



**USAID/FFP/EFSP**

## **Support for the Resiliency of Communities in Diffa (ARCAD)**

### **FINAL RESULTS REPORT**

<u>Agreement No.</u>	AID-FFP-G-14-00027
<u>Effective date and completion date:</u>	June 5, 2014 to July 31, 2015
<u>To:</u>	USAID-FFP-EFSP
<u>By:</u>	Samaritan's Purse
<u>Report submission date:</u>	October 30, 2015
<u>Software used for report:</u>	<u>Microsoft Office Word 2010</u>

**US Point of Contact:**

Aaron Ashoff, Regional Director West Africa  
Address: 801 Bamboo Rd., Boone, NC 28607  
E-mail: aashoff@samaritan.org  
Telephone: (828) 278-1450

Page | 0

**Niger Point of Contact:**

Carl Becker, Country Director  
Address: B.P. 2499, Niamey, Niger  
E-mail: CBecker@samaritan.org  
Telephone: +227 96 29 81 93

ARCAD (Project No.: AID-FFP-G-14-00027) October 30, 2015

## Table of Contents

Acronyms .....	4
1. Introduction.....	<b>Error! Bookmark not defined.</b>
2. Program Overview and Security Context .....	6
3. Beneficiaries .....	8
3.1 ARCAD beneficiaries .....	8
3.2 Demographics .....	10
4. Activities overview .....	11
4.1 ARCAD outputs.....	11
4.2 Cost per beneficiary .....	12
4.3 Activities summary, challenges and adaptations during implementation.....	12
1. Food distributions through emergency TFD (lean season and post lean season), as well as FFA.....	12
2. FFA (work component) .....	16
3. Seeds for training .....	18
4. Gardening and WASH activities.....	21
5. Final evaluation and PDM/FBM results .....	23
5.1 Final Evaluation context, methodology and sampling.....	23
5.1.1 Sampling .....	23
5.1.2 Context, timeline of the final evaluation, and challenges .....	26
5.2 Final Evaluation Results .....	27
5.2.1 Result Indicator table .....	27
5.2.2 CSI .....	28
5.2.3 Prevalence of HH with Moderate or Severe Hunger (Household Hunger Scale).....	30

5.2.4 Household Dietary Diversity Score (HDDS).....	33
5.2.5 Food consumption Score (FCS).....	34
5.2.6 Percentage of farmers who used at least 2 sustainable agriculture practices (Millet/Cowpeas), (Potatoes/Maize).....	37
5.2.7 Average production per HH per crop.....	39
5.2.8 Average number of crop species produced and/or consumed .....	42
5.2.9 Percentage of beneficiaries who can name at least six household nutritional and hygiene practices .....	44
5.2.10 Prevalence of children 6-23 months receiving a minimum acceptable diet .....	46
5.2.11 Prevalence of exclusive breastfeeding of children under six months of age .....	47
5.3 Post-Distribution Monitoring.....	48
5.3.1 New displaced hosted by beneficiaries .....	48
5.3.2 Satisfaction.....	48
5.3.3 Use of food.....	49
5.3.4 Estimated duration of commodity rations.....	50
5.4 Food-Basket Monitoring.....	51
5.5 Market Monitoring.....	52
6. Lessons Learned.....	54
7. Local and regional procurement reporting.....	58
8. Success Stories.....	58

**Attached Appendices:**

- Appendix A – ARCAD non-duplicate beneficiaries
- Appendix B – Food situation per quarter per commodity (MT)
- Appendix C – Seed situation per quarter per commodity (MT)
- Appendix D – WASH work completed on the ten garden sites
- Appendix E – Survey questionnaires

Appendix F – PDM questionnaire

Appendix G—ARCAD Local/Regional Procurement

Appendix H- Commodity safety and quality assurance (first food procurement)

Appendix I- Commodity safety and quality assurance (second food procurement)

Appendix J- Equipment inventory and request for disposition

## Acronyms

ARCAD	Support for the Resiliency of Communities in Diffa <sup>1</sup>
CI	Confidence Interval
CSI	Coping Strategy Index
EFSP	Emergency Food Security Program
F	Female
FBM	Food Basket Monitoring
FCS	Food Consumption Score
FFA	Food for Asset
FFP	Food for Peace
FGD	Focus Group Discussions
Ha	Hectare
HDDS	Household Dietary Diversity Score
HH	Household
ICRC	International Committee of the Red Cross
IDPs	Internally Displaced Persons
Kcal	Kilocalorie
M	Male
NGO	Non-governmental Organization
PDM	Post Distribution Monitoring
SFT	Seeds for Training

---

<sup>1</sup> “Appui à la Résilience des Communautés à Diffa” in French

SP	Samaritan's Purse
USG	United States Government
TFD	Targeted Food Distributions
WASH	Water, Sanitation, and Hygiene

## 1. Executive summary

This report will cover the entire period of implementation for ARCAD, from May 7<sup>th</sup> 2014 to July 31<sup>st</sup> 2015. The objective of this report is to present achievements and the impact of ARCAD on the lives of project beneficiaries (members of the host community and displaced populations), as well as challenges faced and lessons learned.

Through this project, a total of 2,435.787 MT of millet, cowpeas and oil have been distributed to 41,958 non-duplicate beneficiaries (both displaced and host) within 30 villages of the Department of Bosso. As part of food for asset (FFA) activities, 3,729 participants worked during 20 days in 29 villages, constituting one FFA month, for a total of 77,230 men's days instead of the planned 149,160<sup>2</sup> days. The second month of FFA activities was canceled due to insecurity so the strategy adjusted to emergency targeted food distributions (TFD) according to the new strategy approved by Food for Peace (FFP).

As planned, 3,790 households (HHs) benefitted directly from US government (USG) interventions (through seeds for training activities (SFT)), and a total of 57.168 MT of millet, cowpea, potato and maize seeds were distributed achieving 100% of the targets.

A total of 400 women were involved in nutrition education and gardening activities. All women received seeds, tools, and agriculture support, and attended five health and nutrition education sessions. Ten garden sites were established, with a total of 11.124 hectares (Ha) under new or rehabilitated irrigation and drainage services as a result of USG assistance, as compared to the 10 Ha planned.

Through the various activities, positive impacts and outcomes have been measured through the final evaluation. Some key findings include:

---

<sup>2</sup> 3,729 participants x 40 days.

- HH coping strategy index (CSI) decreased from 26.9 (baseline) to 17 (end-line), with a PDM average of 0.5. The prevalence of HH with moderate or severe hunger went from 55.7% to 18.8% (end-line) with a PDM average of 2.5%. These results show a positive impact of food assistance and agriculture activities on HHs' food security situation.
- The percentage of beneficiaries who can name at least six HH nutritional and hygiene practices was 28.3% for the baseline, while this increased to 98.6%, surpassing the target, at the end of the project.
- The prevalence of children 6-23 months receiving a minimum acceptable diet was 80.9% at the end of the project while it was 55.7% before the implementation of nutrition and gardening activities.
- The prevalence of exclusive breastfeeding of children under six months of age significantly increased from 23.7% to 86.4%.
- The percentage of farmers who used at least two sustainable agriculture practices in the past 12 months increased from 5.3% to 73.4%, demonstrating the impact of SFT agriculture trainings on the change in farmers' behavior.

## 2. Program Overview and Security Context

The ARCAD project was a one year Emergency Food Security Program (EFSP) funded by USAID FFP, launched May 7<sup>th</sup> 2014 with an estimated completion date of May 6<sup>th</sup> 2015. However, due to regional insecurity, a no cost extension was approved extending the project to July 31<sup>st</sup> 2015 in order to implement adapted food assistance activities (detailed below).

The project was implemented in southeast Niger, along the border with Nigeria, amongst vulnerable HH in 30 rural communities in the Bosso Department, Diffa Region; this area has been greatly affected by attacks from Boko Haram (communes of Bosso and Toumour).

Through its major activities, emergency TFD, SFT, FFA, off-season gardening, and nutrition education, ARCAD increased these communities' overall food security and resiliency through increased year-round access to food at the HH level and improved nutrition and dietary diversity. Food for asset and gardening activities were planned to be completed amongst the host community beneficiaries who were targeted for the lean season emergency TFD in order to make the highest impact on targeted HHs.

ARCAD planned to assist 31,621 beneficiaries, including refugees and returnees from Nigeria who were staying with HHs in the host communities. The ARCAD project was well incorporated in the two-speed response encouraged by the humanitarian community: addressing emergency needs of the displaced populations without forgetting vulnerable host community members affected by the grain and fodder deficit from the previous harvest. However, due to some adaptations in project activities, 41,958 non-duplicate beneficiaries have been reached.

At the start of the ARCAD project, the area in which the project was implemented was reasonably secure (north of the Nigerian border). Boko Haram was operating in northeast Nigeria, affecting a population movement from Nigeria into Niger (both refugees and returnees). The security situation in Niger started deteriorating after lean season food distributions, in October 2014, as Boko Haram's active presence moved increasingly north and along the Komadougou River which separates Niger and Nigeria. Unfortunately, approximately half of the villages targeted for food distributions and SFT activities are located within a few kilometers of the border; this was also the case with eight out of the ten gardens established by the project. Despite these developments, the security situation in December and January allowed for the first month of FFA work to take place. In early February, Boko Haram conducted their first ever attack inside Niger territory, attacking Bosso town and Diffa town. Samaritan's Purse (SP) was forced to temporarily relocate project staff for approximately one month to a more secure region. A multi-national military force from Niger, Chad, and Cameroon was constituted and has been fighting Boko Haram in Niger and Nigeria up to the present time. Since the attacks, Diffa Region has remained in a government declared state of emergency; the government also prohibited the use of motorbikes anywhere in the region. The attacks by Boko Haram in Niger caused displacement within the host population as well as amongst returnees originally from Niger and refugees from Nigeria. Insecurity has created challenges in accessing 14 of the 30 target communities, but SP has been able to continue addressing the needs of all the communities through alternative strategies. Further information regarding these strategies will be provided later in this report. In March, civilians started to return to Bosso town, which had been entirely evacuated following the attacks in February. Some incidents caused by Boko Haram were reported in Bosso Department, such as the attack on islands in Lake Chad in May followed by the government mandated evacuation of the island, and the attack in Yebi on June 23<sup>rd</sup>, 2015. According to the authorities, more than 25,000 people fled the islands. The government

authorities then organized a massive voluntary refugee repatriation program to send refugees from Nigeria back across the border. This situation created more food needs in the area which the humanitarian community was forced to address.

Due to this security context, some changes to project implementation were proposed to FFP in order to adapt to the inability to implement the originally planned FFA activities and to address the actual emergency needs in Bosso Department. The security situation throughout the final quarter allowed SP to work and implement remaining adapted food assistance activities. The changes to project implementation are detailed below.

### **3. Beneficiaries**

#### **3.1 ARCAD beneficiaries**

Table 1 below presents the planned and actual HHs and direct beneficiaries reached by ARCAD. The project provided assistance to 41,958 direct beneficiaries through emergency TFD and FFA food distributions within 30 villages located in Bosso Department. Amongst these beneficiaries, 400 women participated in gardening and nutrition activities at ten gardening sites. Also amongst the total number of beneficiaries, 3,790 direct beneficiaries were selected from 3,790 HHs to participate in SFT activities.

**Table 1: ARCAD beneficiary table**

		Emergency TFD	SFT	Gardening and nutrition	FFA work <sup>3</sup>	FFA food distributions	Non-duplicate
<b>Planned</b>	<b>HH</b>	4,517	3,790	400	3,729	3,729	<b>4,517</b>
	<b>Total</b>	31,621	3,790	400	3,729	26,103	<b>31,621</b>
	<b>M</b>	15,178	2,842	-	2,797	12,529	<b>15,178</b>
	<b>F</b>	16,443	948	400	932	13,574	<b>16,443</b>
<b>Actual</b>	<b>HH</b>	6272	3790	400	3729	3517 <sup>4</sup>	6437
	<b>Total</b>	40918 <sup>5</sup>	3790	400	3729	25243	41958
	<b>M</b>	19777	2863	-	2928	12703	20274
	<b>F</b>	21141	927	400	801	12540	21684
<b>% achieved</b>	<b>HH</b>	139%	100%	100%	100%	94%	143%
	<b>Total</b>	129%	100%	100%	100%	97%	133%
	<b>M</b>	130%	101%	-	105%	101%	134%
	<b>F</b>	129%	98%	100%	86%	92%	132%

While the plan was to reach 31,621 beneficiaries (from an estimated 4,517 HHs) through all activities, the project actually reached 41,958 non-duplicate beneficiaries (20,274 men and 21,684 women) from 6,437 HHs. A total of 14,500 of the beneficiaries are displaced persons (see Table 2).

The difference between planned and actual number of beneficiaries was caused by several factors: some FFA participants were not targeted amongst the 31,621 emergency TFD beneficiaries as was planned (causing 1,040 new beneficiaries from 165 HHs to be selected instead); a new strategy approved by FFP was implemented which resulted in the cancellation of the second month of FFA activities; and the targeting of additional beneficiaries who fled the islands on Lake Chad after Boko Haram attacks who were assisted with food commodities (9,297 beneficiaries from 1,458 HHs).

**Table 2: ARCAD displaced beneficiaries per status**

<sup>3</sup> FFA work category includes those that completed FFA activities; FFA food distributions category includes direct beneficiaries, who are members of FFA participant HHs which received food for the work completed by the participant.

<sup>4</sup> Remaining 212 HHs have been served by the International Committee of the Red Cross (ICRC), as per the Government of Niger's current policy of "one village, one actor" for food assistance programming in Diffa Region.

<sup>5</sup> Includes 14,500 refugees, returnees, IDP's.

Beneficiary		Refugees and returnees	IDP's	Total
Planned HHs and direct beneficiaries	HH	788	0	788
	Total	5,519	0	5,519
	M	2,649	0	2,649
	F	2,870	0	2,870
Actual HHs and direct beneficiaries	HH	1,114	1,155	2,269
	Total	7,096	7,404	14,500
	M	3,505	3,523	7,028
	F	3,591	3,881	7,472
% achieved	HH	141%	N/A	288%
	Total	129%	N/A	263%
	M	132%	N/A	265%
	F	125%	N/A	260%

### 3.2 Demographics

**Table 3: ARCAD direct beneficiary demographics**

	< 5 years		> 5 and < 18 years		> 18 and < 60 years		> 60 years		Total			HH	HH average size
	M	F	M	F	M	F	M	F	M	F	Total		
Displaced food beneficiaries	1,822	2,164	2,954	2,784	1,945	2,228	307	296	7,028	7,472	14,500	2,269	6.4
Host community food beneficiaries	3,395	4,017	5,418	5,010	3,753	4,556	680	629	13,246	14,212	27,458	4,168	6.6
SFT					2,863	927			2,863	927	3,790	3,790	N/A
FFA workers					2,928	801			2,928	801	3,729	3,729	N/A
Off season gardening						400			0	400	400	400	N/A
Total non-duplicate beneficiaries	5,217	6,181	8,372	7,794	5,698	6,784	987	925	20,274	21,684	41,958	6,437	6.5
	11,398		16,166		12,482		1,912		41,958				

See Appendix A for demographic details of total beneficiaries per village.

## 4. Activities overview

### 4.1 ARCAD outputs

**Table 4: ARCAD Outputs June 2014 to July 2015**

Activities	Activity Indicators	Target	Actual	% of achievement
Locally-procured food distributed	# of MT of commodities distributed	2,435.900 <sup>6</sup>	2,435.787	100%
	# of people benefitting directly from USG-supported social assistance programming (Food distributions) non-duplicate	31,621	41,958	133%
	# of HHs benefitting directly from USG-supported social assistance programming (Food distributions) non-duplicate	4,814	6,437	134%
FFA Activities Completed	# of men's/women's days (FFA)	149,160	77,230	52%
	# of USG social assistance beneficiaries participating in productive safety nets (FFA)	3,729	3,729	100%
Livelihood assets developed, built or restored by targeted communities and HHs	# of ha of land rehabilitated through FFA activities	205.0	102.8	50%
	# of meters of dikes fortified	3,520	3,520	100%
	# of meters of canals built	76,720	41,674	54%
	# of meters of firebreaks constructed	463,200	231,600	50%
Seed distributed (millet, cowpeas, maize, potatoes)	# of MT of millet, cowpeas, maize, and potatoes distributed	57.000	57.168 <sup>7</sup>	100%
	# of HHs benefitting directly from USG interventions (SFT)	3,790	3,790 <sup>8</sup>	100%
Education on sustainable agriculture practices	# of individuals who have received USG-supported short term agricultural sector	3,790	3,790	100%

<sup>6</sup> This tonnage is the total amount of food commodities planned to be purchased for emergency TFD and FFA distributions, including a 1% margin for potential losses.

<sup>7</sup> The extra 168 kg (actual) are due to an excess of 148 kg of potatoes delivered by the supplier and the purchase of an extra 20 kg of maize.

<sup>8</sup> 48 HHs within the 3,790 planned HHs which had already received potato seeds were given maize seeds that will be grown during the rainy season in 2015.

	productivity or food security training (SFT)			
Nutrition education	# of people trained in child health and nutrition through USG-supported programs	2,000 (400 x5)	2,000	100%
Seeds, tools, and inputs procured and distributed for gardening activities	# of beneficiaries receiving seed, tools, and inputs for gardening	400	400	100%
Garden sites established and installed with an irrigation system	# of ha under new or rehabilitated irrigation and drainage services as a result of USG assistance	10	11.124	111%

#### 4.2 Cost per beneficiary

A total of \$3,872,633.29 USD allocated for ARCAD was spent between May 7<sup>th</sup> 2014 and July 31<sup>st</sup> 2015 to assist 41,958 direct beneficiaries. The cost per direct beneficiary was \$92.30 USD<sup>9</sup>.

#### 4.3 Activities summary, challenges and adaptations during implementation

##### 1. Food distributions through emergency TFD (lean season and post lean season), as well as FFA

###### a. Food achievements

**Table 6: Food activity indicators**

	Activity Indicators	Target	Actual	% of achievement
Locally-procured food distributed	# of MT of commodities distributed	2,435.900 <sup>10</sup>	2,435.787	100%
	# of people benefitting directly from USG-supported social assistance programming (Food distributions)-non-duplicate	31,621	41,958	133%
	# of HHs benefitting directly from USG-supported social assistance programming (Food distributions)- non-duplicate	4,814	6,437	134%

<sup>9</sup> 41,958 direct non-duplicate beneficiaries.

<sup>10</sup> This tonnage is the total amount of food commodities planned to be purchased for emergency TFD and FFA distributions, including a 1% margin for potential losses.

A total of 2,435.787 MT of millet, cowpeas and oil have been distributed to 41,958 non-duplicate beneficiaries within 30 villages of the Department of Bosso. While 100% of the planned food has been locally purchased and distributed to beneficiaries, the number of people and HHs benefitting directly from USG-supported social assistance programming (Food distributions)-non-duplicate exceeded the target (135%) due to the following project adaptations.

During focus group discussions held in August 2015, emergency TFD beneficiaries expressed their happiness about the targeting methodology that they qualified as “transparent and fair”, which was based on vulnerability. They confirmed that the committees that were constituted by the communities did a fair job, and SP project staff have not detected inclusion or exclusion errors within the targeting selection process. They also shared that they had appreciated the food calculation based on the HH size. They confirmed that the project arrived during a hunger period and that the three months of distributions allowed the village to survive through the period of hunger due to the targeting of the most vulnerable HHs. Some beneficiaries shared that they would recommend distributing rice instead of millet, while others explained that the commodities chosen were fitting for their dietary habits. Beneficiaries also explained that the ration distributed was sufficient and that they appreciated the transparent process of SP’s distributions; they have been able to eat three times a day and many declared that they even gained weight. Food distributions prevented people from migrating in search of food or work, which contributed to stability within family units. Finally, beneficiaries appreciated the fact that distributions were conducted before they finished the food rations distributed during the previous distribution.

The one recommendation that was voiced by several of the FFA beneficiaries was that the food ration provided per month of work completed should be increased.

#### **b. Challenges and adaptations**

The planned amount of food has been successfully distributed through three rounds of distributions to 31,621 beneficiaries during the lean season (which covered the beneficiaries’ food needs from August 2<sup>nd</sup> to the end of October) despite further delays in the delivery of food commodities by the supplier, as well as impassable roads caused by heavy rains. Also as a result of these delays, seeds had to be distributed in July, just before the rains began, rather than

distributing the seeds late in conjunction with the first emergency TFD (the original plan was to distribute both seeds and food at the same time (see Table 8)).

The implementation of food activities began with the completion of three emergency TFDs during the lean season, between August and September, covering food needs from August to October. Food for asset participants conducted their first month of work in January (out of the two planned months), however, the security situation radically deteriorated before they could receive their food rations. Boko Haram attacked Bosso and Diffa towns as previously explained, rendering food distributions to FFA beneficiaries impossible; these beneficiaries were located in 14 villages at which the planned distribution points were in close proximity to the Komadougou River. Therefore, the presence of Boko Haram in the area caused an increased threat level in these villages. The second month which was planned for FFA activities was rendered inappropriate due to the security context. In order to address these challenges and continue to provide the most appropriate response to the emergency food security needs in the area, the following changes were proposed and accepted by FFP in order to continue:

- For 13 inaccessible villages, alternative distribution points were selected in a secure area, allowing FFA HHs to receive the conditional food transfers that they worked for in January, between April and May. A transport stipend was provided to beneficiaries in order to offset the cost of transportation and to avoid beneficiaries having to trade food for transport services. Beneficiaries came to the alternate distribution points with small pickup trucks as agreed.
- Food rations were changed from covering 20 days to 30 days for FFA (for those participants who worked during the first month of FFA activities) and additional emergency TFD to harmonize with the rations being provided by the humanitarian community.
- Given that the changing context required an emergency intervention, it was not appropriate to proceed with conditional food transfers through FFA activities. As such, project staff conducted a rapid needs assessment among the accessible villages which were not targeted by WFP or other partners at the time in order to identify the most

vulnerable HHs. As a result, 1,543 HHs<sup>11</sup> were selected in May in villages which were hosting IDP's from the islands on Lake Chad; these beneficiaries received the remaining food which was originally planned for the second month of FFA activities.

Through the flexibility and revised plan approved by FFP, ARCAD has been able to address emergency food needs in Bosso Department. The table below shows the cumulative HHs served compared to what was planned.

**Table 7: Cumulative HHs served vs planned per month**

		June	July	Aug	Sept	Jan	Feb	Mar	April	May	Total
<b># of cumulative HHs receiving a monthly food ration</b>	Planned	4,814	4,814	4,814	0	3,729	3,729	0	0	0	21,900
	Actual			4,814	9,628	0	0	873	2,277	2,588	20,180
	% to-date achievement	0%	0%	33%	100%	79%	66%	70%	80%	92%	92%

The percentage to date of cumulative HHs served is 92%, while 100% of the food has been distributed. This is due to the change in the ration, from 20 to 30 days for the FFA distribution and the additional emergency TFD which distributed a 30 day ration as well.

---

<sup>11</sup> 1,458 were totally new beneficiaries who had never received any assistance under the ARCAD project.

**Table 8: Activity timeline for food distributions, FFA, and seed distributions (planned/actual)**

		2014						2015				
		June	July	Aug	Sept	Oct	Nov	Jan	★ Feb	Mar	Apr	★ May
Food distributions	Planned	ETFD	ETFD	ETFD				FFA	FFA			
	Actual			ETFD	ETFD <sup>12</sup>					FFA- including distributions through alternative distribution points		FFA and additional ETFD
FFA-work component	Planned							FFA	FFA			
	Actual							FFA				
Seed distributions-	Planned	M/C *				M/P **						
	Actual		M/C			M/P						

\* M/C: Millet/Cowpeas

\*\* M/P: Maize/Potatoes

★ February star represents Boko Haram attack in Bosso and Diffa on the 6<sup>th</sup> and 8<sup>th</sup>; May star represents Boko Haram attacks on the Lake Chad islands and subsequent evacuation of the population

## 2. FFA (work component)

### a. FFA work achievements

- 3,729 participants worked during 20 days in 29 villages, constituting one FFA month, for a total of 77,230 men’s days instead of the 149,160<sup>13</sup> planned. However, as planned, 3,729 USG social assistance beneficiaries participated in productive safety nets.

<sup>12</sup> Three food distributions, which took place in August and September, covered beneficiaries’ food needs for August to October.

<sup>13</sup> 3,729 participants x 40 days.

- Through those 20 days of work, the 3,729 participants accomplished 50% of the planned land rehabilitation (102.8 Ha), 54% of the irrigation canals (41,674 meters), and 50% of the firebreaks (231,600 meters). More beneficiaries were selected than planned for dike fortification activities, and accomplished the total target within the first month (3,520 meters).

No results indicators have been planned to assess the impact of the different activities apart from food distributions. Focus group discussions provided qualitative information from beneficiaries regarding the FFA activities completed and the impact of the work done. Food for assets participants who were involved in land rehabilitation (construction of Zai holes, demi lunes and banquettes) shared that they have already been able to see an impact during the rainy season such as: increased ground water infiltration and therefore erosion reduction, increased fertility, and fodder growth. Participants explained that at some time in the future animal herders will be able to stay in the village due to the availability of fodder. Beneficiaries have also noticed an impact on seed planted in Zai holes; plants are growing much faster than when not planted in Zai holes. All participants of the discussions acknowledged that the activities reduced unemployment and out migrations.

#### **b. Challenges and adaptations**

- Though time was limited due to the emergency nature of this response, SP was able to conduct community surveys and hold focus group discussions before FFA activities began. Several villages identified construction of firebreaks to be a key activity that would address the pressing need of preventing accidental bush fires. Thus, the planned activities for FFA in some villages were adjusted after notifying FFP.

- After attacks by Boko Haram in February, FFA activities became inappropriate and impossible to conduct in such a context; there was a large military presence, prohibition against large gatherings of people, prohibition against the use of motorbikes (which are essential for FFA monitoring), trauma experienced by the population, and no physical access to half of the targeted villages. Due to the location of the villages in which FFA beneficiaries had worked in January, they had to wait for a maximum of three months to receive the ration for which they had worked. In order to distribute the remaining food, 1,543 vulnerable HHs who were displaced from Lake Chad by Boko Haram were targeted to receive a one month food ration.

- In keeping with the Government of Niger’s current policy of “one village, one actor” for food assistance programming in Diffa Region, it was agreed that the 212 beneficiaries from Yebi and Ngouba, who completed FFA activities during the first quarter of 2015, would receive their food ration from the International Committee of the Red Cross (ICRC). Meetings were held with available beneficiaries, FFA committee members and village chiefs from the two villages on 30<sup>th</sup> April where this plan was discussed and agreed upon. Beneficiary lists and FFA committee members’ contact details were shared with ICRC prior to their beneficiary targeting exercise. Food distributions were then completed by ICRC between May 19<sup>th</sup> and 30<sup>th</sup>.
- Food for asset participants were able to share challenges faced and future recommendations during FGDs. They suggested that more tools be provided, increase in the work supervision, and timely distribution of food at the end of the month of work. The main issue as mentioned above was the inability to distribute food at the beginning of February due to insecurity. The FFA participants also suggested that work should be conducted when the temperature is not as high, such as just after the rainy season.

### **3. Seeds for training**

#### **a. Seeds for training achievements**

- As planned, 3,790 HHs benefitted directly from USG interventions (SFT), and a total of 57.168 MT of millet, cowpeas, potato and maize seeds were distributed achieving 100% of the targets. The extra 168 kg are due to an excess of 148 kg of potato delivered by the supplier and the purchase of an extra 20 kg of maize. Seeds were distributed in a timely manner, just before the rains began for the millet and cowpeas, and at the beginning of the off-season for the maize and potatoes. See Appendix C for more details regarding the seed situation.

**Table 9: Seed beneficiaries and tonnage distributed**

	Actual Direct Beneficiaries			Seeds (MT)		Distributed	Month of distribution
	M	F	Total	Planned	Procured/Delivered		
<b>Millet</b>	1,010	385	1,395	14	14	14	July '14
<b>Cowpeas</b>	1,010	385	1,395	7	7	7	July '14
<b>Maize</b>	1,853	542	2,395	24	24.500	24.020	Nov '14
<b>Potato</b>	1,853	542	2,395	12	12.148	12.148	Oct-Nov '14
<b>Non-duplicate</b>	<b>2,863</b>	<b>927</b>	<b>3,790</b>	<b>57</b>	<b>57.648</b>	<b>57.168</b>	

Through FGDs, beneficiaries who received millet and cowpeas expressed their gratitude and satisfaction towards this activity. They appreciated the trainings accompanied by free seed distributions and the timeliness of distributions. Another very positive point that was raised by the beneficiaries was the variety and the quality of the seeds. They noticed that the distributed seed varieties were extremely precocious, addressing the needs in the area and were fitting for the climatic conditions in Diffa; the plants produced were noticeably different from those of their neighbors in terms of faster growth, higher yield, and better adaptation to the dry climate. Furthermore, they declared that many among them yielded a larger harvest than their neighbors, and the varieties required less land to receive a decent harvest. The beneficiaries all acknowledge that this variety is better than the one they traditionally plant and qualified the seeds distributed as exceptional. Additionally, SFT beneficiaries who received maize seed were also very pleased with the variety and precocity of the seed distributed.

- All 3,790 SFT direct beneficiaries received a USG-supported short term agricultural sector productivity or food security training (SFT).

**Table 10: SFT training sessions**

		<b>Millet Cowpeas</b>	<b>Maize- Potatoes</b>	<b>Total</b>
<b># of farmers that attended all sessions</b>	TOUMOUR	519	0	
	BOSSO	795	1,811	
	<b>TOTAL</b>	<b>1,314</b>	<b>1,811</b>	<b>3,125</b>
<b>Average # of farmers per session</b>	TOUMOUR	519	0	
	BOSSO	844	2,158	
	<b>TOTAL</b>	<b>1,363</b>	<b>2,158</b>	<b>3,521</b>
<b>Average # of sessions per farmer</b>	TOUMOUR	3.0	0.0	
	BOSSO	2.9	2.7	
	<b>TOTAL</b>	<b>2.9</b>	<b>2.7</b>	<b>2.8</b>
<b># of direct beneficiaries who received USG-supported short term agricultural sector productivity or food security training</b>	TOUMOUR	519	0	
	BOSSO	876	2,395	
	<b>TOTAL</b>	<b>1,395</b>	<b>2,395</b>	<b>3,790</b>

### **b. Challenges and adaptations**

- A total of 480 kg of maize seed was stolen in November from a field warehouse in the village of Dagaya. The loss was investigated and a formal loss report<sup>14</sup> was submitted to document the theft. New policies were adopted and are presented in the lessons learned section. An additional 500 kg seeds were procured later and distributed to the 48 HHs who had not received them.
- In October, the level of insecurity increased along the southern border of Niger, including in Bosso Town, limiting access to six of the targeted villages in October and November. As a result, some agriculture training, nutrition education, and seed distributions were conducted through extension agents. The security situation continuously deteriorated making it impossible to monitor the SFT maize and potato activities. Beneficiaries from several villages fled because of threats or actual attacks from Boko Haram. Unfortunately, this context has been a great hindrance to the success of maize and potato SFT activities as reported by beneficiaries. During FGDs, beneficiaries from some villages explained that they grew maize but have not been able to harvest due to the insecurity.

<sup>14</sup> ARCAD-LDR-4-12/24/2014

- Maize and potato SFT beneficiaries recommended changing the variety of the potatoes distributed which have poor storage capacity and can easily spoil; they reported that they would have preferred receiving vegetable seeds instead.

#### **4. Gardening and WASH activities**

##### **a. Gardening, nutrition, and WASH accomplishments**

- A total of 400 women from ten villages were targeted from within the first 31,621 emergency TFD beneficiaries, selected at the beginning of the project, to participate in gardening and nutrition activities. As planned, the number of beneficiaries who received seeds, tools and agriculture support was 400.
- The ten villages where the ten gardening sites were set up were identified based on access to irrigation, including water drawn from the Komadougou River, and/or shallow boreholes which were planned to be drilled. Eight of the ten gardens were therefore targeted along the Komadougou River. In order to set up the gardening sites, on each site, fencing was installed, one borehole was drilled and equipped with a motor pump/solar panel system and batteries or generator according to the type of pumps, and a Californian irrigation system was constructed to discharge the water throughout the garden. The number of Ha under new or rehabilitated irrigation and drainage services as a result of USG assistance is 11.124 compared to the 10 planned. The table in Appendix D provides detailed information about the sites and the work done. This work has been designed, supervised and controlled by ARCAD field staff as well as the Government Regional Direction of Rural Engineering in order to ensure compliance with technical specifications.
- The 400 women began planting vegetables and established gardening nurseries on their gardening sites in October, after the rainy season, when the security situation still allowed women to work on gardens and SP staff to be present in the field to supervise.
- Nutrition activities accompanied gardening activities, and were conducted from November 2014 to June 2015. All 400 women have been trained on the following five topics: importance of colostrum and exclusive breastfeeding; complementary feeding-food diversity; complementary feeding-frequency; and continuous breastfeeding; and diarrhea prevention, hand washing, and

water purification. The number of people trained in child health and nutrition through USG-supported programs<sup>15</sup> is 2,000 with a 100% achievement rate.

### **b. Challenges and adaptations**

- Insecurity has been the major negative factor impacting gardening, nutrition and WASH activities, with eight of the ten garden sites located in the areas most affected by insecurity. While the contractor had drilled the boreholes on the sites of Bosso and Ngourgouram, because of the proximity to the border, the two sites had to be relocated in the same village but further from the Komadougou River.
- Samaritan's Purse staff was not able to visit those eight sites until June or July 2015 depending on the sites' locations. The presence of Boko Haram, population movements and ongoing military operations have forced women from six garden sites to stop growing vegetables (Bosso, Mamouri, Abadam, Tchari Kari, Rille, Ngourgouram). The completion of water points was delayed and technical reception was only possible in July via an exceptional approval from the military authorities to visit the eight villages with a military escort. Samaritan's Purse, however, selected 40 female nutrition relay workers and ten agriculture extension agents from across the ten sites. These extension agents were brought to secure villages and trained to provide follow-up support and trainings for beneficiaries. Although the activities have been completed, the context was not the most favorable for the planned activities.
- In Toumour and Ngouba, after the initial solar pumping systems were installed on the borehole drilled in January, it was noticed and beneficiaries reported that the water flow rate had to be increased for a greater sustainability of gardening activities and increased harvests, and to allow all the women to grow the entire area of the garden. Additional work was then conducted on those two accessible sites (installation of spare storage tanks, batteries and other electronic equipment to allow pumps to work at night).

Below are estimations of the vegetables produced in the four sites (4.903 Ha) where gardening activities have been successful; though this information was not originally included in the

---

<sup>15</sup> This Feed the Future indicator records the total number of child health and nutrition "women-sessions" held (i.e. number of times a female gardening beneficiary was trained).

indicators on the results framework they have been recorded for observation. A total of 29.03 MT was produced, for an average of 181 kg per woman.

**Table 11: Gardening production**

<b>Crops</b>	<b>Total in MT</b>
<b>Sorrel</b>	3.36
<b>Tomatoes</b>	2.61
<b>Cabbage</b>	4.14
<b>Lettuce</b>	2.24
<b>Carrots</b>	2.69
<b>Okra</b>	1.50
<b>Moringa</b>	1.48
<b>Eggplant</b>	4.83
<b>Onion</b>	2.85
<b>Potatoes</b>	0.84
<b>Sweet potato</b>	0.75
<b>Maize</b>	0.29
<b>Pepper</b>	1.47
<b>TOTAL</b>	29.05

## 5. Final evaluation and PDM/FBM results

### 5.1 Final Evaluation context, methodology and sampling

#### 5.1.1 Sampling

The methodology used for the final evaluation was the same as that which was used to conduct the baseline. The final survey was conducted amongst the 41,958 beneficiaries to measure the project impact. As with the baseline, because different indicators are measured amongst different groups of beneficiaries, five beneficiary categories were defined with an individualized questionnaire for each (Appendix E). Disaggregating beneficiaries into different categories makes the impact of the activities easier to observe. Below are the five categories of beneficiaries:

**Table 12: Beneficiary categories used for the final evaluation**

<b>Beneficiary category #</b>	<b>Category description</b>
1	<b>Non-SFT beneficiary HHs:</b> includes all refugees, returnees and IDP's and some host community members that were emergency TFD beneficiaries, but did not receive seed and agriculture training, in the 30 villages. <i>(They are not included in the four other categories below).</i>
2	<b>Millet/Cowpeas SFT beneficiary HHs:</b> all were planned to be host community members from 14 northern villages <i>(All of them were emergency TFD beneficiaries and benefited from seeds and training).</i>
3	<b>Maize/Potatoes SFT beneficiary HHs:</b> all were planned to be host community members, from 16 southern villages <i>(All of them were emergency TFD beneficiaries and benefited from seeds and training)<sup>16</sup>.</i>
4	<b>Women from the ten targeted villages for off-season gardening and nutrition activities with children under six months old</b> amongst the 400 beneficiaries targeted for gardening <i>(All of them are part of the targeted host community households).</i>
5	<b>Women from the ten targeted villages for off-season gardening and nutrition activities with children 6-23 months old</b> amongst the 400 beneficiaries targeted for gardening <i>(All of them are part of the targeted host community).</i>

**Note: these category numbers are important because results indicator tables will refer to these numbers instead of describing the beneficiary category each time.**

For each beneficiary category, a sample was calculated according to the size of the category. Raosoft<sup>17</sup> software was used to set the sample size, with a confidence level of 90% and a 10% margin of error. A higher confidence rate and lower margin of error (i.e. 95% and 5% respectively) would have been chosen; however, the security situation in half of ARCAD villages did not allow project staff to use a larger sample size. The same methodology and

<sup>16</sup> Categories 1+2+3 = total beneficiaries

<sup>17</sup> www.raosoft.com

sample size was used for the final evaluation as in the baseline despite security concerns. Each sample was increased by 20% to replace questionnaires showing mistakes or missing data.

Below is a table summarizing each beneficiary category size and the calculated sample for each. A total of 314 respondents were interviewed during this survey.

**Table 13: Final evaluation sampling per beneficiary category**

	<b>Total HH</b>	<b>Sample size</b>	<b>Survey dates</b>
<b>Beneficiary category 1</b>	2,769	67	July 8th to 20th
<b>Beneficiary category 2</b>	1,395	65	May 15th to 18th
<b>Beneficiary category 3</b>	2,395	66 <sup>18</sup>	June 5th to 6th
<b>Beneficiary category 4</b>	31	22	July 26th to August 1st
<b>Beneficiary category 5</b>	150	47	July 19th to August 1st
<b>TOTAL</b>		<b>267</b>	

For each category, a number of indicators were measured according to the ARCAD results framework.

**Table 14: Final survey sampling: indicators measured per beneficiary category**

<b>No</b>	<b>Indicators</b>	<b>Beneficiary Categories</b>				
		<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1</b>	HH Coping Strategy Index (CSI) (women included in categories 2 and 3)	Yes	Yes	Yes		
<b>2</b>	Prevalence of HHs with moderate or severe hunger (women included in categories 2 and 3)	Yes	Yes	Yes		
<b>3</b>	Household Dietary Diversity Score (HDDS) (women included in categories 2 and 3)	Yes	Yes	Yes		
<b>4</b>	% of HHs with a borderline or poor Food Consumption Score (FCS) (<42.5) (women included in categories 2 and 3) and average FCS	Yes	Yes	Yes		
<b>5</b>	% of farmers who used at least 2 sustainable agriculture practices in the past 12 months (millet/cowpeas), (potatoes/maize)		Yes	Yes		

<sup>18</sup> Due to insecurity and late distributions, as explained below, food security indicators have been measured only amongst 59 HH of the sample since others had recently received food.

6.1	Average production - millet		Yes			
6.2	Average production - cowpeas		Yes			
6.3	Average production - potatoes			Yes		
6.4	Average production - maize			Yes		
7	Average number of crop species produced			Yes	Yes	Yes
8	Average number of crop species consumed			Yes	Yes	Yes
9	% of beneficiaries who can name at least 6 HH nutritional and hygiene practices				Yes	Yes
10	Prevalence of children 6-23 months receiving a minimum acceptable diet					Yes
11	Prevalence of exclusive breastfeeding of children under 6 months of age				Yes	

### 5.1.2 Context, timeline of the final evaluation, and challenges

The greatest challenges faced by the monitoring and evaluation (M&E) team were the security situation and distribution delays. Assessments were conducted at the latest possible date after distributions in order to measure the situation after the intervention and to see if the measurement would be different than the PDM results. Final evaluation surveys were conducted during the lean season, between May and August 1st 2015 according to the beneficiary category and the date of the last distributions, while the targets had been set for a final evaluation in April before the lean season. This information is crucial to understand and interpret the final results and to compare them with the targets which were set because the baseline survey was conducted in June 2014, just at the beginning of the lean season.

Fourteen of the villages targeted by ARCAD remained nearly completely inaccessible due to the continuous and heightened level of insecurity, which rendered the final evaluation very difficult to carry out. Despite these challenges, SP took every possible measure in order to reach the sample number of HHs so that the full impact of ARCAD could be measured. The M&E team used various methods, including waiting a maximum amount of time in hopes that the situation between the multinational forces fighting against Boko Haram would calm down. Evaluation assessments began with the first mission which took place from May 15<sup>th</sup> to 18<sup>th</sup> in the northern,

more secure areas, for category two. For categories one and three, beneficiaries sampled were contacted through community messengers, and appointments were set in secure villages where interviews were conducted. For categories four and five, as these categories were women with young children and unable to travel, SP staff was compelled to convince the authorities and military to provide a large military escort in order to visit the eight garden sites along the Komadougou River and conduct interviews with the women; this took place from July 19<sup>th</sup> to August 1<sup>st</sup>. At the time beneficiaries from category three (SFT potato/maize) were interviewed, food distributions had been organized a week before in a few villages. Food security indicators have not been measured for the respondents from those villages to prevent a short term positive impact of the distributions on the results, but agriculture results have been measured.

## 5.2 Final Evaluation Results

### 5.2.1 Result Indicator table

**Table 15: ARCAD Result Indicators Table**

	Indicator	Baseline Results	Actual Average PDM Results	Average PDM Results Targets	Actual Final Results	Final Results Targets
<b>Strategic Objective 1</b>	HH Coping Strategy Index	26.9	<b>0.5</b>	13.6	<b>17</b>	13.6
	Prevalence of HHs with moderate or severe hunger	57.7%	<b>2.5%</b>	25%	<b>18.8 %</b>	25%
<b>Strategic Objective 2</b>	Prevalence of children 6-23 months receiving a minimum acceptable diet	55.7%	<b>N/A</b>	N/A	<b>80.9 %</b>	60%
	Prevalence of exclusive breastfeeding of children under 6 months of age	23.7%	<b>N/A</b>	N/A	<b>86.4 %</b>	30%
	HH Dietary Diversity Score	7.9	<b>N/A</b>	N/A	<b>8.2</b>	9.5
<b>Intermediate Result 1.1</b>	% of HHs with a borderline or poor FCS(<42.5)	36.1%	<b>2.8 %</b>	30%	<b>12.0 %</b>	20%
	Average FCS	49.9	<b>67.2</b>	N/A	<b>64.6</b>	N/A

<b>Intermediate Result 1.2</b>	Average production per HH (millet, cowpeas, potatoes, and maize)	Millet: 22 kg Cowpeas: 6.6 kg Potatoes: 1.5 kg Maize: 221.2 kg	N/A	N/A	<b>Millet: 106.8 kg Cowpeas: 70.5 kg Potatoes: 18.3 kg Maize: 68.1 kg</b>	Millet: 700 kg Cowpeas: 65 kg Potatoes: 25 kg Maize: 300 kg
<b>Intermediate Result 1.3</b>	% of farmers who used at least 2 sustainable agriculture practices in the past 12 months	5.3%	N/A	N/A	<b>73.4%</b>	60%
<b>Intermediate Result 2.1</b>	% of beneficiaries who can name at least 6 HH nutritional and hygiene practices	28.3%	N/A	N/A	<b>98.6%</b>	80%
<b>Intermediate Result 2.2</b>	Average number of crop species produced	6.5	N/A	N/A	<b>8.1 SFT 8.3 gardening</b>	8 (SFT) 9 (gardening)
<b>Intermediate Result 2.3</b>	Average number of crop species consumed	12.7	N/A	N/A	<b>9.6 SFT 13.7 gardening</b>	13.5 (SFT) 14 (gardening)

### 5.2.2 CSI

This indicator measures the weighted average CSI within the last seven days of all the project beneficiaries. Each of the nine strategies has been weighted according to the severity of the coping strategy, to reflect vulnerability of households to food insecurity. The average CSI measured through the final evaluation is 17.0. The table below shows the results per beneficiary category. This demonstrates that SFT beneficiary HHs which grew millet and cowpeas in northern Bosso Department (category two) used less coping strategies, with a result of 7.8 as compared to beneficiaries who received food but not seed (category one), and SFT beneficiary HHs which received potatoes and maize in southern Bosso (category three). The fact that category one is mostly constituted of displaced HHs who received either their last ration in October 2014 or received only one distribution in May 2015 explains this difference. Beneficiaries in category three have been negatively affected by Boko Haram; some of them had to leave their village along the Komadougou River, becoming IDP's, after February, or they had no access to the Komadougou River to grow peppers or to fish, two common economic activities

usually practiced in these areas. These factors explain the higher CSI scores for this category. On the contrary, beneficiaries of category two in the northern areas, who received millet and cowpea seed, have been less affected by Boko Haram’s actions in Diffa Region; this is also despite deficient rainfall during the rainy season.

**Table 16: Final result CSI average**

Beneficiary Category	1 No SFT	2 Millet/Cowpea*	3 Maize/Potato*	Total	Final Result
Sample	67	65	59	191	<b>17.0</b>
Total score	1,475	508	1,260	3,243	
Result	<b>22.0</b>	<b>7.8</b>	<b>21.4</b>	<b>17.0</b>	
* The 400 women who completed gardening and nutrition activities are included in category 2 and 3.					

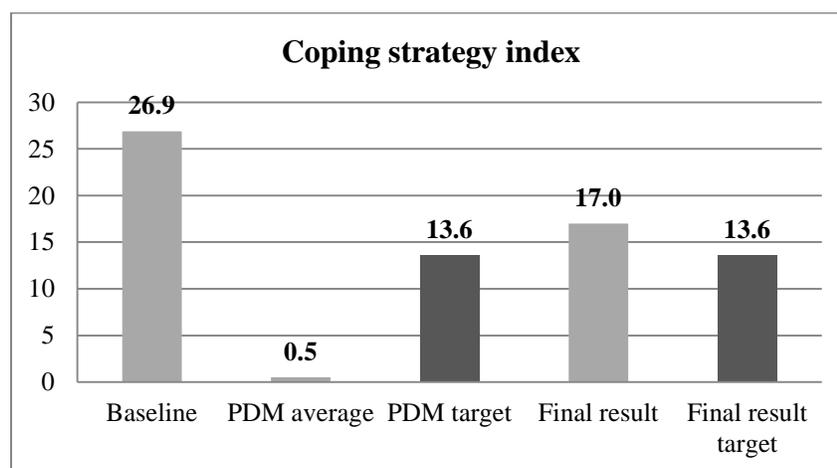
**Table 17: PDM CSI average**

	PDM 1	PDM 2	PDM 3	PDM 4	Total	Average PDM result
Dates	AUG-SEPT '14	SEPT '14	OCT '14	MARCH-JUNE '15		<b>0.5</b>
Sample	67	67	67	82	283	
Total score	86	15	25	19	145	
Result	<b>1.3</b>	<b>0.2</b>	<b>0.4</b>	<b>0.2</b>	<b>0.5</b>	

The table above shows CSI averages for the different PDMs conducted two weeks after the distributions. Those results shows the “short term” impact of the food distributions and food security situation when beneficiaries have food available. The CSI average during PDM is 0.5, almost none, compared to the baseline measurement which is 26.9 (see figure below). This baseline result has to be compared with the final result of 17, showing a strong decrease in the use of coping strategies, which indicates an improvement in the year round access to food at the household level especially considering that the final results were taken in the middle of the lean season, while the baseline was conducted just at the beginning. It is interesting to note that the severe coping strategy “going an entire day over the last seven days without eating anything” decreased from 30.9% to 10.5%.

The final result did not reach the target set at 13.6, certainly due to the delay in carrying out the final evaluation (conducted May 2015 to August 2015, during the lean season, instead of in April 2015 as planned). However, the target has been reached for the beneficiary category two.

**Figure 1: Comparative Analysis of the CSI – Baseline, PDMs, and Final result**



### 5.2.3 Prevalence of HH with Moderate or Severe Hunger (Household Hunger Scale)

This indicator measures the prevalence of HHs with moderate or severe hunger during the past month. As shown in the table below, survey findings indicate that 18.8% (confidence interval (CI) 12.3%-25.4%;  $p < .10$ ) of HHs experienced moderate or severe hunger over the past month. As for the CSI, survey results presented in the table below show a high difference between category two (3.1%), SFT HHs who received millet and cowpeas in the northern area, and the two other categories, demonstrating a better food security situation amongst beneficiaries from category two as compared to the two other categories. Beneficiary category one and three were much more affected, as demonstrated in the CSI result analysis above, by insecurity than host communities which were located a greater distance from Lake Tchad and the Komadougou River.

**Table 18: Percentage of HHs with Moderate or Severe Hunger final result**

Beneficiary Category	1 No SFT	2 Millet/Cowpea*	3 Maize/Potato*	Total	Final Result
Sample	67	65	59	191	18.8 %
# Correct	21	2	13	36	

<b>Result</b>	<b>31.3%</b>	<b>3.1%</b>	<b>22.0%</b>	<b>18.8%</b>	
* The 400 women who completed gardening and nutrition activities are included in category 2 and 3.					

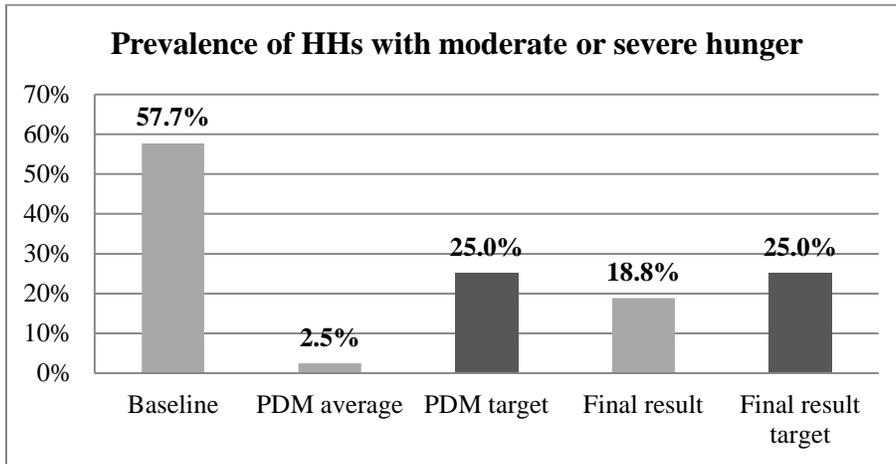
This indicator has also been measured through PDMs, with only 2.5% of the HHs that had experienced moderate or severe hunger during the last month. Meaning almost no HH was experiencing moderate or severe hunger during the last month throughout the distribution periods. This result shows a huge impact of the food distributed on the food security situation of beneficiary HHs. From FGDs, beneficiaries reported that the ration distributed was enough to cover their needs until the following distributions, they were able to eat even three times a day, and they had gained weight during the lean season. Results of PDM are better than the target set after the baseline, which was 25% for PDM and final result. Table 19 below compares the prevalence of HHs with moderate or severe hunger (results measured during the baseline) with the PDM and the final evaluation surveys. Initially, before implementation of food distributions and agriculture activities, 57.7% (CI 49.5%-66%;  $p < .10$ ) of the targeted HHs had experienced moderate or severe hunger in the previous 30 days. The final result of 18.8% surpasses the final result target of 25%. Measurement of this indicator demonstrates again the positive impact of food distributions and agriculture activities on HHs' access to sufficient food throughout the year, and the negative impact created by Boko Haram.

**Table 19: Prevalence of HHs with Moderate or Severe Hunger – PDM**

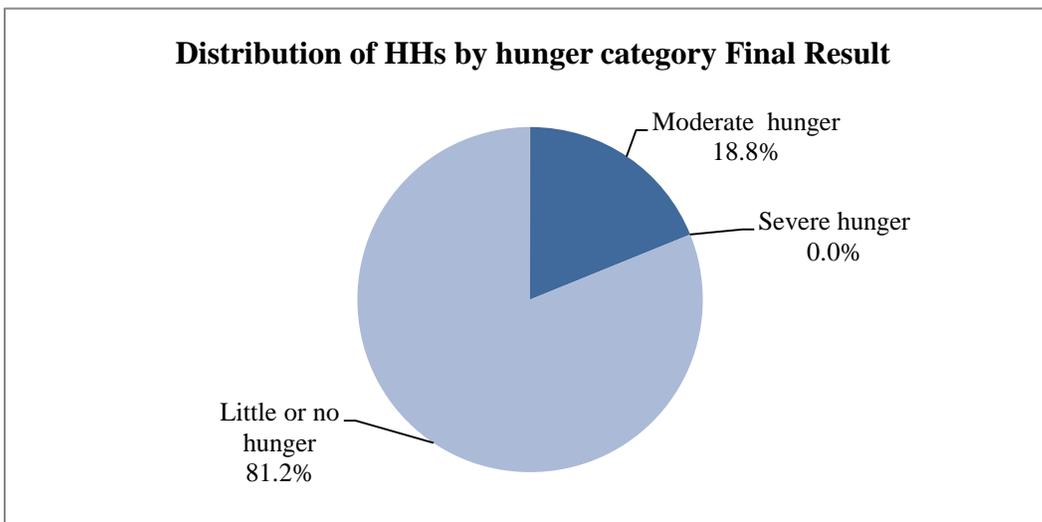
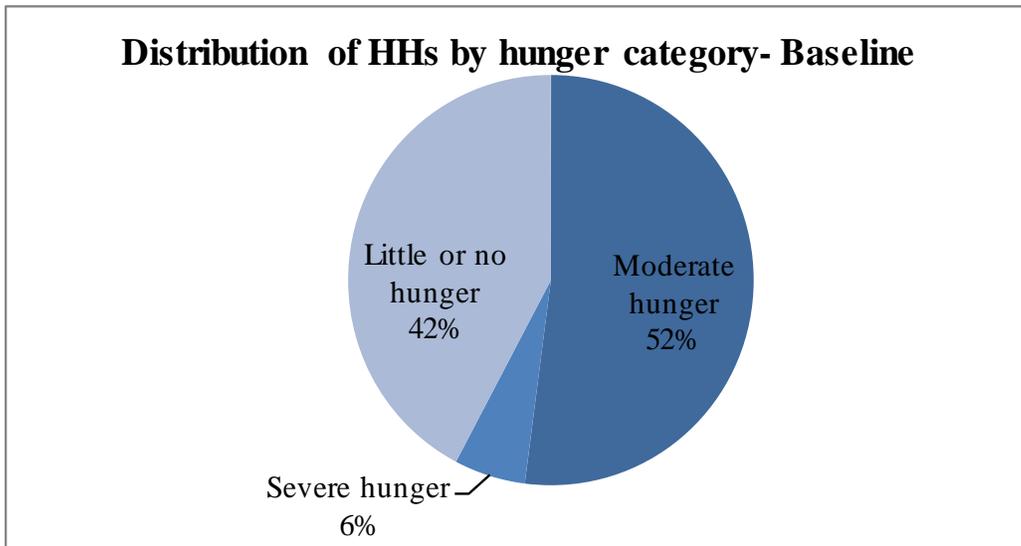
	<b>PDM 1</b>	<b>PDM 2</b>	<b>PDM 3</b>	<b>PDM 4</b>	<b>Total</b>	<b>Average PDM result</b>
<b>Dates</b>	AUG-SEPT 14	SEPT 14	OCT 14	MARCH- JUNE 15		<b>2.5%</b>
<b>Sample</b>	67	67	67	82	283	
<b># Correct</b>	7	0	0	0	7	
<b>Result</b>	<b>10.4%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>2.5%<sup>19</sup></b>	

<sup>19</sup> CI 0.3%-4.6% ;  $p < .10$

**Figure 2: Comparative analysis of the prevalence of HHs with Moderate or Severe Hunger – Baseline, PDM and Final Result**



**Figures 3: Comparative distribution of HHs by hunger category-Baseline, and Final Result**



### 5.2.4 Household Dietary Diversity Score (HDDS)

The HDDS indicator measures the diversity of the HH diet over the past 24 hours. In order to have a more sensitive indicator, 16 different food groups were used.

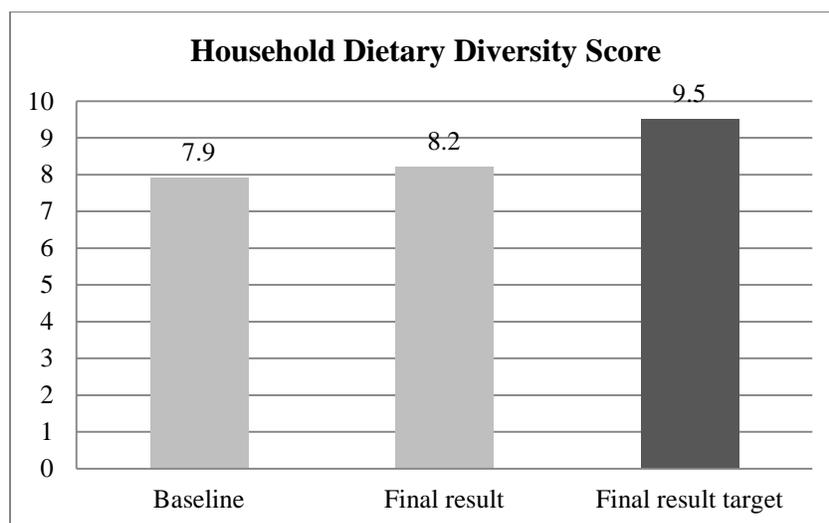
Results of the survey show the HDDS for the targeted population to be 8.2, slightly higher than the baseline result which was 7.9 in June 2014. On average, the day before the final evaluation a HH within ARCAD targeted beneficiaries was eating food from slightly more than eight food groups out of the 16. Category three's result is higher than the other two categories. This in itself does not show a better food security situation but does suggest increased access to a diversity of food categories, and a better diversity than the other beneficiary categories. This shows the impact of the river and lake on diversity since HHs from beneficiary category three are from villages located along the Komadougou River or Lake Chad. At the time of the surveys, HHs from villages along the Komadougou River and Lake Chad which had fled their villages had returned. Again, as was the case with the baseline results, consumption of orange vegetables, fish, and other vegetables is much higher for respondents from this category than for respondents from the other categories.

The target for this indicator was set with a final evaluation planned to be conducted in March 2015. Delays in the final evaluation, which took place from May to August during the lean season, certainly affected the results.

**Table 20: Final result-average HDDS**

<b>Beneficiary Category</b>	<b>1 No SFT</b>	<b>2 Millet/Cowpea*</b>	<b>3 Maize/Potato*</b>	<b>Total</b>	<b>Final Result</b>
<b>Sample</b>	67	65	59	191	<b>8.2</b>
<b>Total score</b>	518	531	513	1,562	
<b>Result</b>	<b>7.7</b>	<b>8.2</b>	<b>8.7</b>	<b>8.2</b>	
<i>* The 400 women who completed gardening and nutrition activities are included in the category 2 and 3.</i>					

**Figure 4: Comparative analysis of the HDDS average (Baseline, and Final Result)**



### 5.2.5 Food Consumption Score (FCS)

The FCS records the number of days when each food group has been consumed within the past seven days. In Niger, the World Food Programme is using the following thresholds when measuring FCS: a FCS of 28 or less is poor; over 28 and under 42.5 is borderline; and a FCS of 42.5 or more is acceptable.

The following two indicators have been measured at the baseline, PDM, and final evaluation stages: percentage of HHs with a borderline or poor FCS (included in the result framework), and the average FCS.

#### • Percentage of HHs with a Borderline or Poor FCS

**Table 21: Percentage of HHs with a borderline or poor FCS (Final Result)**

Beneficiary Category	1 No SFT	2 Millet/Cowpea*	3 Maize/Potato*	Total	Final Result
Sample	67	65	59	191	12.0%
# Correct	9	8	6	36	
Result	13.4%	12.3%	10.2%	12.0%	

\* The 400 women who completed gardening and nutrition activities are included in category 2 and 3.

Before the start of the project, 36.1% (CI 28.1%-44.1%;  $p < .10$ ) of HHs had a poor or borderline FCS. This percentage decreased substantially to 12.0% (CI 12.3%-25.4%;  $p < .10$ ) for the final

result, surpassing the final result target of 20% (see figure below). This clearly shows the impact of project activities, food distributions, agriculture, and nutrition activities on the food security situation of ARCAD beneficiaries. Ultimately, beneficiaries were able to slightly increase their year round access to sufficient and diversified food.

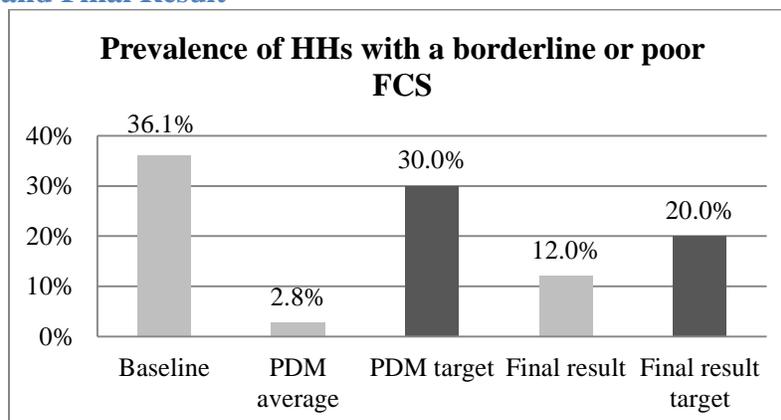
The final evaluation survey shows a final result of 12.0% of HHs with a borderline or poor FCS. Similar to the baseline results, final evaluation results show a slightly improved FCS amongst beneficiaries located along the Komadougou River or Lake Chad (category three) as compared to the other beneficiary categories. Comparing the baseline and the final result, the difference between the three categories is very minimal in the final results while in the baseline it was found that HHs along the Komadougou River and Lake Chad (category three) had much better food consumption due to economic opportunities. This demonstrates the negative impact of Boko Haram’s activities on the food security situation for HHs located on the border with Nigeria. The fact that the CSI is higher for category three means people are using more coping strategies, allowing them to find types of food that increase the FCS.

The table below presents indicators measured through PDM surveys, conducted two weeks after each distribution. The average percentage of HHs with a borderline or poor FCS is 2.8. For the first three PDMs, the result was 0. This indicates a highly positive impact of the food commodities distributed on the food security situation.

**Table 22: Percentage of HHs with a borderline or poor FCS – PDM**

	<b>PDM 1</b>	<b>PDM 2</b>	<b>PDM 3</b>	<b>PDM 4</b>	<b>Total</b>	<b>Average PDM result</b>
<b>Dates</b>	AUG-SEPT 14	SEPT 14	OCT 14	MARCH- JUNE 15		<b>2.8%</b>
<b>Sample</b>	67	67	67	82	283	
<b># Correct</b>	0	0	0	8	8	
<b>Result</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>2.8%</b>	

**Figure 5: Comparative analysis of % of HHs with a borderline or poor FCS (<42.5) – Baseline, PDM, and Final Result**



• **FCS average**

The average FCS final result is 64.6, and is also almost equivalent across the different beneficiary categories, the baseline result was 49.9. Beneficiary HHs’ FCS increased considerably confirming the positive impact of the project on beneficiaries’ food security situation.

**Table 23: Average FCS (Final Result)**

Beneficiary Category	1 No SFT	2 Millet/Cowpea*	3 Maize/Potato*	Total	Final Result
Sample	67	65	59	191	<b>64.6</b>
Total score	4,341	4,114	3,890	12,345	
Result	<b>64.8</b>	<b>63.3</b>	<b>65.9</b>	<b>64.6</b>	

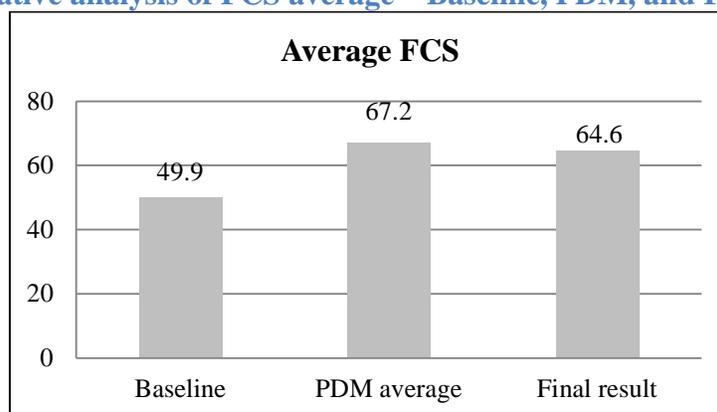
\* The 400 women who completed gardening and nutrition activities are included in category 2 and 3.

The table below presents measurements from each PDM. Results show a continuous increase of the FCS during the lean season. The FCS then decreased when newly displaced populations which had been evacuated from Lake Chad islands were targeted and served for only one month. The figure below shows a comparison between baseline, PDM, and final result FCS measurements.

**Table 24: Average FCS–PDM**

	<b>PDM 1</b>	<b>PDM 2</b>	<b>PDM 3</b>	<b>PDM 4</b>	<b>Total</b>	<b>Average PDM result</b>
<b>Dates</b>	AUG-SEPT 14	SEPT 14	OCT 14	MARCH-JUNE 15		<b>67.2</b>
<b>Sample</b>	67	67	67	82	283	
<b>Total score</b>	4,567	4,900	4,902.5	4,642	19,011.5	
<b>Result</b>	<b>68.2</b>	<b>73.1</b>	<b>73.2</b>	<b>56.6</b>	<b>67.2</b>	

**Figure 6: Comparative analysis of FCS average – Baseline, PDM, and Final Result**



### **5.2.6 Percentage of farmers who used at least two sustainable agriculture practices (Millet/Cowpeas), (Potatoes/Maize)**

The table below shows that 79.7% of HHs which grew millet or cowpeas in the previous growing season (beneficiary category 2) practiced at least two of the six techniques that were taught to increase yields compared to 0% before the project. The six agriculture techniques are natural regeneration, millet seed priming, timely planting (on wet ground, after a big rain), crop residue mulching, localized fertilization, and thinning (millet or cowpeas). This shows a high impact of the sustainable agriculture SFT sessions.

A total of 66.7% of HHs which grew potatoes or maize in the previous growing season practiced at least two of the five following techniques taught: thinning (maize), maize seed priming, use of compost, pre-germination (potatoes), and mounding (potatoes) while the percentage was only 14.3% before the start of the trainings. Again, this demonstrates the impact of the SFT agriculture training sessions on beneficiaries' behavior.

For the two categories, 73.4% (CI 64.2%-84.6%;  $p. <.10$ ) of farmers used at least two sustainable agriculture practices in the past 12 months (millet/Cowpeas) (Potatoes/Maize). ARCAD's objective to improve the usage of these sustainable techniques has been reached. Before the beginning of the project, only 5.3% (CI -0.1%-10.6%;  $p. <.10$ ) of the farmers had used at least two sustainable agriculture practices in the past 12 months; the final result exceeded the target which was set at 60%.

The purpose of using the techniques described above is to increase production and yield in the short and long-term. However, other essential components also have a huge impact on yields as is seen in the production analysis, such as access to farm land (or inability to access land due to insecurity) and adequate rainfall.

During FGDs, millet/cowpea beneficiaries shared that the topics taught were very important, especially thinning (leaving three or four seedlings), seed priming, and timely planting. Farmers shared that compared to other farmers who are not using those techniques, their plants germinated and grew faster, and their grain heads were bigger causing a better yield. According to the beneficiaries, they saved precious time through the use of those practices. Several farmers declared that "the difference between us who used the techniques and our neighbors is that we do not need a big field to produce a large harvest". It was evident from the FGD that all farmers at minimum tried some of the techniques.

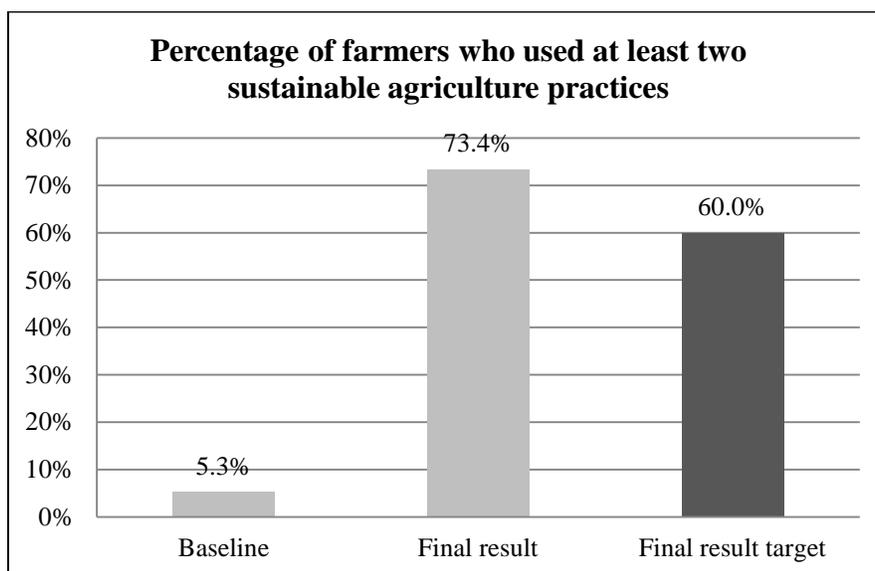
Amongst maize beneficiaries, those who tried the techniques explained that those farmers who had not applied any new techniques, such as crop thinning, experienced delayed plant development. Thus, thanks to the distributed seeds and new techniques farmers were able to have improved yields. However, even though farmers practiced crop thinning, quantitative data shows that the time of thinning needs to be improved. There were also several beneficiaries who were reluctant to apply the techniques, especially crop thinning, due to the fear that it would decrease their yield.

The majority of potato beneficiaries used the mounding and pre-germination techniques.

**Table 25: Percentage of farmers who used at least two sustainable agriculture practices (Final Result)**

Beneficiary Category	2 Millet/Cowpea*	3 Maize/Potato*	Total	Final Result
# of HH who grew Millet or Cowpeas/Potatoes or Maize	64	60	124	<b>73.4%</b>
# Correct	51	40	91	
Result	<b>79.7%</b>	<b>66.7%</b>	<b>73.4%</b>	

**Figure 7: Comparative analysis of the percentage of farmers who used at least two sustainable agriculture practices (Baseline, Final Result)**



### 5.2.7 Average production per HH per crop

One of the expected results of the project was to increase the production of millet, cowpeas, maize, and potatoes via distributions of millet and cowpea seed or maize and potato seed accompanied with agriculture training sessions (SFT activities).

- **Millet and Cowpeas**

Millet and cowpeas are grown during the rainy season, explaining why harvests depend on rainfall.

The final result for the average millet production per SFT HH is 106.8 kg while the baseline was 22 kg; 98.5% of SFT beneficiaries (who received millet and cowpeas) have grown millet and cowpeas. The same group of beneficiaries produced an average of 70.6 kg of cowpeas while the year before the average was 6.6 kg; this proves the success of the activity, as the target was set at 65 kg. Beneficiaries have been able to plant, apply techniques and harvest beans in spite of the inconsistent and insufficient rain.

Even though the production average increased significantly from the previous year, production is far under the target of 700 kg per HH (it is likely that this target was set too optimistically). Survey results show that 95.4% of HHs identify their main obstacle to food security as drought, early end of rainy season, or lack of rain. The Ministry of Agriculture's Department of Statistics reported that in Diffa the planting season continued until mid-August due to the late start of rain while the rainy season would normally begin in July and stop at the end of August.<sup>20</sup> The department also reported that the grain deficit in Diffa Region was 83,150 MT. The use of very short-cycle local variety seeds allowed some villages to produce millet even with the short period of rain.

#### • Maize and potatoes

Maize and potatoes are grown during the dry season, using irrigation techniques. Villages targeted for this SFT activity were located either along the Komadougou River on the border with Nigeria, or next to Lake Chad, both areas which have been highly affected by Boko Haram since October 2015. Beneficiaries from several villages had to leave their homes and move to more secure areas in the north, leaving behind their potato and maize crops. In other cases, beneficiaries reported that due to the insecurity in the area, they were not able to plant or continue to grow the distributed seeds. This context has been a challenge, and was not favorable to supporting a new crop such as potatoes. A total of 74% of the interviewed HHs reported that insecurity constitutes their main obstacle to food security.

---

<sup>20</sup> MINISTERE DE L'AGRICULTURE DIRECTION DES STATISTIQUES, Résultats définitifs de l'évaluation de la campagne agricole d'hivernage 2014, Mr Aliou Moumouni, DS/MAG

The average amount of potatoes produced per SFT HH interviewed is 18.3 kg for the final result, which is much higher than the baseline result 1.5 kg, but falls short of the 25 kg target. A total of 56.1% of the SFT HHs grew potatoes and 36.0% harvested potatoes. Beneficiaries recommended that in the future another variety of potatoes be used which can be stored longer; they explained that they would like to receive vegetable seed rather than potato seed.

Maize constitutes the staple food in the southern area. Thanks to a stable security situation in 2013-2014, beneficiaries were able to produce on average 221.2 kg of maize per HH (baseline result). In 2014-2015, the average production of maize amongst the SFT maize and potato beneficiaries is 68.1 kg which is extremely low; these results are despite seeds being provided on time and training which was conducted. The reality is, as all beneficiaries explained, the security situation did not allow them to grow maize along the Komadougou River and Lake Chad as usual, nor were they able to harvest what they had been able to plant and grow. Unfortunately, those areas became red zones (effectively closed by military and authorities) and were not accessible in early 2015. As a result of the insecurity and subsequent inaccessibility, the ARCAD agriculture team has not been able to conduct follow up activities. However, maize beneficiaries reported, like the millet and cowpea beneficiaries, that they were able to notice a change in the use of the distributed short-cycle seeds and in the use of some agriculture techniques such as crop thinning, both factors which allow the plant to develop faster and produce a better yield.

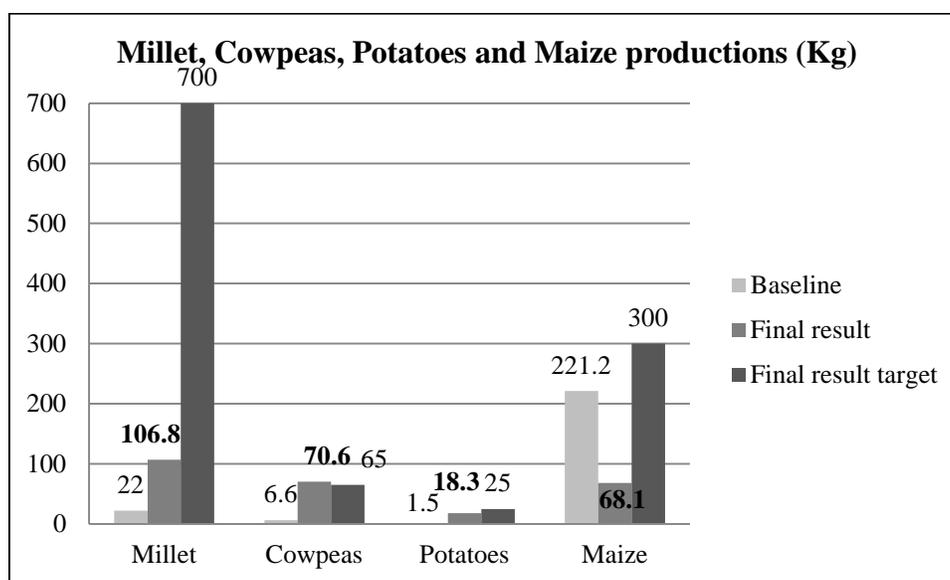
Even though production has been negatively affected by poor rains and insecurity, results show a change in the beneficiary's mind and behavior which will have a sustainable impact on their future, ultimately increasing their food security.

**Table 26- Average production of Millet, Cowpeas, Potatoes, and Maize per HH**

Production of Millet, Cowpeas, Potatoes and Maize					
Indicators	Beneficiary category	2 Millet/Cowpea	3 Maize/Potato	Total	Final result (kg)
Average production millet	Sample	65	N/A	65	106.8
	Total production	6,945		6,945	
	Indicator per beneficiary category	106.8		106.8	
Average	Sample	65	N/A	65	70.6

<b>production cowpeas</b>	Total production	4,587.5		<b>4,587.5</b>	
	<b>Indicator per beneficiary category</b>	<b>70.6</b>		<b>70.6</b>	
<b>Average production potatoes</b>	Sample	N/A	66	<b>66</b>	<b>18.3</b>
	Total production		1,205	<b>1,205</b>	
	<b>Indicator per beneficiary category</b>		<b>18.3</b>	<b>18.3</b>	
<b>Average production maize</b>	Sample	N/A	66	<b>66</b>	<b>68.1</b>
	Total production		4,497.5	<b>4,497.5</b>	
	<b>Indicator per beneficiary category</b>		<b>68.1</b>	<b>68.1</b>	

**Figure 8: Comparative analysis of average production per crop (Baseline, Final Result)**



### 5.2.8 Average number of crop species produced and/or consumed

This indicator is used to measure the increase of crops produced and consumed amongst the gardening and SFT maize and potato beneficiaries; the project aimed at increasing beneficiary food diversity through introducing new crops.

The two tables below show that on average, amongst the HHs that received maize and potatoes as well as gardening HHs, the average number of crops produced during the last year was 8.2 while the number of crops they consumed was 11.7.

Baseline survey results revealed that the average number of crops produced was 6.5 and the number consumed was 12.7. There is a significant increase, especially in terms of the number of crops produced increasing from 6.5 to 8.2. This is the result of gardening activities and nutrition education, as well as the potato production in areas that beneficiaries were able to harvest.

**Table 27: Average number of crop species produced (Final evaluation results)**

<b>Beneficiary Category</b>	<b>3 Maize/Potato *</b>	<b>4 Women with children under 6 months</b>	<b>5 Women with children 6-23 months</b>	<b>Total</b>	<b>Final Result</b>
<b>Sample</b>	66	22	47	135	<b>8.2</b>
<b>Total score</b>	532	181	395	1,108	
<b>Result</b>	<b>8.1</b>	<b>8.2</b>	<b>8.4</b>	<b>8.2</b>	

**Table 28: Average number of crop species consumed**

<b>Beneficiary Category</b>	<b>3 Maize/Potato*</b>	<b>4 Women with children under 6 months</b>	<b>5 Women with children 6-23 months</b>	<b>Total</b>	<b>Final Result</b>
<b>Sample</b>	66	22	47	135	<b>11.7</b>
<b>Total score</b>	636	312	636	1,584	
<b>Result</b>	<b>9.6</b>	<b>14.2</b>	<b>13.5</b>	<b>11.7</b>	

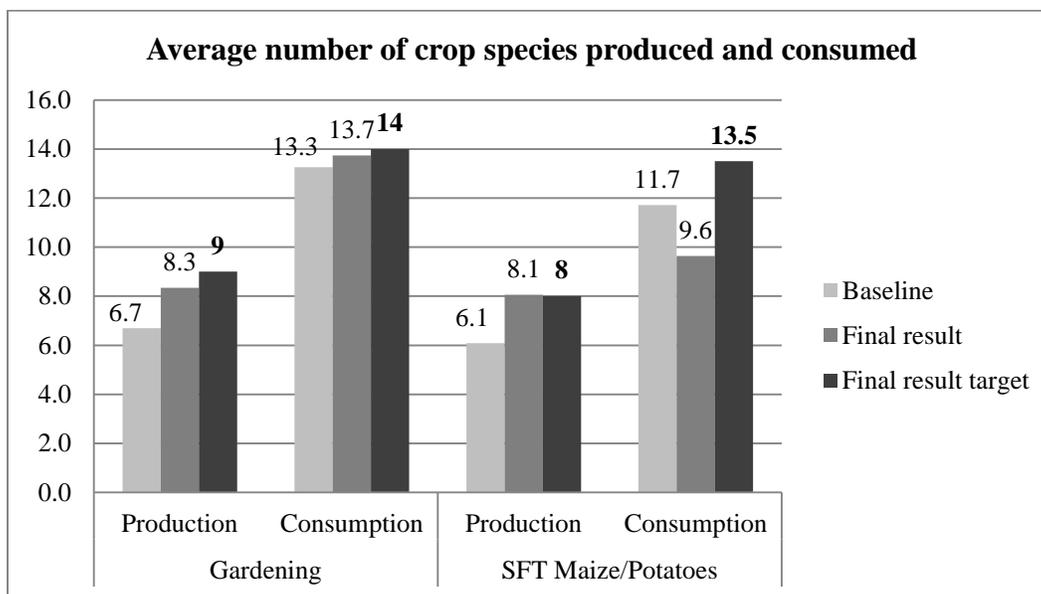
Different targets were set for gardening beneficiaries and SFT maize and potato beneficiaries. The figure below presents the baseline and final result as well as targets which were established in the results framework; two categories were established, one for gardening and one for SFT maize and potatoes.

Amongst both gardening and SFT beneficiaries, the average crop yield produced increased considerably between the baseline result and the final result. Crops that were previously only consumed are now produced, such as potato. Baseline results revealed that while 69% of HHs

had consumed potatoes in the previous year, only 15% had grown potatoes. Final results demonstrated that 76% consumed potatoes while 51% produced potatoes. These results demonstrate the impact of SFT activities despite the challenges faced. (It should also be considered that one of the limits of using this particular indicator is the lack of information that results related to the indicator produce regarding quantities of crops grown.)

There is not a significant difference regarding the number of crops consumed for the gardening beneficiaries, which already had a high score. Though, unfortunately, this indicator decreased amongst the SFT maize/potato beneficiaries from 11.7 to 9.6. Again, this demonstrates the negative impact of insecurity in the area, which affected HH diversity in villages along the Komadougou River.

**Figure 9: Comparison between the percentage of beneficiaries producing the listed crop species and the percentage of beneficiaries consuming them (Baseline, Final Result)**



### 5.2.9 Percentage of beneficiaries who can name at least six household nutritional and hygiene practices

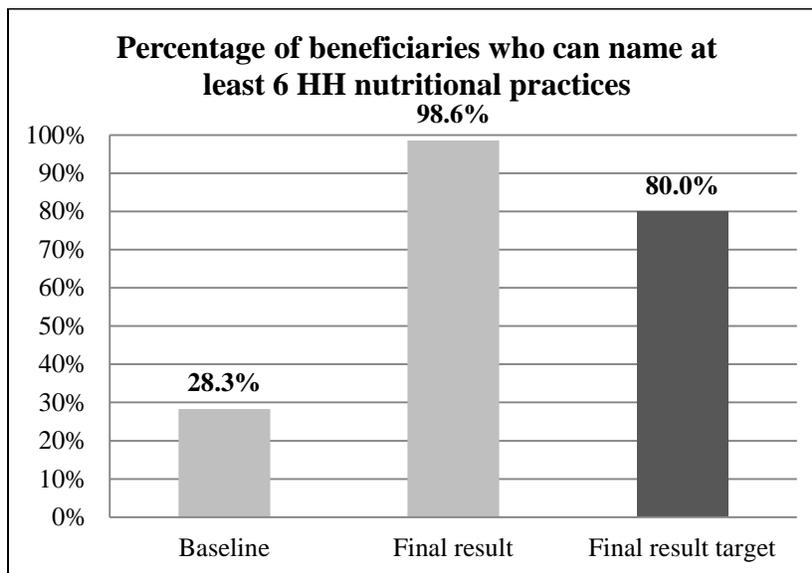
As demonstrated in table below, 98.6% (CI 95.2%-101.9%;  $p < .10$ ) of the women knew at least six of the twelve nutritional and hygiene practices that were taught during the five nutrition education sessions to the 400 targeted women.

**Table 29: Percentage of beneficiaries who can name at least six HH nutritional and hygiene practices**

Beneficiary Category	4 Women with children under 6 months	5 Women with children 6-23 months	Total	Final Result
Sample	22	47	69	98.6%
Total score	21	47	68	
Result	95.5%	100%	98.6%	

The baseline result for this indicator was 28.3% (CI 18.8%-37.9%; p. <.10) and the final target was set at 80%. As seen in Table 29, the final result surpassed the target. Though, this indicator does not prove a change in beneficiaries’ behavior. The following indicators will assist in confirming whether or not the knowledge has led to a nutritional behavior change.

**Figure 10: Comparison between % of beneficiaries who can name at least six HH nutrition and hygiene practices (Baseline, Final Result)**



### 5.2.10 Prevalence of children 6-23 months receiving a minimum acceptable diet

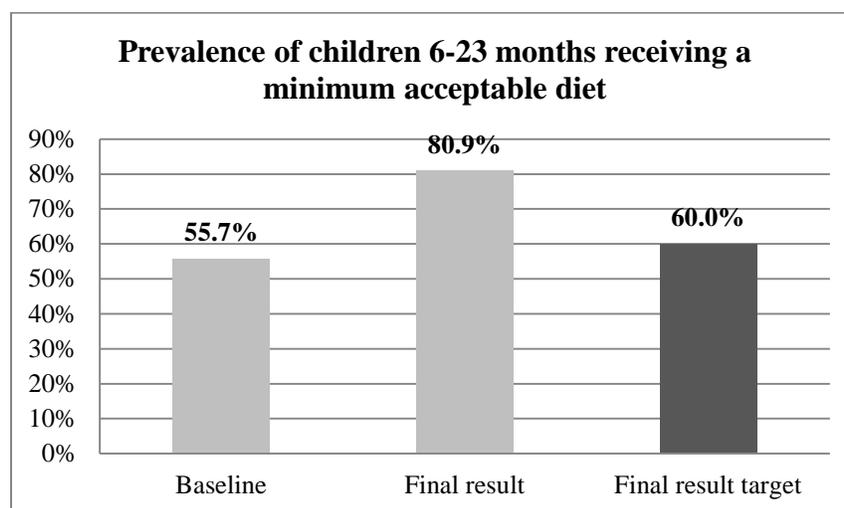
According to the result of the final survey, 80.9% (CI 67.5%-94.2%;  $p < .10$ ) of children 6-23 months within targeted HHs in the ten villages selected for off-season gardening and nutrition activities received a minimum acceptable diet. The percentage of children receiving a minimum acceptable diet was 55.7% (CI 40.9%-70.5%;  $p < .10$ ) based on the baseline results. The change between the beneficiaries' initial situation and the final result is significant. Thus, the target of 60%, calculated based on 58 USAID Child Survival reports with average gap closures calculated for each of the Rapid Catch indicators, was exceeded.

These results show the impact of the five nutrition and hygiene sessions conducted with the 400 gardening women, even though six of the ten groups have not been able to harvest vegetables due to the insecurity (as detailed in the activities section of this report).

**Table 30: Prevalence of children 6-23 months receiving a minimum acceptable diet**

Beneficiary Category	5 Women with children 6-23 months	Final Result
Sample	47	80.9%
Total score	38	
Result	80.9%	

**Figure 11: Comparison between prevalence of children 6-23 months receiving a minimum acceptable diet (Baseline, Final Result)**



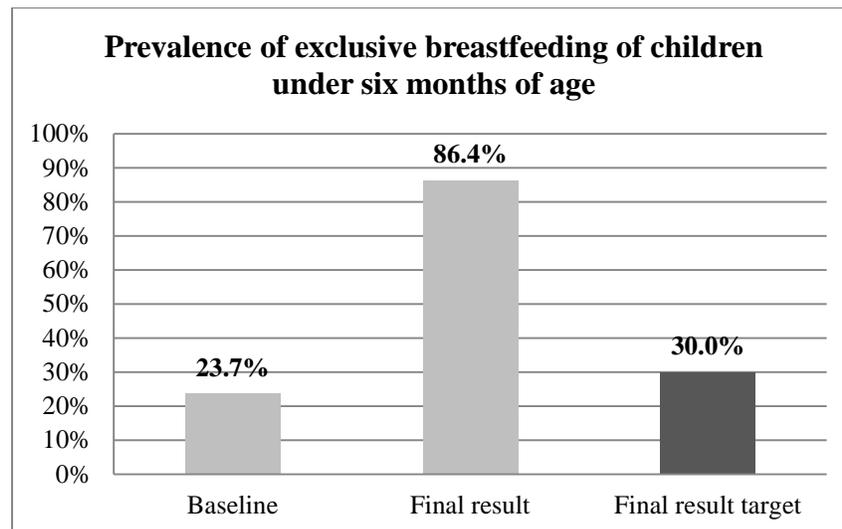
### 5.2.11 Prevalence of exclusive breastfeeding of children under six months of age

Survey findings demonstrate a high percentage of children under six months of age who were exclusively breastfed compared to the baseline result. While only 23.7% (CI 10.8%-36.6%; p. <.10) of children under six months were given only breast milk during the past 24 hours in June 2014 (baseline result), it was found through the final evaluation survey that 86.4% (CI 69.3%-103.4%; p. <.10) were exclusively breastfed, exceeding the target set. This further confirms the large positive impact nutrition sessions had on mothers' behavior.

**Table 31: Prevalence of exclusive breastfeeding of children under six months of age**

Beneficiary Category	4 Women with children under 6 months	Final Result
Sample	22	86.4%
# Correct	19	
Result	86.4%	

**Figure 12: Comparison prevalence of exclusive breastfeeding of children under six months of age (Baseline, Final Result)**



### 5.3 Post-Distribution Monitoring

Post distribution surveys were conducted two weeks after the distributions to measure impact and efficiency of the distributions and its process. In addition to the following indicators, for which results were shared above—prevalence of HHs with moderate or severe hunger, CSI, % of HHs with a borderline or poor FCS and FCS average, other indicators have been monitored as detailed below. Questionnaires can be found in Appendix F.

#### 5.3.1 New displaced hosted by beneficiaries

For each of the first three PDM surveys, results show that more than 22% of the HHs hosted new displaced persons that had arrived within the PDM reporting period; the result is only 7.3% for the fourth PDM. The reason for this is that 76.8% of the respondents for the fourth round of PDM are members of the displaced population (this was due to the last major distribution conducted for the newly targeted displaced HHs from the Lake Chad Islands while they were a minority in the three first distributions).

**Table 32: % of beneficiary HHs who hosted new displaced during each reporting period**

	<b>PDM 1- Aug-Sept 14</b>	<b>PDM 2- September 14</b>	<b>PDM 3- October 14</b>	<b>PDM 4- March-June 15</b>
<b>Result</b>	<b>28.4%</b>	<b>22.4%</b>	<b>26.9%</b>	<b>7.3%</b>

#### 5.3.2 Satisfaction

A total of 98.9% of the beneficiaries reported they were satisfied by the distribution, which is a very positive outcome. Only 0.4% (one particular case) reported on the low quality of the millet in one of the bags received. The issue of quality was likely due to water coming into contact with the bag during transport, a common challenge of conducting food distributions during the rainy season. The transporter and project staff were educated on this issue and measures were taken to prevent new similar cases. Also, 0.7% (two cases) would have preferred another commodity.

**Table 33: % of beneficiary HHs satisfied with the food distributions**

	<b>PDM 1 Aug-Sept</b>	<b>PDM 2 September '14</b>	<b>PDM 3 October '14</b>	<b>PDM 4 March-June</b>	<b>Total</b>	<b>PDM Result</b>

	'14			'15		
<b>Sample size</b>	67	67	67	82	283	<b>98.9%</b>
<b># Correct</b>	66	67	67	80	280	
<b>Result</b>	<b>98.5%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>97.6%</b>	<b>98.9%</b>	

Beneficiaries shared their full satisfaction during the end of project FGD. They explained that food quality exceeded expectations, and quantities were sufficient (except for FFA beneficiaries who recommended a higher ration). For them, during the lean season, distributions were conducted on time before the stock ended. They testified to the fact that distributions were done with full integrity and transparency, and they appreciated the fact that during the lean season, distribution rations were calculated according to the HH size.

### 5.3.3 Use of food

The purpose of PDM surveys is to assess whether the commodities distributed were used for their intended purpose (i.e. to protect consumption). Each respondent was asked if they used the food for the following practices: share with non-beneficiaries, trade for transport, trade for other objects or services, sale, loan reimbursement, given as a loan to a neighbor(s), sown because of a lack of seed for cultivation, specify other uses.

The table below presents, for each PDM, the percentage of HHs that did not engage in any of these practices (meaning they only used the food for HH consumption). On average, 54.4% of HHs used all of the distributed food for consumption at the household level without using it for any other purpose.

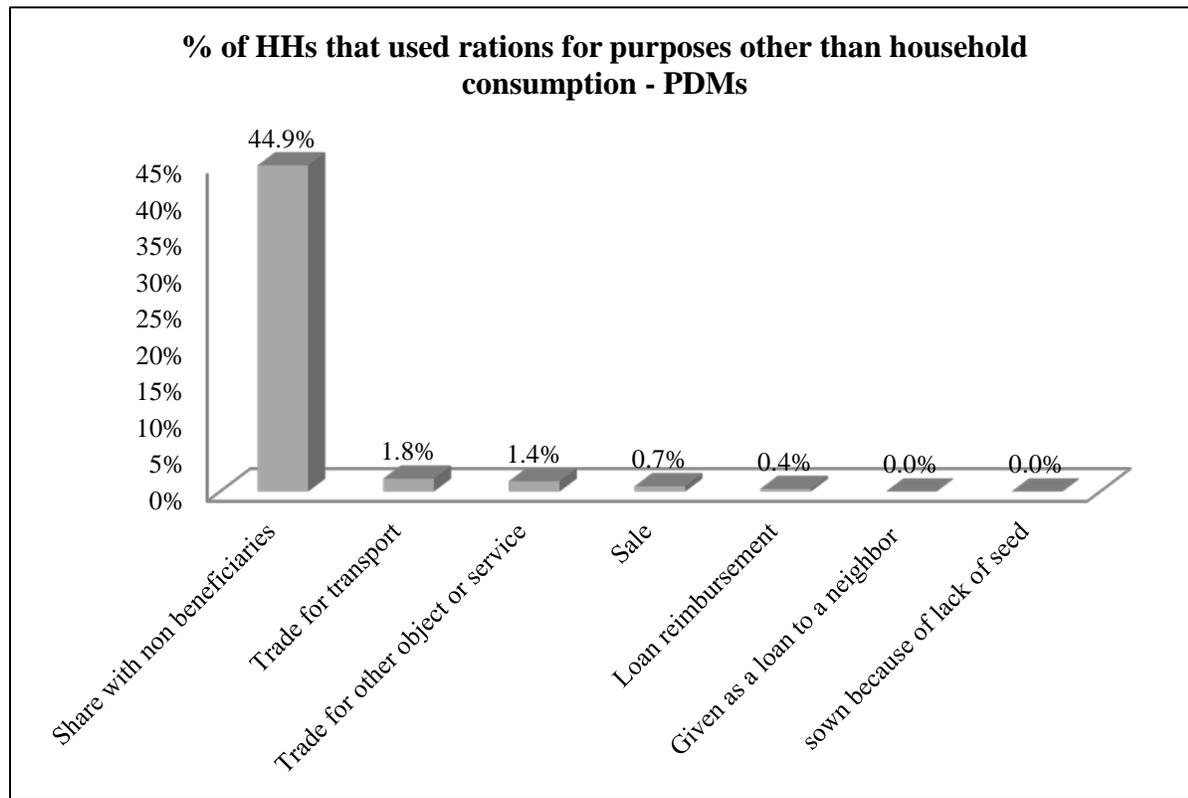
**Table 34: % of beneficiary HHs that used distributed food for HH consumption only**

	<b>PDM 1 Aug-Sept '14</b>	<b>PDM 2 Sept '14</b>	<b>PDM 3 October '14</b>	<b>PDM 4 March-June '15</b>	<b>Total</b>	<b>PDM Result</b>
<b>Sample size</b>	67	67	67	82	283	<b>54.4%</b>
<b># Correct</b>	35	25	53	41	154	
<b>Result</b>	<b>52.2%</b>	<b>37.3%</b>	<b>79.1%</b>	<b>50.0%</b>	<b>54.4%</b>	

It is interesting to note which practices were used the most. Figure 13 below shows the average percentage of beneficiaries who engaged in the various practices. A total of 44.9% of the HHs shared the distributed commodities with non-beneficiaries. This figure demonstrates the importance of solidarity in those communities. However, FGD results demonstrate that food has never been shared by force or obligation.

A total of 1.8% traded part of their ration for transport, 1.4% for other services or objects, and only 0.7% reported having sold part of the received food. As well, only 0.4% reported using food for reimbursing loans. It is important to mention that, for all of these categories (non-consumption), 91% have used under a quarter of the ration for non-consumption purposes and 9% have used between one quarter and half of the ration for non-consumption purposes.

**Figure 13: HHs that used rations for purposes other than HH consumption (PDMs)**



### 5.3.4 Estimated duration of commodity rations

The following question was asked to each respondent HH during each of the three PDM surveys: “how long do you think the received ration of millet, cowpeas, and oil will last?” This estimation is used to determine the duration of the distributed rations.

Results from the surveys show that, while millet rations last an average of 26.7 days, cowpea and oil rations last 22.8 and 19.9 days respectively. Beneficiaries explain that, in this geographic area, cowpeas are very desirable and are used in most of the traditional dishes. With regards to oil consumption, the most common style of cooking in the area requires a lot of oil. This commodity is used to prepare dishes which are served to children in addition to the main meals. For example, women prepare “Gari,” a combination of cassava flour, oil, and seasoning, for children. Oil is also used to cook leaves such as Moringa.

Beneficiaries shared their satisfaction during FGD, explaining that distributions were held before the end of the food stock. Actually, due to the delay in beginning the distributions, cycles were shortened to less than 30 days in order to cover the lean season period.

#### 5.4 Food-Basket Monitoring

Food basket monitoring surveys were conducted in the same time as PDM, in order to monitor the ration each of the respondents received and compare that with the planned ration. The table below shows that 100% of the respondents received a ration between 90% and 110% of the planned ration. It confirms that the distribution process has been a success and each HH received the planned ration.

Most of the distributed rations provided a 2,312 Kcal ration per person per day, except for villages that received the initially planned 20 day FFA ration in Toumour and Ngouba which equated 1,541 Kcal per person per day.

**Table 35: # of HH according to the percentage of the planned ration they actually received**

<b># of HHs according to the planned ration they actually received</b>					
	<b>&lt; 90%</b>	<b>90%-110%</b>	<b>&gt;110%</b>	<b>Total</b>	<b>% HH 90%-110%</b>
<b>FBM 1</b>	0	67	0	67	100%
<b>FBM 2</b>	0	67	0	67	100%
<b>FBM 3</b>	0	67	0	67	100%
<b>FBM 4</b>	0	82	0	82	100 %
<b>Total</b>	<b>0</b>	<b>283</b>	<b>0</b>	<b>283</b>	<b>100%</b>

## 5.5 Market monitoring

Samaritan's Purse has been monitoring food commodity prices throughout the project. Currency used in the area is the Nigerian Naira as opposed to the Franc CFA due to the proximity with Nigeria. Data have been collected between distributions, on a maximum of six markets located in Bosso and Toumour communes, depending on the accessibility in terms of security.

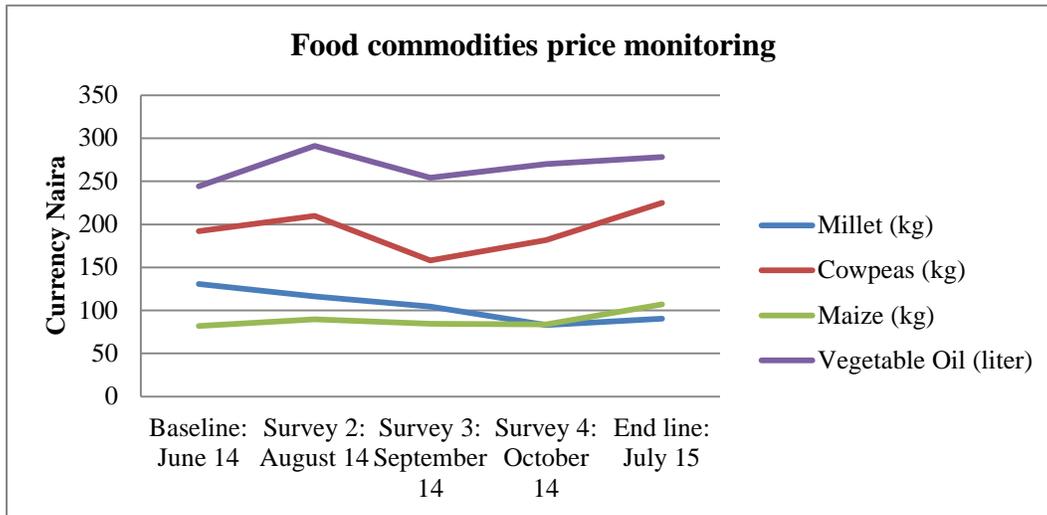
The figure below shows price changes of four major food commodities. Prices have fluctuated since last year. However, no prices were measured between October and July due to insecurity and delays in food distribution activities.

Except for the price of millet which continuously decreased, other commodities had the same trend of increasing prices. They first increased between June and August 2014 (certainly due to the lean season, increase in the demand due to massive arrival of displaced population, and difficulties for the suppliers to import food commodities from Nigeria due to insecurity). Fortunately prices of cowpeas, maize, and oil went down and stabilized, reaching a fair price for the season in October 2014, after the lean season. This may be due in part to food distributions in the communes from different partners such as WFP and SP, creating a positive impact on the population's purchasing power. This is also typical as a result of seasonal factors such as the end of harvest which creates a larger supply on the market. It can be observed that cowpea, maize and oil prices went up slightly between October 2014 and July 2015, at the beginning of a new lean season. Altogether, prices for cowpeas and maize were slightly higher at the time of the end line survey in July than the five year average for these commodities (on the market in Diffa). The price of millet in July 2015 was slightly lower than the five year average.<sup>21</sup>

---

<sup>21</sup> FEWSNET: Niger Price Bulletin, July 2015

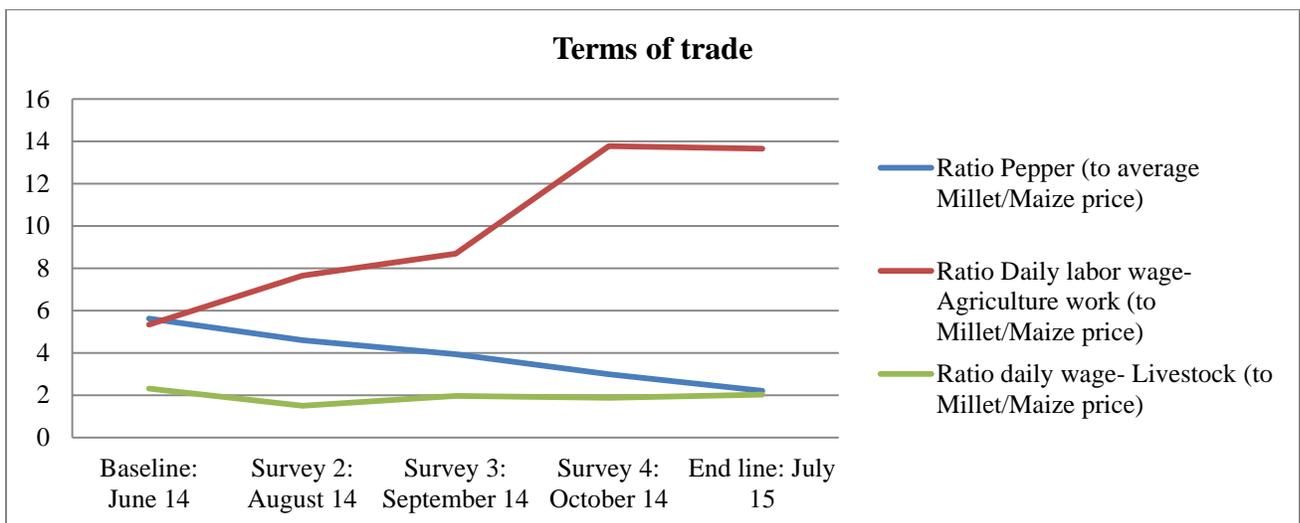
**Figure 14: Food commodities price monitoring throughout the project**

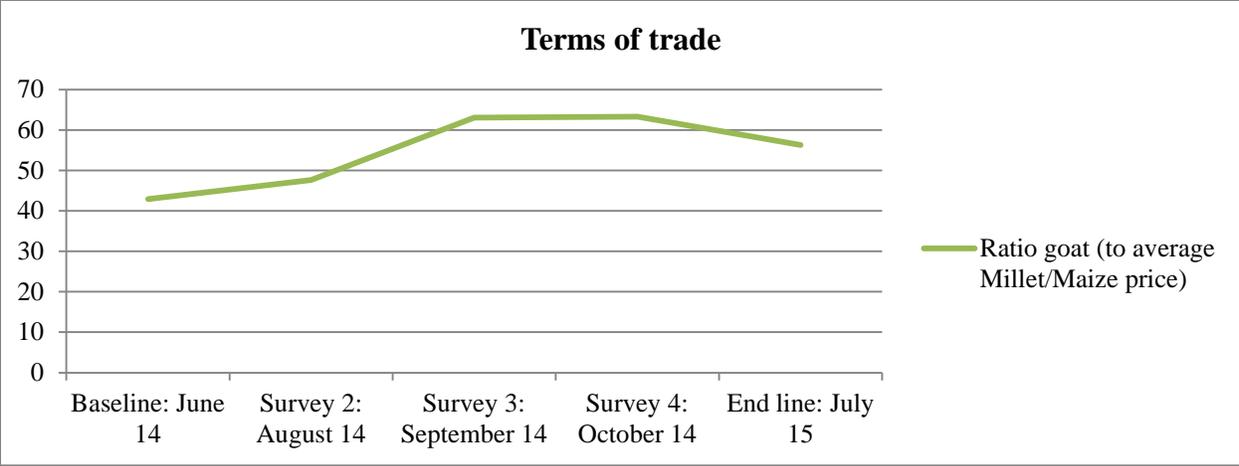


Sources of income and related prices have been measured, such as peppers, daily labor wage, agriculture and livestock work, and goat sales. A ratio between sources of income and staple food (average millet/maize price) was calculated each time prices were measured. Those terms of trade give additional information about purchase power of people in the area according to their source of income. These findings are presented in the two figures below.

Compared to last year, the purchasing power of HHs in the area increased considerably for agriculture work daily labor wages. Purchasing power increased for livestock breeders as well. Purchasing power has been stable for the livestock daily wage, but it decreased for pepper production and sales.

**Figures 15 and 16: Terms of trade**





Surveyors were also requested to check if food aid was present on the market. The index goes from 1 to 4: ‘1’ being no food aid on market, ‘2’ small quantities (less than local), ‘3’ large quantities (more than local), ‘4’ only food commodities. The table below presents averages for each of the three food commodities distributed. Almost no oil was sold on the market. But distributed millet and cowpea commodities were found on the market in small quantities. This corresponds to the PDM result of 0.7% of HHs that sold some food commodities.

**Table 36: USAID food aid on the market**

Distributed food aid on market	
Millet	1.24
Cowpeas	1.21
Oil	1.03

In conclusion, no negative impact of the food distributions has been noticed. On the contrary, food assistance in the area stabilizes food commodity prices and avoids their increase.

**6. Lessons Learned**

ARCAD was the first project implemented by SP in Diffa Region. Challenges faced led SP to the following lessons learned/recommendations for future projects, especially in this complex area.

- **Including food and transport cost in the PAL**

The timeline was a challenge at the beginning of the project. Although a pre-award letter (PAL) was provided to SP on May 8<sup>th</sup>, approval for food and transport expenses were not included with

the PAL; rather, approval for these expenses was granted with the official award. Thus, while the first distribution was planned for June and food was planned to be purchased locally, distributions were not able to start before early August. As well, the closed tender purchase method had to be used due to the short time available to procure. Options for future one year projects awarded just before the lean season could be to include transport and food costs in the PAL if the award is expected to arrive later than planned so procurement can start earlier; partnering with WFP for the first month of the lean season can be an option as well. Those options have actually been taken into account by FFP and SP during the launching of the award AID-FFP-G-15-00068-FEAD.

- **Emphasis on security assessment and contingency plans at the proposal stage**

Insecurity incidents which occurred were unexpected, especially at the proposal stage, and constituted a real challenge for the different project activities. In the future, even though situations may seem quite stable, a proper security assessment and risk analysis should be included in the proposal, including description of the risks, possible impact of the risks on the different objectives and activities, their probability and severity, as well as contingency plans and mitigation measures. Those contingency plans had not been properly designed for the security risks, thus coping strategies had to be decided during the project implementation (alternative distribution points, extension agents, select gardening sites further from the area at risk, etc.). With such a risk analysis, more flexibility will be added in the proposal, something which was missing in the design of ARCAD. To continue to operate in Diffa, flexibility is essential as the security situation is constantly changing. This has been taken into account in the project design for the current EFSP project SP is implementing in Diffa (AID-FFP-G-15-00068-FEAD) which began on June 5<sup>th</sup>.

- **Deeper involvement of communities in FFA activity design**

Samaritan's Purse has also learned the importance of community buy-in and participation during activity selection. Due to the emergency nature of the response, there was not sufficient time during the project development to conduct community surveys for each activity at the onset. However, SP was able to conduct community surveys and hold FGDs before FFA activities began. According to the FFA assessment and continued FGDs, several villages identified key

activities, which would address the most pressing needs, to be slightly different than that which was planned in the project design phase. It is important to include more than just local authorities in designing the details for project activities, even if the timeline is short.

- **Improvement of security policies**

The theft of 480 kg of maize seed in Dagaya village, along the border with Nigeria lead SP to take the following security precautions in terms of commodity storage in the villages. Two community warehouse keepers have to be identified per village, instead of one, and their payment will be calculated per day of work. Warehouse keepers will be required to provide 24 hour security at warehouses for the entire duration that project materials are in storage. During training, warehouse keepers will sign a written agreement with SP clearly outlining their responsibilities, including the requirements to accurately count the number of bags being delivered and to sign the waybill to acknowledge receipt of the number of bags and consequence of any loss caused by their negligence. In the event that seeds and/or food commodities are not going to be distributed within 72 hours of their arrival at the warehouse, they will either be returned to SP's main warehouse in Diffa Town or professional security personnel will be hired to guard the seeds/commodities. Some other precautions have been implemented through the project due to risks, such as distributions not being held on consecutive days, establishing a larger security perimeter, and the number of temporary security staff was increased.

The use of Codan high-frequency radios, satellite phones, and overall communication while in the field has been a challenge for project staff. Regular maintenance, equipment checks, and trainings need to be planned and conducted in order to maintain constant ease of communication amongst field staff; this is especially important because of the security risks and lack of cell phone network coverage in some areas within Bosso and Toumour communes.

- **Use of extension agents for training activities in areas subject to changes**

The state of emergency and insecurity that is still ongoing in the area prohibits staff to conduct trainings to large numbers of beneficiaries. Therefore, as has been done for some villages during ARCAD, extension agents are necessary for activities such as SFT.

- **Suspension of FFA activities until improvement in security situations**

Lessons have been learned in terms of FFA activities in the area. First, before deciding to design and plan FFA activities in the area, the security situation must improve, allowing supervision by project supervisors with motorbikes. A secure context is required to allow participants to carry out the work and to allow SP to conduct food distributions without delays in order to motivate participants.

- **Provide more tools for FFA activities**

As advised by the beneficiaries during the FGD at the end of the project, more tools will have to be provided, and activities should be planned during cooler months, for example between October and December.

- **Harmonization of monitoring and evaluation tools and beneficiary identification amongst humanitarian community**

Following the coordination efforts which have improved in Diffa, the humanitarian community decided to increase harmonization of M&E tools, indicators, and beneficiary identification methodology. At the time the new project (AID-FFP-G-15-00068- FEAD) was written and launched, meetings were held with WFP and other EFSP partners to harmonize the distribution monitoring, PDM, and to use the same questionnaires and indicators as much as possible. Additionally, the household economic approach was used as are all other NGO's in Diffa Region.

- **Logistics**

In Diffa, two full time SP staff held logistics positions: one warehouse officer and one procurement officer. At one point only one staff was filling these two positions. As a result, delays in procurement demonstrated the importance of increasing the size of the procurement and warehousing team.

Dispatch mistakes were discovered on the day of distributions during the first distribution cycle, due to mistakes made by the transporter while delivering the food; meetings were held with the transporter in order to prevent the issues from reoccurring. Samaritan's Purse also decided to organize a field visit to each site in order to check delivered food before each distribution.

- **Finance**

A major shift in the exchange rate between the US dollar and the Franc CFA<sup>22</sup> caused a large savings of the federal funds which were not used. In the future, in the same case, additional activities could be proposed to FFP on time in order to use the expected remaining funds. The change in the food distribution strategy, which effectively allowed the project to reach approximately 10,000 additional beneficiaries, has not included large additional cost. The food which was distributed to the additional beneficiaries was covered by the cancelation of the second FFA month.

## 7. Local and regional procurement reporting

Information related to local and regional procurement information is presented in the Appendix G.

## 8. Success Stories



*ARCAD emergency TFD beneficiary- Ibra Beti from Gagorce Village*

Ibra Beti is an agropastoralist in Gagorce village, in the Commune of Toumour, an agro-pastoral area where SP implemented emergency TFD and FFA activities between August 2014 and April 2015. With his wife and his eight children, they are part of the 41,958 targeted ARCAD food assistance beneficiaries. “Before Samaritan’s Purse arrived, we and our livestock

faced food insecurity. Rain was very scarce and we were producing less than our HH food needs. We were experiencing famine. We had no food stock, and day after day we had to find ways to get food” explained Ibra Beti. He continued by saying “Samaritan’s Purse helped us by providing free full rations of millet, cowpeas, and oil, according to the size of the household. We

---

<sup>22</sup> One US dollar reached the exchange value of 600 XOF (F CFA) during the year while at the proposal time the rate was 1 USD to 480 F CFA.

are very happy, especially with the food commodities chosen.” He concluded by showing his field and saying “now you can see how I have been able to grow cereal this year. God be with you.”

In the same village, Illou Zada, who had been targeted to benefit from emergency TFD during the lean season, was also targeted to participate in FFA activities in January 2015. He constructed demi-lunes and fire-breaks around the village. Illou Zada has two wives and seven children. He is raising livestock and engaging in some agriculture as well. However, as he explained “[Life] was very difficult; land was not fertile, and fodder was not enough. But through FFA activities we received food aid, and were able to use some of the money saved for other purposes. Because of the demi-lunes, grass grew exponentially and this allows us to stay in the village.” Illou expressed his gratitude saying “Samaritan’s Purse’s intervention blessed us a lot, not only my family but the whole village.” Illou also explained that one of his contentions with the project is that ICRC took responsibility of the village, and ARCAD beneficiaries, after SP had to temporarily relocate staff due to attacks from Boko Haram.

MILLET



Etablissement Public à Caractère Administratif

**(LANSPEX)**

ENR510001.00  
 Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0010/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11 Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0176/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon1)	Normes du Codex Alimentarius
Humidité(%)	8,38	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

*Azawag*  
 Chef de Service  
 physico-chimie  
 République du Niger  
 Niamey

**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

*Bonkane*

**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0011/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0177/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon2)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	8,44	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0012/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11 Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

### RAPPORT D'ESSAIS N° : 0178/SPC/14

Analyses physico-chimiques d'un (01) échantillon de Mil.

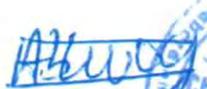
DETERMINATIONS	RESULTATS(Echantillon3)	Normes du Codex Alimentarius
Humidité(%)	8,70	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

LE DIRECTEUR GENERAL

  
**M. ABDOU Aboubacar**  


  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00

Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0014/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

### RAPPORT D'ESSAIS N° : 0180/SPC/14

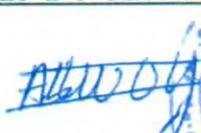
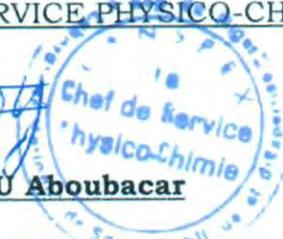
Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon5)	Normes du Codex Alimentarius
Humidité(%)	8,33	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

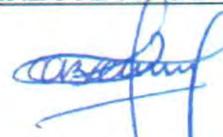
*LD = Limite de détection (5µg/kg)*

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



ENR510001.00

Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0015/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0181/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon6)	Normes du Codex Alimentarius
Humidité(%)	9,37	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar

LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0017/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

### RAPPORT D'ESSAIS N° : 0183/SPC/14

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon8)	Normes du Codex Alimentarius
Humidité(%)	9,25	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0019/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0185/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon 10)	Normes du Codex Alimentarius
Humidité(%)	9,53	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0020/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11 Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

### RAPPORT D'ESSAIS N° : 0186/SPC/14

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon 11)	Normes du Codex Alimentarius
Humidité(%)	9,10	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar

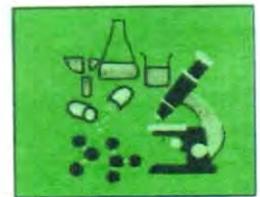
LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0022/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0188/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon13)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	8,36	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0024/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR –Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

### RAPPORT D'ESSAIS N° : 0190/SPC/14

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon15)	Normes du Codex Alimentarius
Humidité(%)	8,01	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

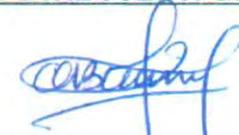
**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE **PHYSICO-CHIMIE**

  
 Chef de Service  
 physico-chimie  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0025/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
du 11Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0191/SPC/14**

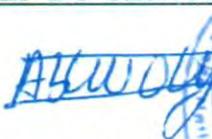
Analyses physico-chimiques d'un (01) échantillon de Mil.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon16)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	8,70	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

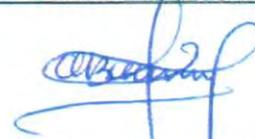
**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**  


LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1

ENR510001.00  
Date d'application : 15/11/12

Niamey, le 22 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 21/07/2014  
Début des essais : 22/07/2014 Code interne : 0026/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11 Juillet 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0192/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon17)	Normes du Codex Alimentarius
Humidité(%)	9,81	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
 M. ABDOU Aboubacar  
 Chef de Service  
 physico-chimie

LE DIRECTEUR GENERAL

  
 Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 18Aout 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 14/08/2014  
Début des essais : 14/08/2014 Code interne : 0029/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Aout 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0210/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon2)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	9,53	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

*LD = Limite de détection (5µg/kg)***Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
M. **ABDOU Aboubacar**
LE DIRECTEUR GENERAL

  
Dr. **BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1









ENR510001.00  
Date d'application : 15/11/12

Niamey, le 18 Aout 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Mil Année de récolte: 2013  
Date de péremption : // Date de réception de l'échantillon : 14/08/2014  
Début des essais : 14/08/2014 Code interne : 0034/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

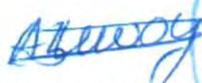
Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Aout 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0215/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon7)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	9,22	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE


  
**M. ABDOU Aboubacar**
LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



Niamey, le 18 Aout 2014

ENR510001.00  
Date d'application : 15/11/12

Nom commercial du produit : Céréale      Numéro de lot : //  
Nature du produit : Mil      Année de récolte: 2013  
Date de péremption : //      Date de réception de l'échantillon : 14/08/2014  
Début des essais : 14/08/2014      Code interne : 0035/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Aout 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0216/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon8)	Normes du Codex Alimentarius
Humidité(%)	9,08	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

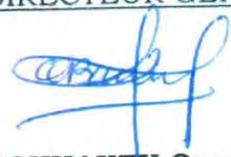
**LD** = Limite de détection (5µg/kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale. Page 1 sur 1





**(LANSPEX)**

ENR510001.00  
Date d'application : 15/11/12

Niamey, le 18Aout 2014

Nom commercial du produit : Céréale                      Numéro de lot : //  
Nature du produit : Mil                      Année de récolte: 2013  
Date de péremption : //                      Date de réception de l'échantillon : 14/08/2014  
Début des essais : 14/08/2014                      Code interne : 0037/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Aout 2014

Origine du produit : Nigéria (Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0218/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Mil.

DETERMINATIONS	RESULTATS(Echantillon10)	Normes du Codex Alimentarius
Humidité(%)	8,68	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar

LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 21 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Niébé Date de fabrication : //  
Date de péremption : // Date de réception de l'échantillon : 14/07/2014  
Début des essais : 16/07/2014 Code interne : 0002/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : (Lieu de prélèvement Maradi)

### RAPPORT D'ESSAIS N° : 0165/SPC/14

Analyses physico-chimiques d'un (01) échantillon de Niébé.

DETERMINATIONS	RESULTATS(Echantillon 1)	Normes du Codex Alimentarius
Humidité(%)	5,568	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar



LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1

ENR510001.00  
Date d'application : 15/11/12

Niamey, le 21 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Niébé Date de fabrication : //  
Date de péremption : // Date de réception de l'échantillon : 14/07/2014  
Début des essais : 16/07/2014 Code interne : 0001/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : (Lieu de prélèvement Maradi)

**RAPPORT D'ESSAIS N° : 0164/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Niébé.

<b>DETERMINATIONS</b>	<b>RESULTATS(Echantillon2)</b>	<b>Normes du Codex Alimentarius</b>
<b>Humidité(%)</b>	6,0	≤15%
<b>Aflatoxines totales</b>	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1





ENR510001.00  
Date d'application : 15/11/12

Niamey, le 21 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Niébé Date de fabrication : //  
Date de péremption : // Date de réception de l'échantillon : 14/07/2014  
Début des essais : 16/07/2014 Code interne : 0005/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : (Lieu de prélèvement Maradi)

**RAPPORT D'ESSAIS N° : 0168/SPC/14**

Analyses physico-chimiques d'un (01) échantillon de Niébé.

DETERMINATIONS	RESULTATS(Echantillon5)	Normes du Codex Alimentarius
Humidité(%)	5,742	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar

LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



ENR510001.00

Date d'application : 15/11/12

Niamey, le 21 juillet 2014

Nom commercial du produit : Céréale Numéro de lot : //  
Nature du produit : Niébé Date de fabrication : //  
Date de péremption : // Date de réception de l'échantillon : 14/07/2014  
Début des essais : 16/07/2014 Code interne : 0006/SAM/14/SPC  
Adresse complète du demandeur : Samaritan's purse (International Relief) BP2499  
 Niamey, Niger.

Référence de la demande : V/TDR -Analyse des vivres-Projet ARCAD-Juillet 2014  
 du 11Juillet 2014

Origine du produit : (Lieu de prélèvement Maradi)

**RAPPORT D'ESSAIS N° : 0169/SPC/14**

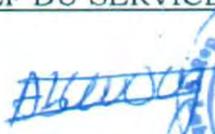
Analyses physico-chimiques d'un (01) échantillon de Niébé.

DETERMINATIONS	RESULTATS(Echantillon6)	Normes du Codex Alimentarius
Humidité(%)	5,926	≤15%
Aflatoxines totales	< LD	≤ 5µg/Kg

**LD** = Limite de détection (5µg/kg)

**Conclusion** : Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



Niamey, le 21 Juillet 2014

ENR510001.00 Date d'application : 15/11/12
Nom commercial du produit : Huile Nature du produit : Huile de palme Numéro de lot :      Date de péremption : - Date de réception de l'échantillon : 14/07/14      Date du début des essais : 21/07/14 Adresse complète du demandeur : Samaritan's purse (International Relief) BP 2499 Niamey, Niger Référence de la demande : V/TDR-Analyse des vivres, projet-ARCAD-Juillet 2014 du 11 Juillet 2014 Enregistrement interne N°: 0008/SAM/14/SPC Origine du produit :(Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0171/SPC/14**

Analyse physico-chimique d'un (01) échantillon d'huile de palme

DETERMINATIONS	Echantillon	NORMES	
		Spécifications Client	Codex alimentarius
Eau et matières volatiles (%)	0,06	≤ 0,2 %	≤ 0,2 %
Indice d'iode (Wijs en g/100g)	55	50 à 55	50 à 55
Indice de saponification (en mg/KOH)	197,60	190 à 209	190 à 209
Peroxydes d'oxygène (meq/Kg)	0,49	≤ 10 meq/Kg	≤ 10 meq/Kg
Indice de réfraction	1,454	1,454 -1,456	1,454 -1,456

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

M. ABDOU Aboubacar

LE DIRECTEUR GENERAL

Dr. BONKANEY Oumarou

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 21 Juillet 2014

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Huile

Nature du produit : Huile de palme

Numéro de lot :      Date de péremption : -

Date de réception de l'échantillon : 14/07/14      Date du début des essais : 21/07/14

Adresse complète du demandeur : Samaritan's purse (International Relief) BP 2499  
Niamey, NigerRéférence de la demande : V/TDR-Analyse des vivres, projet-ARCAD-Juillet 2014 du  
11 Juillet 2014

Enregistrement interne N°: 0009/SAM/14/SPC

Origine du produit : (Lieu de prélèvement Diffa)

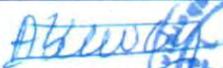
**RAPPORT D'ESSAIS N° : 0172/SPC/14**

Analyse physico-chimique d'un (01) échantillon d'huile de palme

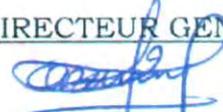
DETERMINATIONS	ECHANTILLON		NORMES	
	Ech.3	Spécifications Client	Codex alimentarius	
<b>Eau et matières volatiles (%)</b>	0,02	≤ 0,2 %	≤ 0,2 %	
<b>Indice d'iode (Wijs eng/ 100g)</b>	55	50 à 55	50 à 55	
<b>Peroxydes d'oxygène (meq/Kg)</b>	0,59	≤ 10 meq/Kg	≤ 10 meq/Kg	
<b>Indice de saponification en mg/KOH/g)</b>	205,09	190 à 209	190 à 209	
<b>Indice de réfraction</b>	1,454	1,454 -1,456	1,454 -1,456	

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE


  
M. **ABDOU Aboubacar**

LE DIRECTEUR GENERAL


  
Dr. **BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 21 Juillet 2014

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Huile

Nature du produit : Huile de palme

Numéro de lot :      Date de péremption : -

Date de réception de l'échantillon : 14/07/14      Date du début des essais : 21/07/14

Adresse complète du demandeur :

Référence de la demande : V/TDR-Analyse des vivres, projet-ARCAD-Juillet 2014 du 11 Juillet 2014

Enregistrement interne N°: 0007/SAM/14/SPC

Origine du produit :(Lieu de prélèvement Diffa)

**RAPPORT D'ESSAIS N° : 0170/SPC/14**

Analyse physico-chimique d'un (01) échantillon d'huile de palme

DETERMINATIONS	ECHANTILLON		NORMES	
	Ech. 1	Spécifications Client	Codex alimentarius	
<b>Eau et matières volatiles (%)</b>	0,01	≤ 0,2 %	≤ 0,2 %	
<b>Indice d'iode (Wijs en g/100g)</b>	55	50 à 55	50 à 55	
<b>Peroxydes d'oxygène (meq/Kg)</b>	0,49	≤ 10 meq/Kg	≤ 10 meq/Kg	
<b>Indice de saponification( en mg/KOH/g)</b>	202,50	190 à 209	190 à 209	
<b>Indice de réfraction</b>	1,454	1,454 -1,456	1,454 -1,456	

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE


  
M. ABDOU Aboubacar

LE DIRECTEUR GENERAL


  
Dr. BONKANEY Oumarou

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0001/SAM/15/SPC

Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0016/SPC/15**

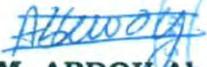
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 01	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	4,20	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0002/SAM/15/SPC

Origine du produit : Nigeria

### RAPPORT D'ESSAIS N° : 0017/SPC/15

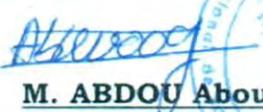
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 02	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	4,19	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
M. ABDOU Aboubacar

LE DIRECTEUR GENERAL

  
Dr. BONKANEY Oumarou

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0003/SAM/15/SPC

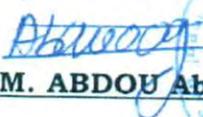
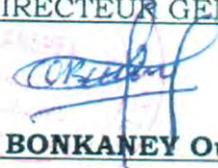
Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0018/SPC/15**

Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 03	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	4,24	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
M. ABDOU Aboubacar
LE DIRECTEUR GENERAL

  
Dr. BONKANEY Oumarou

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0004/SAM/15/SPC

Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0019/SPC/15**

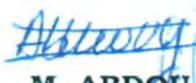
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 04	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	4,38	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

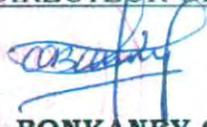
LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0005/SAM/15/SPC

Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0020/SPC/15**

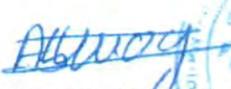
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 05	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	4,20	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0006/SAM/15/SPC

Origine du produit : Nigeria

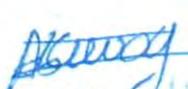
**RAPPORT D'ESSAIS N° : 0021/SPC/15**

Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 06	NORMES
	Magasin 1	Codex alimentarius
<b>Humidité (%)</b>	4,16	≤ 13%
<b>Aflatoxines totales (µg/Kg)</b>	< LD	< 5µg/kg

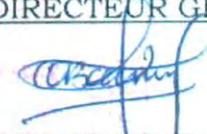
LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

*(Circular stamp: Chef de Service Physico-Chimie, Laboratoire National de Santé Publique et d'Expertise)*

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

*(Circular stamp: Directeur Général, Laboratoire National de Santé Publique et d'Expertise)*

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0007/SAM/15/SPC

Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0022/SPC/15**

Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 07	NORMES
	Magasin 2	Codex alimentarius
Humidité (%)	4,90	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

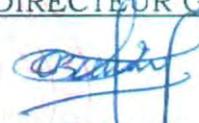
LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0008/SAM/15/SPC

Origine du produit : Nigeria

### RAPPORT D'ESSAIS N° : 0023/SPC/15

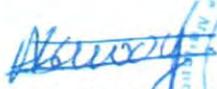
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 08	NORMES
	Magasin 2	Codex alimentarius
Humidité (%)	4,94	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

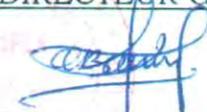
LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0009/SAM/15/SPC

Origine du produit : Nigeria

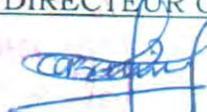
**RAPPORT D'ESSAIS N° : 0024/SPC/15**

Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 09	NORMES
	Magasin 2	Codex alimentarius
Humidité (%)	4,57	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
**M. ABDOU Aboubacar**
LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.

Page 1 sur 1



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0010/SAM/15/SPC

Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0025/SPC/15**

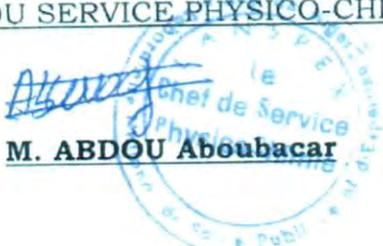
Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 10	NORMES
	Magasin 2	Codex alimentarius
Humidité (%)	4,73	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHEMIE

  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Mil

Nature du produit : céréale

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n°5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0011/SAM/15/SPC

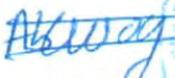
Origine du produit : Nigeria

**RAPPORT D'ESSAIS N° : 0026/SPC/15**

Analyse physico-chimique d'un (01) échantillon de mil

DETERMINATIONS	ECHANTILLON 11	NORMES
	Magasin 2	Codex alimentarius
Humidité (%)	5,71	≤ 13%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHEMIE

  
M. **ABDOU Aboubacar**
LE DIRECTEUR GENERAL

  
Dr. **BONKANEY Oumarou**

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Niébé

Nature du produit : Légume sec

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : Samaritan's Purse, BP : 2499 Niamey, Niger

Référence de la demande : V/B.C. n°5377-01052015 du 05/01/15

Enregistrement interne N°: 0012/SAM/15/SPC

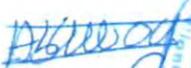
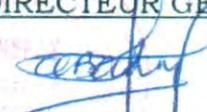
Origine du produit : Niger

**RAPPORT D'ESSAIS N° : 0027/SPC/15**

Analyse physico-chimique d'un (01) échantillon de Niébé

DETERMINATIONS	ECHANTILLON 01	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	5,26	< 15%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
M. ABDOU Aboubacar
LE DIRECTEUR GENERAL

  
Dr. BONKANEY Oumarou

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Niébé

Nature du produit : Légume sec

Numéro de lot : // Date de péremption : //

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : Samaritan's Purse, BP : 2499 Niamey, Niger

Référence de la demande : V/B.C. n°5377-01052015 du 05/01/15

Enregistrement interne N°: 0013/SAM/15/SPC

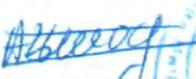
Origine du produit : Niger

**RAPPORT D'ESSAIS N° : 0028/SPC/15**

Analyse physico-chimique d'un (01) échantillon de Niébé

DETERMINATIONS	ECHANTILLON 02	NORMES
	Magasin 1	Codex alimentarius
Humidité (%)	5,13	< 15%
Aflatoxines totales (µg/Kg)	< LD	< 5µg/kg

LD : Limite de détection (0,3µg/Kg)

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis aux essais sont conformes aux normes du codex alimentarius.LE CHEF DU SERVICE PHYSICO-CHIMIE

  
M. ABDOU Aboubacar
LE DIRECTEUR GENERAL

  
Dr. BONKANEY Oumarou

Page 1 sur 1

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Huile

Nature du produit : Huile de palme

Numéro de lot : // Date de péremption :

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n° 5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0014/SAM/15/SPC

Origine du produit : Ghana

**RAPPORT D'ESSAIS N° : 0029/SPC/15**

Analyse physico-chimique d'un (01) échantillon d'huile de palme

DETERMINATIONS	ECHANTILLON	NORMES
	01	Codex alimentarius
<b>Eau et matières volatiles (%)</b>	0,03	≤ 0,2 %
<b>Indice d'iode (Wijs)</b>	51,81	50 à 55 Wijs
<b>Peroxydes d'oxygène (meq/Kg)</b>	2,65	≤ 10 meq/Kg
<b>Indice de réfraction</b>	<b>1,467</b>	1,454 -1,456
<b>Indice de saponification (mg de KOH/g d'huile)</b>	202,52	190 – 209 mg de KOH/g d'huile
<b>Indice d'acide (mg de KOH/g d'huile)</b>	0,11	≤ 0,6 mg de KOH/g d'huile

Page 1 sur 2

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



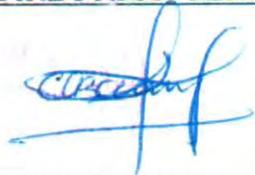
**SUITE RAPPORT D'ESSAI N° 0029/SPC/15**

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis à l'essai indiquent une valeur d'indice de réfraction supérieure aux normes (1,467) Cette valeur d'indice de réfraction n'affecte pas la qualité de l'huile mais indiquerait une éventuelle adultération de celle-ci (ajout d'une autre huile différente de celle de palme) Par contre les autres déterminations sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**



Niamey, le 20 Janvier 2015

ENR510001.00

Date d'application : 15/11/12

Nom commercial du produit : Huile

Nature du produit : Huile de palme

Numéro de lot : // Date de péremption :

Date de réception de l'échantillon : 13/01/15 Date du début des essais : 14/01/15

Adresse complète du demandeur : **Samaritan's Purse, BP : 2499 Niamey, Niger**

Référence de la demande : V/B.C. n° 5377-01052015-1 du 05/01/15

Enregistrement interne N°: 0015/SAM/15/SPC

Origine du produit : Ghana

**RAPPORT D'ESSAIS N° : 0030/SPC/15**

Analyse physico-chimique d'un (01) échantillon d'huile de palme

DETERMINATIONS	ECHANTILLON	NORMES
	02	Codex alimentarius
<b>Eau et matières volatiles (%)</b>	0,06	≤ 0,2 %
<b>Indice d'iode (Wijs)</b>	51,67	50 à 55 Wijs
<b>Peroxydes d'oxygène (meq/Kg)</b>	2,65	≤ 10 meq/Kg
<b>Indice de réfraction</b>	<b>1,467</b>	1,454 -1,456
<b>Indice de saponification (mg de KOH/g d'huile)</b>	201,99	190 – 209 mg de KOH/g d'huile
<b>Indice d'acide (mg de KOH/g d'huile)</b>	0,11	≤ 0,6 mg de KOH/g d'huile

Page 1 sur 2

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.



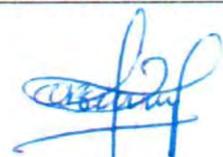
**SUITE RAPPORT D'ESSAI N° 0030/SPC/15**

**Conclusion :** Les déterminations effectuées sur l'échantillon soumis à l'essai indiquent une valeur d'indice de réfraction supérieure aux normes (1,467) Cette valeur d'indice de réfraction n'affecte pas la qualité de l'huile mais indiquerait une éventuelle adultération de celle-ci (ajout d'une autre huile différente de celle de palme) Par contre les autres déterminations sont conformes aux normes du codex alimentarius.

LE CHEF DU SERVICE PHYSICO-CHIMIE

  
  
**M. ABDOU Aboubacar**

LE DIRECTEUR GENERAL

  
**Dr. BONKANEY Oumarou**

Page 2 sur 2

Ce rapport d'essai est valable uniquement pour le(s) échantillon(s) qui y sont mentionnés. Sa reproduction n'est autorisée que sous sa forme intégrale.