline and endline estimates for key performance indicators for each RFSA. The indicators used for the sample size calculations were selected with BHA and include the proportion of respondents that have adopted: 1) improved WASH practices, 2) improved agricultural storage practices and financial services, and 3) recommended maternal and child health and nutrition practices. The following parameter values were applied in the calculations: 1) design effect of 5 for WASH and agricultural practices indicators and 2 for maternal and child health and nutrition indicators;¹⁷ 2) 95% confidence level for one-tailed test; 3) 80% power for one-tailed test; 4) expected change of 15 percentage points over the life of the project; and 5) non-response factor of 25% to account for estimated household non-response rate. The highest minimum required sample size was selected based on these calculations. Additional details on the sampling methodology, including the indicators and parameters for determining the sample size, can be found in the study protocol in Annex 1.

A stratified multi-stage clustered sample design was used with three stages of sampling: 1) selection of villages (25 villages per stratum/RFSA); 2) selection of households (31 households per village), and 3) selection of individuals.¹⁷ A total of 75 villages were sampled, with 31 households sampled in each village, resulting in a sample size of 2,325 households.¹⁸

¹⁷ The study protocol (See Annex 1) provides a detailed description of the sampling methodology, including criteria for defining “household” and household member selection procedures and the indicators and parameters for determining the sample size.

¹⁸ Based on the sample size calculations, the minimum sample size required was 750 households per RFSA area. However, during the listing exercise, TANGO determined that several of the villages in the Wadata RFSA area have a low household population (i.e., less than 30 households). To reach the minimum required sample size of 750, TANGO increased the number of households drawn per village in the second stage from 30 to 31 and adopted this threshold across all RFSA areas for consistency. Thus, the number of sampled households was increased from 750 households per RFSA area to 775 households, giving a total sample size of 2,325. See Annex 1a for details on revisions to the sampling.

Table 2 illustrates the derived sample size by RFSA area.

Table 2: Sampled households, by RFSA area

RFSA	Region	Number of sampled villages	Number of sampled households
Girma/Catholic Relief Services	Zinder	25	775
Hamzari/CARE	Maradi	25	775
Wadata/Save the Children	Zinder	25	775
TOTAL		75	2,325

2.3 Questionnaire Design

The questionnaire used for the baseline survey is derived from the core BHA PBS questionnaire. The survey was streamlined for a non-permissive environment. USAID describes a non-permissive environment as a context, at the national or sub-national level, in which uncertainty, instability, inaccessibility or insecurity constrain USAID's ability to operate safely and effectively. The baseline survey is more limited than the core BHA PBS questionnaire but includes critical lower-level indicators.¹⁹ At the time of the study design, estimates of impact-level indicators pertaining to poverty and children and women's anthropometry were expected to be derived from the RISE II baseline survey, then scheduled for May/June 2020, a few months after the RFSA baseline surveys (March/April).²⁰ Although there are methodological limitations²¹ to combining results from different surveys, this approach is considered acceptable given the geographic overlap of the target populations and the temporal overlap originally expected in the timing of the two surveys.

All questionnaire modules follow FFP and Feed the Future guidelines, as described in the *FFP Indicators Handbook* (May 2020)²² and questionnaire template.²³ The baseline survey questionnaire includes modules on the following topics:

- Module A: Household Identification and Informed Consent.
- Module B: Household Roster.
- Module C: Food Consumption Score.
- Module D: Child Feeding Practices and Diarrhea.
- Module E: Women's Dietary Diversity, ANC, Contraceptive Prevalence Rate, and Family Planning.

¹⁹ The survey tool did not collect anthropometric measurements for children or women, or household consumption expenditure data.

²⁰ This schedule was later changed; see study limitations in Sec. 2.6.1.

²¹ There are limitations to the approach of combining outcome-level indicators from one source with impact-level indicators from another survey relating to differences in study design and timing of data collection. The forthcoming RISE II baseline survey will not be powered to provide estimates at the level of individual RFSA areas, an approach approved by BHA. This contrasts with the current BHA baseline survey, which is powered to provide RFSA-level estimates. Differences in the timing of the surveys may impact some indicators that are sensitive to seasonality.

²² Available at <https://www.usaid.gov/food-assistance/documents/ffp-indicators-handbook-part-i-indicators-baseline-and-endline-surveys-rfsa>

²³ Ibid.

Module F:	Water, Sanitation and Hygiene.
Module G:	Agriculture (crop, livestock, natural resource management [NRM], storage, financial services).
Module J:	Gender and Cash.
Module KF:	Access to Credit and Group Membership (youngest woman in a union).
Module KM:	Access to Credit and Group Membership (partner of youngest woman in a union).
Module P:	Activity Participation.
Module Q:	COVID-19 Awareness, Impacts, and Coping Strategies.
Module R:	Social Capital.
Module 7.51:	Agricultural Production – Goats.
Module 7.52:	Agricultural Production – Sheep.
Module 7.90:	Plot/Land map.
Module 7.9:	Plot Area.
Module 7.92:	Crop Yield.

Questions and response options were adapted to the country context such as those that involve food in Modules C, D, and E, and the types of containers and sanitation facilities listed in Module F. The survey was also contextualized to capture information on different improved agricultural practices promoted in each RFSa area. A COVID-19 module was added to collect information on knowledge and adoption of COVID-19 mitigation practices, the impacts of COVID-19 on households' livelihoods and food security and coping strategies to manage those impacts. Another module was incorporated to collect information on household participation in the RFSa given that RFSa interventions started before the baseline survey could be performed (due to COVID-19 delays) and some life-saving activities and essential services may have continued throughout the COVID-19 pandemic.

Table 3 illustrates the indicators measured and the level of disaggregation as prescribed in the FFP handbook supplement on indicator tabulations.²⁴

Table 3: Indicators measured in the 2020 baseline survey of the RFSAs in Niger

Indicator	Disaggregation Level
FOOD SECURITY	
Percentage of households with poor, borderline, and adequate FCS Mean FCS	Gendered household type*
WATER, SANITATION AND HYGIENE	
Percentage of households using basic drinking water services	Gendered household type*
Percentage of households with access to a basic sanitation service	Gendered household type*
Percentage of households with soap and water at a hand-washing station on premises	Gendered household type*
AGRICULTURE	
Percentage of farmers who used financial services (savings, agricultural credit and/or agricultural insurance) in the past 12 months	Sex

²⁴ Available at <https://www.usaid.gov/food-assistance/documents/ffp-indicators-handbook-supplement-part-1>

Indicator	Disaggregation Level
Percentage of farmers who used improved storage practices in the past 12 months	Sex
Proportion of producers who have applied targeted improved management practices or technologies**	Commodity Sex Age (15–29, 30+) Management practice or technology type
Yield of targeted agricultural commodities within target areas ¹	Crops: commodity, farm size, sex, age (15–29, 30+) Livestock: commodity, production system, sex, age
WOMEN’S HEALTH AND NUTRITION	
Percentage of women of reproductive age consuming a diet of minimum diversity	Age: <19, 19+ years
Percent of births receiving at least four antenatal care visits during pregnancy	None
Contraceptive prevalence rate	Traditional, modern
Percent of women in union who have knowledge of modern family planning methods that can be used to delay or avoid pregnancy	Age: 15–19, 20–29 and 30–49
Percent of women in union who made decisions about modern family planning methods in the past 12 months	Decision-making: alone, jointly, spouse Age: 15–19, 20–29, 30–49
CHILD HEALTH AND NUTRITION	
Prevalence of children 6–23 months consuming a diet of minimum diversity	Sex
Percent of children under age five (0–59 months) who had diarrhea in the prior 2 weeks	Sex
Percentage of children under age five (0–59 months) with diarrhea treated with Oral Rehydration Therapy	Sex
GENDER – CASH	
Percent of women/men in union who earned cash in the past 12 months	Sex Age: female 15–19, 20–29, 30–49, ≥50; male 15–19, 20–29, 30–49, ≥50
Percent of women in union and earning cash who report participation in decisions about the use of self-earned cash ²	Age: 15–19, 20–29, 30–49, ≥50
Percent of women in union and earning cash who report participation in decisions about the use of spouse/partner's self-earned cash ²	Age: 15–19, 20–29, 30–49, ≥50
Percent of men in union and earning cash who report spouse/partner participation in decisions about the use of self-earned cash ²	Age: 15–19, 20–29, 30–49, ≥50
GENDER CREDIT AND GROUP PARTICIPATION³	
Percent of women/men who are members of a community group	Sex Age: female 15–19, 20–29, 30–49, ≥50; male 15–19, 20–29, 30–49, ≥50
Percent of women/men in union with access to credit	Age: female 15–19, 20–29, 30–49; male 15–19, 20–29, 30–49, ≥50

Indicator	Disaggregation Level
Percent of women/men in a union who make decisions about credit	Decision actors: alone, jointly Sex Age: female 15–19, 20–29, 30–49, ≥50 male 15–19, 20–29, 30–49, ≥50
RESILIENCE-RELATED	
Proportion of households that believe local government will respond effectively to future shocks and stresses	Gendered household type*
Index of social capital at the household level	Social capital components: overall index, bonding sub-index, bridging sub-index Gendered household type*
Proportion of households participating in group-based savings, microfinance, or lending programs	Financing type Gendered household type*

Notes: * Following FFP indicator descriptions, Feed the Future defines four gendered household types: households with 1) female and male adults, 2) adult female, no adult male, 3) adult male, no adult female, and iv) child, no adults. USAID, 2020. Food for Peace Indicators Handbook. Part I: Indicators for Baseline and Endline Surveys for Resilience Food Security Activities. May.

**This applies to crops and livestock of interest. For Niger, the crops of interest are sorghum, millet, cowpeas, and peanuts. The livestock of interest are goats, sheep, and poultry.

¹The survey collected information on agricultural yield; however, due to measurement challenges, particularly in relation to size of cultivated plot area and weight of livestock, indicator estimates for agricultural yield are not included in this report or Annex 5.

²The Open Data Kit skip logic was not programmed to allow for the calculation of the gender and cash indicators because the following groups were excluded: 1) respondents who worked for a combination of cash and in-kind and 2) respondents who reported not discussing their earnings with anyone.

³ Because of the prevalence of polygamy (and multigenerational households) in the region, the youngest woman in a union was selected to obtain a more accurate understanding of gender equality and female empowerment, since the youngest married female often faces the most challenges and is the least empowered.

2.4 Field Procedures

2.4.1 Timing of the Survey

Data collection for the baseline study was scheduled to commence in early 2020 (March–April) and end by April 23, 2020, before the start of Ramadan. However, due to the onset of the COVID-19 pandemic, fieldwork for the baseline survey was suspended until local regulations (e.g., travel restrictions) and conditions (e.g., local transmission of virus, willingness of households to be interviewed in-person) indicated that face-to-face interviewing could safely resume with COVID-19 mitigation procedures in place. Based on the revised schedule, the survey was conducted in September 2020 and ended at the start of the harvest period in October 2020.

In advance of fieldwork, TANGO, in partnership with Bagna, updated its fieldwork protocol to include COVID-19 safety measures to mitigate the risk of virus transmission and safeguard the well-being of staff, households, and communities²⁵ (see the survey protocol in Annex 1 for additional details).

2.4.2 Listing Exercise

The listing training and exercise took place between August 24 and September 15, 2020. Bagna conducted the listing training, mapping of selected villages, and listing of households. Listers were trained on how to locate a cluster (village), prepare sketch maps of the cluster, list households, and segment large clusters. The household listing operation was conducted by 30 listers across 75 clusters with oversight by three supervisors. During the listing exercise, GPS coordinates for each village were taken by using a designated central point in the village. GPS coordinates were also taken for each listed household to facilitate locating sampled households during data collection. During the listing exercise, TANGO made several revisions to the list of villages initially selected for the baseline survey. Revisions to the initial sampling were necessary due to expansion in the implementation area of the Wadata RFSA in Zinder, selection of replacement clusters to avoid overlap with the RISE I endline survey sample, small number of households in a village, security risks, or inaccessibility due to weather. The results of the listing exercise were used for second-stage household sampling.

2.4.3 Training

Due to the COVID pandemic and security risks, regional trainings were held in Maradi and Zinder to minimize travel and avoid large gatherings. Training curricula were mainstreamed with COVID-19 mitigation and safety protocols (see Annex 1 for details).²⁶

Training of trainers

TANGO led a virtual training of trainers (ToT) for Bagna field supervisors, local independent survey monitors, and team leads. The 6-day ToT was conducted via Zoom from August 31 to September 6. TANGO trained three field supervisors, 15 team leads and four local survey monitors. The ToT focused on roles and responsibilities, organization and supervision of fieldwork, data quality assurance, and performance monitoring. Sessions also involved a question-by-question review of the instrument. To capitalize on time zone differences, the training schedule was adapted to begin in the afternoon in Nigerian time so that the mornings could be used for study periods to review manuals and conduct

²⁵ The underlying principle guiding the adaptations to the baseline survey data collection procedures is Do No Harm. Per the USAID/FFP and USAID/OFDA Interim Guidance for Applicants Engaging in COVID-19 Humanitarian Response: in all programming, the safety and security of community members and implementing partner staff are critical; where remote monitoring is not feasible, update data collection tools and protocols to limit proximity, frequency, and duration of face-to-face contact.

²⁶ In addition to the standard training on the instrument and tablets, participants were trained on Do No Harm principles and COVID-sensitive data collection protocols. Trainings included background on how COVID-19 is transmitted and methods to prevent its spread.

mock interviews using tablets to ensure that all participants were well versed in the instrument and in navigating the electronic survey.

Main training

The 7-day (enumerator) training was conducted from September 13 to September 18. A total of 90 enumerators were trained.²⁷ Bagna field supervisors and the independent survey monitors, previously trained by TANGO during the ToT, conducted the main training with remote support from TANGO.²⁸ Local independent survey monitors, trained during the ToT, participated in the main training, observed the mock interviews, and provided feedback. Training topics included data gathering, sampling strategy, human subjects research, a review of the survey questionnaire, how to gather data using mobile devices, data checks for quality control, creating backup copies of data, and data archiving and transfer. The training included a combination of plenary sessions for question-by-question guidance and breakout groups to practice and role-play using the tablets. The breakout groups were followed by a plenary session to discuss issues experienced and how to handle them. An events calendar for Niger was developed as a reference to help enumerators estimate the age of respondents when the age could not be ascertained. Photographs of sanitation facilities and water containers were provided to improve accuracy in recoding responses. Local IP staff participated in the training and gave technical presentations on their RFSAs.

2.4.4 Pilot

At the end of the enumerator training, a 1-day pilot test was conducted on September 19 in Maradi and Zinder. Each enumerator completed two full interviews during the pilot test. Each interview took approximately 2 hours, depending on the size of the household. Team leads and field supervisors observed enumerators and took notes on their performance. On September 20, the Bagna survey manager, field supervisors, and team leads debriefed their teams. Separate debriefs were held for each RFSa to discuss challenges and issues experienced during the pilot. The debrief sessions were attended by TANGO staff.

2.4.5 Fieldwork

The start of fieldwork was postponed due to the need to redo the listing exercise in several villages in the Girma and Hamzari RFSa areas.²⁹ Fieldwork commenced on September 27, nearly a week after the pilot. During this period, TANGO revised the electronic questionnaire based on the results of the pilot,

²⁷ Bagna recruited and trained 75 enumerators plus an additional 20% (total: 90 people trained) to serve as replacements if needed and to reduce the number of days in the field to mitigate COVID-19-related risks.

²⁸ TANGO and the trainers were connected on a WhatsApp group and communicated daily and as needed when issues arose during the training. In addition, TANGO staff connected via Zoom and participated in the daily de-brief plenary sessions where issues were discussed among trainers and participants.

²⁹ The study protocol (Annex 1) provides details on the issues encountered during the listing exercise that contributed to delays in the start of data collection.

and data collection teams were provided with a refresher training before travelling to their respective first clusters. Fifteen teams conducted the data collection (five teams per RFSA area). Each team was comprised of one team lead and five enumerators. In addition, Bagna's field team included one survey manager, one coordinator, three field supervisors, and two Information Technology specialists for a total of 97 field staff. Four local survey monitors (two in the Girma RFSA area and one each in the Hamzari and Wadata RFSA areas) independent of Bagna and hired directly by TANGO accompanied the teams for the duration of data collection to provide quality control and oversight of fieldwork.³⁰ Data were collected using tablets programmed with Open Data Kit, an open-source data capture program. Completed interviews were uploaded daily to a TANGO cloud server via secure transmission.³¹ TANGO convened daily debriefs with the Bagna survey manager and local survey monitors to discuss and resolve issues (e.g., issues with the instrument, data collection program/tablet, survey protocols, etc....) as they emerged.

2.5 Data Analysis

2.5.1 Sampling Weights

Separate sampling weights were calculated for indicators and adjusted to compensate for household and individual non-response. Sampling weights were calculated separately for each RFSA area for each of the following distinct groups by taking the inverse of the probabilities of selection from each stage of sampling:

- Households (modules C, F, P, Q, R).
- Children under 5 years (Module D).
- Women 15–49 (Module E).
- Male cash earners married or in a union (Module J).
- Female cash earners married or in a union (Module J).
- Spouse of youngest female in household (Module JM).
- Youngest female in household (Module JK).
- All farmers (Module G).³²

Table 4 illustrates response rates by sampling group for each RFSA area.³³ Refer to Annex 4 for details on the calculation of sampling weights.

³⁰ Annex 3 provides a list of the study personnel.

³¹ Data for each RFSA were managed and maintained on separate secure TANGO servers.

³² Separate sampling weights were calculated for goat and sheep farmers to be used for estimating mean producer-level yield.

³³ Enumerators attempted to complete interviews with all eligible respondents in the household. Possible reasons for non-response include refusal to participate or the member being absent from the household at the time of the visit (and subsequent revisits). In some cases where the eligible respondent is unavailable, it is possible to interview a knowledgeable person (adult)

Table 4: Response rates by sampling group and RFSA area, Niger 2020 RFSA baseline survey

Sampling group	Number eligible	Number interviewed	Response rate (%)
Girma/Catholic Relief Services			
Households (modules C, F, P, Q, R)	775	767	99.0
Children under 5 years (Module D)	1,089	1,055	96.9
Women 15-49 (Module E)	865	784	90.6
Male cash earners married or in a union (Module J)	543	491	90.4
Female cash earners married or in a union (Module J)	378	344	91.0
Youngest female in a union (Module KF)	705	666	94.5
Spouse of youngest female in a union (Module KM)	679	584	86.0
All farmers (Module G)	1,336	1,201	89.9
Goat herders (Module 7.51)	526	526	100.0
Sheep herders (Module 7.52)	197	197	100.0
Hamzari/CARE			
Households (modules C, F, P, Q, R)	770	754	97.9
Children under 5 years (Module D)	1,304	1,231	94.4
Women 15-49 (Module E)	1,322	1,230	93.0
Male cash earners married or in a union (Module J)	579	513	88.6
Female cash earners married or in a union (Module J)	474	434	91.6
Youngest female in a union in (Module KF)	769	711	92.5
Spouse of youngest female in a union (Module KM)	722	623	86.3
All farmers (Module G)	1,426	1,329	93.2
Goat herders (Module 7.51)	530	530	100.0
Sheep herders (Module 7.52)	215	215	100.0
Wadata/Save the Children			
Households (modules C, F, P, Q, R)	768	740	96.4
Children under 5 years (Module D)	867	820	94.6
Women 15-49 (Module E)	827	751	90.8
Male cash earners married or in a union (Module J)	393	338	86.0
Female cash earners married or in a union (Module J)	225	196	87.1

in place of the selected respondent after three re-visits/attempts have been made to interview the selected member. This type of substitution is allowed for modules capturing household-level information (i.e., modules A, B, C, F, P, Q, and R). It is also possible to interview a responsible adult knowledgeable of farming/livestock practices in lieu of the eligible farmer/herder if s/he is absent after three visits. However, substitutes are not allowed for other modules such as Module D (children); Module E (women), Module J (gender and cash), as well as modules KF and KM (youngest female in a union and her spouse). This can help explain why response rates for modules that do not allow substitution are lower than those of other modules that allow substitutions. It also possible, that the youngest female in a union and her spouse may be harder to find at home than other household members.

Sampling group	Number eligible	Number interviewed	Response rate (%)
Youngest female in a union in (Module KF)	647	604	93.4
Spouse of youngest female in a union (Module KM)	625	478	76.5
All farmers (Module G)	913	828	90.7
Goat herders (Module 7.51)	260	260	100.0
Sheep herders (Module 7.52)	111	111	100.0

Note: The response rate is calculated by dividing the number interviewed by the number eligible and multiplying the result by 100. The number eligible is derived from the responses to the household roster data.

2.5.2 Indicator Definitions and Tabulations

The calculation and tabulation of indicators was performed based on FFP and Feed the Future guidance as described in the FFP Indicators Handbook Part 1 and the Supplement to Part 1. Annex 4 describes data processing routines, including the handling of missing data, and the full suite of analyses conducted for the baseline study. Results are weighted to represent the entire target population in each of the three RFSA areas.³⁴ Point estimates with 95% confidence intervals and variance estimations were derived for all indicators using Taylor series expansion and considering the design effect associated with the complex sampling design. Annex 5 provides a tabular summary of the indicator estimates and sampling statistics. Annex 6 presents the results of additional descriptive analyses. Results of the bivariate and multivariate analyses are included in Annex 7.

2.6 Study Limitations and Issues Encountered

2.6.1 Study Limitations

Timing of the Survey: Data collection was originally planned for March/April 2020 but due to COVID-19 restrictions was re-scheduled to September, ahead of the main harvest season in October, to avoid an upward bias of food security estimates in the RFSA areas.³⁵ The timeline for pre-fieldwork activities and data collection was thus condensed from its original schedule and the number of enumerators was increased from four to five per team to be able to complete data collection before the start of the harvest. Despite efforts to avoid spillover into the harvest period, data collection ended on October 11.³⁶ To assess the possible effects of the timing of data collection on food security estimates, households were asked whether they cultivated any crops at any time directly before or during data collection.

³⁴ Because the estimates are based on a sample of the target population rather than the full target population (i.e., a census), sampling weights are applied to correct for unequal selection probabilities, coverage issues and non-response. If sampling weights are not applied to survey data, the results can be biased.

³⁵ The timing of data collection can exert an upward bias on the food consumption score (i.e., overstate the extent to which households are food secure) if data collection spills further into the harvest period, when households are likely to have better access to diverse and nutritious food.

³⁶ Delays occurred due to several issues encountered in the field and are described in Section 2.6.2.

Another consequence of the survey timing is that because RFSA interventions began before the survey could commence, the estimates may not necessarily reflect a true “baseline.” Therefore, the study collected information on direct participation in RFSA interventions to assess differences in baseline estimates between direct and indirect participants.

Limitations of Combining Data Sources: The original plan to derive poverty and children and women’s anthropometry indicators from the RISE II baseline survey was complicated by the delay of RISE II baseline data collection. While the timing of the RISE II baseline coincides with about the same timeframe as the current study, avoiding any differences in seasonality, these impact-level indicator data collected from the RISE II baseline will be separated by approximately 12 months from the indicators presented in the current study. Differences in prevailing conditions at the time of the two surveys (e.g., prices, markets, and COVID-19 conditions) should be taken into consideration in the interpretation of results.

Validity and Reliability of Self-reported Data: Most of the data collected for the household survey are self-reported. Limitations of self-reported data include the potential for exaggeration or omission of information; inaccurate recall; the potential for respondents to give responses they perceive as desirable, expected, or acceptable; reporting of untruthful information; and reduced validity if respondents do not fully understand a question. Enumerators were trained in techniques to help mitigate these types of measurement bias.

The reliability of self-reported data is particularly challenging for questions related to agricultural yield. The baseline survey relied on self-reported data rather than direct measurement to collect information on cultivated plot area, amount of crop harvested per plot, and weight of livestock.³⁷ While direct (physical) measurement by experts can generate more accurate estimates of agricultural yield, this procedure is more expensive and time-consuming.³⁸ Farmer estimates are a simpler, less costly, and more efficient method of data collection but can introduce measurement error due to recall bias (for longer recall periods or if data collection does not occur soon after harvest), lack of knowledge, or perceived incentives for under- or over-reporting production estimates.³⁹ Accurate measures of both area and production are ideal, but accurate measurement of area is more crucial for reducing errors in

³⁷ Several factors can influence the quality of estimates of agricultural yield, including but not limited to method of data collection (i.e., direct measurement versus farmer estimates), inter-cropping, continuous harvesting, and use of non-standard units. For a more comprehensive review of issues related to the measurement of agricultural indicators refer to the 2013 Feed the Future Agricultural Indicators Guide: Guidance on the collection and use of data for selected Feed the Future Agricultural Indicators by Suzanne Nelson and Anne Swindale, available at

https://www.agrilinks.org/sites/default/files/resource/files/FTF_Agriculture_Guide_Jan2014.pdf.

³⁸ Diskin, Patrick. 1997. *Agricultural Productivity Indicators Measurement Guide*. Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development. Available at

https://reliefweb.int/sites/reliefweb.int/files/resources/842682301AA98504C1256F070044D507-USAID_Agricultural_indicators_December_1997.pdf.

³⁹ Nelson and Swindale 2013 and Diskin 1997.

the calculation of agricultural yield.⁴⁰ Preliminary analysis of self-reported yield-related data found outliers in plot size and weight of livestock data. This is unsurprising given that farmers in the RFSA areas may lack the knowledge or equipment needed to measure the size of their plots, and very few farmers weigh their cattle (see Section 3.4.5). This issue was discussed prior to the start of fieldwork, and several steps were taken to minimize the effect of errors associated with self-reported estimates: 1) applying conversion factors to render non-standard units suitable for analysis;⁴¹ 2) obtaining plausible ranges from the IPs for the weight of female and male adult and young goats and sheep and using these as a data reliability check; and 3) performing several post-data collection processing routines to identify and address outliers in plot size, quantity harvested, and livestock weight data.⁴² Nevertheless, considering the measurement challenges described above, no further analysis of the yield data was performed.

Non-response: Respondents may be reluctant to participate in the survey due to general mistrust that may arise in politically volatile situations and fears of falling ill in the baseline context of the COVID-19 pandemic. It is also possible that households may relocate or move due to the political situation. The study employed various measures to account for potential non-response, emphasize the anonymous and voluntary nature of study participation, and implement COVID-19 safety measures. As a methodological measure, the study design uses a higher-than-usual non-response factor of 25%. In terms of implementing the survey, field teams were trained to explain to respondents the objectives of the study and measures taken to preserve the anonymity of their responses and thus encourage participation. TANGO also updated the consent statement to include potential exposure to COVID-19 risks, and enumerators were trained and required to explain the risks associated with participating in a face-to-face interview in the context of the pandemic to each eligible household.

2.6.2 Issues Encountered During Fieldwork

Difficulties locating households: One sampled village in the Wadata RFSA area was replaced prior to data collection because most adult household members had migrated to their fields to harvest their crops due to a pest infestation. The replacement was made following study protocol.

⁴⁰ Nelson and Swindale 2013.

⁴¹ Conversion factors for non-standard units were based on the 2018 *Enquête Harmonisée sur les Conditions de Vie des Ménages*.

⁴² Two approaches were used to adjust producer-level yield to mitigate the effects of extreme values (outliers): trimming the top 5% (i.e., exclusion of outliers from analysis) and winsorizing (retaining observations but capping numeric outliers so that they fall at the edge of the distribution using the 95th percentile). Thresholds for capping were determined for each RFSA area separately.

Discrepancy in household listing. The household listing was re-done in seven villages in the Girma and Hamzari RFSA areas because they had significantly fewer households than reported in IP census data.⁴³ The field movement plan was adjusted so that data collection could begin in other villages.

Poor network connectivity: Because of poor and intermittent network connectivity, the training period was extended in order to schedule make-up training sessions.

Impassable roads due to seasonal rains: Deployment of data collection teams to the field was slowed down due to heavy rains that made roads impassable.

Compact schedule: The timeline for the pre-fieldwork activities and data collection was condensed in order to complete data collection at the start of the harvest period and reduce the duration of data collection. TANGO modified the training agenda as needed to keep with the schedule. TANGO coordinated closely with its independent survey monitors and the local supervisors to ensure that fieldwork was progressing as planned.

2.7 Qualitative Data

In accordance with the study protocol, the baseline study did not collect primary qualitative data; qualitative data will be collected for the interim performance evaluation. To contextualize and help interpret the PBS baseline quantitative findings, the baseline study incorporates qualitative data available in relevant recent studies conducted in Niger, primarily the qualitative data TANGO collected for the USAID RISE I impact evaluation endline and 2017-performance evaluation of USAID Title II DFAPs in Niger. The use of existing data reinforces USAID's focus on the use and dissemination of data and lessons learned across countries and within the Implementer-Led Design, Evidence, Analysis and Learning (IDEAL) activity-supported food security and nutrition community of practice. The baseline study report also draws contextual information from external sources that are publicly available, e.g., FEWS NET, World Bank, and United Nations agencies. The final baseline report was additionally informed by the review of the draft report by BHA staff and IPs and by input provided in a series of data utilization workshops that TANGO conducted with technical and monitoring and evaluation staff from each of the IPs.⁴⁴ These exercises sought to further triangulate findings, help explain unexpected quantitative results, and validate the relevance, utility, and feasibility of baseline recommendations.

⁴³ The discrepancy in the number of households between the listing data and IP data could be partially explained by the following factors: 1) definition of a village/boundaries of a village: IPs tended to define a village as a cluster of smaller villages or nearby hamlets whereas Bagna lists defined the boundaries of a village based on the natural boundaries of the "main village;" 2) village segmentation: several larger villages were segmented into smaller villages. For villages that were segmented, Bagna provided TANGO with information on the size of the village and number of segments into which it was divided.

⁴⁴ TANGO conducted three virtual data utilization workshops (one per RFSA) to review the baseline results, interpret and contextualize findings, and identify potential program adjustments.

3. FINDINGS

This section presents the baseline survey findings by topic, integrating information from secondary qualitative data sources where possible. Results are provided for each RFSA area. In cases where the pattern or distribution of the indicator results is similar across RFSA areas, the results are illustrated and discussed in the aggregate. Findings are considered statistically significant at the level of $p < 0.05$. Annex 4 summarizes the full set of analyses performed as part of the baseline study, including the methodology for the bivariate and multivariate analyses. Annex 5 provides a tabular summary of indicator estimates and sampling statistics. The results of the descriptive analyses are presented in Annex 6 and the results of the bivariate and multivariate analyses are presented in Annex 7. Annex 8 presents the results of the COVID-19 module.

3.1 Characteristics of the Study Population

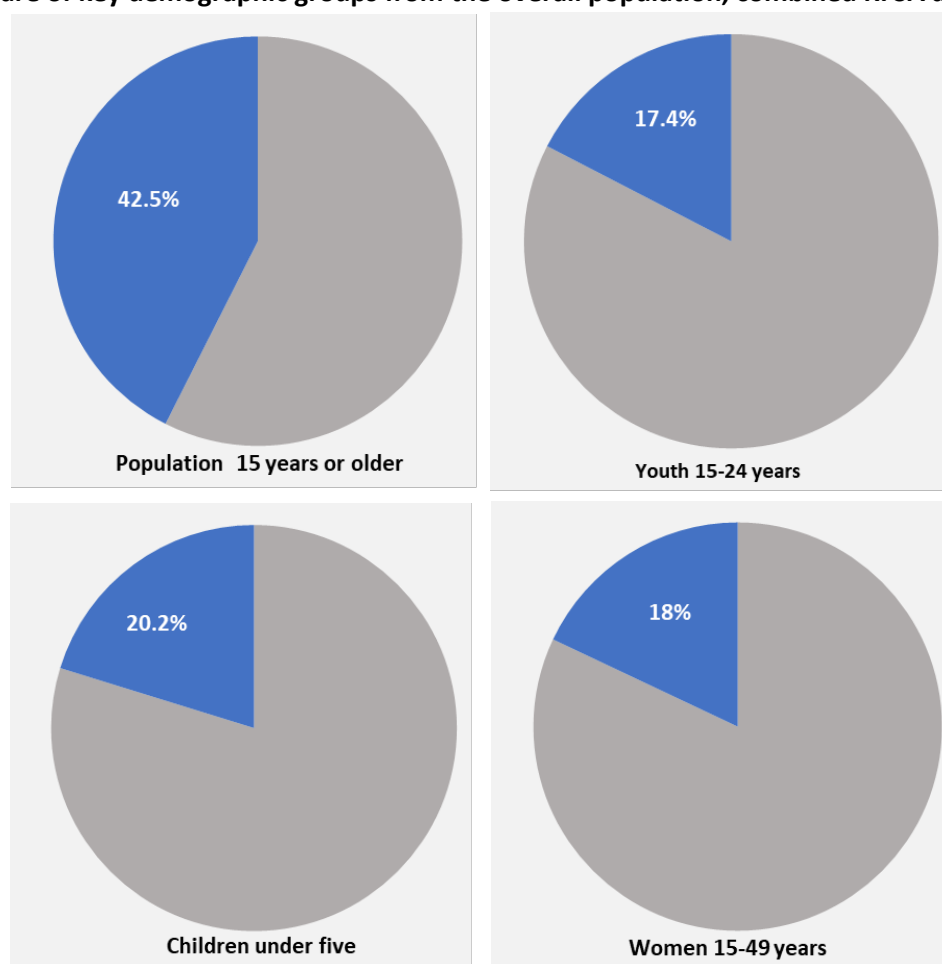
In 2020, the estimated population of Niger was 24.2 million.⁴⁵ The population in the combined RFSA areas is estimated at 1.14 million,⁴⁶ approximately 4.7% of the country's total population.

⁴⁵ UNFPA State of the World Population 2020. Available at <https://www.unfpa.org/data/world-population-dashboard>

⁴⁶ The estimate is based on the baseline study.

Figure 2 illustrates the share of key demographic groups from the overall population in the combined RFSA areas. Among the RFSA-area population aged 15 years or older, 44% are cash earners (male 56.8%; female 32.4%) and 56.4% are farmers (male 61.5%; female, 51.8%). Among women 15–49 years, 85% are married or in a union and 66% have had a live birth in the 5 years preceding the survey. About one-quarter of children under 5 years (26.5%) are between 6 and 23 months.⁴⁷

⁴⁷ See Annex 6, Table A6.1 for additional details on estimated population counts in the RFSA areas disaggregated by subgroup.

Figure 2: Share of key demographic groups from the overall population, combined RFSA areas

one child 6–23 months of age.

Table 5 presents the characteristics of households in the RFSA areas. Household size and composition may have implications for women’s and children’s health and nutrition and for food security of the overall household because these factors influence access to income-generating opportunities and other resources, the division of labor, and the distribution of resources among household members. Larger households may have fewer resources depending on the ratio of working-age adults to dependents.

There are an estimated 168,308 households in the combined RFSA areas. The average household has about 6.8 members, of which about 2.9 are 15 years or older.⁴⁸ Most households are comprised of both

⁴⁸ For the purposes of the survey, a household is defined as adults or children that live together and “eat from the same pot.” It includes anyone who has lived in the house for at least 6 months in the 12 months prior to the survey but does not include anyone who lives in the household but eats separately.

adult males and females (Girma, 83.9%; Hamzari, 93.2%; Wadata, 78.6%).⁴⁹ Adult-female-only households, defined as households with at least one adult female and no adult males, account for more than 10% of all households in the Girma (11.1%) and Wadata (12.8%) RFSA areas, and just under 5% in the Hamzari RFSA area (4.7%). Adult-male-only households constitute a relatively smaller percentage of the overall household population in the Girma (4.8%) and Hamzari (2%) RFSA areas.⁵⁰ In the Wadata RFSA area, 8.2% of households are adult-male-only.⁵¹ Most households include at least one child under the age of 5 years (Girma, 75%; Hamzari, 77.9%; Wadata, 71.1%). About one third of households (Girma, 32.2%; Hamzari, 35.7%; Wadata, 27.4%) include at least one child 6–23 months of age.

Table 5: Household characteristics, total and by RFSA area

Household Characteristics	Combined RFSA	Girma	Hamzari	Wadata
Gendered household type (Number of households) ¹	168,308	98,502	28,095	41,711
Male and female adults	141,611	82,656	26,182	32,772
Female adult(s) only	17,548	10,900	1,324	5,324
Male adult(s) only	8,710	4,737	568	3,404
Child(ren) only (no adults)	^	^	^	^
Gendered household type (Percentage of households)	100.0	100.0	100.0	100.0
Male and female adults	84.1	83.9	93.2	78.6
Female adult(s) only	10.4	11.1	4.7	12.8
Male adult(s) only	5.2	4.8	2.0	8.2
Child(ren) only (no adults)	^	^	^	^
Average household size (Number of persons)	6.8	6.6	8.7	5.9
Average number of adults 15 years of age or older per household	2.9	2.8	3.7	2.6
Percentage of households with children under 5 years	74.5	75.0	77.9	71.1
Percentage of households with a child 6–23 months of age	31.6	32.2	35.7	27.4
Household headship (Percent female)	13.6	14.1	6.3	17.1
Number of responding households	2,261	767	754	740

⁴⁹ As stipulated in Feed the Future guidelines, adults for gendered household type are defined as individuals 18 years of age or older. The interviews and all other analyses include individuals 15 or older. Following FFP indicator descriptions, Feed the Future defines four gendered household types: households with 1) female and male adults, 2) adult female, no adult male, 3) adult male, no adult female, and 4) child, no adults. USAID, 2020. Food for Peace Indicators Handbook. Part I: Indicators for Baseline and Endline Surveys for Development Food Security Activities. May. Available at <https://www.usaid.gov/food-assistance/documents/ffp-indicators-handbook-part-i-indicators-baseline-and-endline-surveys-rfsa>.

⁵⁰ Because the definition of gendered household type classifies individuals 18 years or older as adults, households with female spouses aged 15–17 are counted as adult-male-only. Adult-male-only households can also include single/unmarried men or widowed men.

⁵¹ Most adult-male-only households in the Wadata RFSA area are households where the female spouse is between the ages of 15 and 17, therefore falling below the threshold defined for gendered household type.

Household Characteristics	Combined RFSA	Girma	Hamzari	Wadata
Male and female adults	1,936	651	705	580
Female adult(s) only	204	76	30	98
Male adult(s) only	114	38	17	59
Child(ren) only (no adults)	7	2	2	3

Source: BHA 2020 Niger baseline survey weighted population estimates. Based on household counts from the baseline listing operation, which defined villages based on the natural boundaries of the "main village."

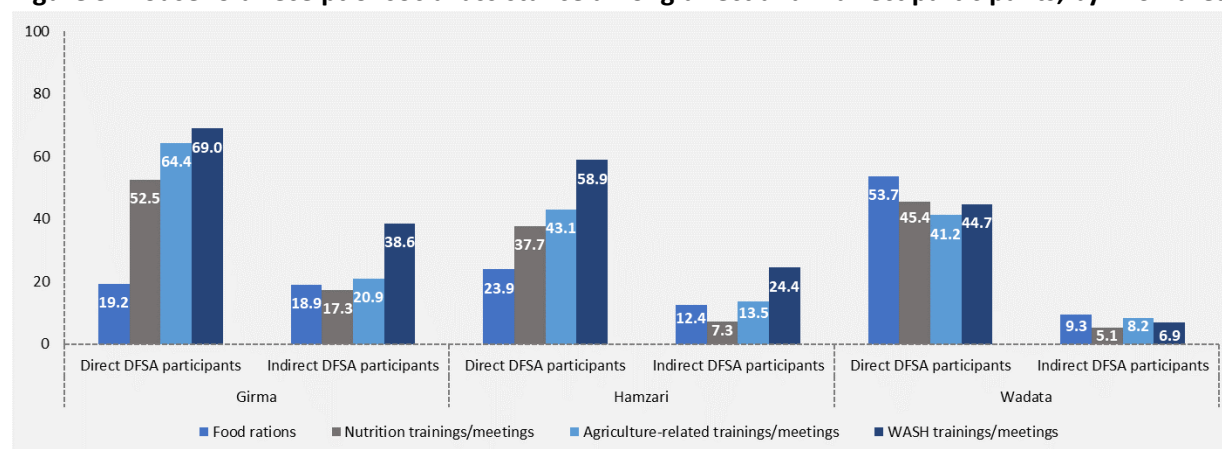
^ Results not statistically reliable, $n < 30$.

3.2 Activity Participation

The baseline survey collected information on household participation in RFSA activities given that implementation of RFSA interventions commenced before the baseline survey began. The estimates are based on self-reported information; households are considered direct participants in the RFSA if someone in the household participated in any of the RFSA interventions. Households in which no member participated in any RFSA interventions are considered indirect participants. A total of 34.8% of households in the Girma RFSA area were direct participants, 44.9% in the Hamzari RFSA area, and 54.9% in the Wadata RFSA area.⁵²

Figure 3 illustrates the percentage of direct and indirect participant households that received social assistance in the RFSA areas by type of assistance received. Significance tests indicated that direct participants were more likely to receive food rations and participate in agriculture, nutrition and WASH trainings and meetings in all three RFSA areas with one exception: in the Girma RFSA area there was no difference in the receipt of food rations between direct and indirect participant households.⁵³

Figure 3: Household receipt of social assistance among direct and indirect participants, by RFSA area



Notes: Households were asked "Have you or someone in your household participated in [Girma/Hamzari/Wadata]?" Households that responded 'yes' are considered direct participants in the RFSA and households that responded 'no' are considered indirect

⁵² See Annex 6, Table A6.3.

⁵³ Refer to Annex 6, Table A6.3 for additional details.

participants because although no household member participated directly in any of the RFSa interventions, the household falls in the RFSa intervention area.

3.3 Household Food Security

The U.S. Government Global Food Security Strategy Fiscal Year 2017–2021 defines food security as “access to—and availability, utilization, and stability of—sufficient food to meet caloric and nutritional needs for an active and healthy life.”⁵⁴ The main measure of food security used in this survey is the FCS. The FCS is a proxy indicator for food intake and is calculated considering dietary diversity, food frequency, and the relative nutritional value of nine different food groups consumed by the household in the seven days prior to the survey.⁵⁵ Based on weighted scores and using World Food Programme (WFP) thresholds, households are categorized into three groups: poor, borderline, or acceptable food consumption.⁵⁶ Although the FCS can give an idea of the caloric sufficiency of the diet, it does not account for micronutrient deficiencies.⁵⁷

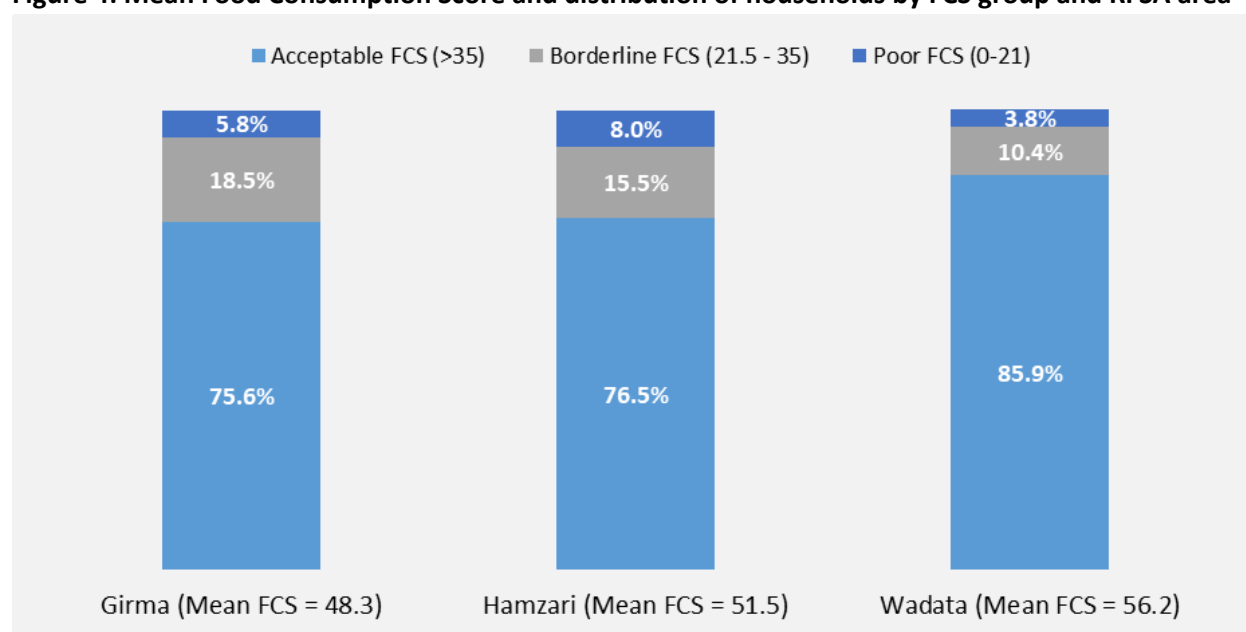
Figure 4 illustrates the mean FCS and percentage of households with poor, borderline, and acceptable FCS by RFSa area. Baseline results suggest that most households across the three RFSa areas achieve an acceptable food consumption score (Girma, 75.6%; Hamzari, 76.5%; Wadata, 85.9%). Average FCS exceeds 35 (the standard threshold for acceptable food consumption) in all RFSa areas (Girma, 48.3; Hamzari, 51.5; and Wadata, 56.2).

⁵⁴ Available at <https://www.usaid.gov/sites/default/files/documents/1867/USG-Global-Food-Security-Strategy-2016.pdf>.

⁵⁵ For additional details refer to the FFP Indicators Handbook Part 1: Indicators for Baseline and Endline Surveys for Development Food Security Activities.

⁵⁶ Category thresholds: poor (0–21); borderline (21.5–35); and acceptable (>35).

⁵⁷ For additional details refer to the FFP Indicators Handbook Part 1: Indicators for Baseline and Endline Surveys for Development Food Security Activities.

Figure 4: Mean Food Consumption Score and distribution of households by FCS group and RFSA area

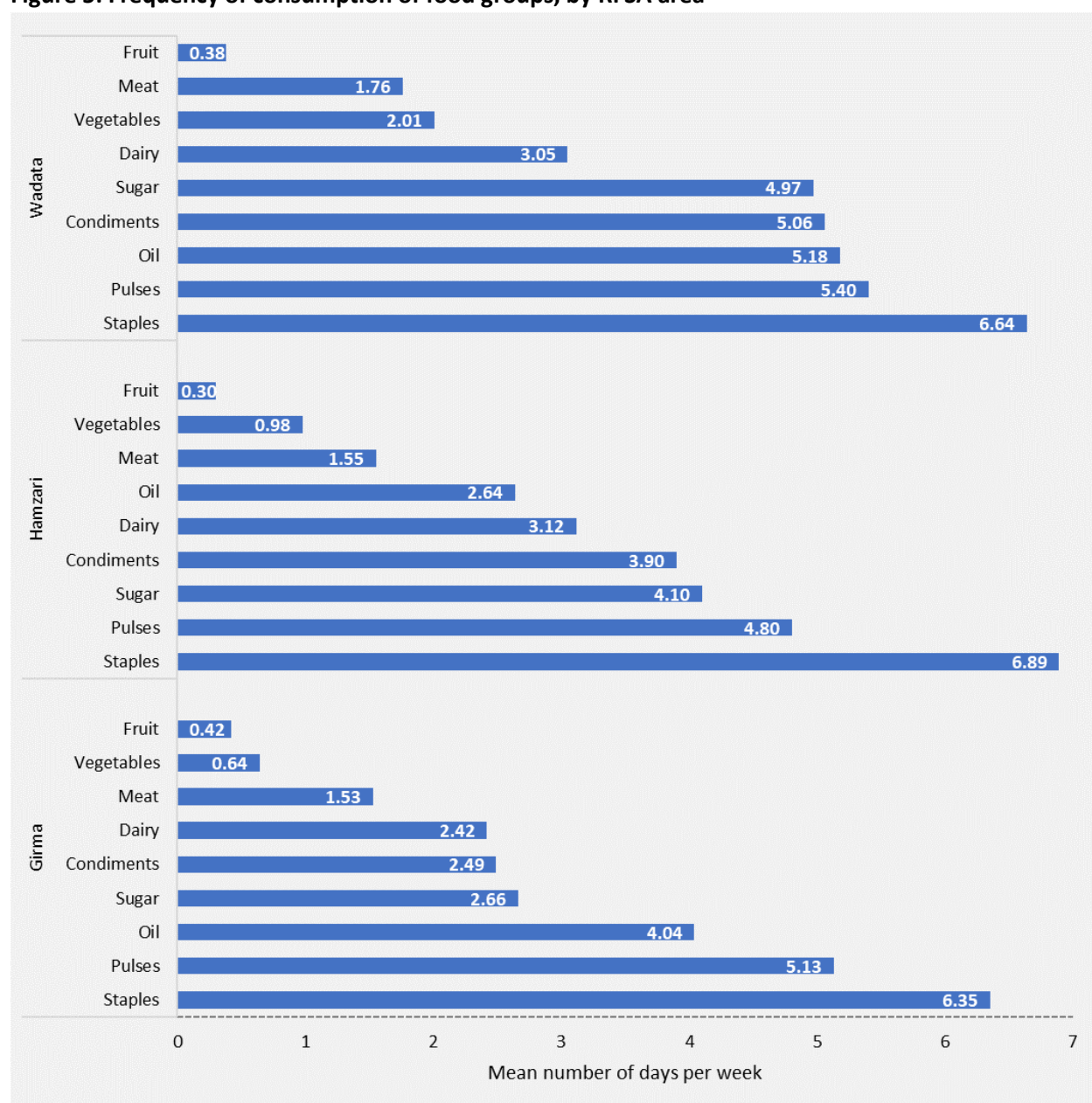
The distribution of households by FCS group and mean FCS does not vary by gendered household type in any of the RFSA areas, with a few exceptions. In the Hamzari RFSA area, the average FCS of female adult-only households is lower than that of households with both adult males and females ($p < 0.01$).⁵⁸ In the Wadata RFSA area, households with adult males and females achieve a higher FCS score on average compared to female-adult-only households ($p < 0.05$) or male-adult-only households ($p < 0.01$).⁵⁹ Refer to Annex 5 for estimates of mean FCS and the percentage of households with poor, borderline, and acceptable FCS by gendered household type.

Figure 5 illustrates the frequency of consumption of food groups by RFSA area. Households across the RFSA areas consume staples almost daily. Pulses are consumed frequently—5 days per week. Intake of dairy and animal-based proteins such as beef, lamb, fish, and eggs is infrequent. Intake of fruits and vegetables is also rare.⁶⁰

⁵⁸ Mean FCS does not differ statistically between adult-male-only households and adult-female-only households, or between adult male-only households and households with both adult males and females.

⁵⁹ Mean FCS does not differ statistically between adult-male-only households and adult-female-only households.

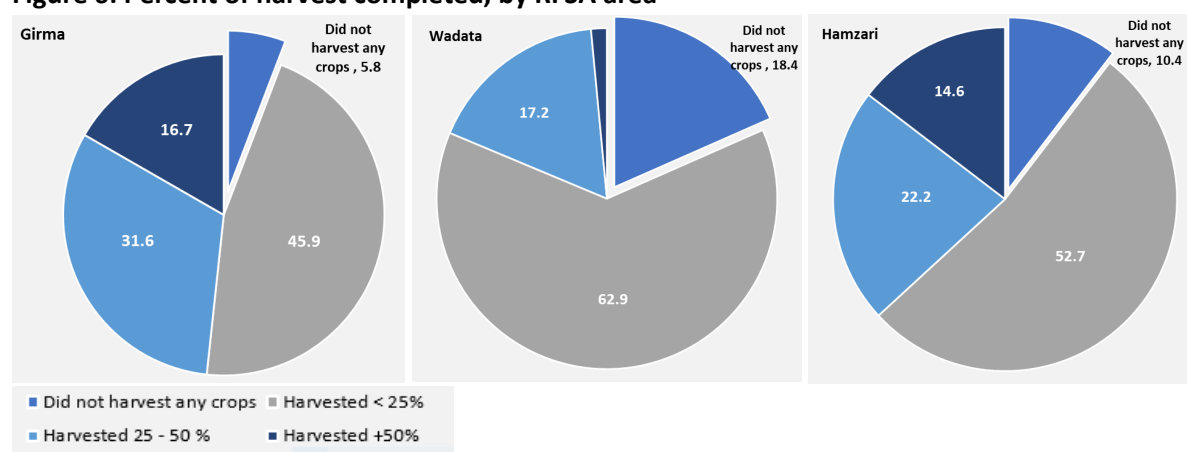
⁶⁰ For additional details on the components of the FCS score refer to Annex 6, Table A6.4.

Figure 5: Frequency of consumption of food groups, by RFSA area

3.3.1 Relationship Between Crops Harvested and Food Consumption Score

Given that data collection extended into the first week of the harvest period and FCS is expected to be higher in the harvest period compared to the lean season, the survey asked farmers in the household how much of their crops they had harvested in the current season as a proxy for assessing the impact of the timing of the survey on household food consumption. About 80% or more of households in the RFSA areas harvested some of their crops (see Figure 6).

Figure 6: Percent of harvest completed, by RFSA area



Households that harvested at least some of their crops are expected to achieve higher food consumption. However, the bivariate analyses results did not indicate a statistically significant association between the percent of harvest completed and households' FCS group or mean FCS in the RFSA areas except Girma.⁶¹ It is possible that the FCS of households that did not harvest any crops would not differ from those that did because food consumed can come from multiple sources other than own agricultural production. Households that did not harvest any crops at the time of the survey may have received food items from households that harvested their crops, and/or may have purchased food from the market.

3.3.2 Practices Associated with Household Food Security

Additional bivariate and multivariate analyses were performed to explore the association between FCS and intervention-specific factors expected to contribute to household food consumption, e.g., improving access to credit to invest in productivity-enhancing inputs and adopting improved management practices that increase yield and reduce post-harvest loss.⁶² This analysis assumes that if a single household member participates in a particular practice, e.g., taking agricultural credit, participating in group-based savings, or adopting an improved agricultural technology or technique, then the benefits of this practice accrue to the household as a whole. Details on the methodology of the bivariate and multivariate analyses can be found in Annex 4.

The results of the bivariate analyses of FCS groups indicated that households that used financial services, possessed livestock holdings, and adopted certain targeted improved management practices are more likely to achieve an acceptable FCS rather than borderline or poor FCS compared to households that did

⁶¹ In the Girma RFSA area, the mean FCS score was higher among households that harvested their crops compared to those that did not (see Annex 7, Table A7.1b).

⁶² See Annex 7, Tables A7.1a–A7.1f.

not.⁶³ Bivariate analyses of the FCS score indicated similar results as well as some additional associations.⁶⁴ The results of the bivariate analyses of household food consumption groups and FCS are summarized in Figure 7.

Multivariate analyses were conducted to explore whether intervention-specific factors, such as access to financial services or application of improved management practices, may influence FCS while controlling for background socio-economic factors and village-specific influences that are unrelated to the RFSA. The results of the multivariate analyses show that the FCS increases with the following factors:⁶⁵

- Obtaining an agricultural loan (Wadata).
- Participation in agricultural saving schemes (Hamzari).
- Participation in group-based savings programs (Wadata).
- Participation in group-based credit programs (Girma).
- Raising sheep (Hamzari, Wadata).
- Adoption of soil-related fertility enhancing practices—specifically, application of organic manure (Girma) and phosphatic manure (Hamzari).
- Crop rotation (Hamzari).

One factor to keep in mind is that the FCS does not consider quantities consumed so food groups with a high weight (such as pulses and meat) that are consumed frequently but in small quantities will artificially inflate the FCS value. A Tufts University comparative study of various measures of food security finds that, after the household hunger scale, FCS is the most likely to *overstate* food security.⁶⁶ FCS may be overly sensitive to seasonality or other factors (e.g., prices) that affect food availability and accessibility during the period of data collection.⁶⁷ While the FCS is a snapshot of a household's "usual" food consumption over the past week and useful for comparisons when data are collected cyclically across seasons or years, it typically varies with the agricultural calendar, which itself is subject to variation based on weather conditions and trends. Agricultural planning—by farmers and by development interventions—seeks to account for this year-round fluctuation that directly affects food security over the seasons. The RISE I endline qualitative findings offer a few examples of how farmers have sought to optimize their food security even in lean seasons by planning the use of food supplies and prioritizing nutrition. One respondent in Maradi explained that they divide their food supplies into three parts: one part for household consumption to last until the next agricultural season, one part in

⁶³ See Annex 7, Table A7.1a for details.

⁶⁴ See Annex 7, Table A7.1b for details.

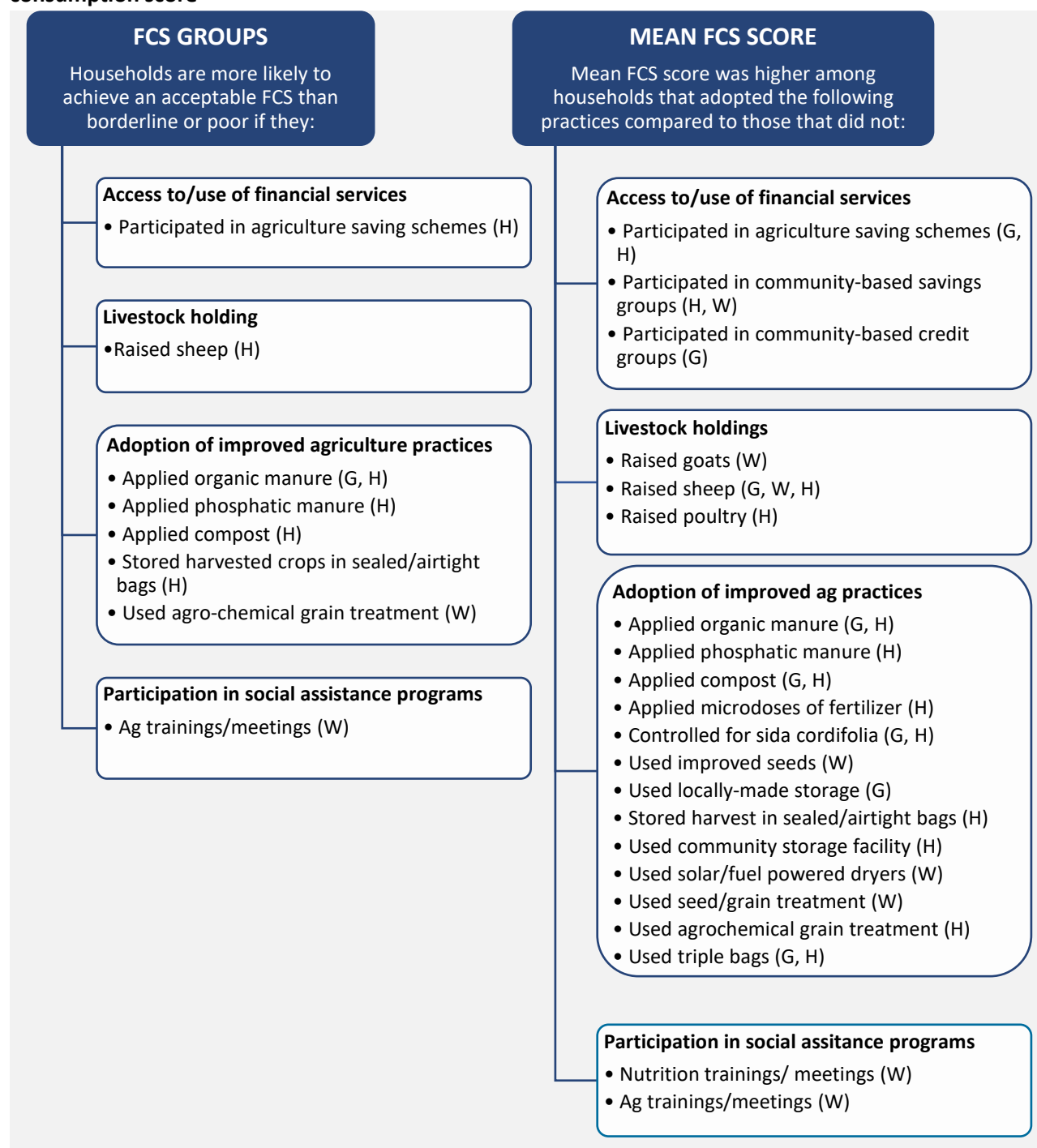
⁶⁵ See Annex 7, Tables A7.1c–A7.1f for detailed results of the OLS regression of FCS for the combined RFSA areas and for each RFSA area separately.

⁶⁶ Maxwell, Daniel, Jennifer Coates, and Bapu Vaitla. 2013. *How Do Different Indicators of Household Food Security Compare? Empirical Evidence from Tigray*. Feinstein International Center, Tufts University: Medford, USA. Available at <https://fic.tufts.edu/assets/Different-Indicators-of-HFS.pdf>. The study found that about 40% of households classified as moderately/severely food insecure using HFIAS classification were categorized as having acceptable FCS. Similarly, around 20% of households classified as moderately/severely food insecure using the CSI classification were found to have acceptable food consumption using the FCS indicator.

⁶⁷ WFP 2008. *Food Consumption Analysis: Calculation and Use of the Food Consumption Score in Food Security Analysis*. Available at https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf.

case of need for household consumption during a lean period, and one part reserved for ceremonies. Similarly, a respondent in Zinder stated, "The main change at the community level is above all this new culture and the awareness that men are learning not to waste too much their food stocks on festive ceremonies."

Figure 7: Summary of statistically significant findings from the bivariate analyses of household food consumption score



Note: G = Girma RFSA area; H = Hamzari RFSA area; W = Wadata RFSA area
See Annex 7, Table A7.1a and Table A7.1b for details.

3.4 Agriculture

The baseline survey collected information on size of farmland, use of financial services, and adoption of targeted improved crop, NRM, livestock and post-harvest handling and storage practices for commodities of interest. The crops of interest in the RFSA areas are sorghum, millet, cowpeas, and peanuts. The livestock of interest are goats, sheep, and poultry. Enumerators interviewed all farmers with access to a plot of land over which they make decisions⁶⁸ and farmers with livestock over which they make decisions. In this study, characterizing farmers as having access to a plot of land does not require legal ownership of the land.⁶⁹ Similarly, identifying farmers as having livestock does not require that they own the livestock, but they should be able to make decisions about their management or how to dispose, store, or sell production. Demographic characteristics of farmers (e.g., age and sex) by commodity and RFSA area are provided in Annex 6, Tables A6.5a–A6.5g.

3.4.1 Type of Land Access and Farmland Size

Table 6 illustrates the percent distribution of farmers in the RFSA areas by sex and age.

Table 6: Sex and age distribution of farmers, by RFSA area (%)

	Combined RFSA areas	Girma/Catholic Relief Services	Hamzari/CARE	Wadata/Save the Children
Sex				
Male	51.8	50.4	50.5	57.8
Female	48.2	49.6	49.5	42.2
Total	100.0	100.0	100.0	100.0
Age				
15–29	28.1	29.1	24.8	28.1
30+	71.9	70.9	75.2	71.9
Total	100.0	100.0	100	100.0
Number of farmers				
	3,358	1,201	1,329	828

Note: Includes all farmers with access to a plot of land over which they make decisions. Access includes owning, renting, or sharecropping the land.

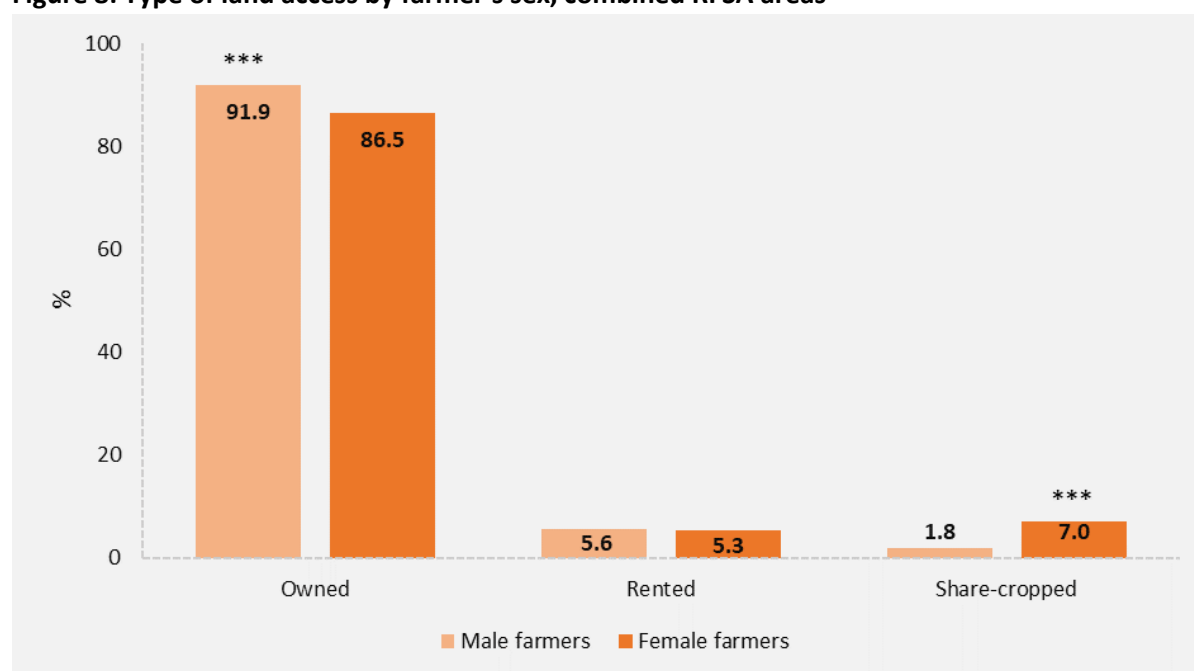
Baseline results indicate most farmers in the RFSA areas own the farmland they access and have decision-making authority over; however, female farmers and younger farmers (15–29 years) are less likely to own farmland compared to male farmers and older farmers (30+ years), respectively (see Figure

⁶⁸ Decisions over a plot of land include what will be grown, how it will be grown, and how to dispose/sell/store the harvest.

⁶⁹ The survey asked, "Do you own, rent, or sharecrop the land over which you make decisions?" Respondents who answered "yes" are considered to have access to land. Respondents who do not own, rent, or sharecrop are not considered to have access to a plot of land and are not interviewed. The analysis also uses this response to disaggregate by type of access (i.e., access by virtue of owning, renting, or sharecropping); these results are discussed in Sec. 3.4.1.

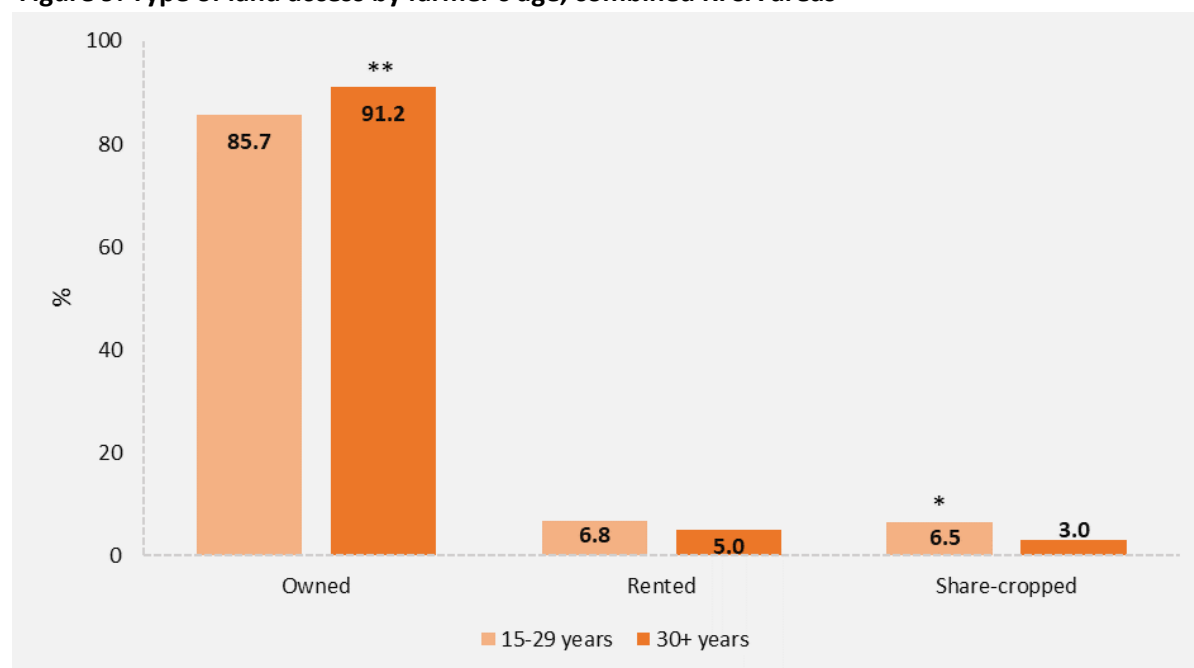
8 and Figure 9). Female farmers and younger farmers are more likely to sharecrop compared to male farmers and older farmers, respectively.⁷⁰

⁷⁰ See Annex 6, Table A6.6a for additional details on land tenure, disaggregated by farmer age and sex by RFSA area.

Figure 8: Type of land access by farmer's sex, combined RFSA areas

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Includes all farmers with access to a plot of land over which they make decisions. Access includes owning, renting, or sharecropping the land.

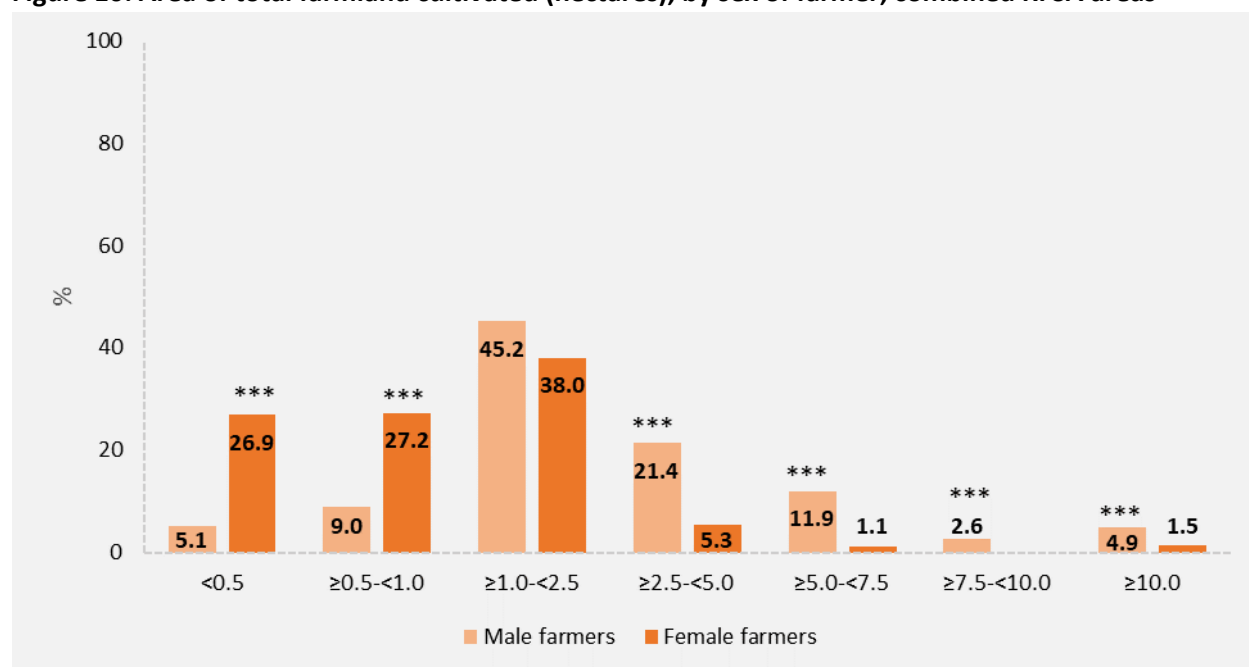
Figure 9: Type of land access by farmer's age, combined RFSA areas

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Includes all farmers with access to a plot of land over which they make decisions. Access includes owning, renting, or sharecropping the land.

The area of total farmland cultivated is smaller for female farmers than for male farmers (see Figure 10); it is also smaller for younger farmers relative to older farmers (see **Error! Reference source not found.**). This pattern is similar in all RFSA areas.⁷¹ The pattern also holds when disaggregating farmland size by crop type.⁷²

Figure 10: Area of total farmland cultivated (hectares), by sex of farmer; combined RFSA areas



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Note: Includes total area of farmland (owned, rented, sharecropped) over which the farmer makes decisions on what will be grown, how it will be grown, or how to dispose/store/sell the harvest.

The findings on land ownership from this study differ from others; however, differences in survey populations, survey timing, question wording and response options should be considered when comparing estimates on a similar topic across multiple data sources.⁷³ For example, a Food and

⁷¹ See Annex 5 Table A6.6a for details.

⁷² See Annex 6, Table A6.6b–A6.6e for disaggregation of results by crop and RFSA area.

⁷³ The Niger ECVI/A and DHS surveys are based on nationally representative samples covering urban and rural areas in all eight regions of the country whereas the BHA baseline study is representative of the RFSA areas in Maradi and Zinder. For information on land ownership, the ECVI/A collected information on land ownership by asking the household respondent whether the household as a whole or one of its members possess agricultural land and subsequently inquired about the tenure for each plot of land. The DHS interviewed all women 15–49 years and all men 15–59 years in households selected to participate in the survey. The BHA baseline study estimates of land ownership are based on interviews with farmers (aged 15 years and older) with access to a plot of land over which they make decisions. Given the respondent eligibility criteria used by the baseline study, the target population of the baseline study may be more likely to own land compared to the target populations on which the ECVI/A or DHS estimates of land ownership are based.

Agriculture Organization (FAO) working paper using data from the 2011 Niger National Survey on Household Living Conditions and Agriculture (ECVM/A), indicates that 63% of men in Niger own land compared to 35% of women.⁷⁴ A World Bank policy paper using data from the 2012 Niger Demographic and Health Survey (DHS) shows similar results for land ownership among men (67.3%) and women (41.5%) in rural areas.⁷⁵

The 2020 baseline study estimates of land ownership in the RFSA areas should be interpreted in the context of customary land tenure practices in Niger. The 1993 Rural Code aimed to improve land security for women and men and give women the right to own and transfer land.⁷⁶ However, the current reality is that rural land in Niger remains largely governed by the “right of the axe” or firstcomer—namely, the first occupant of the land to clear it for use is given ownership rights and can pass on the land.⁷⁷ Newcomers are given use rights. In this context, it is helpful to distinguish between self-reported ownership and documented ownership;⁷⁸ the notion of property is rarely formalized by a title or deed, except in cases where a certificate of sale is established by the customary authorities to attest to the change of “owner.” Thus, it is possible that when asked “Do you own, rent, or sharecrop the land over which you make decisions,” that respondents considered themselves the owners of the land because they inherited it or because they currently have locally accepted right of use, regardless of possessing a formal land title or deed. This could explain the higher-than-expected percentage of farmers reporting “ownership” compared to other sources.

3.4.2 Use of Financial Services

Access to financial services enables households to make investments in productivity-enhancing inputs, manage risk, and diversify livelihood strategies.⁷⁹ Financial services include credit (loans), savings schemes, and insurance plans provided by formal and informal groups.⁸⁰ Examples of financial services providers include banks, microfinance institutions, farmer associations, savings and loan facilities, Village Savings and Loan Associations (VSLAs), and other types of communal social funds. Between one-quarter to one-third of farmers in the RFSA areas used any financial services in the 12 months prior to the survey (Girma, 36.6%; Hamzari, 23%; Wadata, 25.8%) (See Annex 5). Male farmers are more likely to use any financial services compared to female farmers (see

⁷⁴ Slavchevska, Vanya, Ana Paula de la O Campos, Chiara Brunelli and Cheryl Doss. 2017. “Beyond Ownership: Women’s and Men’s Land Rights in Sub-Saharan Africa.” Paper presented at the 2017 Annual (World) Bank Conference on Africa. Rome: Food and Agriculture Organization of the United Nations. Available at <https://pubdocs.worldbank.org/en/170131495654694482/A2-ABCA-Slavcheska-et-al-2016-Beyond-ownership-working-paper.pdf>.

⁷⁵ Gaddis, Isis and Lahoti, Rahul Suresh and Li, Wenjie, Gender Gaps in Property Ownership in Sub-Saharan Africa (August 30, 2018). World Bank Policy Research Working Paper No. 8573. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3246145.

⁷⁶ Hughes, Oliver. 2014. “Literature Review of Land Tenure in Niger, Burkina Faso, and Mali: Context and Opportunities.” Available at <https://www.crs.org/sites/default/files/tools-research/literature-review-of-land-tenure-in-niger-burkina-faso-mali.pdf>.

⁷⁷ Hughes 2014.

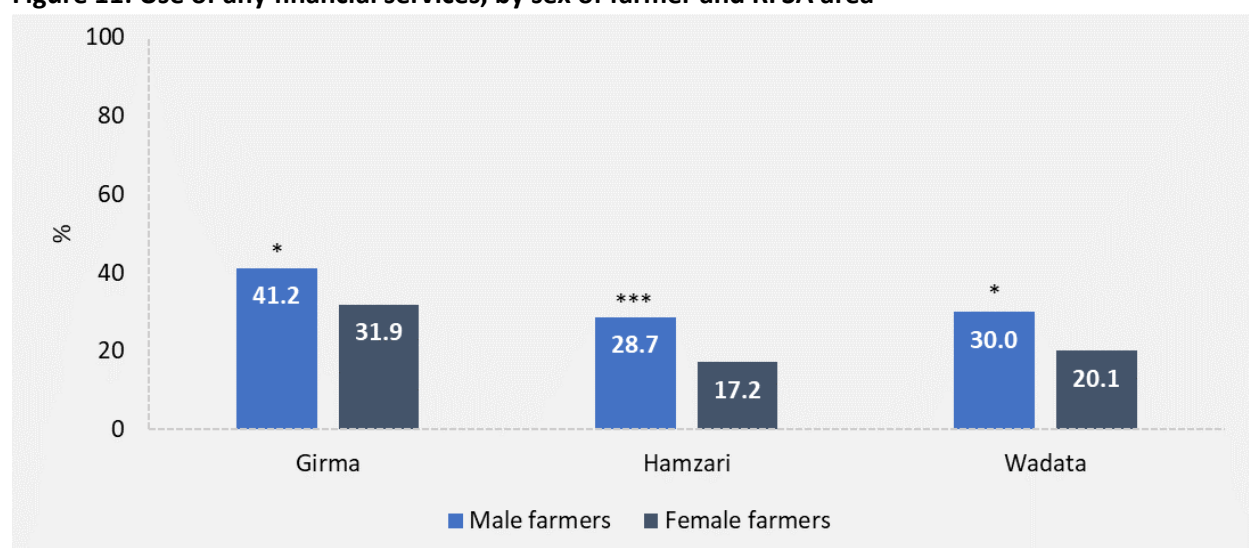
⁷⁸ Slavchevska et al 2017.

⁷⁹ For additional details refer to the FFP Indicators Handbook Part I.

⁸⁰ Ibid.

Figure 11).⁸¹

⁸¹ Annex 6, Table A6.7 provides additional details on use of financial services in the RFSA areas.

Figure 11: Use of any financial services, by sex of farmer and RFSA area

The RISE I endline study pointed out that community-based savings schemes, and education about the function and use of savings, are not only widely promoted, but in Niger build on the indigenous savings culture of *tontine* groups, which were found in control villages without RISE interventions. These antecedents may help explain the use of financial services in the current study. Nevertheless, and despite RISE partners' targeting of women for financial services activities, the use of financial services in the current study is fairly low, especially for women.

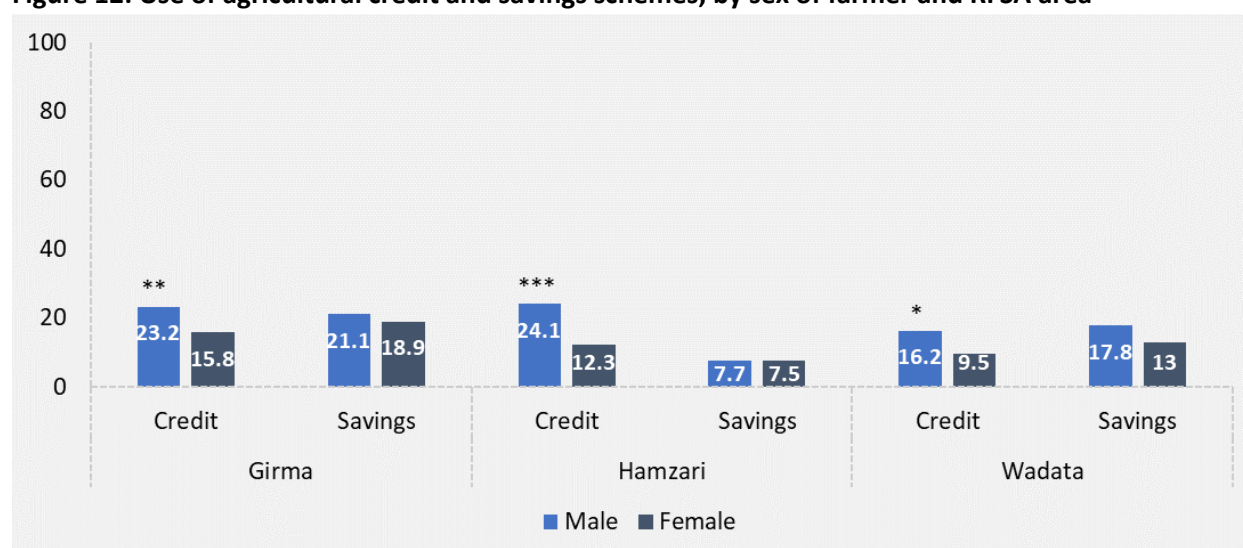
This study finds that use of agricultural savings schemes does not differ by the sex of the farmer (see

Figure 12); however, male farmers are more likely to take out an agricultural loan compared to female farmers. About 1% or less of farmers take out agricultural insurance plans to mitigate risks.

The RISE endline qualitative study uncovered a couple of issues that may discourage and create access barriers to using financial services, including high interest rates for loans, as related by one respondent in Zinder:

“For the operation of the fund: in the beginning there were 17 people, each paying 225F per week. The fund was then open only after six months, to distribute the money with the members. Some used it for income-generating activities like processing peanuts or selling patties. But now, there are seven members who have left because of the interest issue on the loans...the group can give credit to a person who wants it but if she wants 5,000F we will give her 4,500F and 500F will be interest. People in the village said that they perceived illegality with the interest, so we had to stop charging it, which has caused a lot of women to quit.”

Another concerning trend noted in the RISE I endline qualitative study was households’ use of land as collateral for loans, which was found to be a common practice and especially high risk for households with small plots (e.g., less than half a hectare).

Figure 12: Use of agricultural credit and savings schemes, by sex of farmer and RFSa area

3.4.3 Use of Improved Post-Harvest Handling and Storage Practices

Use of improved post-harvest handling and storage practices can help minimize post-harvest losses due to pests (insects, rodents), microorganisms (molds), or chemical alterations within grains due to environmental factors such as temperature and humidity.⁸² The definition of “improved storage practice” is based on input from IPs and not all improved practices were considered (e.g., control for temperature, control for humidity, or design modifications to traditional storage practices). Program investments and design decisions for post-harvest storage programs should be based on a crop-by-crop assessment of drivers of loss.

A total of 27.5% of farmers in the Girma RFSa area, 58.3% in the Hamzari RFSa area, and 43.2% in the Wadata RFSa area used improved storage.⁸³ Male farmers are more likely to use at least one improved storage practice compared to female farmers. Annex 5 provides details on the percentage of farmers using at least one improved storage practice. Locally made storage structures such as metal silos are the most commonly used type of improved post-harvest storage practice, followed by sealed/airtight bags. More than one-third of sorghum and millet farmers in the Hamzari and Wadata RFSa areas use locally made storage structures. In the Hamzari RFSa area, sealed/airtight bags are used by more than one-quarter of cowpea farmers and greater than one-third of peanut farmers. In general, use of improved storage practices does not differ by farmer’s sex or age, with a few exceptions.⁸⁴

⁸² See FAO definition of post-harvest losses. Available at <http://www.fao.org/3/t0522e/T0522E04.htm>. Definitions of improved targeted post-harvest and storage practices are provided in Annex 4.

⁸³ See Annex 4 for the list and definitions of improved post-harvest handling and storage practices promoted by the RFSAs.

⁸⁴ See Annex 6, Tables A6.8a – A6.8d for details on use of post-harvest practices, disaggregated by crop and RFSa area.

3.4.4 Use of Improved Crop Practices

The baseline survey collected information on the use of improved crop and NRM practices or technologies promoted by the RFSAs to increase agricultural productivity and support more resilient and better-functioning systems.⁸⁵ The adoption of targeted improved crop practices follows a similar pattern across the four crops of interest in the RFSAs areas (see **Error! Reference source not found.**).⁸⁶ The subsequent sections discuss the use of targeted improved crop practices in more detail.

Table 7: Heat map of adoption of targeted improved crop practices and technologies, by RFSAs area and crop

		Girma				Hamzari				Wadara			
		So	Mi	C	P	So	Mi	C	P	So	Mi	C	P
Crop genetics	Use of improved seeds	L	L	L	L	S	S	S	S	L	L	L	L
Cultural practices	Control of <i>sida cordifolia</i>	S	S	S	S	S	S	M	M	L	L	L	L
	Crop association	W	W	W	W	W	W	W	W	M	M	M	S
	Crop rotation	L	L	L	L	L	L	L	L	L	L	L	L
	Sowing after first useful rains	M	M	M	M	W	W	W	W	S	M	M	M
Natural resources or ecosystem management	Farmer managed natural regeneration (FMNR)	W	W	W	W	S	S	S	S	M	M	M	W
	Animal corridors/pasture areas	W	M	M	W	M	M	M	M	M	M	M	W
	Pond protection	L	L	L	L	L	L	L	L	L	L	L	M
	Community conflict mgmt	L	L	L	L	L	L	L	L	L	L	L	L
Pest and disease management	Delay seedlings (3 rd /4 th rains)	L	L	L	S	L	L	S	L	L	L	L	L
	Seed treatment w/fungicides	L	L	L	L	S	S	S	S	L	L	L	L
Soil-related fertility and conservation	Zai pits	L	L	L	L	S	S	S	S	L	L	L	L
	Organic manure	W	W	W	W	W	W	W	W	W	W	W	W
	Phosphatic manure	L	L	L	L	L	S	S	S	L	L	L	L
	Compost	M	M	M	M	M	M	M	M	L	L	L	L
	Micro-doses of fertilizer	L	L	L	L	L	L	L	L	L	L	L	L
Agriculture water mgmt. non-irrigation	Agricultural half-moons	L	L	L	L	L	L	L	L	L	L	L	L
Climate adaptation/risk mgmt	Use of climate information	L	L	L	L	L	L	L	L	L	L	L	L
Other practices	Performing 3+ weedings	M	M	M	M	M	M	W	W	L	S	S	L

Note: So = sorghum; Mi = millet; C = cowpeas; P = peanuts

W	Wide application (~50% or more)	M	Moderate application (~20–49%)	S	Some application (~11–19%)	L	Low/no application (~10% or less)
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⁸⁵ Definitions of these practices are provided in Annex 4.

⁸⁶ Annex 5 provides sampling statistics for the percentage of farmers using improved practices, disaggregated by type and crop.

The baseline survey results indicate the following overarching findings for the use of crop and NRM practices:

- Crop association (i.e., intercropping) and sowing after first useful rains are the most popular targeted improved cultural practices; adoption rates range between moderate (about 20% to 49%) to widespread (about 50% or more).
- Within the suite of soil-fertility related conservation practices, application of organic manure is widespread, followed by compost.
- FMNR and the delimitation of animal corridors and pasture areas are the leading improved NRM practices and are used by a moderate percentage of farmers.
- Less than 10% of farmers use improved seed varieties that are high yielding, drought-tolerant, or disease-resistant.⁸⁷
- Farmers in the RFSAs rarely use targeted pest and disease management practices, non-irrigation-based agricultural water practices, or climate adaptation and risk mitigation practices; less than 10% use any of these practices.
- Other infrequently applied targeted practices include crop rotation, pond protection, and functional community-based conflict management.

Sorghum

A total of 2,203 sorghum farmers were interviewed for the baseline study. Most are male and between the ages of 25–54 years, although close to 20% are 60 years and older. See

⁸⁷ Farmer recall is likely to understate access to improved seed (i.e., varieties originating from agricultural research) as farmers often confound long-held improved seed (varieties originating from agricultural research) with traditional land races.

Table 8 for the percentage distribution of sorghum farmers by sex and age in the RFSA areas.

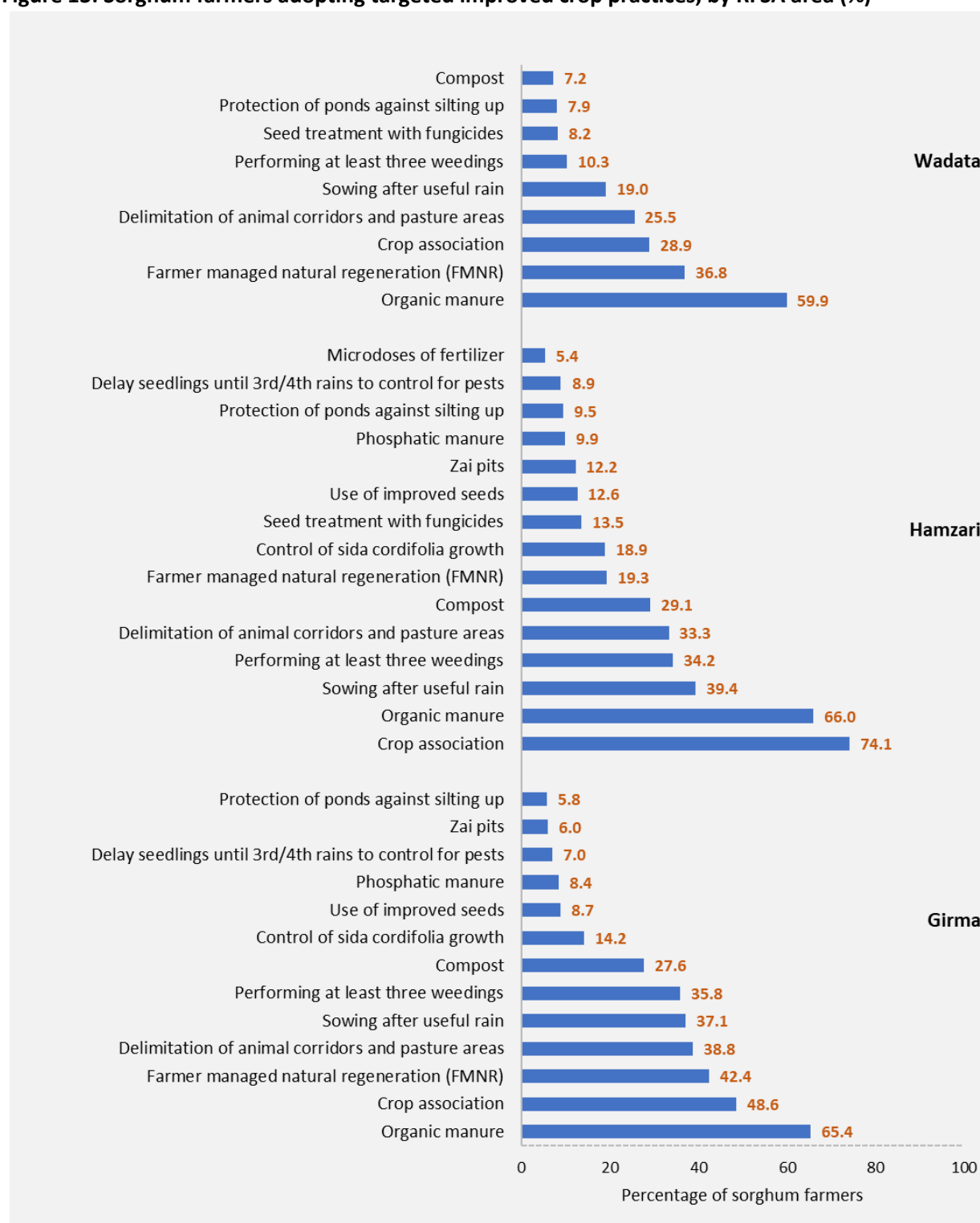
Table 8: Distribution of sorghum farmers by sex and age in the RFSA areas, Niger (%)

	Combined RFSA areas	Girma	Hamzari	Wadata
Sex				
Male	65.5	64.0	68.6	67.3
Female	34.5	36.0	31.4	32.7
Total	100.0	100.0	100.0	100.0
Age				
15–19	3.5	3.3	3.3	4.5
20–24	7.5	7.5	4.7	10.2
25–29	10.4	10.8	8.6	10.5
30–34	12.8	14.5	10.4	9.6
35–39	13.2	12.2	16.5	13.7
40–44	13.2	13.4	12.6	13.0
45–49	7.2	6.2	10.2	7.9
50–54	10.1	11.0	9.4	8.0
55–59	5.0	4.5	7.5	4.3
60+	17.0	16.6	16.8	18.3
Total	100.0	100.0	100.0	100.0
Number of sorghum farmers				
	2,203	785	822	596

Figure 13 illustrates the use of improved crop and NRM practices among sorghum farmers by RFSA area. Use of improved practices among sorghum farmers generally does not differ statistically by farmer sex or age, with a few exceptions.⁸⁸

⁸⁸ See Annex 6, Table A6.9a for details.

Figure 13: Sorghum farmers adopting targeted improved crop practices, by RFSA area (%)



Note: Results are presented for practices used by five% or more of farmers. See Annex 6, Table A6.9a for details, including disaggregation by age and sex.

Millet

A total of 2,663 millet farmers were interviewed for the baseline study. Table 9 illustrates the percent distribution of millet farmers by sex and age in the RFSA areas. About two-thirds of farmers engaged in millet production are male and most are 25–54 years old; close to 15% are 60 years and older.

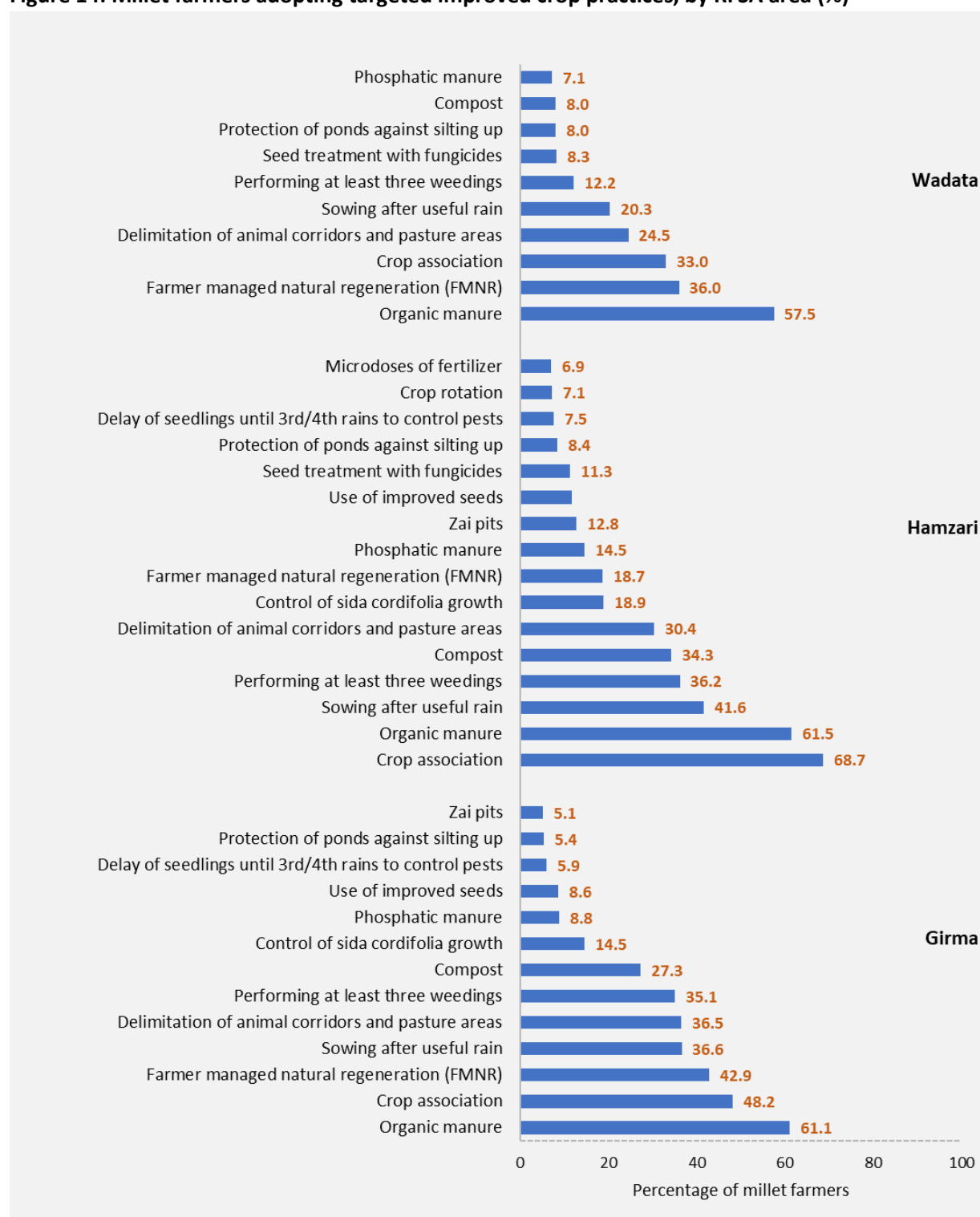
Table 9: Distribution of millet farmers by sex and age in the RFSA areas, Niger (%)

	Combined RFSA areas	Girma	Hamzari	Wadata
Sex				
Male	61.2	59.1	64.5	65.1
Female	38.8	40.9	35.5	34.9
Total	100.0	100.0	100.0	100.0
Age				
15–19	4.4	4.9	2.8	4.4
20–24	8.4	9.2	4.6	9.5
25–29	11.5	11.6	10.8	11.9
30–34	12.9	14.5	11.2	9.2
35–39	12.9	11.3	16.9	14.3
40–44	12.9	12.7	13.4	13.3
45–49	7.2	6.3	9.5	7.8
50–54	10.1	11.1	9.0	8.0
55–59	4.4	3.9	6.4	4.3
60+	15.3	14.6	15.4	17.2
Total	100.0	100.0	100.0	100.0
Number of millet farmers				
	2,663	968	1,018	677

Figure 14 illustrates the use of improved practices among millet farmers in each of the RFSA areas. Use of improved practices among millet farmers generally does not differ statistically by farmer sex or age, with a few exceptions.⁸⁹

⁸⁹ See Annex 6, Table A6.9b for details.

Figure 14: Millet farmers adopting targeted improved crop practices, by RFSA area (%)



Note: Results are presented for practices used by five% or more of farmers. See Annex 6, Table A6.9b for details, including disaggregation by age and sex.

Cowpeas

A total of 2,582 cowpea farmers were interviewed for the baseline study. The sex and age distribution of cowpea farmers resembles that of sorghum and millet producers; about two-thirds or more are male, and most are aged 25–54 years (see Table 10).

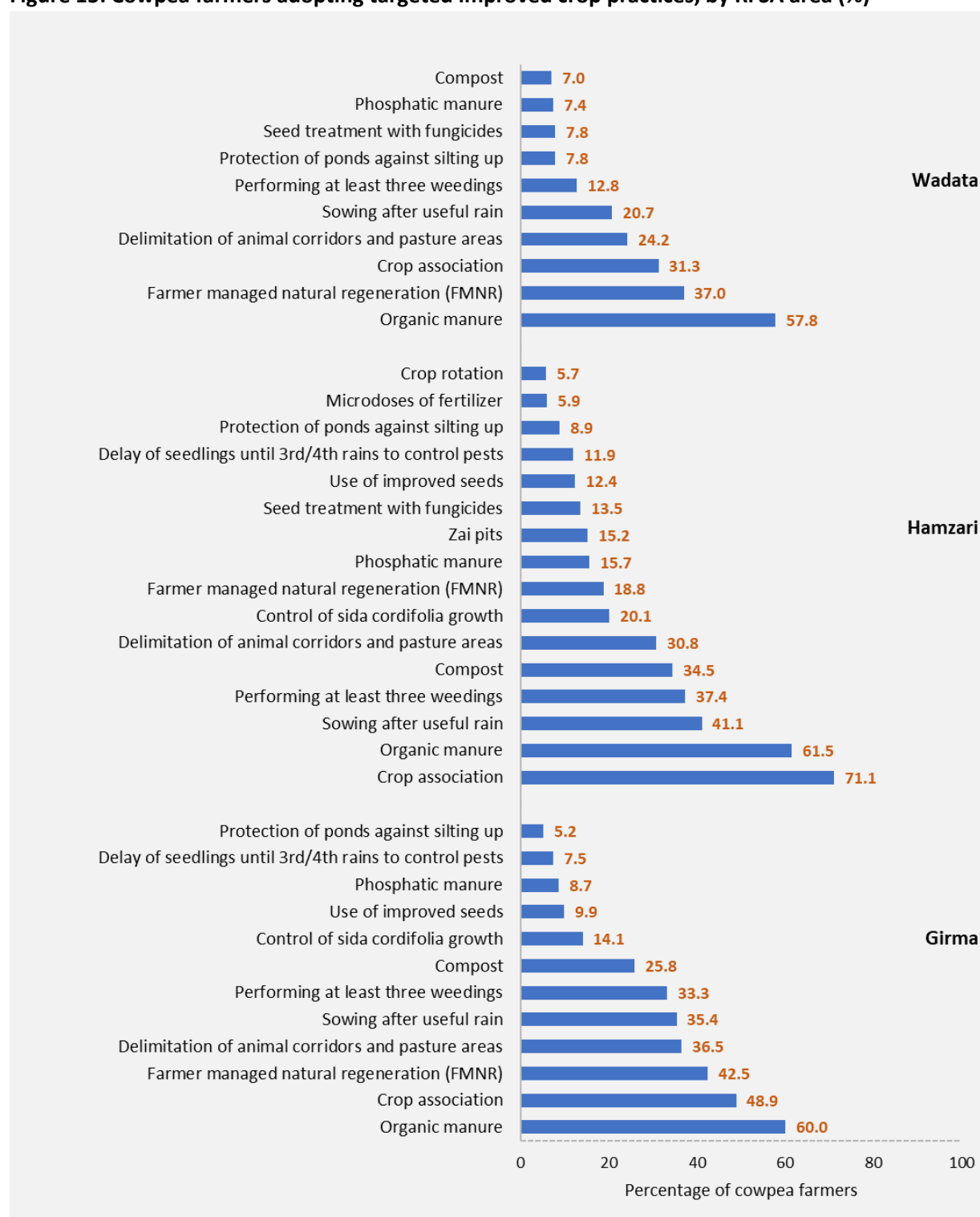
Table 10: Distribution of cowpea farmers by sex and age in the RFSA areas, Niger (%)

	Combined RFSA areas	Girma	Hamzari	Wadata
Sex				
Male	61.3	59.4	67.2	62.5
Female	38.7	40.6	32.8	37.5
Total	100.0	100.0	100.0	100.0
Age				
15–19	5.1	5.6	2.7	5.4
20–24	9.1	9.7	4.7	10.6
25–29	11.1	11.2	10.0	11.7
30–34	12.9	14.3	11.0	9.7
35–39	12.8	11.5	17	13.5
40–44	12.7	12.4	13.6	13
45–49	7.1	6.2	9.7	7.7
50–54	10.0	10.9	9.2	7.7
55–59	4.5	3.9	7.1	4.3
60+	14.9	14.4	15	16.3
Total	100.0	100.0	100.0	100.0
Number of cowpea farmers				
	2,582	961	909	712

Figure 15 illustrates the percentage of cowpea farmers using improved practices, by RFSA area. Use of targeted improved practices by cowpea farmers generally does not differ statistically by farmer sex or age, with a few exceptions.⁹⁰

⁹⁰ See Annex 6, Table A6.9c for details.

Figure 15: Cowpea farmers adopting targeted improved crop practices, by RFSA area (%)



Note: Results are presented for practices used by five% or more of farmers. See Annex 6, Table A6.9c for details, including disaggregation by age and sex.

Peanuts

A total of 1,132 peanut farmers were interviewed for the baseline study. Table 11 illustrates the age and sex distribution of peanut farmers by RFSA area. Between one-third to one-half of peanut farmers in the Girma and Hamzari RFSA areas are female. The overwhelming majority of peanut farmers in the Wadata RFSA area are male.

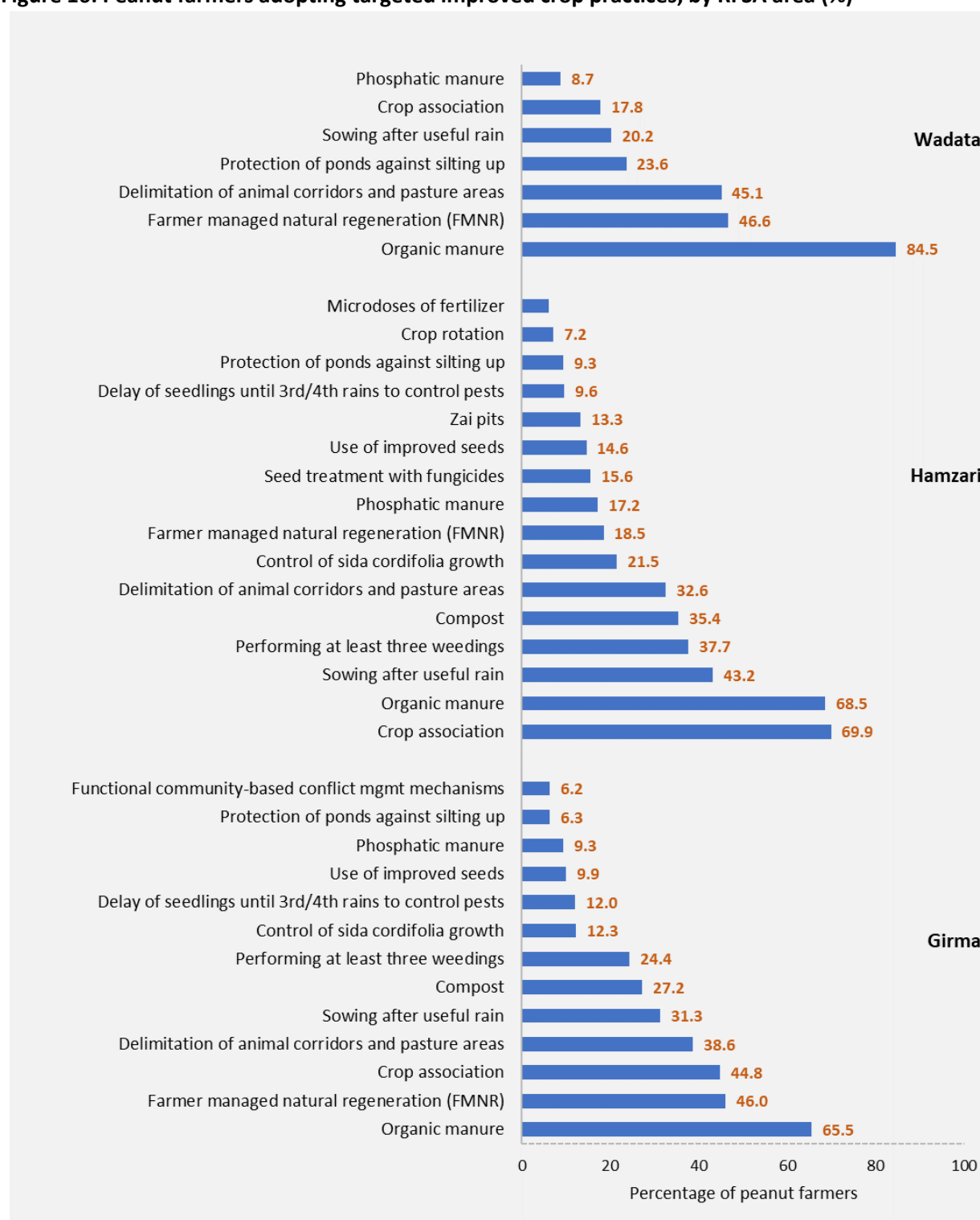
Table 11: Distribution of peanut farmers by sex and age in the RFSA areas, Niger (%)

	Combined RFSA areas	Girma	Hamzari	Wadata
Sex				
Male	67.6	63.0	74.1	92.0
Female	32.4	37.0	25.9	8.0
Total	100.0	100.0	100.0	100.0
Age				
15–19	3.3	4.0	2.2	0.8
20–24	6.7	8.3	3.2	1.6
25–29	9.1	10.0	7.1	7.4
30–34	13.1	14.5	10.0	9.5
35–39	12.7	11.6	16.5	12.2
40–44	14.3	14.4	13.7	15.0
45–49	8.0	6.4	11.2	13.7
50–54	10.4	10.3	9.8	12.8
55–59	4.9	4.2	8.1	2.3
60+	17.4	16.4	18.2	24.6
Total	100.0	100.0	100.0	100.0
Number of peanut farmers				
	1,132	444	571	117

Figure 16 illustrates the percentage of peanut farmers using improved practices by RFSA area. Use of improved practices among peanut farmers generally does not differ statistically by farmer sex or age, with a few exceptions.⁹¹

⁹¹ See Annex 6, Table A6.9d for details.

Figure 16: Peanut farmers adopting targeted improved crop practices, by RFSA area (%)



Note: Results are presented for practices used by five% or more of farmers. See Annex 6, Table A6.9d for details, including disaggregation by age and sex.

3.4.5 Use of Improved Livestock Practices

A total of 1,316 goat farmers, 523 sheep farmers, and 547 poultry farmers were interviewed for the baseline study. In the Girma RFSA area, close to two-thirds of goat farmers are female and under one-half of sheep and poultry farmers are female. In the Hamzari RFSA area, female farmers account for three-quarters of goat farmers, two-thirds of sheep farmers, and one-third of poultry farmers. Between one-third to one-half of goat, sheep, and livestock farmers in the Wadata RFSA area are female. See Table 12 for details on the percent distribution of goat, sheep, and poultry farmers by age and sex.

Table 12: Sex and age distribution of goat, sheep, and poultry farmers by RFSA area, Niger (%)

	Combined RFSA Areas			Girma			Hamzari			Wadata		
	Goat	Sheep	Poultry	Goat	Sheep	Poultry	Goat	Sheep	Poultry	Goat	Sheep	Poultry
Sex												
Male	36.4	54.4	59.3	36.7	56.2	54.8	21.2	38.2	65.5	54.6	68.2	68.6
Female	63.6	45.6	40.7	63.3	43.8	45.2	78.8	61.8	34.5	45.4	31.8	31.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Age												
15–19	4.3	2.9	4.1	4.2	3.0	3.7	7.2	3.5	7.5	0.9	2.1	3.1
20–24	9.7	7.2	11.4	10.3	7.9	14.0	10.3	4.7	6.3	5.7	7.7	6.9
25–29	14.7	13.1	8.0	14.5	13.7	8.1	17.3	12.6	3.8	12.0	11.4	10.6
30–34	16.8	15.6	15.7	18.8	16.7	16.9	15.9	13.9	15.9	8.6	13.3	11.9
35–39	10.7	12.6	12.9	9.6	9.8	10.9	13.2	20.5	16.7	12.5	14.1	16.2
40–44	13.0	15.0	13.4	12.8	15.5	12.8	11.1	17.8	14.5	16.4	9.5	14.4
45–49	5.5	6.6	6.5	4.9	5.9	5.8	5.2	8.5	7.9	8.4	7.0	7.7
50–54	9.3	10.7	9.4	10.0	12.9	11.3	7.4	3.5	5.0	8.6	11.1	6.6
55–59	3.7	5.0	5.5	3.5	4.8	5.6	4.1	5.8	9.0	3.7	4.8	2.9
60+	12.4	11.1	13.1	11.4	9.9	11.0	8.1	9.1	13.4	23.2	19.0	19.6
Total	100.0	100.0	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
Number of farmers												
	1,316	523	547	526	197	223	530	215	178	260	111	146

Table 13 and Table 14 provide “heat maps” illustrating the extent of adoption of targeted improved livestock practices in the RFSA areas.⁹²

⁹² Definitions of these practices are provided in Annex 4. Refer to Annex 5 for sampling statistics for the percentage of farmers using improved livestock practices, disaggregated by commodity.

Table 13: Heat map of adoption of targeted improved livestock practices and technologies – goats and sheep, by RFSA area

	Girma		Hamzari		Wadata	
	Goats	Sheep	Goats	Sheep	Goats	Sheep
Antiparasitic treatments	M	M	M	M	M	M
Vaccinations	M	M	M	W	S	M
Improved fodder production	S	S	L	L	L	L
Use of licking and/or multi-nutritional block	L	L	L	L	L	L
Animal selection	S	S	L	L	L	L
Use of para-veterinary services	L	S	L	L	L	L
Veterinary monitoring of food quality and quantity over time	L	L	L	L	L	L
Weight monitoring	L	L	L	L	L	L
Optimum weight-market price criteria for the sale decision	L	L	L	L	L	L

W	Wide application (~50% or more)	M	Moderate application (~20–49%)	S	Some application (~11–19%)	L	Low/no application (~10% or less)
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Table 14: Heat map illustrating adoption of targeted improved livestock practices and technologies – poultry, by RFSA area

	Girma	Hamzari	Wadata
Vaccinations	S	M	L
Use of improved poultry variety/breed	S	L	L
Use of improved shelters	L	S	L
Use of veterinary products and services	L	S	L
Use of improved feed	L	L	L

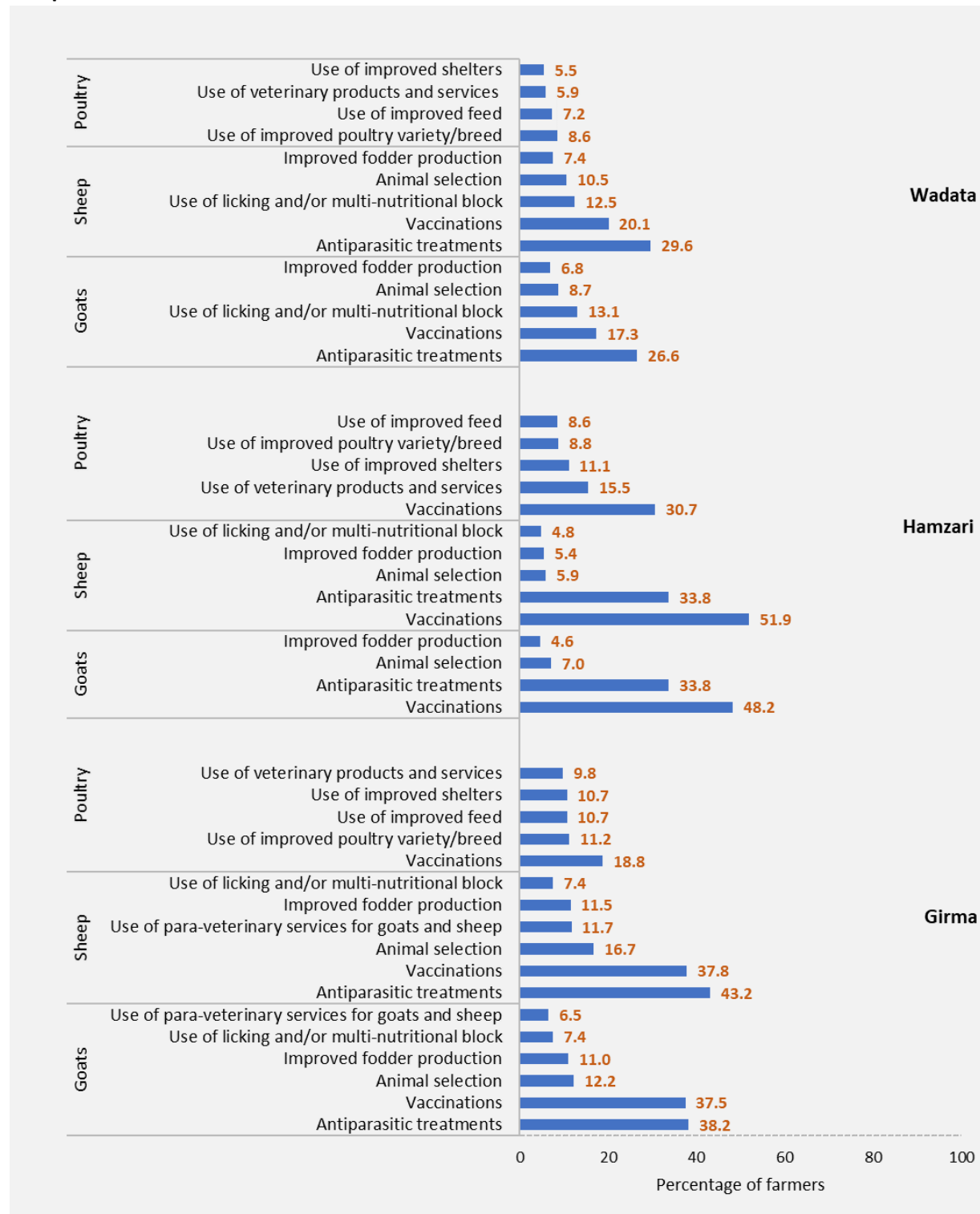
W	Wide application (~50% or more)	M	Moderate application (~20–49%)	S	Some application (~11–19%)	L	Low/no application (~10% or less)
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Antiparasitic treatments and vaccinations are the most-used targeted improved practices (see

Figure 17). Relatively few goat or sheepherders use animal selection, improved fodder production, licking and multi-nutritional blocks or paraveterinary services. Relatively low percentages of farmers (Girma, 9.8%; Hamzari, 15.5%; Wadata, 5.9%) use or consult public or government animal workers for veterinary services such as prevention or treatment of livestock disease, production, artificial insemination, or products such as antibiotics and vitamins. About 10% or less of the poultry farmers use improved poultry breeds, improved feed, or improved shelters. There are generally no statistically significant differences by farmers' sex or age in the application of targeted improved livestock practices.⁹³

⁹³ See Annex 6, Tables A6.10a, A6.10b and A6.10c for details.

Figure 17: Farmers adopting targeted improved livestock practices, by livestock type and RFSA area and percent



Notes: Results are presented for practices used by five% or more of farmers.

3.4.6 Factors Affecting Adoption of Improved Practices

Use of financial services is expected to contribute to the adoption of improved agricultural practices, particularly those practices that require cash for the purchase of inputs such as fertilizer, improved seeds, equipment, and feed, or cash for the payment of services such as labor or veterinary services. Table 15 and Table 16 summarize targeted improved agricultural practices that are more likely to be applied by farmers using a financial service compared to those who are not, by RFSa area and commodity.⁹⁴

There is some evidence that obtaining agricultural credit or participating in agricultural saving schemes is associated with a higher likelihood of farmers adopting improved practices that require cash inputs. For example, farmers who took out agricultural credit were more likely to:

- Use improved seeds (Hamzari – sorghum, millet, cowpeas, and peanuts; Wadata – millet).
- Apply phosphatic manure or micro-doses of fertilizer (Hamzari – millet, cowpeas, and peanuts).
- Treat grains with agro-chemicals (Hamzari – cowpeas).
- Store grains in community facilities or warehouses (Girma – peanuts; Hamzari – millet; Wadata – millet).
- Preserve harvested grains in sealed/airtight bags (Hamzari – cowpeas and peanuts; Wadata – cowpeas).
- Use triple bags to store grains (Hamzari – millet, cowpeas, and peanuts).
- Use improved poultry varieties (Girma).
- Use licking and/or multi-nutritional blocks (Hamzari – goats and sheep).
- Use paraveterinary services (Hamzari – goats and sheep) and veterinary products (Girma – poultry).

The baseline survey results also show positive and statistically significant associations between the use of agriculture-related financial services and the adoption of improved practices that do not necessarily require cash inputs (e.g., applying organic manure, sowing after first useful rains, performing at least three weedings, and controlling for *sida cordifolia* growth). This suggests that underlying factors associated with the use of financial services may also be contributing to the adoption of improved agricultural practices. For example, farmers that participated in agricultural saving schemes or who borrowed agricultural credit may have participated in agricultural trainings or meetings where they gained exposure to those practices.

⁹⁴ See Annex 7, Tables A7.2–A7.8 for additional details.

Table 15: Targeted improved crop and post-harvest practices more likely to be applied by farmers using a financial service than farmers who are not, by RFSA area and commodity

	Obtained agri-credit	Participated in agri-saving schemes
Crop genetics		
Use of improved seeds	H (S, M, C, P) W (M)	W (M)
Cultural practices/technologies		
Control of <i>sida cordifolia</i> growth	H (P)	G (S, C, P)
Crop rotation	H (M, C, P)	
Sowing after useful rains	W (S, M) H (M, C)	
Improved natural resources or ecosystem management		
Delimitation of animal corridors/pasture areas	W (S, M)	H (M, C, P)
Protection of ponds against silting up	W (S, M)	W (S, M)
Improved pest and disease management		
Delay of seedlings until third or fourth rains	W (S)	
Seed treatment with fungicides		W (M)
Improved soil-related fertility and conservation		
Zai pits		G (P)
Organic manure	G (P) W (M)	G (S, M, C, P)
Phosphatic manure	H (M, C, P)	G (S, M, C, P)
Compost	H (P)	
Micro-doses of fertilizer	H (M, C, P)	H (S)
Improved agriculture water management non-irrigation-based		
Agricultural half-moons		W (M, C, P)
Improved climate adaptation/climate risk management		
Use of climate information		G (C)
Other improved practices/technologies		
Performing at least three weeding	H (M, C)	
Improved post-harvest handling and storage		
Grain treatment with agro-chemicals	H (C)	G (S) W (C)
Use of solar or fuel-powered dryers to reduce post-harvest moisture		G (S)
Sealed/airtight bags	H (C, P) W (C)	H (S, M)
Triple bags	H (M, C, P)	G (M)
Community storage facilities, including warehouse receipting	G (P) H (M) W (M)	H (S, M, P)
Locally made storage structures such as sheet metal silos		H (P)
Seed or grain treatment techniques (e.g., botanical pest control agents or phytosanitary irradiation)		H (M)

Notes: G = Girma RFSA area; H = Hamzari RFSA area; W = Wadata RFSA area
S = sorghum; M = millet; C = cowpeas; P = peanuts

Table 16: Targeted improved livestock practices more likely to be applied by farmers using a financial service than farmers who are not, by RFSA and commodity

	Obtained agri-credit	Participated in agri-saving schemes
Improved livestock practices – goats and sheep		
Improved fodder production	H (Go, Sh)	G (Go, Sh) H (Go, Sh)
Use of licking and/or multi-nutritional block	H (Go, Sh)	H (Go, Sh)
Animal selection		G (Go, Sh) H (Go, Sh)
Veterinary monitoring of food quality and quantity over time		H (Go, Sh)
Weight monitoring	H (Go, Sh)	W (Go, Sh)
Optimum weight-market price criteria for the sale decision	H (Go, Sh)	H (Go, Sh)
Use of para-veterinary services for goats and sheep	H (Go, Sh)	H (Go, Sh)
Improved livestock practices – poultry		
Improved poultry variety/breed	G	H
Improved feed (poultry)		W
Use of veterinary products	G	

Notes: G = Girma RFSA area; H = Hamzari RFSA area; W = Wadata RFSA area

Go = Goats; Sh = Sheep

The qualitative component of the RISE I endline study provides some insights into factors that contribute to the adoption of improved agricultural practices in Niger; these factors are discussed in turn, below.

Demonstrated results. A strong theme in the RISE I endline qualitative findings was that farmers and livestock producers were motivated to adopt new practices when they were tested against existing techniques and the differences in results were observable. As one respondent in Maradi stated, people are always skeptical of replacing ancestral techniques with new ones, so they try the new methods in one part of their fields while continuing the old methods in another. Several RISE I participants noted the increase in yield after applying project-promoted techniques (including using improved seed varieties) and attributed the improvement to the new techniques, giving quantified examples of their yields over time with the application of new methods. The good results were particularly valued by farmers with small plots who were able to improve yields. The following account from Maradi captures how RISE I training methodology was effectively applied:

“They conducted training courses during which they specified the different varieties of millet and cowpea, the technique of producing pesticides to fight against crop pests, compost production, and fertilizer storage techniques. Then we moved on to experimenting with the techniques we learned. The first year we experimented with the HKP millet variety that we tried on four fields. First, we cleared the fields, then came the seeds. After 3 weeks we ploughed the fields and every week we went around with the trainer; we measured the evolution of the seedlings and counted them.

The four fields are differentiated by the type of fertilizer used. In the first field we used organic fertilizer. In the second we used chemical fertilizer, in the third at the beginning we put organic fertilizer and after the hoeing we added chemical fertilizer. And finally, in the fourth field we did not put fertilizer. This experiment allowed us to see for ourselves the method that has more yield. And it turned out to be the third, where we used both types of fertilizer in the same field.

In the second year, we experimented with the IT89, IT90 and KBX varieties of cowpea. And it turned out that after the harvest, we preferred to resume our traditional seed variety (“fitila”) because it was more profitable than the three experienced.”

The RISE I endline qualitative data also provided support for the power of demonstrating results in livestock production; for example, one participant noted that after applying new animal husbandry techniques, his sheep fattened in significantly less time than usual and fetched a high price in the market. Another noted “remarkable change in livestock production due to fodder...there are times when it is difficult to find hay for our livestock, but after the project we prepare rich food for them that we keep for difficult times.” These findings lend more support for the teaching technique of introducing new practices on a trial basis, allowing producers to see results for themselves and make future choices based on their own experiences.

Indeed, the RISE I endline qualitative findings underline that the centrality of experimentation is crucial—also because it allows farmers to spread risk, which is especially important for smallholders. As a respondent in Zinder stated, “Since the beginning of the project activities, I have always divided my field into three parts to cultivate three different varieties. That way I take less risk when one of the strains isn't working.” Similarly, another stated that while improved seeds were attacked by caterpillars, the traditional seeds were not touched.

Another advantage of demonstrating results in the field is that the results are visible to all farmers, not only those who participated in sensitization trainings, as one farmer in Zinder pointed out. A few respondents in the RISE I endline gave examples of how non-project participants sought advice from participating farmers who had successful plots demonstrating project-promoted techniques such as *zai* pits.

A further appeal of field demonstration may also lie in the communal nature of the work; as one respondent in Maradi stated, when their group goes to the field to work their land in joy and good humor, they make others envious and want to join their group. Moreover, there can be a positive aspect of competition between farmers in applying what they learn, according to a Maradi respondent: “In terms of change, at the community level, many people continue to apply the production techniques they have learned to build their productive capacities and systems. Through the application of techniques, they observe for themselves the differences that allow them to increase production. There is competition between producers at this level. For example, if you operate by applying the 200 m² technique, another will take the initiative to operate 400 m².”

It bears noting that not all trials are successful: unintended results may also be demonstrated, and this also influences people's willingness to adopt a new technique. The RISE I endline presented an example where a women's group in Zinder experimented on their fields with different fertilizer treatments and trials of donated seeds of millet, cowpea, and peanuts. One of their conclusions related to cowpea: they stated that they prefer the traditional variety because the variety made available by project had not produced well. This re-emphasizes the power of demonstration to forming opinions while also highlighting the importance of testing the effectiveness of different techniques or inputs in different contexts, and monitoring implementation to optimize results.

Complementarity of techniques. Building on the observation above, that observable results have a strong influence on adoption (or non-adoption) of promoted techniques, the qualitative data from the

RISE I baseline study suggest that participants took notice of enhanced effectiveness when certain techniques are applied together. Respondents highlighted results of using *zai* pits and composting together, for example: “Composting... consists of an assimilation of natural elements, which allow the farmer in record time to produce fertilizer (especially during the seventh month). There are *zai* at this level that complement the composting techniques for improving agricultural production.” Another frequently mentioned combination was plant spacing and plant row arrangement techniques, applied together in order to efficiently exploit the arable space but also to concentrate the application of fertilizer close to the plant.

Access to inputs. The RISE I project provided chemical fertilizer, and its use was common among RISE I participants, but the sustainability of access to fertilizers was raised as a challenge in the 2017 summative evaluation of RISE. As stated by a respondent in Maradi, “...the new techniques... strengthen our productive capacity ... [which is] ... a clear evolution. But the problem with modernity lies in the fact that the producer has to obtain certain agricultural inputs (fertilizers that are either unavailable at times of need, or inaccessible to the majority of small producers).” Access to and affordability of inputs to smallholder farmers may explain the low adoption rates for micro-dosing of fertilizer shown in **Error! Reference source not found..**

Veterinary services. As shown in the heat maps (Table 13 and Table 14), use of veterinary services and products was low for all types of livestock (with the exception of poultry in the Hamzari RFSa area). The qualitative findings of the RISE I endline suggest that while that project included para-veterinary services and education regarding animal vaccination, consistent technical support for managing animal health was a challenge both during the project and as a permanent service. Challenges to using these services included lack of veterinarians, not calling on the veterinary service in time to save the animal, perceptions that vaccinations cause livestock disease, and inaccessibility or high price of veterinary products. COVID-19 exacerbated some of these challenges: for example, containment protocols made it difficult to access vaccinations and drove up prices. Moreover, a respondent in Maradi pointed out that vaccination was deprioritized because people were forced to sell or slaughter their livestock: “...You can think of other things only when you manage to eat well to satisfy your hunger. Vaccinations were available, but there were no livestock to be vaccinated.”

Habbanaye. The RISE I endline qualitative findings suggest that blending project interventions with the indigenous practice of *habbanaye* contributes to the success of those interventions. The *habbanaye* system traditionally consists of lending an adult female sheep, goat, or cow to a villager in need; when that animal gives birth, the adult animal is returned while the villager keeps the lamb, kid, or calf. Working with this indigenous practice helps emphasize local ownership of development and is an opportunity for introducing new animal husbandry and rearing practices in a culturally sensitive way. With the growing influence of RISE projects, *habbanaye* started to become intertwined with agriculture and income-generating activities, and, as stated by a respondent in Maradi, “...reinforce women already united in groups. The animals circulate between the different members. With the activities, there are seven groups today compared to two groups 7 years ago. There is active participation in the extraction of peanut oil, and reinforcements of small [income] activities.” Moreover, *habbanaye* was noted several times by RISE I endline informants as contributing to women’s earning power, which in turn raises the woman’s status in contributing to household income and decision-making. For example, a Maradi respondent stated, “Women's roles have changed markedly through changing their economic power through the feeding and

fattening of animals, as they have the capacity to increase an animal's value from 10,000F to 30,000F or more." RISE I endline respondents viewed the greater availability of sheep and goats in the community as beneficial in itself and felt this was leading to more competition in buying and selling. They also saw its contribution in expanding value chains such as milk and dairy products, raising awareness of potential new customers, and contributing to social cohesion. Building on the *habbanaye* practice also favors sustainability, as women's groups were noted to continue sharing livestock and ultimately all members would have their own animals—and thus, income sources—a desirable outcome.

Another indigenous structure that bears noting is the *tontine*, a traditional savings group. While the RISE I endline study did not specifically detail how project interventions were integrated with *tontines*, given the success with *habbanaye*, it may be assumed that working closely with these existing groups would contribute to positive outcomes and sustainability. Testament to this is that *tontines* were found to exist even in control villages without RISE I interventions.

3.5 Water, Sanitation, and Hygiene

Household access to and use of basic water and sanitation facilities coupled with the adoption of proper hygiene practices, such as handwashing with water and soap (or ash) at critical moments, can help reduce the spread of waterborne illnesses such as diarrhea and other diseases among all household members, especially children under 5 years.⁹⁵ This section describes household access to WASH facilities.⁹⁶ While the indicators discussed provide a robust measure of access to basic facilities, they do not measure actual use of those facilities.

3.5.1 Drinking Water Source

FFP defines basic drinking water services as improved sources or delivery points⁹⁷ that fulfill the following criteria:

- Protected from fecal contamination;
- Collection time is 30 minutes or less (round-trip including wait time);
- Consistently produce (i.e., year-round) 20 liters per person per day of basic drinking water; and
- No interruptions in service in the 2 weeks prior to data collection.

Because the survey did not collect information on year-round water access, the official indicator for access to a basic water source cannot be calculated. Instead, the percentage of households whose water source meets all other criteria (i.e., improved source, 30-minutes-or-less round trip, production of at least 20 liters per person per day, and no interruptions in the last 2 weeks) was calculated.

⁹⁵ For additional details refer to the FFP Indicators Handbook Part 1.

⁹⁶ Annex 6, Table A6.11 provides details on household WASH practices, disaggregated by RFSA area.

⁹⁷ Improved sources of drinking water include piped water into dwelling, piped water into yard/plot, piped to neighbor, public tap/standpipe, tubewell or borehole, protected well, protected spring, rainwater, tanker truck, cart with small tank, and bottled water. Unimproved sources are unprotected well, unprotected spring, and surface water. Refer to the FFP Indicators Handbook Part 1.

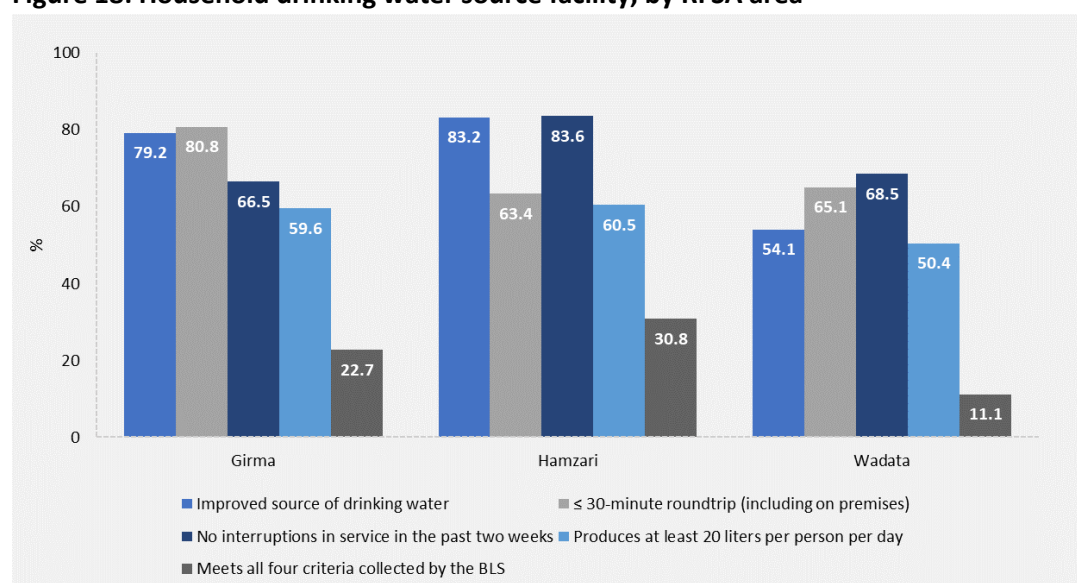
As illustrated in

Figure 18, an improved drinking water source is available to most households in the Girma (79.2%) and Hamzari RFSA areas (83.2%) and a little over one-half in the Wadata RFSA area (54.1%). The most common improved source of drinking water in the Girma RFSA area is a tubewell or borehole (45.7%), protected well in the Hamzari RFSA area (38.6%), and public standpipe in the Wadata RFSA area. Public taps and standpipes were the second-most common type of improved drinking water sources in the Girma (28.7%) and Hamzari (34.3%) RFSA areas. Indeed, drilling wells was mentioned by a few participants in the RISE I endline, though it was understood that water supply interventions were in a limited number of communities; various respondents expressed a need for more interventions of this nature.

Most households can access a water source in 30 minutes or less round-trip (Girma, 80.8%; Hamzari, 63.4%; Wadata, 65.1%). However, for many households those sources do not produce the daily minimum requirement to meet their drinking, sanitation, and hygiene needs. Household access to a water source that produces at least 20 liters per person per day is 59.6% in the Girma RFSA area and 60.5 and 50.4% in the Hamzari and Wadata RFSA areas, respectively.

The analysis indicates that few households have access to a drinking water source that meet all four criteria collected by the baseline survey (Girma, 22.7%; Hamzari, 30.8%, Wadata, 11.1%). Few households do anything to make their water safer to drink (Girma, 28%; Hamzari, 20.9%; Wadata, 20%).⁹⁸

⁹⁸ Household respondents were asked "Do you do anything to the water to make it safer to drink?" Possible response options are "yes," "no," and "don't know." Households were not asked about the technique used to make water safer to drink (e.g., boiling, chlorination, etc.). Therefore, conclusions on the use of correct treatment methods cannot be made.

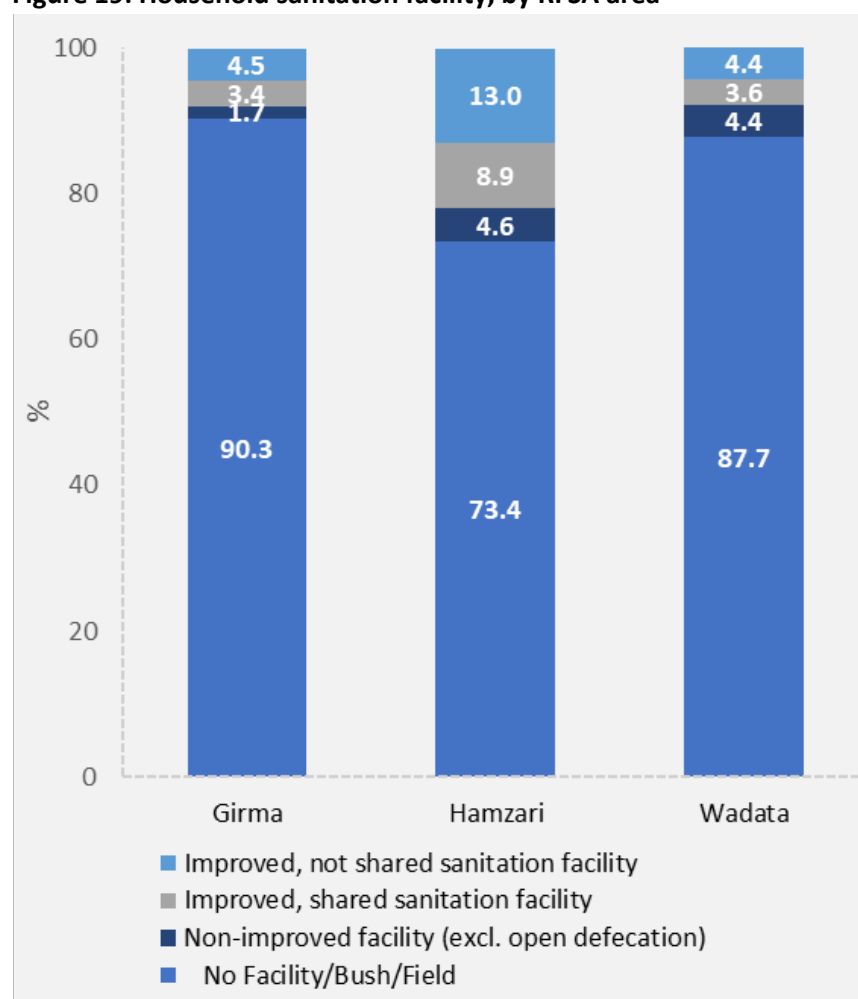
Figure 18: Household drinking water source facility, by RFSA area

3.5.2 Sanitation Facility

According to the World Health Organization (WHO)/United Nations Children’s Fund Joint Monitoring Program, a “basic sanitation facility” must meet two conditions: 1) it is an “improved sanitation facility” (i.e., hygienically separate excreta from human contact)⁹⁹ and 2) it is not shared with other households. As shown in Figure 19, access to a basic sanitation facility is low across the RFSA areas (Girma, 4.5%; Hamzari, 13%; Wadata, 4.4%).¹⁰⁰ A small percentage of households have “limited service,” i.e., access to an improved sanitation facility that is shared (Girma, 3.4%; Hamzari, 8.9%; Wadata, 3.6%). The most common improved sanitation facility used (in both the shared and unshared categories) is a pit latrine with a slab. The overwhelming majority of households have no facility and practice open defecation (Girma, 90.3%; Hamzari, 73.4%; Wadata, 87.7%).

⁹⁹ Improved sanitation facilities include those that flush or pour to a piped sewer system, septic tank, or pit latrine; ventilated improved pit latrines, composting toilets, and pit latrines with slabs. See <https://washdata.org/monitoring/sanitation>.

¹⁰⁰ See Annex 6, Table A6.11 for details.

Figure 19: Household sanitation facility, by RFSa area

RISE I endline participants reported increased awareness of the importance of hygiene, including a trend away from open defecation and noticing positive health results from applying the hygiene practices promoted, such as decreased cases of diarrhea and waterborne illness. However, these practices are not evident in the current baseline data. It is unclear why sanitation facilities are not more common and only minimally used. It is also important to differentiate reports of raised awareness from actual changes in behavior. Possible reasons for a lag in adoption of improved hygiene and sanitation practices include the still-limited coverage of sanitation facilities,¹⁰¹ long-held practices of open defecation, and inflated progress reports of the abandonment of open defecation due to stigma.

¹⁰¹ The limited coverage of sanitation latrines may require outside resources to construct; in fact, the 2017 endline evaluation of the Niger DFAPs raised the cost of latrines as a challenge.

3.5.3 Handwashing Station

A handwashing station is a location (fixed or mobile) where household members wash their hands with water and soap or ash.¹⁰² The measurement of this indicator is based on observation by the enumerator rather than self-reported information—the enumerator is shown the station where household members commonly wash their hands; water and soap or ash must be observed there. The percentage of households with a handwashing station with soap or ash varied from 8.9% in the Girma RFSA area and 18.2% in the Wadata RFSA area to 40.6% in the Hamzari RFSA area.¹⁰³ The variation in the prevalence of handwashing stations is possibly attributable to differences in the operating contexts, e.g., structural differences education level, poverty level, and access to water. It may also be related to urban-rural differences: the Hamzari RFSA area, which has the highest percentage of households with handwashing facilities, is more urban than the other two RFSA areas.

3.5.4 Knowledge of Critical Moments for Handwashing

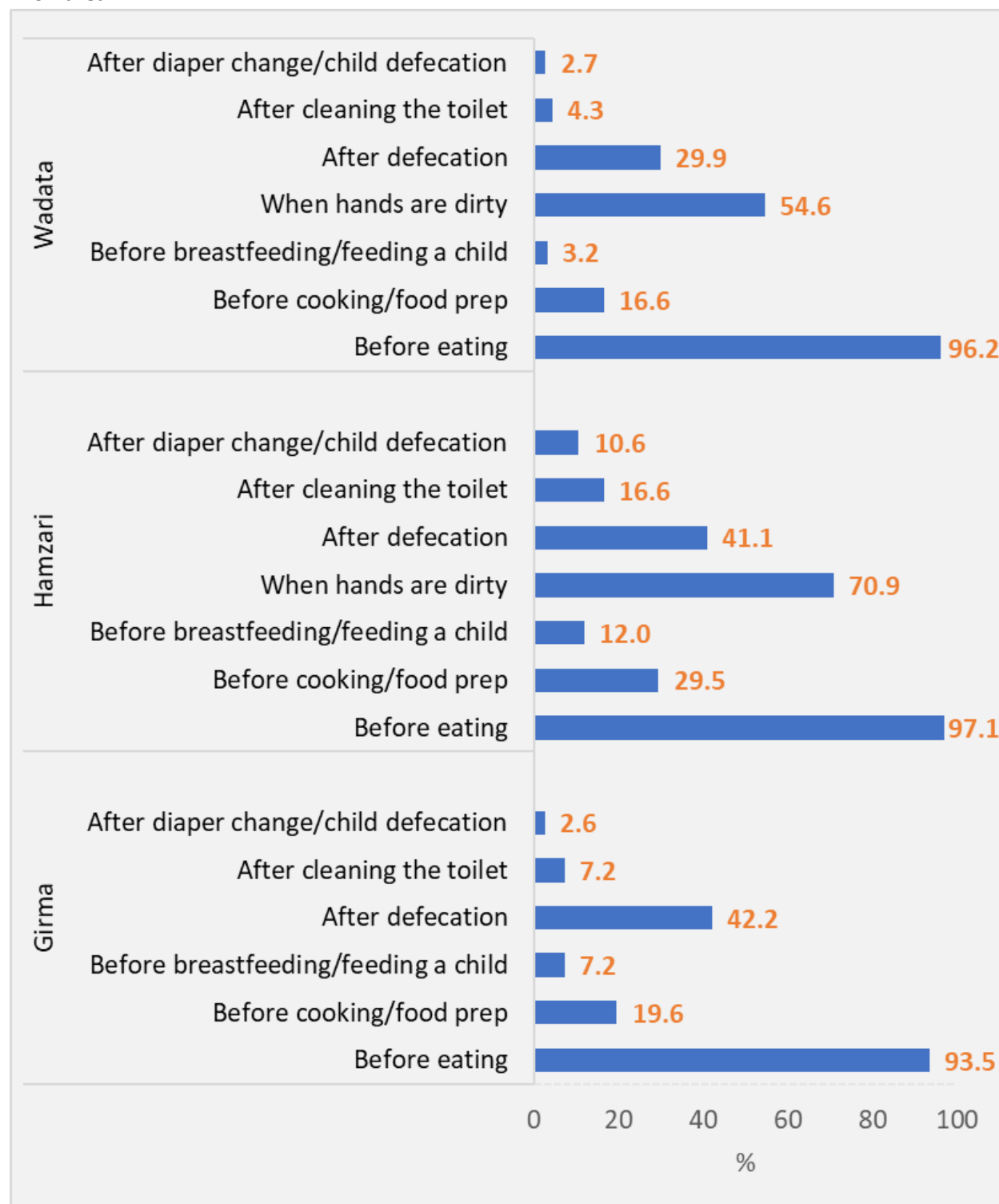
Handwashing with water and soap or ash at critical moments can lower the incidence of diarrhea and other illnesses. Critical junctures for handwashing include: 1) after possible fecal contact, e.g., after defecation, changing a diaper, or cleaning the toilet, and 2) before handling food, such as prior to preparing food, eating, or feeding a child.¹⁰⁴

¹⁰² For additional details refer to the FFP Indicators Handbook Part 1.

¹⁰³ See Annex 5 for the percentage of households with a handwashing station with water and soap or ash, disaggregated by gendered household type.

¹⁰⁴ For additional details refer to the FFP Indicators Handbook Part 1.

Figure 20: Percentage of households with knowledge of the critical moments for handwashing, by RFSa area



Note: Respondents were asked about the important moments to wash hands. Multiple responses were allowed. Percentages can add up to more than 100.

presents the percentage of households with knowledge of the critical moments for handwashing: Nearly all households are knowledgeable about the importance of handwashing before eating. Few are aware of critical moments for handwashing that relate to other food-handling activities such as before cooking and food prep (Girma, 19.6%; Hamzari, 29.5%; Wadata, 16.6%) and before breastfeeding or feeding children (Girma, 7.2%; Hamzari, 12%; Wadata, 3.2%). Many households understand the importance of handwashing when hands are dirty, but less are aware of the need to do so when engaging in activities posing a risk of fecal contact. For example, in the Girma RFSA area, 42.2% of households are knowledgeable of the need for handwashing after defecation, 7.2% after cleaning a toilet, and 2.6% after changing a diaper. The percentage of households aware of the importance of handwashing after fecal contact follow similar patterns in the Hamzari RFSA area (41.1%, 16.6%, 10.6%, respectively) and Wadata RFSA area (29.9%, 4.3%, 2.7%, respectively).

3.6 Women's Health and Nutrition

3.6.1 Women's Minimum Dietary Diversity

Diverse diets are associated with better micronutrient content, which in turn contributes to better health and nutrition.¹⁰⁵ The women's minimum dietary diversity indicator (MDD-W) captures the percentage of women of reproductive age (15–49 years) who consume five or more of ten food groups in the day and night before the survey. Though this indicator does not capture the frequency of consuming food items, the threshold of five groups is correlated with higher micronutrient adequacy.¹⁰⁶

The baseline survey results show that the percentage of women 15–49 years who achieve an MDD-W ranges from 38.9% in the Wadata RFSA area to 44.5% and 49.8% in the Girma and Hamzari RFSA areas, respectively. The percentage of women receiving an MDD-W does not differ statistically between women 15–19 years and women 20–49 years.¹⁰⁷

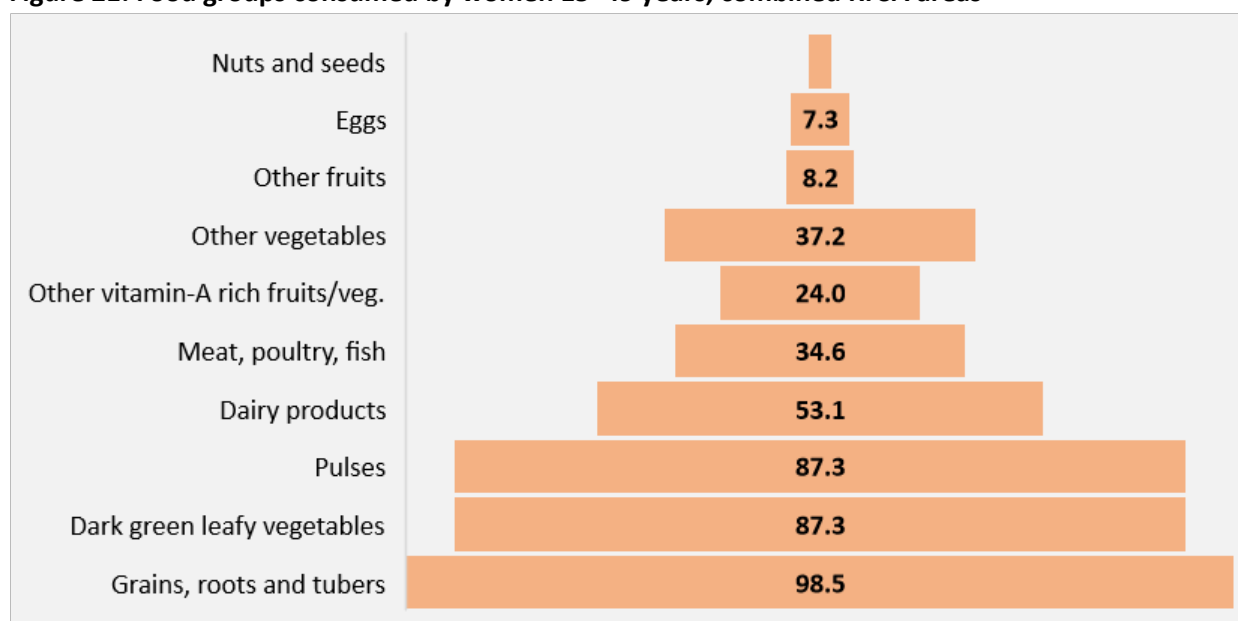
¹⁰⁵ For additional details refer to the FFP Indicators Handbook Part 1.

¹⁰⁶ See FFP Indicators Handbook Part I.

¹⁰⁷ Refer to Annex 5 for details on MDD-W, disaggregated by age.

Figure 21 illustrates the food groups consumed by women in the combined RFSA areas (the pattern is similar across all three RFSA areas). Nearly all women of reproductive age (98.5%) consume grains, roots, and tubers. Most women's diets include dark green leafy vegetables and pulses (87.3%). A little over one-half consume dairy products (53.1%); more than one-third consume meat, poultry, and fish (34.6%) and other vegetables (37.2%), and close to one-quarter (24%) consume vitamin A-rich fruits and vegetables.¹⁰⁸

¹⁰⁸ Annex 6, Table A6.12 provides details on MDD-W food groups, disaggregated by RFSA area.

Figure 21: Food groups consumed by women 15–49 years, combined RFSA areas

Bivariate analyses of MDD-W were conducted to identify background characteristics and intervention-specific factors expected to contribute to women's nutrition. Figure 22 summarizes statistically significant findings of the bivariate analyses. The results show that women are more likely to achieve a diet of minimum diversity if they:

- Participate in cash-earning opportunities.
- Reside in households in higher FCS groups.
- Reside in households with livestock holdings.
- Reside in households with access to or use of financial services.
- Reside in households that apply targeted improved agricultural management practices that are expected to enhance agricultural productivity and reduce post-harvest loss.

Figure 22: Statistically significant associations between MDD-W and intervention-specific factors

Women's characteristics <ul style="list-style-type: none"> • Participation in cash-earning activities (G)
Household food security <ul style="list-style-type: none"> • Residing in households in higher FCS group (G, H, W)
Household assets and access to/use of financial services: <ul style="list-style-type: none"> • Livestock holdings (sheep [G] or poultry [H]) • Participation in group-based savings programs (H) • Participation in any form of group-based savings or microfinance/lending (G) • Participation in ag-related saving schemes (G, H) • Taking out an agricultural loan (H)
Household adoption of targeted improved management practices <ul style="list-style-type: none"> • Digging zai pits (H) • Applying organic manure or phosphatic manure (G, H), or compost (H) • Seed treatment with fungicides (G, H) • Cultural practices such as control of <i>sida cordifolia</i>, crop rotation, or sowing after first useful rains (H) • Use of improved seeds (H) • Use of climate information (H) • Use of at least one improved livestock management practice for any type of livestock (H)
Household use of improved storage practices <ul style="list-style-type: none"> • Locally made storage/metal silos (H) • Sealed/airtight bags (G, H) • Triple bags (G) • Community storage facilities (H) • Solar or fuel powered dryers (G)

Notes: G = Girma RFSA area; H = Hamzari RFSA area; W = Wadata RFSA area

See Annex 7, Table A7.9 for details on the bivariate analyses of MDD-W.

Multivariate analyses were conducted to explore whether intervention-specific factors such as access to financial services or application of improved management practices may influence MDD-W while controlling for individual and household characteristics and village-specific influences. The results show that women are more likely to achieve a diet of minimum diversity if they resided in households that:¹⁰⁹

- Raised sheep (Girma).
- Participated in community-based savings groups (Hamzari).
- Applied organic manure (Girma, Hamzari).
- Treated seeds with fungicides (Girma, Hamzari).
- Controlled *sida cordifolia* growth (Hamzari) or performed at least three weedings (Wadata).

¹⁰⁹ See Annex 7, Tables A7.10a – A7.10d for detailed results of the logistic regression of MDD-W for the combined RFSA areas and for each RFSA area separately.

- Reduced post-harvest loss by storing harvested grains in sealed/airtight bags (Girma), triple bags (Girma), or community storage facilities (Hamzari).
- Reduced post-harvest loss by using solar or fuel powered dryers (Hamzari, Wadata).

3.6.2 Antenatal Care

Antenatal care can help reduce maternal and perinatal morbidity and mortality through early detection and treatment of complications that may arise during pregnancy, as well as through the management of concurrent diseases and illnesses such as HIV and malaria via integrated health care delivery.¹¹⁰ ANC should be provided by skilled health personnel such as a doctor, midwife, or nurse. To detect and effectively treat underlying problems the first ANC visit should occur as early as possible, and within the first trimester.¹¹¹

A total of 1,725 live births occurred in the RFSA areas in the 5 years prior to the survey (Girma, 565; Hamzari, 712; Wadata 448).¹¹² The percentage of most-recent births receiving at least four ANC visits by a skilled health professional ranged from 36.3% in the Wadata RFSA area to 48.4% in the Girma and 56.9% in the Hamzari RFSA areas.¹¹³ The majority of live births received at least one ANC visit with a skilled health professional (Girma, 90.7%; Hamzari, 94.2%; Wadata, 90.5%). Among those births that received at least one ANC visit, in the Girma RFSA area, 30.5% received their first ANC visit during the first three months of pregnancy compared to 28.6% and 25.3% in the Hamzari and Wadata RFSA areas, respectively.¹¹⁴

3.6.3 Contraceptive Methods: Knowledge, Use and Decision-Making

Voluntary and safe family planning are central to improving women and children's health, reducing HIV/AIDS, advancing gender equality and women's empowerment, and reducing poverty.¹¹⁵ Knowledge of family planning methods is a prerequisite to accessing and using those methods. Women's ability to make educated and voluntary choices about childbearing, including the use of contraception, is critical for their empowerment and overall well-being.

¹¹⁰ For additional details refer to the FFP Indicators Handbook Part 1.

¹¹¹ WHO. 2004. *Standards for Maternal and Newborn Health: Provision of Effective Antenatal Care (Section 1.6)*. Geneva, Switzerland: World Health Organization. Available at <http://whqlibdoc.who.int/hq/2007/a91272.pdf>.

¹¹² A woman may have had more than one birth in the past 5 years. The survey collected information only for the most recent birth.

¹¹³ As of 2019, the WHO revised its recommendation for the minimum number of visits from four to eight. Of the 1,602 most recent births that occurred in the 5 years prior to the survey in the combined RFSA areas, only five (less than 1%) received eight visits. WHO 2016 Guidelines on Antenatal Care are available at <https://www.who.int/publications/i/item/978924154991>.

¹¹⁴ Annex 6, Table A6.13 provides additional details on the use of ANC services, including information on ANC provider, disaggregated by RFSA area.

¹¹⁵ Refer to <https://www.usaid.gov/global-health/health-areas/family-planning>.

The survey considers women to be knowledgeable of modern contraception if they are aware of at least three modern family planning methods that can be used to delay or avoid pregnancy.¹¹⁶ As shown in Figure 23, knowledge of modern contraceptive methods among women in a union is widespread in the RFSA implementation areas (Wadata, 61.2%; Girma, 71.6%; Hamzari, 74.5%).

Most women in the RFSA areas do not use any form of contraception (modern or traditional) (see Figure 24).¹¹⁷ The contraceptive prevalence rate (modern and traditional methods combined) ranged from 14.1% and 14.8% in the Wadata and Girma RFSA areas, respectively, to 21.8% in the Hamzari RFSA area. As illustrated in

Figure 24, most contraceptive users rely on modern methods. The pill and injectables are the most-used methods of modern contraception. Less than 1% of women use fertility awareness methods such as the Standard Days Method or Lactational Amenorrhea Method. Those results and additional details on contraceptive use by type for modern and traditional methods are shown in Annex 6, Table A6.14. That analysis finds that most women who use modern contraception participated in the decision to use modern family planning (Girma, 81%; Hamzari, 77.3%; Wadata, 68.1%). This percentage is almost evenly divided between women who decided alone and those who decided jointly with their spouse.¹¹⁸

Figure 23: Knowledge of modern family planning methods among women 15–49 in a union, by RFSA

¹¹⁶ The modern family planning methods used for the calculation of this indicator are female sterilization, male sterilization, intrauterine devices, injectables, implants, contraceptive pills, male condom, female condom, diaphragm with spermicide, emergency contraception, standard days method, and lactation amenorrhea method. Refer to Annex 5 for details on knowledge of modern family planning methods, disaggregated by age group.

¹¹⁷ In this survey, traditional family planning methods are the rhythm method, withdrawal, and other traditional methods.

¹¹⁸ Refer to Annex 5 for additional disaggregation of contraceptive decision-making by age and actor(s) (i.e., alone, or jointly with spouse).

area

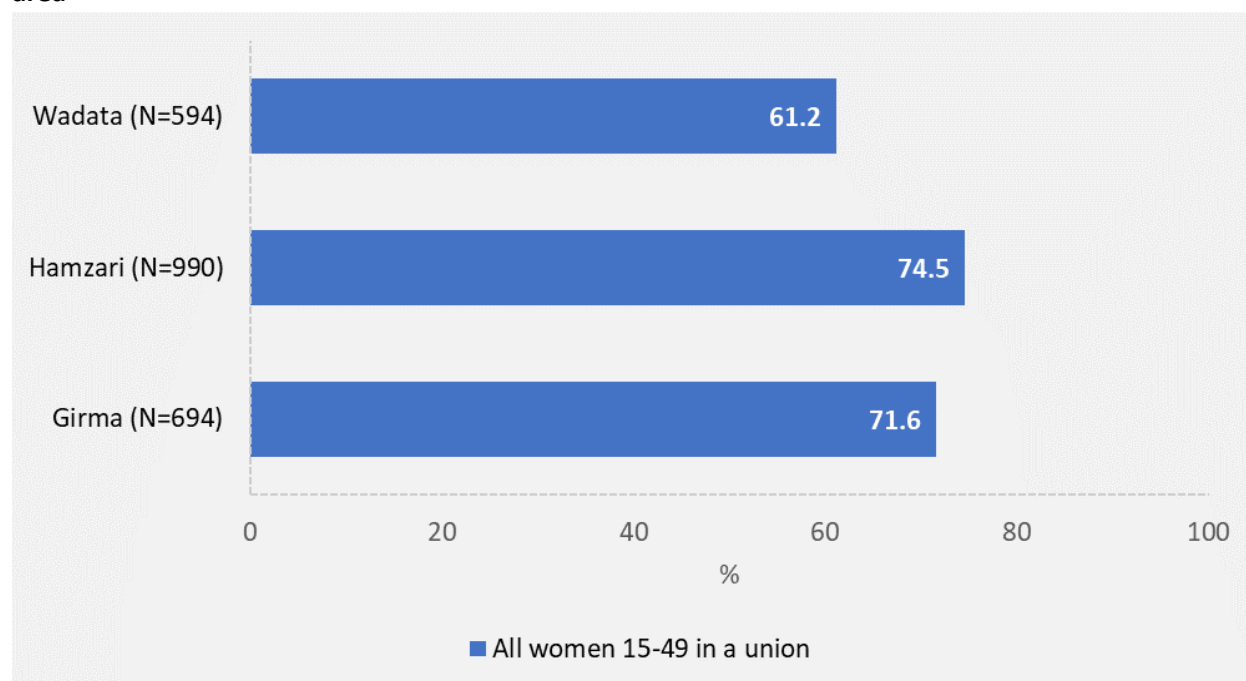
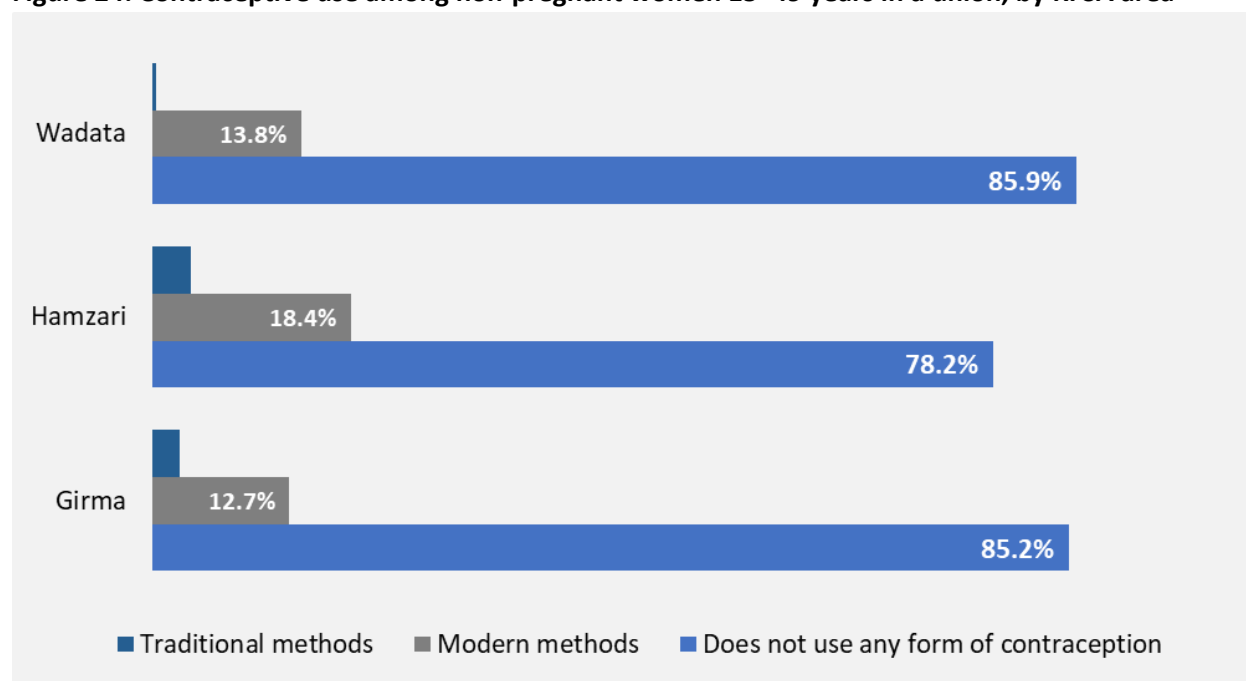


Figure 24: Contraceptive use among non-pregnant women 15–49 years in a union, by RFSA area



3.7 Children's Health and Nutrition

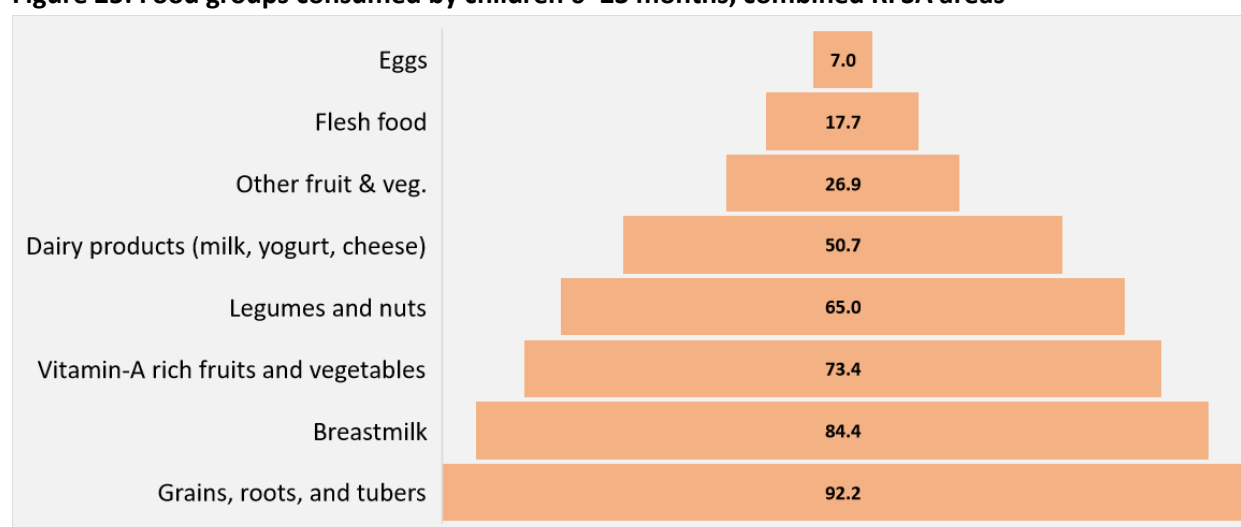
3.7.1 Children's Minimum Dietary Diversity

Like women's dietary diversity, children's dietary diversity has been linked to micronutrient adequacy. A child is considered to achieve a diet of MDD-C if they consumed five or more of eight food groups during

the day or night before the survey. The indicator is restricted to children 6–23 months and includes both breastfed and non-breastfed children. Although breastmilk is included as one of the food groups, this indicator does not capture breastfeeding status but rather serves as a proxy measure for complementary feeding. The percentage of children consuming MDD-C varied across RFSA areas (Girma, 37.8%; Hamzari, 54.6%; Wadata, 46.3%).¹¹⁹

¹¹⁹ Based on a sample size of 834 children 6–23 months in the combined RFSA areas (Girma, N = 294; Hamzari, N = 324; Wadata, N = 216). For those results and additional details on the distribution of children achieving MDD-C disaggregated by sex, see Annex 5.

Figure 25 illustrates the food groups consumed by children 6–23 months for the combined RFSA areas (the pattern is similar in the three areas). In addition to breastmilk (84.4%), grains, roots, and tubers (92.2%), vitamin-A rich fruits and vegetables (73.4%), and legumes and nuts (65%) are widely consumed by children 6–23 months.

Figure 25: Food groups consumed by children 6–23 months, combined RFSA areas

Most results of the bivariate analyses of MDD-C were statistically nonsignificant owing to small sample size.¹²⁰ Key findings indicate:

- No difference in the percentage of children 6–23 months achieving MDD-C by household FCS group except in the Hamzari RFSA area, where children in households with an acceptable FCS score were almost twice as likely to have MDD-C compared to children in households with a borderline FCS, and three times as likely to achieve an MDD-C compared to children in households with poor FCS.
- The percentage of children with MDD-C is higher among children living in households that participated in an agriculture-related savings scheme (Girma).
- Children living in households that raise sheep are twice as likely to achieve MDD-C compared to children living in households that do not raise sheep (Girma).
- Prevalence of MDD-C was higher among children living in households that adopted any of the following intervention-specific practices:¹²¹

¹²⁰ The analytical sample for the bivariate analyses of MDD-C was restricted to children 6–23 months with data available across all variables (Girma, N = 259; Hamzari, N = 305; Wadata, N = 163). Annex 4 describes the methodology for conducting the analyses. Detailed results by RFSA area and for the combined RFSA areas are provided in Annex 7, Table A7.11.

¹²¹ In a few cases, MDD-C prevalence was *lower* among children living in households that adopted improved agricultural practices—namely, application of compost (Girma), control of *sida cordifolia* (Girma) and crop association/intercropping (Wadata). It is possible that households adopting these practices in the Girma and Wadata RFSA areas represent a poorer segment of households in their respective areas because they require relatively fewer or no investment in inputs. Thus, the lower prevalence of MDD-C in those households could reflect overall lack of resources rather than the consequences of adopting practices that are ultimately expected to improve agricultural productivity, food security and, by extension, children's dietary diversity.

- Soil-related fertility and conservation practices such as digging *zai* pits (Hamzari), applying organic manure (Girma and Hamzari) or phosphatic manure (Girma).
- Cultural practices such as control of *sida cordifolia* or sowing after first useful rains (Hamzari).
- Non-irrigation-based agricultural water management practices such as digging half-moons (Hamzari).
- Household receipt of food rations from any donor is associated with a higher percentage of children with MDD-C (Girma).

3.7.2 Diarrhea and Oral Rehydration Therapy

Diarrhea is the leading cause of mortality for children under 5 years, despite the availability of low-cost management treatments such as ORT (FFP Indicators Handbook 2020). Prolonged and repeated bouts of diarrhea are also linked to malnutrition. In the Girma RFSA area, 33% of children under 5 years experienced diarrhea in the 2 weeks preceding the survey. The rates in the Hamzari and Wadata RFSA areas are 24.5% and 37.7%, respectively. Among children who experienced diarrhea, close to one-half received ORT (Girma, 47.9%; Hamzari, 52%; Wadata, 44.6%).¹²²

Bivariate analyses of the prevalence of diarrhea among children under 5 years with various WASH indicators indicated that children living in households with a basic sanitation facility in the Girma and Wadata RFSA areas were less likely to experience diarrhea compared to children living in households with access to an unimproved sanitation facility in those areas.¹²³ There was no difference in the prevalence of diarrhea by household sanitation facility in the Hamzari RFSA area. The bivariate analyses also indicated that diarrhea prevalence did not differ statistically by drinking water source, use of water treatment, access to a handwashing station with water and soap (or another cleansing agent), or knowledge of the critical moments for handwashing in any of the RFSA areas.

Several factors may partially explain the lack of statistical significance between diarrhea prevalence and other WASH indicators. While many households have access to an improved water source (combined RFSA areas, 73.7%) or can obtain water in 30 minutes or less round trip (combined RFSA areas, 74%), a sizable percentage of households (combined RFSA areas, 42.5%) are not able to obtain enough water to meet their daily cooking, cleaning, and hygiene needs. A small percentage of households (combined RFSA areas, 21.2%) have access to a water source that meets all four criteria of a basic water source collected by the survey, but the type of containers used to store the water may not offer sufficient protection from outside contamination. Few households (combined RFSA areas, 24.8%) do something to make their water safer to drink but the survey did not collect information to distinguish between households that are using correct water treatment techniques and those that are not. Although access to WASH facilities serve as proxies for use, access does not guarantee households are using those facilities, let alone in any consistent fashion.

¹²² Annex 5 provides additional disaggregation of the prevalence of diarrhea and treatment via ORT, disaggregated by sex.

¹²³ See Annex 7, Table A7.12.

3.8 Gender

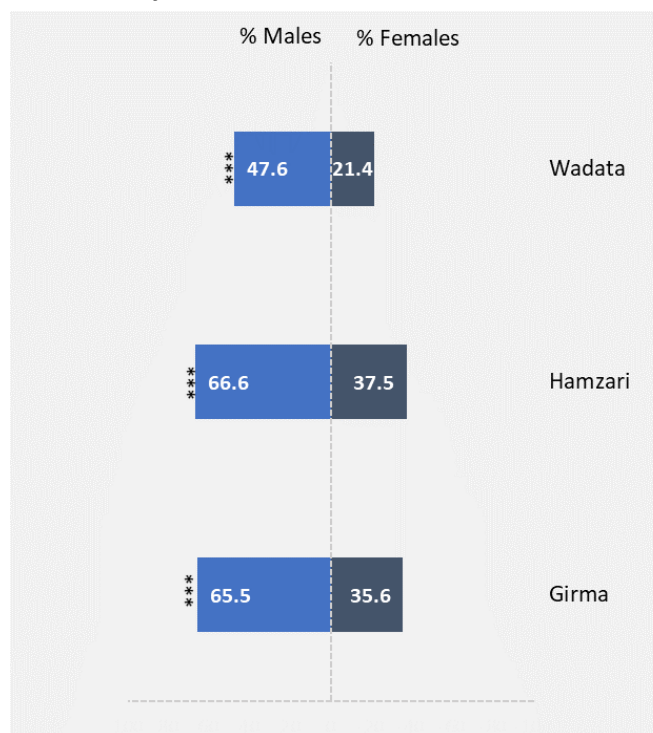
This section discusses gender findings related to cash-earning, access to credit, and participation in community groups. The baseline survey collected information on women and men's participation in cash-earning activities, group membership, and access to credit. Cash can be used toward making investments in productivity-enhancing inputs and for the purchase of diverse and more nutritious food. For women, partaking in cash-earning activities can contribute toward empowerment and gender equality, for example by giving women a greater say in the allocation of household resources and other decision-making regarding their own well-being and that of their children. Access to credit, like participation in cash-earning activities, provides access to productive resources and is important for gender equality and women's economic empowerment.¹²⁴

Participation in community groups facilitates access to information and resources. By strengthening social networks and community bonds, participation in community groups also enhances the resilience of households and communities in the face of shocks and stressors.

3.8.1 Gender and Cash-Earning Activities

In this survey, a household member is considered to participate in cash-earning activities if they are paid for their work in cash or a combination of cash and in-kind. Individuals who are unpaid or paid in-kind only are excluded. Work includes employment in the formal and/or informal sectors, including full-time, part-time, or seasonal work performed within and/or outside the home.¹²⁵ Care work, such as looking after children and other household members, is not included. The survey asked all household members

Figure 26: Gender gap in participation in cash-earning activities, by RFSa area



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

¹²⁴ For additional details refer to the FFP Indicators Handbook Part 1.

¹²⁵ Examples of cash-earning activities include agricultural daily wage labor, off-farm daily wage labor, sale of goods produced or processed outside the home or at the home, homestead garden or farm, petty trading, cash for work, food for work, conditional cash transfers and/or productive safety net programs.

aged 15 years and older about their work participation in the past 12 months. However, the indicator on cash-earning is calculated based on the response of women and men in a union rather than all cash earners.¹²⁶

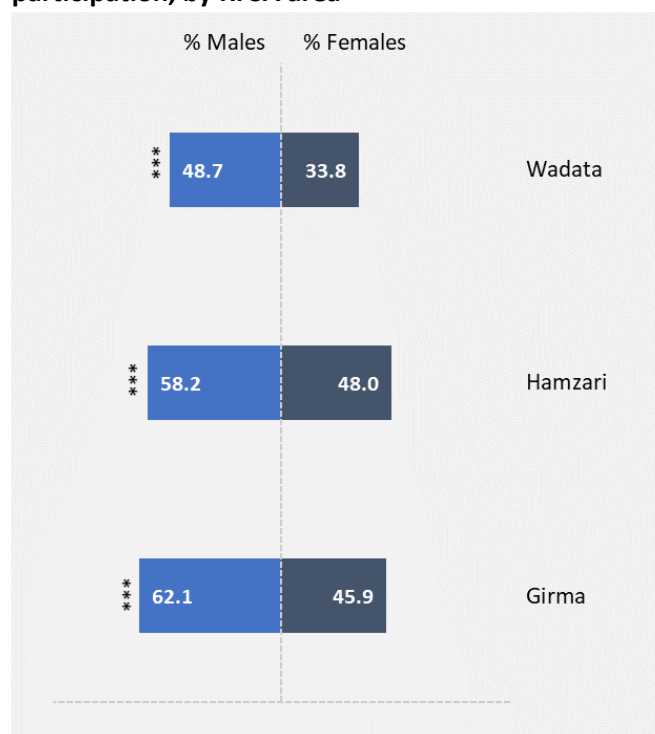
The percentage of women in a union participating in paid work is less than one-half that of men in a union in each of the three RFSA areas (see Figure 26). Close to two-thirds of men in a union in the Hamzari (66.6%) and Girma (65.5%) RFSA areas are paid in cash or a combination of cash and in-kind compared to one-third of women in a union (Hamzari, 37.5%; Girma 35.6%). Participation in cash-earning activities is generally low for both men and women in a union in the Wadata RFSA area (men in a union, 47.6%; women in a union, 21.4%), suggesting few opportunities for cash-earning activities.¹²⁷

3.8.2 Gender and Group Participation

Community groups can be formal or informal and include agricultural and livestock producers' groups, land users' groups, water users' groups, credit or microfinance groups (e.g., VSLAs), savings groups, local government, religious groups, mothers' groups, and women's groups. Questions on participation in community groups were asked only to the youngest female in a union and her spouse in households comprised of more than one married female.

In the Girma RFSA area, men's participation in community groups is relatively high (62.1%) compared to women's (45.9%) (see Figure 27). In the Hamzari RFSA area, 58.2% of men participate in community groups compared to 48% of women. Group participation in the Wadata RFSA area is generally low: 48.7% and 33.8% for men and women, respectively. Gender differences in group participation are statistically significant in each of the RFSA areas.

Figure 27: Gender gap in community group participation, by RFSA area



* p < 0.05, ** p < 0.01, *** p < 0.001

¹²⁶ Refer to Section 3.1 and Annex 6, Table 6.1 for estimates of the percentage and number of cash earners in the RFSA areas, respectively.

¹²⁷ See Annex 5 for the percentage of women and men in a union participating in cash-earning activities, disaggregated by age.

The most common community groups for women are credit or microfinance groups, savings groups, mutual help or insurance groups, and mothers' groups. The most common community groups for men are producers' groups, trade and business associations, water users' groups, communal grazing land groups, religious groups, youth groups, and conflict resolution groups. Across the three RFSA areas, there is relatively high participation of women and men in mutual help or insurance groups and civic groups.¹²⁸

3.8.3 Gender Differences in Access to and Decisions About Credit

Women and men are considered to have access to credit if anyone in their household took out a loan or borrowed cash or in-kind from a formal or informal source in the 12 months preceding the survey. Formal channels of borrowing include banks, NGOs, and group-based microfinance/VSLAs. Informal channels of credit include family and friends, money lenders, and informal credit and savings groups. Questions on gender differences in access to credit and group membership were asked to the youngest woman in a union and her partner. A woman or man is considered to "access credit" if anyone in the household took out a cash or in-kind loan from any of the six formal and informal sources mentioned in the survey.

As shown in Figure 28, 75.1% of men and 63.5% of women in the Girma RFSA area accessed credit in the past 12 months. In the Hamzari RFSA area, 66.5% and 55.9% of men and women, respectively, accessed cash or in-kind loan. The percentages of women and men accessing credit in the Wadata RFSA area were 70.3% and 61.9%, respectively. Gender differences in access to credit are statistically significant.

Figure 28 provides details about credit decision-making by households that took a loan in the last 12 months. A woman or man is considered to participate in credit decisions if they decided, alone or jointly, whether to borrow or what to do with the loan for at least one of the loan sources accessed by the household.¹²⁹ A woman or man is considered to decide alone on credit decisions if they decided alone whether to borrow and what to do with the loan for all loans accessed by the household.

Most women and men belonging to households that took out a loan in the past 12 months had some input into the decision to borrow and/or what to do with the loan.¹³⁰ The percentage of men participating in decisions about credit was high (Girma, 93.9%; Hamzari, 93.6%; Wadata, 85.8%). These

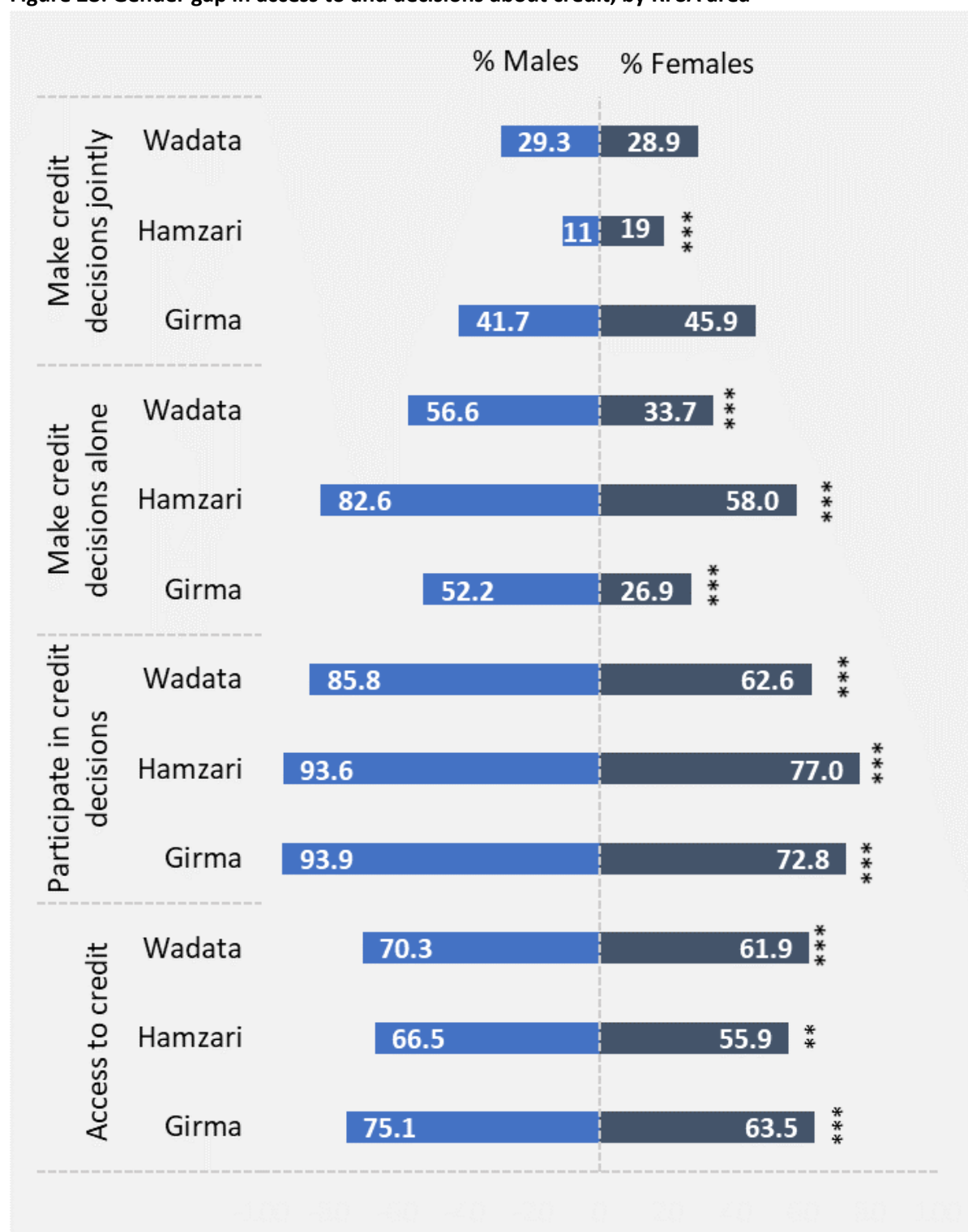
¹²⁸ Refer to Annex 6, Table A6.16 for the percentage of women and men participating in community groups, disaggregated by type of group and RFSA area.

¹²⁹ The survey has two questions on credit decision-making for each lending source that the respondent reported from someone in the household took a loan. Response options for each of the credit decision questions are 'self,' 'partner/spouse,' 'other household member,' 'other non-household member,' and 'not applicable.' Multiple responses are allowed. For example, a respondent can report 'self,' 'spouse,' and 'other household member.' In this case they would be considered to participate in the decision (jointly).

¹³⁰ Includes individuals who decide alone and those who decide jointly with someone else. Two decisions are considered: 1) whether to borrow; and 2) what to do with the loan. Multiple responses are allowed for the lending source and decision actors. Joint decision-making includes individuals who decide with their partner, with another household member, or with a non-household member on whether to borrow or what to do with the loan for at least one of the loans made by the household. Sole decision-making (i.e., making decisions alone) includes individuals who decide alone on whether to borrow and what to do with the loan for all loans taken by the household.

rates were lower for women (Girma, 72.8%; Hamzari, 77%; Wadata, 62.6%). Gender differences in participation in credit decisions are statistically significant.

Figure 28: Gender gap in access to and decisions about credit, by RFSA area



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The survey findings indicate that men are more likely than women to make credit decisions alone. For example, 52.2% of men in the Girma RFSA area make credit decisions alone compared to 26.9% of women. In the Wadata RFSA area, the percentage of men deciding alone about whether to borrow and what to do with the loan is 56.6% compared to 33.7% among women. In the Hamzari RFSA area, 82.6% of men and 58% of women decide alone. Joint credit decision-making is generally less prevalent, especially in the Hamzari RFSA area, where 11% and 19% of men and women, respectively, decide jointly. There are no gender differences in joint decision-making in the Girma (males, 41.7%; females, 45.9%) and Wadata (males, 29.3%; females, 28.9%) RFSA areas.

3.9 Resilience

Shocks and stresses such as droughts, floods, and loss of income threaten progress toward food and nutrition security. The RFSA areas aim to build the resilience of chronically poor and vulnerable households as a conduit for achieving sustainable food and nutrition security. USAID defines resilience as “the ability of people, households, communities, countries, and systems to mitigate, adapt to, and recover from shocks and stresses in a manner that reduces chronic vulnerability and facilitates inclusive growth.”¹³¹ The baseline survey collected information on the financial and social aspects of households’ resilience capacities that are critical for mitigating the effects of shocks and stresses. Specifically, the baseline gathered data on the perceptions of local government capacity to respond to future shocks and stressors, households’ social capital, and access to group-based savings and cash. This section discusses the results by RFSA.

3.9.1 Perceptions of Local Government Capacity to Respond Effectively to Future Shocks and Stressors

Perceptions of local government capacity to respond to future shocks and stressors is a proxy measure of trust and belief in the efficacy and legitimacy of public institutions, one of the underlying dimensions of transformative capacity. More than one-half of households across the RFSA areas believe local government institutions can respond effectively to future shocks and stresses (Girma, 63.8%; Hamzari, 60.1%; Wadata, 55.6%).¹³²

3.9.2 Social Capital

Social capital refers to the network of relationships that foster support and collaboration among individuals, households, and communities. Social capital is a significant predictor of households’ ability to manage shocks and stressors.¹³³ The social capital index is constructed from two sub-indices: an index of bonding social capital and an index of bridging social capital. The bonding social capital index measures the strength of households’ support networks within their community (i.e., ability to give and receive support from family and friends in times of need). The bridging social capital index measures the

¹³¹ <https://www.usaid.gov/sites/default/files/documents/1870/USAIDResiliencePolicyGuidanceDocument.pdf>.

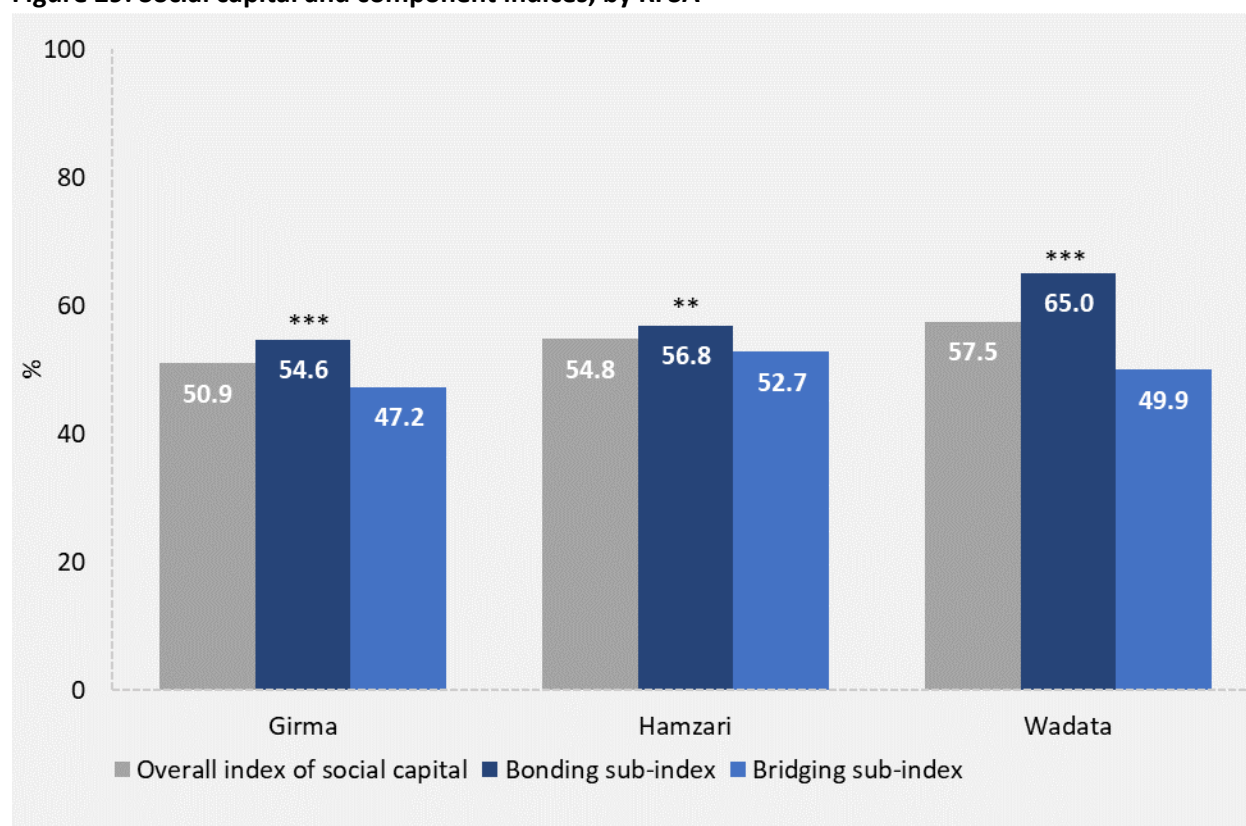
¹³² Chi squared tests of differences in proportions were performed and indicated no statistically significant difference ($p < 0.05$) between gendered household types for this indicator.

¹³³ For additional details refer to the FFP Indicators Handbook Part 1.

strength of households' social support networks with outside communities. Both indices range from 0 to 4 and are subsequently normalized to range from 0 to 100. The overall social capital index is the average of the bonding and bridging sub-indices. A higher score reflects stronger networks of mutual obligation that households can draw on in difficult times.

Figure 29 illustrates the overall index of social capital and its component indices. The bonding social capital index is higher than the bridging social capital index in all RFSA areas, suggesting that social obligation networks are stronger within the community than outside.¹³⁴ Differences by gendered household type are statistically nonsignificant.

Figure 29: Social capital and component indices, by RFSA



* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

¹³⁴ See Annex 6, Table A6.17 for the percentage of households who can receive from and provide support to relatives and non-relatives during difficult times.

3.9.3 Household Participation in Group-Based Savings, Microfinance, or Lending Programs

The use of financial services enables households to diversify livelihood strategies and manage risks.¹³⁵ The indicator measuring participation in group-based savings, microfinance or lending programs includes both formal and informal groups such as VSLAs, credit unions, and other formal and informal group-based finance or lending groups. This indicator differs from estimates of access to credit and savings among farmers and estimates of access to credit among women and men in a union in that the latter two estimates include a broader range of service providers or sources, and therefore are likely to be higher than the estimates of group-based access to credit and savings discussed in this section.¹³⁶ The results indicate that few households in the RFSA areas participate in group-based savings, microfinance, or lending programs (Girma, 12.9%; Hamzari, 3.4%; Wadata, 2.8%).¹³⁷ In the Girma RFSA area, households are almost twice as likely to participate in group-based savings groups than group-based credit or microfinance groups.

¹³⁵ For additional details refer to the FFP Indicators Handbook Part 1.

¹³⁶ Refer to FFP Indicators Handbook for detailed description of the calculation of these indicators.

¹³⁷ See Annex 5 for additional details.

4. CONCLUSIONS AND RECOMMENDATIONS

This section outlines conclusions and recommendations for future initiatives. Because the 2020 baseline study did not include a qualitative component, data from secondary qualitative sources were used to help interpret and contextualize the results as well as inform conclusions and recommendations. The conclusions and recommendations were further refined based on feedback received from IPs during a series of data utilization workshops.

Food security: Most households in the RFSA areas meet the threshold for acceptable food consumption. However, FCS is known to overstate food security¹³⁸ and may be overly sensitive to seasonality or other factors that affect food availability and accessibility at the time of the survey.¹³⁹ Although statistical analyses did not indicate an association between the percentage of harvest completed and household food consumption, it is possible that the overlap of data collection with the start of the harvest period inflated results for food consumption: households that did not harvest any crops at the time of the survey may have received food items from households that harvested their crops, and/or may have purchased food items from the market. Further analysis is needed to determine whether an adjustment in weights and/or thresholds is relevant for the Nigerien context.

Households across the RFSA areas consume staples almost daily. Pulses are consumed frequently—almost 5 days per week. Intake of dairy and animal-based proteins is infrequent, and intake of fruits and vegetables is also rare. Nutrition meetings and trainings could demonstrate ways to incorporate different food groups into daily meals. Agriculture-related trainings can focus on new varieties of fruits and vegetables to grow. Limited financial resources, especially during the lean season, may constrain households' abilities to incorporate diverse food groups on a frequent basis, and households that grow more-nutritious foods may opt to sell them. Increasing the use of improved post-harvest storage can help households extend food provisioning for a few months during the lean period. Qualitative research and/or cost-of-diet studies could help identify locally available nutritious wild foods and/or cheaper foods to promote for household consumption.

There is some evidence that household food consumption is positively associated with access to financial services, certain livestock holdings, and the application of soil-related fertility practices. This underlines the importance of supporting interventions that aim to improve food access by promoting agricultural/livestock livelihood activities and access to financial services.

Land ownership: Female farmers with access to a plot of land over which they make decisions are less likely to own the land (and in some cases more likely to access it via a sharecropping arrangement) compared to male farmers. Regardless of type of land access (i.e., own, rent, or sharecrop), the size of farmland over which female farmers make decisions is generally smaller compared to male farmers. Further research is needed to understand the structural factors (i.e., cultural, religious, economic,

¹³⁸ Maxwell, Coates, and Vaitla. 2013.

¹³⁹ WFP 2008. *Food Consumption Analysis: Calculation and Use of the Food Consumption Score in Food Security Analysis*. Available at https://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf.

ecological, and institutional) that impede women's access to land for cultivation, and to support initiatives that improve women's land rights.

Use of financial services: Use of agriculture-related financial services is low in the RFSA areas and even lower among female farmers compared to male farmers. Farmers are more likely to take out loans than participate in saving schemes. Agriculture-related meetings and trainings could focus on improving financial literacy and build on traditional community-based borrowing mechanisms to increase use of financial services. There is a need to understand barriers on the demand side, such as lack of financial literacy, lack of collateral, high interest rates, and household indebtedness, but also supply-side factors such as the willingness of formal lenders such as microfinance institutions to facilitate access to agricultural credit to smallholder farmers.

Use of improved post-harvest handling and storage practices: Locally made storage structures such as metal silos are the most common type of improved post-harvest storage practice used, followed by sealed/airtight bags. However, these structures are not equally effective at keeping out moisture, insects, pests, and rodents. Future interventions could focus on building capacity to use more effective locally made structures and address barriers to female farmers' access to community grain storage facilities. A better understanding of post-harvest loss per crop, drivers of loss, and the role of the myriad factors that can reduce loss would be helpful for informing future initiatives.

Use of improved crop management practices: The most common crop management practices are applying organic manure, crop association, sowing after first useful rains, and NRM approaches such as FMNR and delimiting animal corridors and pasture areas. Use of improved seed varieties and pest and disease management practices are less pervasive. Findings from the RISE I program areas suggest that farmers are more likely to adopt traditional practices inherited from their ancestral past and have demonstrable results, and less likely to use practices that are unfamiliar or require resources to purchase inputs. The findings suggest that encouraging experimentation and focusing on field demonstrations in the RFSA areas to raise the visibility of the efficacy of approaches could be useful, with benefits extending to the wider population.

Use of improved livestock practices: Application of targeted improved livestock management practices is low. Results from the RISE I program point to potential program options (e.g., training community members in veterinary services, raising awareness on critical moments to call on veterinary services) that can address some of the barriers to uptake of improved livestock practices. Further analysis is needed to understand the main providers of veterinary-related services in the RFSA areas, as well as barriers to their use and/or sustainability. Future initiatives should also consider the extent to which livestock farmers are able to access existing veterinary services (such as government programs) on a permanent basis and farmers' ability to afford veterinary services and products. Further research should be undertaken to assess the extent of these potential barriers.

Application of improved management practices and use of financial services: There is some evidence from the baseline study that farmers who accessed agricultural credit are more likely to adopt some targeted improved agricultural management practices and technologies, such as using improved seed varieties, applying phosphatic manure or micro-doses of fertilizer, treating grains with agro-chemicals, and using community facilities or warehouses, sealed/airtight bags or triple bags to store grains. Use of licking and/or multi-nutritional blocks and paraveterinary services was higher among goat and sheep

farmers who took out an agricultural loan compared to those who did not. Poultry farmers who used agricultural credit were more likely to use improved varieties and veterinary products compared to poultry farmers who did not. These findings underline the importance of integrating interventions in financial services and agricultural techniques, as well as promoting techniques that farmers can sustain without continued external support.

Extending access to credit can be one pathway for improving adoption of post-harvest handling and storage. Additional analysis on factors associated with the application of improved crop management practices should be undertaken to help bolster adoption rates and facilitate sustainability beyond the life of the RFSAs. An understanding of how farmers source new varieties can inform IPs' design decisions around appropriate entry points for new germplasm. It would also be useful to monitor *how* farmers are applying the new techniques, to determine whether the chosen practice suits their individual context and whether they are applying it correctly, since these factors can affect agricultural productivity.

WASH: Access is low in the RFSA areas to basic sanitation facilities, handwashing stations with water and soap, and improved drinking water sources that consistently meet the minimum daily needs of households. Results from studies of previous programs such as the 2012–2017 DFAPs and the RISE I program point to several barriers, such as the costs of materials and labor for building improved latrines, cost of purchasing soap or cleaning agents, engineering issues around certain latrine types, and cultural preferences. Participants in the baseline data utilization workshop noted that the timing of the survey coincided with heavy rains/flooding that resulted with the destruction of water points, thereby impacting access to water sources. RFSAs could consider supporting approaches that finance the construction of latrines, handwashing stations and water points through community-based savings and credit vehicles; marketing different design models that are accepted by the community; and supporting community-based service provider models so that materials (e.g., for the construction of WASH facilities and soap production) are locally available and affordable.

Nearly all households are knowledgeable about the importance of handwashing before eating. Sensitization should focus on other critical times that households were less likely to report as critical moments for handwashing—namely, before cooking and food preparation, before breastfeeding or feeding children, and when engaging in activities posing a risk of fecal contact. Additional research could be helpful to better understand which WASH messages households prioritize and why.

Women's dietary diversity: Less than one-half of women of reproductive age in the RFSA areas achieve a diet of minimum diversity. Kitchen demonstrations in which women from the community show how to incorporate different food groups, including nutritious wild foods, into daily meals could be useful. Results underscore that women consume more-diverse diets when their households are more food secure, and when household members participate in an agriculture-related savings scheme, take out an agricultural loan, or use improved practices that support higher yields and protect against post-harvest losses. RFSAs should continue to integrate activities that promote savings and access to credit and interventions that foster the adoption of improved agricultural practices.

Antenatal care: More than one-third of (most-recent) births that occurred in the five years prior to the survey received at least four ANC visits by skilled health personnel. Behavior change communication efforts should continue to emphasize the importance of ANC, focusing on frequency and timing of the visits and who is qualified to provide those services. In some cases, the lack of availability of ANC

services or distance to a health center may be a barrier. In addition to supporting access to ANC during the first trimester, there is a need to tackle social and cultural norms around ANC and around husbands' participation. Sensitization should not only target mothers but also men via husband schools and/or husband-wife meetings so that fathers can support women in ANC visits and other aspects of their pregnancy and delivery.

Family planning: Knowledge of modern contraceptive methods among women in a union is widespread in the RFSA areas; however, very few women use any form of family planning. Further exploration is needed to identify and address barriers to using family planning, including affordability of consultation services, cost of purchasing contraception, and underlying cultural or religious beliefs. Results from the baseline survey point to the role of husbands in contraceptive decision-making; about one-half of women who use family planning made the decision with their spouse. Sensitization efforts should target both women and men and underscore the significance of family planning for the well-being of women and the overall family (e.g., benefits of birth spacing).

Children's dietary diversity and diarrhea: Grains, roots and tubers, vitamin-A-rich fruits and vegetables, and legumes and nuts are widely consumed by children 6–23 months, but the prevalence of children 6–23 months achieving MDD-C is moderate in all RFSA areas. RFSA should continue to raise awareness among primary caregivers on the health benefits of complementary feeding and the appropriate time to introduce complementary foods without cutting back on breastfeeding. Sensitization around complementary feeding could be rolled into ANC and perinatal care visits and through mothers' groups with demonstrations on how to integrate diverse foods into children's meals. Sensitization for fathers through fathers' groups or husbands' schools could also enhance the sharing of household decision-making (e.g., how much to spend and what to cook).

About one-third of children under 5 years experienced diarrhea in the 2 weeks preceding the survey. Bivariate analyses of the prevalence of diarrhea among children under 5 years indicated no difference in diarrhea prevalence by household WASH status except for lower prevalence with the use of basic sanitation facilities in the Girma and Wadata RFSA areas. While access to WASH facilities is generally correlated with use, access does not guarantee households are using those facilities. Although previous qualitative studies in the country have underscored growing awareness of the importance of WASH practices, there is a need to continue sensitization on the linkages between diarrhea and basic hygiene.

Among children who experienced diarrhea, close to one-half received ORT. Additional sensitization focused on how to prepare homemade alternatives to oral rehydration salts or recommended home fluids would be helpful given challenges in accessing health centers and the cost of those services.

Gender, group participation and access to credit: Between one- to two-thirds of women and men belong to community groups; however, group membership is generally lower among women. A better understanding of the barriers to group membership is needed. Women's time constraints may limit their ability to participate in community groups; sensitization of women and men on homemaking and childrearing as collaborative processes could free up women's time to participate in community groups.