

Baseline Report

MADARA

“MILK” in Hausa

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1 Context

Large parts of the Nigerien population have been affected by severe food insecurity in the last decade, particularly 2005, 2008, 2010 and 2012, after a combination of drought, irregular rainfall and flooding decimated crops and forage. The pattern repeated itself in 2013 with the early arrival of the rains, followed by a prolonged period of drought that negatively affected both the production of cereals as well as the regeneration of natural fodder. The majority of the Filingué department consists of agro-pastoralists who depend on both cereal farming and livestock for their livelihoods. Filingué communities were among those most affected by the 2013 crisis. An estimated 23.4% of the population in this department was classified as moderately food insecure in November 2013 with risks increasing during the lean season of 2014¹. Poor agricultural production and availability of animal fodder over successive crises has weakened agro-pastoralists' animal assets and livelihoods. This has increased pressure during the lean season for men and adolescent males to migrate for work, leaving women and girls with an additional pressure to stretch household resources to meet needs in their absence. Global Acute Malnutrition (GAM) rates in Tillabéri region, estimated as 13.3% in May/June 2013, remain extremely close to the emergency threshold². Although recent data does not exist for chronic malnutrition in the region, 2012 data indicates that over 38% of children under five years of age in Tillabéri are stunted, placing them at risk for irreversible physical and cognitive developmental delays and consequently making them more prone to shorter stature, poor performance in school, lower productivity and less earning potential³. Based on this information, Mercy Corps designed the MADARA program, which has been funded by USAID/OFDA, to meet the early recovery needs and rebuild the livelihoods of 21,000 beneficiaries (3,000 households) for 22 months in the Filingué department, while simultaneously strengthen the dairy sector value chain to improve availability and access to nutritious milk products. The program will implement an integrated package of activities aimed at protecting animal assets and increasing dairy production in order to enhance food security, improve key Infant and Young Child Feeding (IYCF) practices, and strengthen livelihoods. At program startup, a baseline survey was conducted on the target population by sampling 45% of villages (10 out of 22) in the program implementation area.

2 Objectives and methodology

2.1 *Baseline objectives*

The overall objectives of this baseline were to:

- Analyze the food security situation and nutritional status of households in target villages in order to hone intervention strategies for livestock and livelihoods activities;
- Assess the level of knowledge and practices of mothers to prevent malnutrition on the basis of minimum acceptable diet (MAD) and household dietary diversity scores (HDDS) to inform community-level nutrition messaging and behavior change activities;

¹GoN "Enquête National", p. 3.

² Government of Niger, "Enquête National sur la nutrition des enfants 0 à 59 mois", May/June 2013.

³ DHS, 2012.

- Evaluate household animal assets, feeding practices, and access to animal husbandry infrastructure facilities in the target area;
- Evaluate households' milk production and sales per season, to better inform value chain strengthening activities; and,
- Establish a baseline to monitor progress against the program's desired outcomes and overall goal.

2.2 Methodology

2.2.1 Indicators and questionnaires

The baseline is focused on the following indicators from MADARA's logical framework:

1. Average Household Coping Strategy Index (CSI) Score
2. Average Household Dietary Diversity Score (HDDS)
3. Average Women's Dietary Diversity Score (WDDS)
4. Percentage of households with moderate or severe hunger (Household Hunger Scale-HHS)
 - 1.1. Percentage change in average volume of milk products produced per household
 - 1.2. Percentage change in value of milk product sales
 - 2.1. Percentage of households that consumed milk or other milk products in the past 24 hours (as part of the HDDS indicator)
 - 3.1. Number and percentage of infants 0<6 months of age who are exclusively breastfed
 - 3.2. Number and percentage of children 6<24 months of age who receive foods daily from 4 or more food groups (as part of the MAD indicator)
 - 1.3.1. Percentage of pastoralists who have purchased animal feed in the past 12 months
 - 3.1.1. Percentage of primary caretakers who know and use at least 3 or more Infant and Young Child Feeding (IYCF) and Essential Nutrition Actions (ENA) practices

The household survey questionnaires that Mercy Corps used are based on the guidelines described in the *FFP Standard Indicators Handbook*⁴, and the World Food Program (WFP).

2.2.2 Sampling

Households were randomly selected in targeted villages and surveyed as part of the baseline. We used the two-stage cluster survey with the following formulas⁵:

$$n = \text{Deff} \frac{Z^2(p*(1-p))}{\epsilon^2*(1-r)}$$

where:

⁴ USAID. (2011). *FFP standard indicators handbook (baseline-final indicators)*. Retrieved from http://pdf.usaid.gov/pdf_docs/pnadz580.pdf

⁵ (Deff = Design Effect; for this situation with two-stage sampling, Deff=2)

n = sample size of the infinite population, in number of elements to be sampled

z = z-score of confidence level (90% confidence so 1.645)

p = proportion of the population exhibiting the characteristic of interest (50% estimated so 0.5)

$1-p$ = proportion of the population not exhibiting the characteristic of interest (50% estimated so 0.5)

r = non-response rate (10% so 0.1)

ε = margin of error (10% so 0.1)

$$\text{then } n = 2 \times \frac{(1.645)^2 \times (0.5 \times 0.5)}{0.1^2 \times (1-0.1)} = 149$$

n , the infinite population sample equals to 149. We apply the following correction for our finite population of 22,036 households⁶ in the 22 villages targeted by MADARA.

$$n' = n \times \sqrt{\frac{(N-n)}{(N-1)}} = 149 \times \sqrt{\frac{(22,036-149)}{(22,036-1)}} \cong 149$$

Where N is the size of our finite population (22,036 households) and n' the sample size of our finite population.

Based on this, the number of households to be surveyed would have been 149 in total. However, this number was adjusted to ensure an adequate number of households are surveyed, including the sub-group of population with children aged between 6 and 23 months to be surveyed for the MAD indicators. The sample size derived using the MAD indicator provides enough households to measure target change levels for all other indicators, including the exclusive breastfeeding indicator for children 0-6 months and the percentage of primary caretakers who know and use at least 3 or more IYCF and ENA practices. The formula for the adjustment factor is as follows:

$$n'' = n'/sk$$

where:

n'' = adjusted sample size

n' = calculated minimum sample size of the finite population (149)

s = proportion of the total population accounted for by the target population of children between 6 and 23 months (11% so 0.11)

k = average household size (7)

$$\text{then } n'' = \frac{n'}{s \times k} = \frac{149}{0.11 \times 7} \cong 194$$

The average household size in Niger is seven (7) people. Children aged between 6 and 23 months represent 11%⁷ of the population of Filingué. The minimum number of households to be surveyed for this baseline was therefore 194. Three households were added during data collection in the field so the total number of household surveyed for this baseline was 197. Sub-groups were also targeted for

⁶ Data from the Nigerien Early Warning and Response System

⁷ Data from the Nigerien National Institute of Statistics

specific indicators, specifically 101 children between 6 and 23 months and 272 women aged between 15 and 49 years old who are also primary caretakers of children between 0 and 5 years of age.

10 out of the 22 target villages were selected randomly using the following Microsoft Excel formula: RANDBETWEEN (bottom, top). Surveyors were divided up in the villages, each following a different cardinal point and surveying households alternatively on the right or left side of the street. The following target groups were specifically interviewed during household surveys:

- **Heads of households and the person in charge of preparing meals:** these two individuals are essential to respond to the questionnaires and complement each other. The head of household was best placed to answer socio-economical questions (on livestock, spending, etc.) but were not questioned on dietary diversity if he/she didn't prepare meals.
- **Women with children under 5 years of age (biological or substitute mother):** These constitute an important target category, as children of that age group are the most vulnerable.
- **Grandmothers of children under 5 years of age:** These women have an important influence on their daughters, daughters-in-law or stepdaughters in terms of nutrition practices in Niger. Grandmothers in Niger are key resources for questions related to infants and young children's health and nutrition.

2.2.3 Data collection and analysis

An initial preparatory phase focusing on secondary data allowed an understanding of expectations for Mercy Corps and the MADARA program more specifically. This phase helped better frame the problem, define the limits of the baseline study and formulate an appropriate sets of tools.

The data collection team was led by the Mercy Corps' M&E department and supervised by Mercy Corps Niger's M&E Manager. The team composed of 8 surveyors supervised by 2 agents from the sub-regional committees for the prevention and management of food crises (DSRPGCA⁸). We used smartphones to collect data using the Open Data Kit (ODK) system. Questionnaires were designed in the smartphones and the surveyors just had to plug or check in responses as appropriate. This had several advantages including the quality assurance of the collected data because the system will not allow surveyors to jump from a question to another and they cannot leave a box empty without responding. Also with the system, there is no need to enter data after collection and it is less time consuming as the data can be automatically downloaded to the server once the phone has access to the network and the data is easily analyzed. The surveyors were trained in the field over two days, including one day for pre-testing, to ensure surveyors fully understood the methodology, the use of ODK and how to correct potential mistakes that could have occurred during the preparation.

Analyses were conducted using SPSS or Microsoft Excel after data cleaning, and following FFP and FANTA recommended protocols. Statistical tools used to analyze data include the mean, median, geometric mean, and distributions. Most pivot tables were produced as percentile to facilitate the reading of results. Livestock owners in Filingué, as in anywhere else in Niger, can be reluctant to communicate information on herds' sizes. Results of focus group discussions were therefore cross-checked with data collected during households' surveys.

⁸ Dispositif sous-régional pour la Prévention et Gestion des Crises Alimentaires, du département

3 Survey results

3.1 Socio-economic results

Two thirds of surveyed households (67%) are from the Haoussa ethnic group. Djerma and Fulani groups represent 14% and 12% of the targeted population respectively. A very small proportion belongs to the Kanouri (5%) and Tuareg (2%) populations. The proportion of Kanouri in the area of intervention should be lower as they are only present in one of the 22 villages targeted by the program, which was randomly sampled during the baseline assessment. 25% of the surveyed households were female-headed. Children under 5 years old represent 22% of the surveyed population, which matches data from the National Statistical Institute for Filingué department at 21%. The heads of households' level of formal education are presented in table 1. A third have not benefitted from any formal education. 39% have attended Koranic schools and 16% primary school. Four times more men than women have benefitted from formal education.

Table 1 : Education level of surveyed household heads

Education level	Percentage of women	Percentage of men	Total
No formal education	11%	23%	34%
Primary school	3%	13%	16%
Secondary school	2%	3%	5%
University	0%	1%	1%
Koranic school	3%	36%	39%
Literacy training	1%	4%	5%
TOTAL	20%	80%	100%

Animal husbandry remains by far the principal activity for 80% of sedentary communities and 97% of nomadic communities in the Filingué commune. A focus group was conducted in each village with between 8 and 12 livestock owners to characterize and establish the differences between herders, in terms of number of cattle and small ruminants owned (see figure 1).

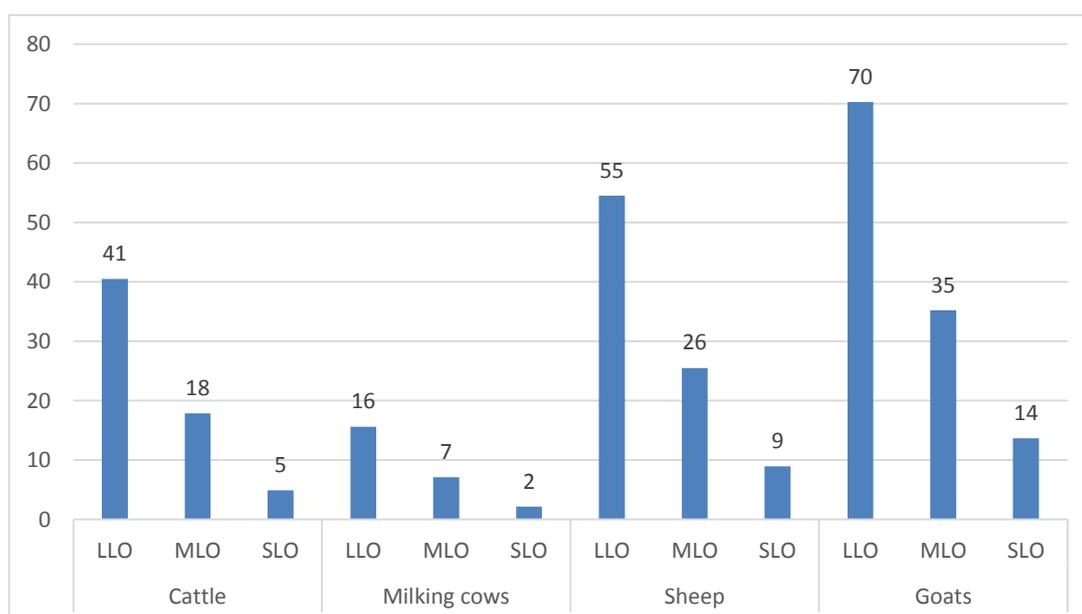


Figure 1 : Average number of animals per type of livestock owner (LLO: large livestock herd owner, MLO: medium livestock herd owner, SLO: small livestock herd owner)

Almost half (47%) of herders in the target area are classified as “small herd owners,” owning, fewer than 5 cattle, 9 sheep or 14 goats or a combination of those. Large livestock herd owners represent 24% of pastoralists but possess over 61% of animal assets of the area (large herd owners are those who possess on average 41 cattle, 55 sheep or 70 goats). According to focus group respondents, the majority (98%) of large herd owners are from the nomadic Fulani population living in settlements outside villages. Small herders are on the contrary mainly sedentary and belong to the Haoussa and Djerma ethnic groups. Large and medium livestock herd owners migrate seasonally to more productive pastureland, which allows them to avoid conflicts with farmers when animals feed on their fields and insects that are more present in agricultural zones compared with grazing lands. Half of large herders migrate outside of Filingué department. Sedentary livestock owners employ village shepherds to tend to their animals.

Figure 2 presents the average herd size variations over the last year for surveyed small cattle herders. Overall, the number of animals owned decreased slightly, with births just compensating household consumption and animals sold.

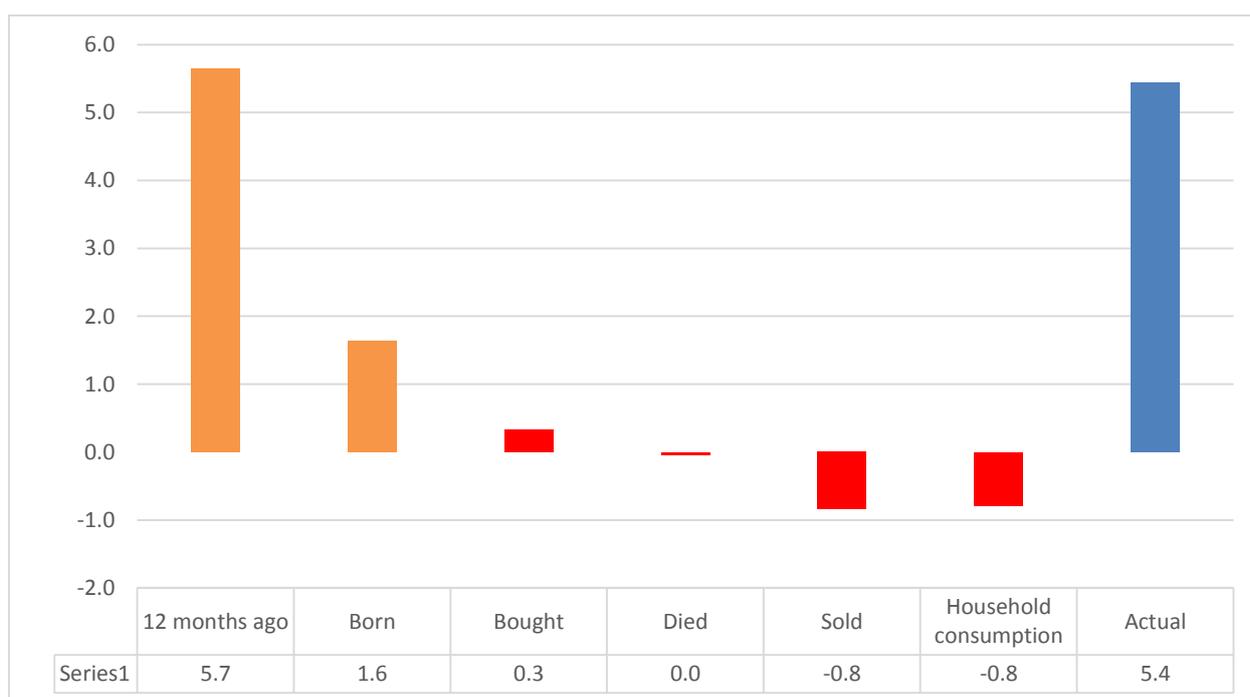


Figure 2 : Average cattle herd variation over the last year for small livestock owners

3.2 Access to animal husbandry infrastructure facilities

Access to animal husbandry infrastructure facilities remains weak in the Filingué commune (see figure 3), especially in terms of veterinary products suppliers (3% of surveyed households), animal feed banks (8%), and livestock markets (13%). The ten villages surveyed had a pastoral well but 70% of surveyed

households claimed that it is insufficient to cover community needs, particularly in the dry season. In terms of animal health services, 146 surveyed households (74%) have benefitted from animal health services in the past 12 months, mainly during the annual vaccination campaign organized by the Government of Niger. 53% of surveyed households benefitted from training provided by local and international NGOs, 40% of which in animal feeding, 18% in animal health and 12% in milk handling hygienic practices.

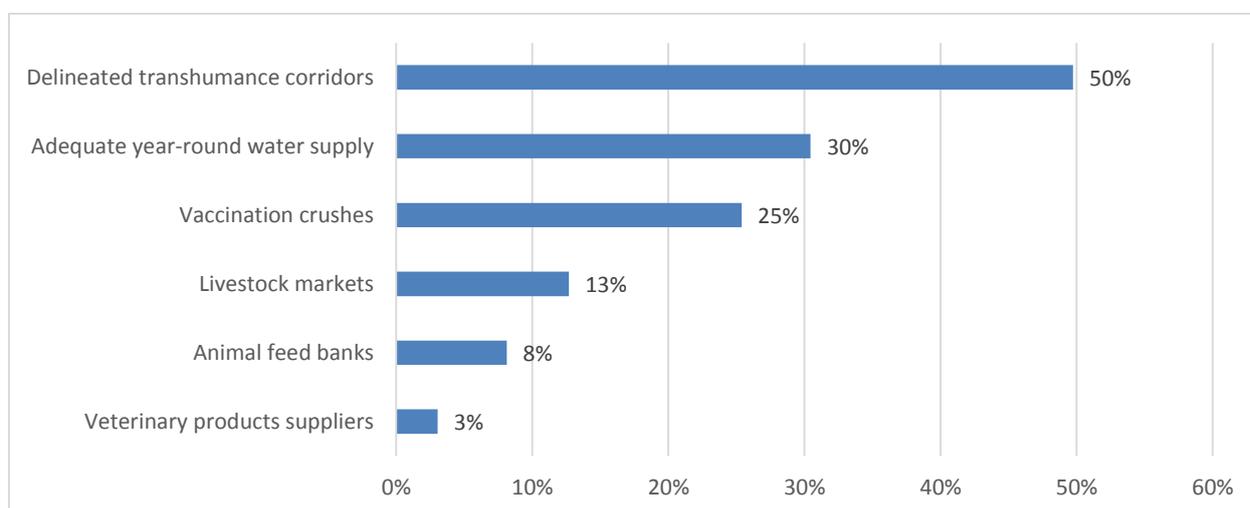


Figure 3 : Percentage of surveyed households having access to animal husbandry infrastructure facilities

3.3 Results linked to program goal

3.3.1 Average Household Dietary Diversity Score (HDDS)

36% of surveyed households (see table 2) had an HDDS between 5 and 7 – meaning they consume between five and seven different groups of food on a daily basis. Those food groups (see table 3) are essentially cereals, oil, sugar, milk and condiments (composed of small quantities of salt and onion). 34% of households had a low HDDS with four or fewer food groups (most commonly cereals, oil and condiments) consumed daily, while 30% of households had a dietary score of over 8 as they add meat, vegetables (such as okra or onion), legumes, tubers, and fruits rich in vitamin A (i.e. mango available between May and August) to their daily diet.

Overall, almost three quarters (73%) of surveyed households consumed milk or other milk products in the past 24 hours, but milk consumption for those with a low dietary diversity score was less than 50%. Milk is not easily accessed by these households as milk production diminishes during the dry season and they either lack the milking animals or resources to purchase milk from other livestock owners.

Table 2: Household Dietary Diversity Scores per tercile

Nutritional diversity score	Minimum	Maximum	Average	% households
Low HDDS (1 to 4 food groups)	1	4	3	34%
Average HDDS (5 to 7 food groups)	5	7	6	36%
High HDDS (over 8 food groups)	8	12	9	30%
Total	1	12	6	100%

Table 3: Food groups consumed by more than 50% of the households in each tercile

Low Dietary Diversity (HDDS<4)	Average (HDDS=5-7)	Above average (HDDS >8)
Cereals	Cereals	Cereals
Oil	Oil	Oil
Condiments	Condiments	Condiments
	Sugar	Sugar
	Milk	Milk
		Tubers
		Vegetables
		Fruits
		Meat
		Legumes

3.3.2 Average Women’s Dietary Diversity Score (WDDS)

272 women of reproductive age (between 15 and 49 years old) were interviewed about their dietary diversity. Almost half of them (45%) have a below average score of three food groups consumed daily, composed mostly of cereals or tubers and green leafy vegetables (see tables 4 and 5). Green leafy vegetables consist mostly of Moringa bought in the street and consumed as a snack by women (but less so by the household as a whole, explaining why it doesn’t appear in table 3). 30% of surveyed women have a better diet including other vegetables and fruits, legumes and milk. Milk or other milk products were consumed by 73% of surveyed women in the past 24 hours.

The WDDS measures the micronutrient adequacy of women’s diet and reports the mean number of nine food groups consumed in the previous day. The HDDS is not a nutrition indicator but a proxy for household socioeconomic status based on 12 different food groups consumed in the previous day. In addition, oil and condiment are not taken into account in the WDDS due to their low contribution to women’s nutritional needs.

Table 4 : Percentage of women per dietary diversity score profiles

Dietary Diversity Score	Minimum	Maximum	Average	Percentage
Below average	1	4	3	45%
Average	5	6	5	30%
Above average	7	9	8	25%
TOTAL	1	9	5	100%

Table 5: Food groups consumed by more than 50% of women in each tercile

Low Dietary Diversity (WDDS<4)	Average (WDDS=5-6)	Above average (WDDS >7)
Cereals and tubers	Cereals and tubers	Cereals and tubers
Green leafy vegetables	Green leafy vegetables	Green leafy vegetables
	Other vegetables and fruits	Other vegetables and fruits
	Legumes	Legumes
	Milk	Milk
		Vitamin A-rich fruits and vegetables
		Organ meat
		Meat and Fish

31% of the surveyed women are from households with low dietary diversity (one to four food groups consumed daily) (see table 6), with 25% (67 out of 272) of women showing below average dietary diversity scores. The MADARA program will target specifically these households through nutrition messaging and behavior change activities. Also almost half of women (45%) showing below average dietary diversity originate from households with average or high dietary diversity profiles, which mean they consume a minimum of five food groups daily. This shows that even though households may have access to a larger variety of food groups, these do not necessarily meet the micronutrient needs of women, or that men and children benefit from those different types of food, to the detriment of women.

Table 6 : Women dietary diversity score profiles per HDDS

	Low HDDS (1 to 4 food groups)	Average HDDS (5 to 7 food groups)	High HDDS (over 8 food groups)	Total
Below average WDDS (score 1 to 4)	55%	36%	9%	100%
Average WDDS (score 5 or 6)	17%	46%	37%	100%
Above average WDDS (score 7 to 9)	4%	16%	80%	100%
Total	31%	34%	35%	100%

3.3.3 Prevalence of households with moderate or severe hunger (Household Hunger Score-HHS)

A quarter of surveyed households (25%) are food insecure with 24% experiencing moderate hunger and less than 2% severe hunger (see table 7). At the end of the lean season, households have used their food stocks and the most vulnerable lack the resources to purchase the food quantities needed to meet the requirements of their families.

Table 7 : Percentage of households per Household Hunger Score profile

HHS profile	Number of households	Percentage
Little or no household hunger	147	74.6%
Moderate household hunger	47	23.9%
Severe household hunger	3	1.5%
Total	197	100%

3.3.4 Average Household Coping Strategy Index (CSI) Score

In terms of classification, those households using 4 or fewer coping strategies were given a CSI score of “acceptable”; moderate food insecurity refers to those using between 4 and 7 different strategies during the last 30 days, and critical food insecure for those who use 7 or more different coping strategies during the last 30 days. Half of surveyed households in the Filingué commune exhibit moderate (24%) and critical (25%) levels of food insecurity (see table 8), though only a quarter experience moderate or severe hunger based on the Household Hunger Score results. The main coping strategies to food insecurity used by households are to reduce the number of meals eaten per day (49% of households) and limit the quantity eaten per meal (46%) (see figure 4). Also 44% asserted having purchased food on credit and 36% having eaten cereal or legume seeds.

Table 8: Percentage of surveyed households per CSI profile

Coping strategy index	Average	Minimum	Maximum	Number of households	Percentage of households
Food secure	0	0	0	47	24%
Acceptable food secure	6	1	12	54	27%
Moderate food insecure	18	13	25	47	24%
Critical food insecure	45	26	112	49	25%
Total	17	0	112	197	100%

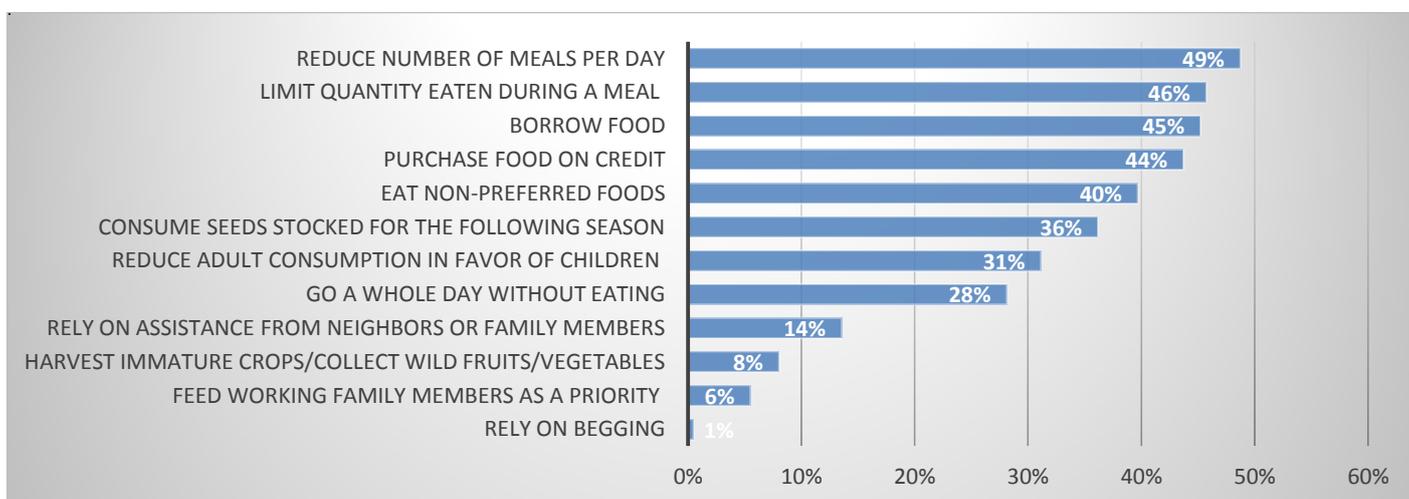


Figure 4: Percentage of households and coping strategies they used in the past week

3.4 Results linked to program outcomes and outputs

3.4.1 Prevalence of children 6-23 months receiving a minimum acceptable diet (MAD)

The diet of a sub-group of 101 children was assessed for this indicator, 42 aged between 6 and 11 months and 59 between 12 and 23 months. Only 3% of surveyed children in the Filingué commune receive a minimum acceptable diet (see table 9), which is identical to the national percentage. Over twice as many children between 6 and 11 months (5%) benefit from an acceptable diet compared with children aged between 12 and 23 months (2%). The latter have a very low consumption of foods rich in protein such as enriched porridge and animal products other than milk, which impacts the quality of their diet significantly. Households' surveys further showed that 18% of children aged between 6 and 23 months received a minimum acceptable dietary diversity, meaning that they consume at least 4 different food groups daily. Although 24% of children aged between 12 and 23 months receive a minimum acceptable dietary diversity, only 2% of them have a minimum acceptable diet, due to the low frequency of meals received during the previous day.

Table 9 : Percentage of children with a minimum acceptable diet (MAD) and minimum dietary diversity (MDD)

	% MAD	% MDD
Aged between 6 and 11 months	5%	10%
Aged between 12 and 23 months	2%	24%
Total	3%	18%

3.4.2 Percentage of primary caretakers who know and use at least 3 or more IYCF and ENA practices

272 primary caretakers were interviewed on their uptake of Infant and Young Child Feeding (IYCF) and Essential Nutrition Actions (ENA) practices. 26% of surveyed primary caretakers use at least 3 practices, primarily ensuring that children sleep under a treated mosquito net (32%), timely immunizations (31%) and continued breastfeeding for one to two years (22%). 19% of surveyed mothers breastfeed exclusively their infants aged between 0 and 6 months. The lower percentage of caretakers using the practices related to children's feeding confirms the findings of the MAD and MDD indicators. Also, 10% of interviewed women (40%) do not use any practice. The MADARA program will address this shortfall and work with mother leaders and community health workers to improve knowledge and uptake of IYCF and ENA practices and contribute to reducing chronic malnutrition of children in the Filingué commune.

Table 10 : Percentage of primary caretakers per type of IYCF and ENA practices used

Type of IYCF and ENA practices	% primary caretakers
Promotion of use of variety of nutritious, locally available foods for infants and young children over 6 months old	10%

Feed frequent meals and snacks to children aged between 6 months and 2 years	13%
Feed foods rich in iron	13%
Introduction of appropriate, safe, and adequate complement foods at 6 months up to 2 years and beyond	17%
Pregnant/lactating women receive additional quantities of food (1-2 portions of staple food)	17%
Take child between 0 and 23 months to health facility to monitor growth and development	18%
Exclusive breastfeeding during the first 6 months of life	19%
Initiate breastfeeding within one hour after delivery	20%
Continue breastfeeding for one to two years	22%
Ensure timely immunizations	31%
Ensure child sleeps under treated mosquito net	32%

3.4.3 Percentage of pastoralists who have purchased animal feed in the past 12 months

109 owners of cattle, 159 of sheep and 95 of goats were interviewed on the type of animal feed they purchase for their herds, if any. 81% of pastoralists raising cattle bought concentrate and 43% fodder in the past 12 months (see figure 5). The median quantity of animal concentrates purchased over a year by surveyed cattle owners, categorized as small herd owners for the area, as they own on average 5 animals, was 200 kg. Goats are typically hardier, so less than 20% of goat owners purchased concentrate and 14% fodder in the past 12 months. Most purchases were made during the dry season. In addition, 32% of livestock owners cut and dried their own forage. 82% of small livestock owners and all medium and large animal owners purchase animal feed every year.

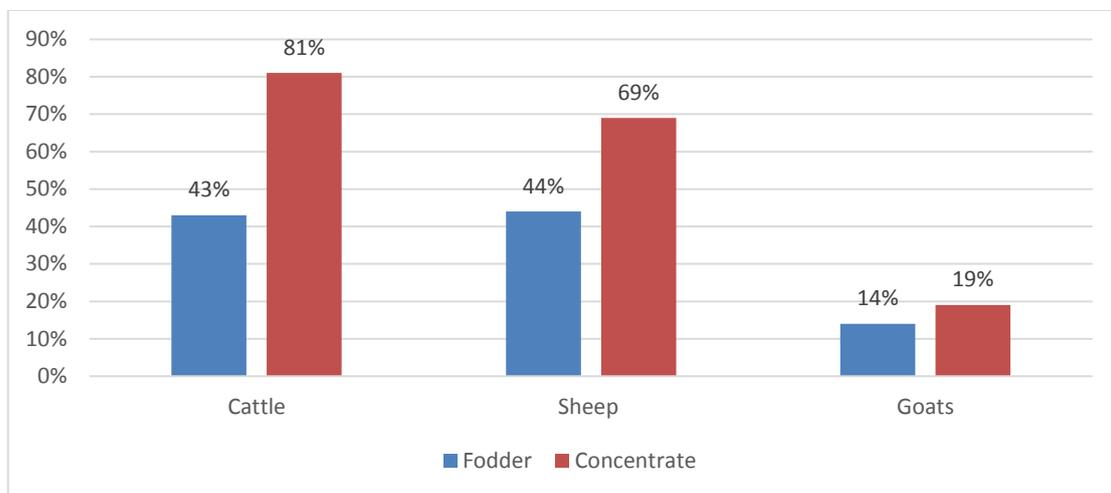


Figure 5 : Percentage of livestock owners who purchased animal feed in the past 12 months per animal type

3.4.4 Average volume of milk products produced per household and value of milk product sales

A third of small cattle owners interviewed produce milk during the dry season, two (2) liters per household per day on average. During the rainy season, all cattle owners produce milk with production increasing to four (4) liters per household per day. These values are low as the Azawak breed is capable of producing up to eight (8) liters on average per day under optimal conditions. Over the 5 months of dryer weather (February-June), milk production per household is estimated at 300 liters. Milk production more than doubles in the rainy season and when pastures remain green (July-January), with 840 liters produced per household over 7 months.

In all surveyed villages and for both nomadic and sedentary communities, men milk the cows but women are responsible for milk usage within the household or selling at local markets. Cow milk is the most commonly sold compared with goat milk. Units used are liters, calabash or ladle. The quantity sold by small herd owners are estimated at 26 liters per household during the dryer months of the year and 83 liters per household during the wetter and greener months, which represents 9 and 10% of the milk produced respectively (see table 11). Some of the milk is also processed into cheese or butter. A large

proportion of the milk produced is consumed by households - as mentioned above, 73% of them drink milk on a daily basis. In the rainy season, herders move away from villages to grazing lands. Milk production increases but they are further away from rural markets and only sell their milk on a weekly basis, rather than daily during the dryer months, due to difficulties in conserving the milk and the time taken to travel back to the villages. During the focus groups, both small and large herders estimated that each village would be able to collect 1,800 and 3,300 liters of milk from their cattle in the dry and rainy season respectively, if they were able to store and sell it.

Table 11 : Average value of cow milk sales per season and household

	Dry season	Rainy season
Milk price in \$/liter	0.27	0.26
Quantity sold in liter/household	26	83
Value of sales in \$/household	7	22

4 Conclusion

The Madara baseline survey conducted in June 2014 confirms the findings of the government-led assessment conducted in November 2013, noting a deterioration in food security levels. As the lean season progresses, half of households in the Filingué department are using four or more strategies to cope with food stocks reduction impacted by the irregular rains and drought and a quarter currently experiences moderate (24%) or severe hunger (1.5%) as informed by the Household Hunger Score and Household Coping Strategy indicators. However, the dietary diversity of households in the target area is slightly higher than that observed in other departments of the same region, with two thirds of households and just over half of women consuming five or more food groups daily. The nutritional needs of children between 0 and 23 months are however far from being met in the area of intervention, with less than 20% of children aged between 0 and 6 months exclusively breastfed and only 3% of surveyed children aged between 6 and 23 months receiving a minimum acceptable diet. The MADARA program will work to address these shortfalls and emphasize sensitizations and social behavior change efforts as there is little knowledge and use of IYCF and ENA practices among primary caretakers in the area targeted by the program.

Animal husbandry is the main activity for the majority of the population in the Filingué commune, with herd sizes ranging from up to 5 cows for small owners to over 41 for large livestock owners. A large proportion of pastoralists (81%) purchased animal feed in the past 12 months, particularly concentrates, to supplement the feeding needs of their animals during the lean season. Access to animal feed banks and veterinary products suppliers has however been identified as a constraint in the commune. The MADARA program will support the growth of animal feed storage and sales businesses in order to improve local access to supplementary animal feed and improve links between producers and animal health service providers. While milk is consumed by three quarters of surveyed households, during the dry season, livestock owners are not able to ensure adequate animal nutrition to sustain milk production levels, in some cases due to inaccessibility of animal feed on the markets or sub-optimal animal nutrition practices. Mercy Corps will seek to close this gap by building the capacities of 1,000 pastoralists through trainings in fodder management and animal health and nutrition. The value of sales is currently low as producers face difficulties in collecting, conserving and selling milk during the rainy

season when milk production peaks. The program will strengthen actors and support micro-entrepreneurs of the milking cow dairy market system in the Filingué department in order to enhance livelihoods of pastoralists and other actors in the value chain.

Table 12 below presents a summary of the indicators surveyed as part of this baseline and their current levels at the start of the program. Each indicator will be measured at the end against the current findings, to demonstrate the level of impact the program achieved.

Table 12 : Results for the indicators assessed as part of MADARA baseline survey

Logframe indicators	Baseline level (% surveyed household)	
1. Average Household Coping Strategy Index (CSI) Score		17
2. Average Household Dietary Diversity Score (HDDS)		6
3. Average Women's Dietary Diversity Score (WDDS)		5
4. Percentage of households with moderate or severe hunger (Household Hunger Scale-HHS)		25%
1.1. Percentage change in average volume of milk products produced per household	Average volume of milk produced in liters/household/month during the dry season	60
	Average volume of milk produced in liters/household/month during the rainy season	120
1.2. Percentage change in value of milk product sales	Average value of milk product sales in \$/household/during the dry season	7
	Average value of milk product sales in \$/household/during the rainy season	22
2.1. Percentage of households that consumed milk or other milk products in the past 24 hours		73%
3.1. Number and percentage of infants 0<6 months of age who are exclusively breastfed		19%
3.2. Number and percentage of children 6<24 months of age who receive foods daily from 4 or more food groups		18%
Prevalence of children 6-23 months receiving a minimum acceptable diet		3%
1.3.1. Percentage of pastoralists who have purchased animal feed in the past 12 months	Cattle owner purchasing concentrate	81%
	Cattle owner purchasing fodder	43%
3.1.1 Percentage of primary caretakers who know and use at least 3 or more Infant and Young Child Feeding (IYCF) and Essential Nutrition Actions (ENA) practices		26%

5 Recommendations

Based on the findings above, the following recommendations are made to ensure the MADARA program can meet its overall goal to ***“enhance food security and strengthen livelihoods of vulnerable households in the Filingué department”*** through its proposed activities.

- ✦ Train pastoralists on improved fodder harvesting, storing and animal feeding strategies, in coordination with the technical service agents of the Ministry of Livestock, to protect and enhance productive performance of existing animal assets and strengthen dairy production;
- ✦ Support the construction of individual or shared improved fodder storage units to increase the quantities of fodder stored and preserve its nutritional content;
- ✦ Strengthen existing private animal feed businesses to increase availability of animal feeding supplements and sustain milk production in the dry season;
- ✦ Strengthen small cattle owners’ associations, build their negotiating and commercialization skills and link them to other actors in the dairy sector value chain;
- ✦ Improve linkages and initiate discussions between dairy value chain actors in the department to further identify constraints in the collection, transport and commercialization of milk and identify solutions benefitting the different actors in the value chain;
- ✦ Strengthen existing local milk collection centers, support the development of additional ones, and train pastoralists in hygienic milk handling and storage practices;
- ✦ Train and support micro-entrepreneurs in the dairy market system within Filingué department to develop opportunities for pastoralists and enhance livelihoods of pastoralists and other actors in the value chain;
- ✦ Improve access to market information on milk and milk products and animal feed to small scale pastoralists and facilitate linkages with private buyers at the local, regional and national levels;
- ✦ Assess the interest of the communities in the delivery of milk processing training for both household consumption and as an additional source of income revenue;
- ✦ Train mother leaders and community health workers and sensitize primary caretakers and communities to increase uptake of key IYCF and ENA practices and improve children’s dietary diversity and meet their nutritional needs; and,
- ✦ Integrate nutrition-related messages and marketing considerations into pastoralists’ training so as to support beneficiaries in generating revenues from their production and restoring their livelihoods, while at the same time ensuring that household nutritional needs, including for women and children, are met.