

AGRA BASELINE SURVEY BURKINA FASO



FINAL REPORT

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By

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Acronyms and Abbreviations

AFC	Agricultural Finance Corporation
AGRA	Alliance for a Green Revolution in Africa
CAPII	Computer-Assisted Personal Interviews
EA	Enumeration Area
FAO	Food and Agriculture Organization
FASDEP	Food and Agriculture Sector Development Policy
FBO	Farmer Based Organization
FGD	Focus Group Discussion
GSGDA	Ghana Shared Growth and Development Agenda
HDDS	Household Dietary Diversity Scale
HFIAS	Household Food Insecurity Access Scale
HHS	Household Hunger Scale
ICC	Inter-Correlation Coefficient
IDI	In Depth Interviews
ISSER	Institute of Statistical Social and Economic Research
KII	Key Informant Interviews
MFI	Micro-Finance Institution
NGO	Non-Governmental Organization
SACCO	Savings And Credit Co-Operative Organization
SAGSD	Strategy for Accelerated Growth and Sustainable Development
SFPR	Strategic Framework for Poverty Reduction
SSA	Sub-Saharan Africa
USAID	United States Agency for International Development

Executive Summary

Burkina's economy hinges mainly on agriculture and provides livelihoods for 80 per cent of the population. This is equally affirmative for most African countries south of the Sahara. However, natural constraints, such as degraded soils, recurrent droughts, deforestation and spreading deserts, have a major impact on these livelihoods. They combine to make people's lives more vulnerable. Due to this, there are consistent efforts and interventions that try to tackle these attendant problems while ensuring sustainability and adequate growth in the sector. The Alliance for a Green Revolution (AGRA) is one organisation that is at the forefront of such intervention programs in Burkina Faso as well as in other sub-Saharan countries. Its objectives are to increase farmer productivity through access to quality inputs, reduce post-harvest losses through access to post-harvest storage technologies and support farmers through an enabling policy environment.

The Institute of Statistical Social and Economic Research (ISSER) has conducted a baseline survey of farmer households in five regions in Burkina Faso. Farmer households in Boucle de Mouhoun, Cascades, Centre-Est, Centre-Ouest and Hauts-Bassins were sampled to create baseline data of farming practices, yields, post-harvest loss and other features of the value chain in the cultivation of four major crop, namely maize, rice, sorghum and cowpea. The data seeks to help identify some key challenges to the production of these crops in the five regions, and support the development and subsequent evaluation of AGRA interventions over the five-year period.

The main findings of this baseline survey are summarised as follows, based on the objectives of this AGRA initiative for Burkina Faso:

- ◆ Demographic characteristics and cultural norms are important factors, which determine household production.
- ◆ Plot ownership and use is complex by gender roles in the home and community.
- ◆ Soil quality varies from zone to zone. As a result, the input needs will differ across regions.
- ◆ Small-scale farmers rely heavily on farm labour over other types of labour and mechanization for farm preparation and management
- ◆ In this case, improved seeds are less commonly used. Even with awareness, certain local preferences for food staples hinder adoption.
- ◆ There is a knowledge-sharing gap, where few farmers participate in FBO activities or seek extension services.
- ◆ It is evident that chemicals are the norm in agricultural production as fertilizer use per plot size is high. Usage is high not only high for target crop but also by regions surveyed

In the following report, the individual sections present quantitative and qualitative data, which support the listed observations.

1 Introduction

In Burkina Faso the agricultural sector is dominated by small-scale farms of less than 5 hectares and its main products are sorghum, millet and maize (the most produced in terms of volume), and cotton (the most important in terms of value). The sector directly employs about 12 million people (175 million in SSA) and about 25% (52% in SSA) of all smallholders are women (Douxchamps, et al., 2014). Agriculture accounts for 35% of gross domestic product¹. Production is characterised as rain-fed subsistence farming (de Fraiture & Giordano, 2014). Farmers cultivate small parcels of land, which often lack the required inputs like irrigation, fertilizer, efficient agronomic practices etc. to catalyse improvements in living standards. Moreover, in addition to heat waves, low rainfall especially in the survey period (2015/2016) coupled with a somewhat unstable political economy, the country has a number of hurdles to surmount in terms of agricultural development, especially when the state of the smallholder farmer is put into perspective. Welfare for the average smallholder farmer is precarious mainly due to issues of accessibility to credit and commercial markets as well as low-yield subsistence agricultural practices, which weigh in constant problems and put the smallholder Burkinabe farmers in a worse state.

Labour-intensive agriculture in the country does not benefit from adequate mechanization for land preparation and management, improved varieties, agricultural inputs and networks. For five decades, government development policy has prioritised agricultural growth, as a means of driving economic expansion. The Strategy for Accelerated Growth and Sustainable Development (SCADD 2011-2015) represents the strategic framework of the government's economic and social development policies. The SCADD builds on policies and reforms undertaken under the previous Strategic Framework for Poverty Reduction (SFPR). Articulated in four pillars, the SCADD aims at boosting economic growth (targeting a 10 percent annual GDP growth rate) and reducing poverty to less than 35 percent by 2015, thereby reaching the first Millennium Development Goal. The SCADD also foresees a significant level of contribution of the rural sector to the national economy, with a specific target of an average 10.7 percent growth rate over five years.

Despite these efforts, the low returns for agricultural production has caused a shrink in the labour force as more of the rural population abandon farming for more profitable ventures in the growing service sector. Services, which is composed mainly of commerce, financial and hospitality, is more attractive to rural youth than farming and have caused a population drift to urban localities. Despite a decade of sustained growth, poverty persists, particularly in rural areas. GDP per-capita remains one of the lowest in the world; according to the UNDP Human Development Index, and in 2012, the country ranked 183rd out of 186 countries. The economy is highly vulnerable to external shocks, both climatic and economic, including food and fuel price volatility and deteriorating terms of trade for cotton. The country also suffers from the negative effects of a population growth rate averaging 3 percent, which is among the highest in the world. Food insecurity and malnutrition rates are chronically high. The number of people undernourished rose from 3.8 million in 2008-10 to 4.4 million in 2011-13, corresponding to nearly a quarter of the total population (FAO, 2014).

¹ <http://data.un.org/CountryProfile.aspx?crName=burkina%20faso>

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AGRA's recognition of these issues has led to the development of 5-year strategy aimed at addressing productivity of the Burkinabe farmers, providing support to encourage transformation of local farming, through innovation, improved market access and partnerships. The purpose of this survey, conducted by the Institute of Statistical Social and Economic Research (ISSER) is to satisfy one of the key components of AGRA's country model for Burkina Faso. This incorporates one of its core assets: "Real time, on-the ground intelligence and insight regarding the current status of activities, farmer realities, and new opportunities to accelerate progress towards transformation". The achievement of this objective will occur through the provision of current and applicable data, detailing the demographic cultural characteristics of target farmer households, commonly-used farming practices and tools, approaches to pre and post-harvest activity, awareness and adoption of beneficial inputs, specifically fertilizer and improved varieties of seeds, and storage and sales which determine income and returns to production. Key indicators are coming under the radar for assessment, in terms of not only the target crop, but also where these target crops are grown. This will allow AGRA understand welfare dynamics not only for the target crops the farmers grow but also the influences that the regions as well as specifically the farming communities where the farmers reside have on production of the target crops.

The observations made are in the following sections:

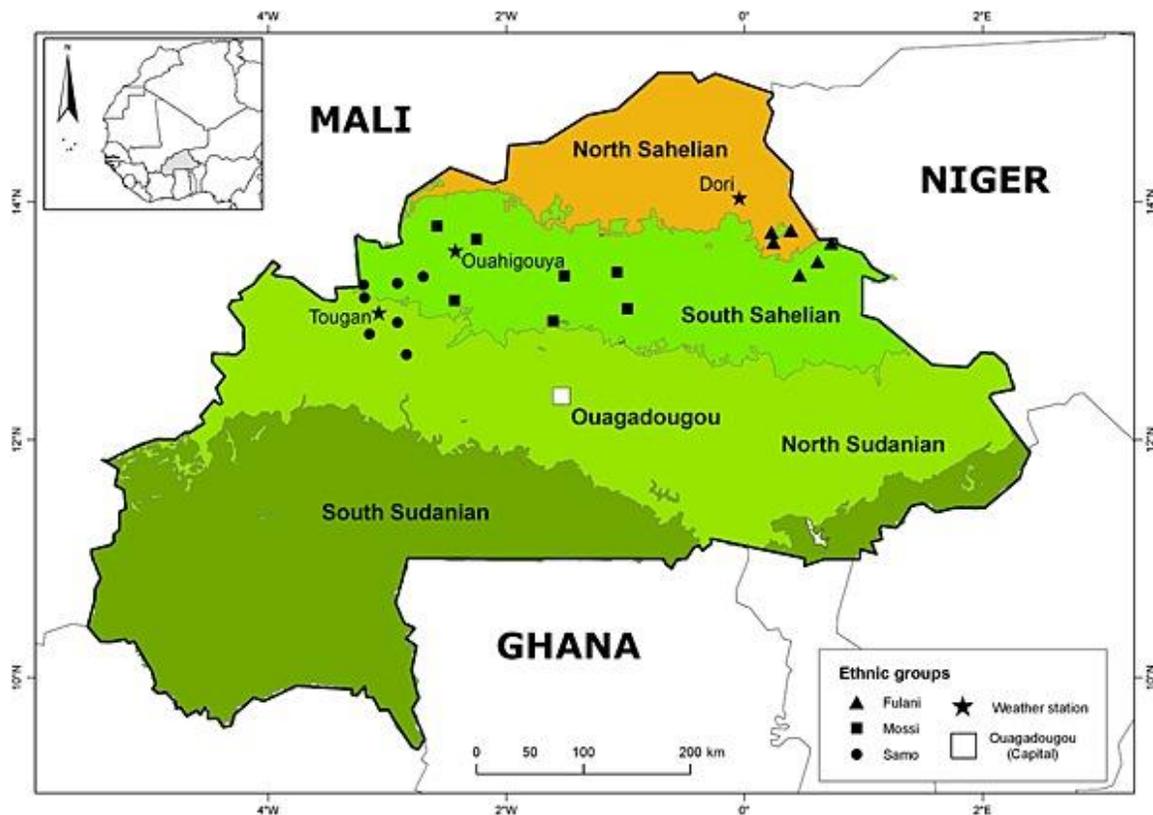
- (1) **Background** provides a background of the study area and program objectives
- (2) **Study Design** defines the study design and objectives as well as the sampling and survey process
- (3) **Descriptive Characteristics** break down the sampled groups by key demographic characteristics
- (4) **Welfare** lays out the living conditions of the sampled households
- (5) **Women Empowerment in Agriculture** discusses gender differences in empowerment within the homes in the context of decision making in production and other activities.
- (6) **Agricultural Production and Input Access** identifies trends in agricultural production, pre-, during and post-harvest.

2 Background

2.1 Country Background

Burkina Faso has a large area of arable land, estimated at 9 million hectares, of which only 46% is in use. Similarly, of the 233,500 hectares of irrigable land only 12-14% is in use. The country also has 500,000 hectares of lowlands suitable for agriculture. Although rainfall is minimal in Burkina Faso with just a one rainy season, the South and Central Savanna ecological regions have the combined benefit of more fertile soil than the north Sahelian regions. In the early 1980s, there was a quest to increase the size of arable land in the country; therefore, local labourers constructed a 1,144-km canal to bring water for irrigation from the Black Volta to the newly constructed Sourou Dam. This work was part of a plan to establish 40,000 hectares (100,000 acres) of irrigated land for smallholders and state agricultural projects.

Figure 1: Ecological Zones of Burkina Faso



Although Burkina Faso is not self-sufficient in food, agriculture in Burkina Faso has tremendous potential. The agricultural sector employs the vast majority of work force contributing about 30 percent of the GDP in 2012. However, only an estimated 13 percent of the total land area is under annual or perennial crops. Government attempts to modernize the agricultural sector have met with some success, especially with cotton, whose export accounted for 51 percent of total exports in 2004.

Agriculture in Burkina Faso is under threat by poor access to irrigation water, expensive inputs and equipment, land tenure insecurity, limited knowledge and capacity of producers, poor transportation infrastructure and limited access to credit for farmers. In recent years, the government through various policy measures and programmes has addressed a number of these constraints. In 2008, the total area of land under irrigation was about 25 percent of irrigable potential. In recent years, the country has increased its efforts to set up irrigation systems and promote small-scale irrigation. Public expenditure for irrigation infrastructure rose from 6.6 billion FCFA (about US\$ 14 million) in 2009 to 14.7 billion FCFA (about US\$ 29 million) in 2010².

After nearly two decades of state withdrawal from the agricultural sector, the 2007/08 food crisis pushed the government to support staple crop production by distributing improved seeds and subsidizing half the cost of fertilizers. This measure began in 2007 to 2012 witnessed a significant increase in rice production³. Over the 2006 to 2010 period, input subsidies represented a large share of agriculture-specific public expenditure, although the amount allocated to capital inputs (mainly equipment and on-farm irrigation) exceeded the one allocated to variable inputs, such as seeds and fertilizer⁴. In 2006, the price-setting mechanism saw a change reflecting world price levels with a new smoothing fund system in place, which responds to the volatility of cotton prices on global markets. Additionally, the price paid to cotton producers enjoys continuous increase since 2008.

The focus of agricultural policy and interventions in Burkina Faso often aim at increasing production volumes per household through input adoption, practice of efficient soil water and fertility management techniques and mechanization. Additionally, they attempt to tackle price volatility for farm produce by changing the pricing system as well as the introduction of irrigation options to enable year-round farming and even production volumes in and out of rain seasons, storage options for bumper seasons and ready markets for produce, to prevent post-harvest crop loss.

2.2 AGRA Program Objectives

AGRA's motivations for the survey are to lead transformations in Burkina Faso through interventions that tackle low yield, high post-harvest crop loss and distortions in the value chain caused by an ineffective policy environment. With a focus on maize, rice, cassava and soybean,

² See Yameogo S., Kienou A. (2013). Analysis of public expenditures in support of food and agriculture development in Burkina Faso, 2006-2010. Technical notes series, MAFAP, FAO, Rome.

³ Based on data provided by the Division for Prospective and Food and Agricultural Statistics (DPSAA), the self-sufficiency ratio (SSR) raised from 20 percent in 2007 to 52 percent in 2010. See Guissou R., Ilboudo F. (2012). Analyse des incitations et pénalisations pour le coton au Burkina Faso. Série notes techniques, SPAAA, FAO, Rome.

⁴ Yameogo S., Kienou A. (2013), as in footnote 1

the institution hopes to impact markets related to these main crops thereby seeking to drive higher production. These markets include input and output markets, to accomplish the following:

- Increase the use of high-yielding improved varieties, as less than a quarter of farmers are using them for the planting of the target crops. The aim is to reduce yield gaps.
- Increase provision of suitable fertilizer for the crop and soil types found in the study regions, further aimed at improving yield.
- Build farmer networks and linkages with agro dealers, extension officers, input producers and NGOs to increase knowledge and awareness of inputs, and technology through extension services, leading to better farming practices.
- Reduce post-harvest crop loss by increasing storage options, improving the availability of post-harvest technology such as threshers and PICs bags and decentralising processing units to lower loss during transportation.

2.3 Survey Objectives

This survey, contracted by AGRA, is a series of baseline surveys scheduled for four countries, Burkina Faso, Ghana, Mali and Mozambique in line with AGRA's overall objective to access real-time intelligence on the activities and experiences of farmers in selected regions of the above-named countries, to inform efficient and timely interventions. As a result, the process followed as part of this survey aim to achieve the following:

- Collate farmer experience and challenges, from interviews with farmers and agro-institutions, with regard to the target crops.
- Create a baseline database and directory of 3000 farmers with which AGRA can conduct follow up surveys on the subject matter.
- Analyse baseline quantitative and qualitative data to identify key trends for the indicators of interest, while using anecdotal context provided by stakeholders to help inform AGRA's next steps.
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3 Study Design

3.1 Focus regions and crops

AGRA's five-year strategy covers Boucle du Mouhoun, Cascades, Centre-Est, Centre-Ouest and Hauts-Bassins, located in the five regions of the Guinea Savannah Zone (GSZ), where agricultural production mainly occurs. Four of the regions represent two of the country's ecological zones (South and North Soudanese) while one region partly falls within the South Sahelian ecological zone. The characteristics of these regions manifest in the soil, vegetation and climate conditions of the area. These are crucial regions, especially for the production of staple food and cash crops

such as cotton, maize, millet and sorghum. As a result, this study samples households from districts in these regions, in line with AGRA's interests.

3.1.1 Focus crops

Though there are a variety of crops grown in these regions, the survey is narrowed down to major crops that are widely consumed nationwide and whose availability impact food security in Burkina Faso, namely maize, sorghum, cowpea, or crops that have recently shown increasing popularity within farming communities, namely rice. A framework designed by AGRA, identified the focus crops, which assessed the impact potential and ease of delivery for future interventions initiated during the period.

3.1.2 Focus regions

Centre-Est has one of the highest agricultural populations in the country and holds considerable production potential for cowpea (Boulgou, Kouritenga) and rice (Boulgou). The region is the country's largest rice producer in terms of area planted and is home to the largest and best-organized irrigation scheme in the country (Bagre). Previous investments by the World Bank have greatly aided rice production and processing. The region is home to some 376,000 farmers.

Centre Ouest is the country's third largest region in terms of agricultural population (388,000 farmers) and is Burkina Faso's fourth most productive maize growing area. The region accounts for 5% of all the seed of improved varieties used in the country. Out of four selected provinces (Boulkiemde, Sanguie, Sissili and Ziro), two (Ziro and Sissili) are considered high priority for maize, a reflection of their agricultural population, land area, and yield potential with sorghum, upland rice and cowpea as some of the crops in the region.

Boucle du Mouhoun is Burkina Faso's second largest region in terms of agricultural population, with about 748,000 farmers. An estimated 15% of the country's maize is produced in this region and all six of its provinces (Kossi, Mouhoun, Sourou, Bale, Banwa and Nayala) are important producers. Again, this is the region where planting of about 16% of the certified maize seed used in Burkina Faso takes place.

The region also has the country's largest sorghum acreage and ranks fourth in terms of rice production (9.6%). Rice production is in all agro-ecologies (upland, lowland and irrigated). The Sourou plains produce up to 8,000 tons per year in two irrigated cropping seasons. The region also has the largest cowpea acreage among all 13 regions. The provinces with highest cowpea acreage are Kossi, Mouhoun, Bale and Banwa.

The Hauts-Bassins region consists of three provinces (Tuy, Houet and Kenedougou) and has the largest agricultural population in the country (890,000 farmers). The region is also Burkina Faso's largest producer of maize (38.6%) and has significant potential for sorghum production. The region is also an important rice producer and has recorded yields of 5 to 6 t/ha in irrigated areas. In 2013, the area was second in terms of cowpea acreage although yields remain low. In recent years, the production of cowpea seed under irrigation has grown substantially

The Cascades is home to 319,000 farmers, the smallest agricultural population among the five selected regions. Maize and rice are the predominant crops. Maize production in the region is about 14% and its farmers use 13.3% of country's improved seed. In addition, the region produces upland

and lowland rice. In 2013, the region ranked fifth in terms of rice acreage but it has low potential for sorghum and cowpea.

3.2 Sample size and power analysis

Quantitative and qualitative data collection occurred in both regions from 19 districts. The enumeration areas visited selected as per 2010 Census demarcations, to identify areas where rural households in the regions commonly grew the crops of interest. Based on existing and projected estimates for crop yields and crop losses in AGRA's business plan for Burkina Faso, the survey targeted a statistically acceptable sample size of 3,100 farm households.

A two stage sampling strategy employed to ascertain the needed sample size for the survey. In the first Stage (Primary Sampling), power calculations determined the number of clusters or enumeration areas (EAs,) required for the necessary size of power of at least 80%. It was determined that at least 15 farming households would be randomly selected from each of the 212 EAs to give the total sample of 3,180 households. We selected these clusters based on the distribution of the target crops across the regions and their districts, as provided by the AGRA country business plan. Table 1 displays the result of the power calculations for the yield and loss indicators. The results state a suitable sample size of 2,784 households, which increased to 3,202 to account for anticipated future attrition and difficulty accessing households or EAs during the initial baseline data collection.

Table 1: Indicators and Parameters for Sample Size Determination

Indicator	Parameters								
	Crop	2016	2020	Annual Average Change	Std. Dev.	ICC	Effect Size (Annual)	Sample Size per Crop	
Crop Losses	Maize	27.0	7.0	-5.0	12.1	0.093	-0.41	665	
	Sorghum	12.5	5.0	-1.88	10.3	0.074	-0.18	612	
	Cowpea	20.0	10.0	-2.50	7.3	0.000	-0.34	376	
	Rice	12.5	3.5	-2.25	9.1	0.000	-0.25	376	
	Total Est SS	2029							
	15% Attrition	304							
	Overall Sample Size	2,333							
Crop Yield	Maize	1.7	5.0	0.83	0.66	0.38	1.25	665	
	Sorghum	0.9	2.0	0.28	0.41	0.04	0.67	612	
	Cowpea	0.7	2.1	0.35	0.63	0.16	0.55	881	
	Rice	1.5	2.2	0.18	0.99	0.08	0.18	626	
	Total	2,784							
	15% Attrition	418							
	Overall Sample Size	3,202							

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Note: The sample sizes are estimated using the Optimal Design software, which enabled us to do different power versus cluster size scenarios

In the second stage (Secondary Sampling), within each selected EA, households were randomly selected, following a listing process which created a master list of households that fit the required criteria; that at least one member of the household was engaged in agricultural production of the target crop linked to the EA.

3.3 Data Collection and Quality Control

3.4 Fieldwork and Data Collection

Fieldwork covered an overall period of about 5 weeks, beginning November 21st, 2016, for listing and both quantitative and qualitative surveys. The selected period coincided with the harvest period for the target crops for most farmers, while ensuring that fieldwork ended before the Christmas festivities scheduled for December 24th, 2016. Prior to that, enumerators for the quantitative survey received training on the content and techniques for administering the instrument, after which they deployed to the fields.

As mentioned earlier in the section on sampling strategy, listing data collected on households in the chosen EAs is to build a master for household random selection. This data indicated on each listed household, the name and contact information for the household head, household size and whether they satisfied the criteria of farming at least one acre of the target crop. At least there were 18 households sampled from each EA. Immediately after listing; enumeration teams randomly selected households, with backups, to begin quantitative interviews.

The instruments focused on farming activities of households in both regions, for all stages of production of the target crops, and household welfare, related to income, food security and housing conditions. The questions in the quantitative instrument covered land tenure and use, input adoption, agronomic practices, harvest, storage and sales, income and employment, housing conditions, food security and the *Women Empowerment in Agriculture Index*. As part of the quantitative fieldwork, data collectors measured plot sizes, using specialised logging devices, which produced satellite-generated GPS coordinates, measurement and maps of farm plots for a third of the selected households.

The qualitative fieldwork begun in March 2017. The interviews took a different format and consisted of Key Informant Interviews (KIIs) with agents of stakeholder organisations such as the Ministry of Agriculture, Water and Water Resources (Ministère de l'Agriculture et des Aménagements Hydrauliques), extension officers and aggregators. Additionally, In Depth Interviews (IDIs) and Focus Group Discussions (FGDs) with farmers was also done. The enumerators were assigned based on language proficiency relevant to the areas.

Two data collection instruments were employed to collect data for the qualitative baseline study. These are semi-structured interview and discussion guides. Both instruments focused on areas of the baseline study. Semi-structured interview guides used as instruments to conduct IDIs and KIIs. A semi-structured discussion guide designed to conduct the FGDs. They focused on the following areas for each interview:

1. Structure, activities and sources of households income
2. Asset, wealth, income and food security
3. Access and use of agricultural inputs
4. The management and use of agricultural output
5. Women empowerment in agriculture

6. Potential extraneous variables

3.5 Quality Control

Throughout the quantitative data collection process, the research team monitored the data collection process to ensure that interviews ethical conduct and that the data met the quality standards set by ISSER. The following steps informed the conduct:

- Enumerators conducted interviews using a computer-assisted personal interview (CAPI) setup installed on tablets. At the end of day's work, team supervisors were required to review and upload data for onward transmission to CAPI operations team in Accra. The research team reviewed the available data and, for any issue, contacted the team associated with the specific case for clarification and corrections.
- Twice during the period, two teams comprising of members of the research team visited field workers to monitor the data collection process, provide necessary logistics and address any issues that came to their attention while in the field. Field teams reported their progress at each turn, so that the research team could ensure timely monitoring.

3.6 Key Observations and Concerns

During the listing and data collection process, field teams in Cascades and Hauts-Bassins were partially unreachable due to poor telephone and internet coverage. This mainly hampered the progress in field measurement data uploads using the GPS logger devices. Also, lack of electricity in some villages, forced some teams to go far, looking for power to charge the tablets, this was mainly due to the lack of portable power chargers at the beginning of the survey due to difficulties met in the preparation process;

Although the fieldwork fixed end of the year, a number of households had not yet harvested their plots. This characterised all the EAs for cassava, although some households also recorded zero harvest at the time for the other target crops. The expectation is that follow-up surveys, if done at the same time of the year, will encounter a similar occurrence.

During the 2015/2016 farming season, the country experience serious drought conditions, as rainfall was limited to a month and a half instead of the usual five months. According to farmers, this unusual phenomenon has the possibility of increasing the loss of crops in the survey year.

4 Descriptive Characteristics

In this section, we offer a snapshot of the households and the key characteristics that describe them on average, broken down by region and then by the main crop that they farm given the EA in which they reside.

4.1 Demographics

By the end of fieldwork, household-level data had been collected for 3,162 farming households in the Boucle de Mouhoun, Cascades, Centre-Est, Centre-Ouest and Hauts-Bassins regions in the

quantitative study. For Boucle de Mouhoun and Hauts-Bassins, households sampled for all four-target crops (Sorghum, Maize, Rice and Cowpea) while, in the Centre-Est and Centre-Ouest regions, they sampled for three target crops maize, rice and cowpea for Centre-Est and Sorghum, Maize and Cowpea for Centre-Ouest. For the Cascades region, households were sampled for two target crops: Maize and Rice. The demographic characteristics of the household heads and members are presented in Table 2 below.

Households are large on average, with about eight (8) members living in the same home, sharing farming and feeding arrangements. Overall, there are more male household members than females, with maize-growing homes in Boucle de Mouhoun having the largest proportion of male members. Cowpea-growing households in Centre-Ouest and Sorghum households in the Cascades, however, have majority female members. Households are relatively smaller in Cascades than in the other four regions; between 7 to 8 members compared to 8 to 9, respectively. Households are majority male-headed (97.05%) with the share of male heads even higher in the Hauts-Bassins region (100 – 98.7%) compared to the other regions. The largest proportion of female heads for rice households are in Centre-Est as well as maize-growing households in the same region.

The average age of household members is approximately 22 years old, while household heads averaged about 48 years of age. Households in Rice communities in the Boucle de Mouhoun region and Sorghum communities in the Cascades region showed the lowest average age for household members, while the highest recorded was in cowpea-growing communities in Cascades. The total sample shows that the population is young, with close to half of household (45.3%) of members aged 0-14 years old. This share is higher in the Centre Est and Ouest regions, than in the other regions for all comparable crop groupings. The age and sex population distribution pyramids in Figure 2 below show the concentration of household members within the age group 0-24, for the overall sample and each region. For female members, there is a larger percentage aged 25 and above than for there are for the males (Table 3).

Table 2: Demographic characteristics of sampled households (Household Composition)

Indicator and Region	Target Crop							
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Household Composition								
	No. of Households				Household size			
Boucle de Mouhoun	180	225	255	135	9.0	9.2	9.3	8.8
Cascades	75	45	91	90	8.1	8.5	7.2	8.1
Centre-Est	175	111	229	216	8.2	8.6	8.1	8.2
Centre-Ouest	165	195	255	120	8.0	7.4	7.9	7.7
Hauts-Bassins	150	151	195	105	9.8	8.8	9.4	8.4
Overall	745	727	1,025	666	8.7	8.4	8.5	8.2
Total Sample	3162				8.5			
Gender Breakdown of HH Heads								
	Male				Female			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	100.0	98.7	99.2	97.8	0.0	1.3	0.8	2.2
Cascades	97.3	100.0	97.8	95.6	2.7	0.0	2.2	4.4
Centre-Est	91.4	99.1	97.4	89.4	8.6	0.9	2.6	10.7
Centre-Ouest	97.0	96.9	94.1	94.2	3.0	3.1	5.9	5.8
Hauts-Bassins	100.0	98.7	99.5	100.0	97.1	98.4	97.5	94.4
Overall	0.0	1.3	0.5	0.0	3.0	1.7	2.5	5.6
Total Sample	97.1				3.1			
Gender Breakdown of HH Members								
	Male				Female			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	52.5	51.0	51.9	49.5	47.5	49.0	48.1	50.5
Cascades	50.9	47.6	51.5	49.9	49.1	52.4	48.6	50.1
Centre-Est	48.3	50.5	47.2	46.2	51.7	49.5	52.9	53.8
Centre-Ouest	47.8	48.3	46.9	49.5	48.3	51.7	53.1	50.5
Hauts-Bassins	49.3	49.5	50.7	50.5	50.7	50.5	49.3	49.6
Overall	49.7	49.8	49.5	48.7	50.3	50.2	50.5	51.3
Total Sample	49.4				50.6			

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 3: Demographic characteristics of sampled households (Age Structure)

Indicator and Region	Target Crop											
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Average Age												
	HH Heads				HH Members							
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	46.7	47.0	48.1	44.6	22.0	21.8	22.2	20.6	-----	-----	-----	-----
Cascades	49.3	46.8	45.2	48.5	22.5	20.2	23.2	22.5	-----	-----	-----	-----
Centre-Est	48.7	50.9	47.4	48.3	21.4	22.4	22.2	21.7	-----	-----	-----	-----
Centre-Ouest	47.3	47.5	49.5	47.6	21.6	21.7	22.2	21.3	-----	-----	-----	-----
Hauts-Bassins	45.0	44.7	49.4	46.3	21.5	20.7	22.2	21.4	-----	-----	-----	-----
Overall	47.2	47.2	48.3	47.2	21.7	21.5	22.2	21.5	-----	-----	-----	-----
Total Sample	47.6				21.8							
Age Breakdown												
	0-14				15-64				65+			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	42.1	43.3	43.8	46.1	56.2	54.6	53.7	52.3	1.7	2.1	2.5	1.6
Cascades	44.2	47.1	44.0	42.4	53.2	51.1	53.4	55.3	2.6	1.8	2.6	2.3
Centre-Est	48.1	45.0	43.8	46.9	47.9	50.6	52.6	49.6	4.1	4.4	3.6	3.5
Centre-Ouest	47.1	46.6	47.3	48.1	50.2	50.1	49.1	50.0	2.7	3.3	3.6	2.0
Hauts-Bassins	45.4	46.9	44.6	44.8	52.4	51.8	52.6	51.9	2.2	1.4	2.8	3.3
Overall	45.4	45.3	44.8	46.0	52.0	52.1	52.2	51.4	2.7	2.6	3.1	2.6
Total Sample	45.3				51.9				2.8			
HH Dependency Ratio												
	Maize	Sorghum	Cowpea	Rice								
Boucle de Mouhoun	0.9	1.0	1.0	1.6								
Cascades	1.0	1.1	1.1	0.9								
Centre-Est	1.3	1.1	1.1	1.2								
Centre-Ouest	1.2	1.2	1.3	1.1								
Hauts-Bassins	1.0	1.0	1.1	1.1								
Overall	1.1	1.1	1.1	1.1								
Total Sample	1.1											

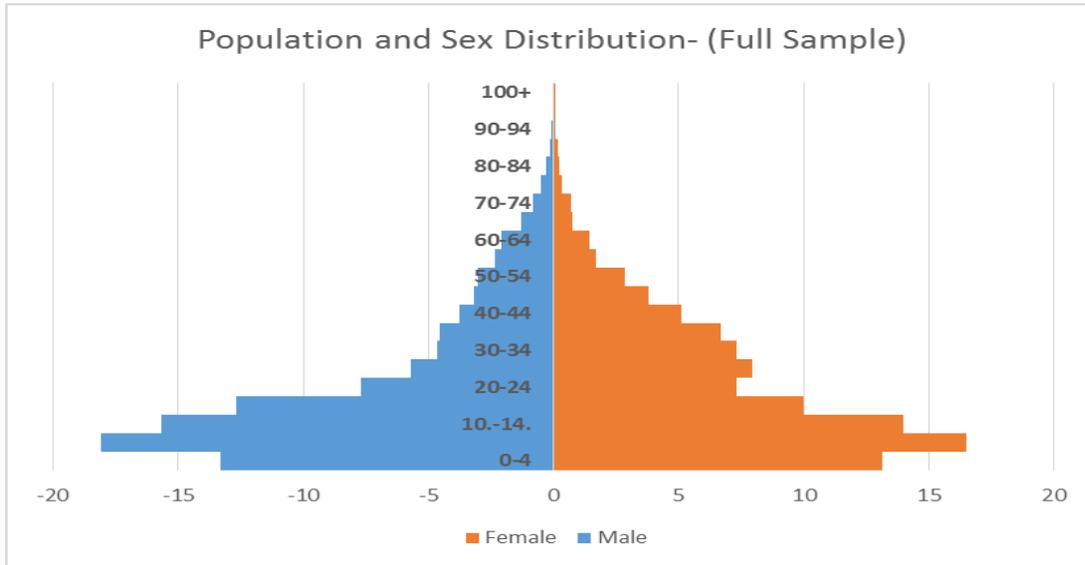
Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 4: Demographic characteristics of sampled households (Marital Status)

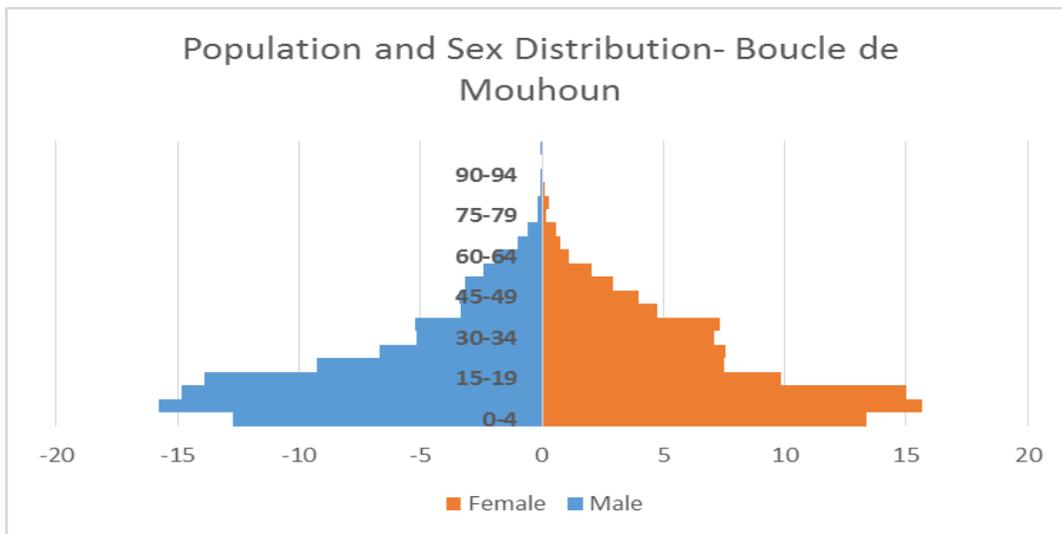
Marital Status of HH Head																
	Boucle de Mouhoun				Cascades				Centre-Est				Centre-Ouest			
	Ma ize	So rg hu	Co wp ca	Ric e	Ma ize	So rg hu	Co wp ca	Ric e	Ma ize	So rg hu	Co wp ca	Ric e	Ma ize	So rg hu	Co wp ca	Ric e
Single	2.2	0.9	0.0	0.0	1.3	0.0	0.0	0.0	0.6	0.9	0.4	0.0	1.2	0.5	0.8	5.8
Monogamous married	63.3	53.3	63.5	55.6	52.0	55.6	75.8	53.3	53.1	48.7	63.8	61.6	52.1	58.5	52.9	46.7
Polygamous married	32.8	43.6	34.1	42.2	42.7	44.4	23.1	42.2	40.0	46.9	34.9	31.5	44.2	37.4	40.0	40.8
Divorced	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Widowed	1.1	1.8	2.4	2.2	4.0	0.0	1.1	4.4	3.4	3.6	0.4	6.0	2.4	3.6	5.5	6.7
Separated	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.4	0.9	0.0	0.0	0.8	0.0
Cohabitation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Hauts-Bassins				Overall				Total Sample							
Single	0.0	0.7	0.5	0.0	1.1	0.7	0.4	1.1	0.8				-			
Monogamous married	50.0	51.0	49.7	62.9	54.6	53.7	59.4	56.8	56.4							
Polygamous married	48.7	46.4	48.7	37.1	41.2	43.1	37.6	37.7	39.7							
Divorced	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.1							
Widowed	1.3	2.0	1.0	0.0	2.3	2.5	2.3	4.2	2.8							
Separated	0.0	0.0	0.0	0.0	0.4	0.0	0.3	0.3	0.3							
Cohabitation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Figure 2: Population Age and Sex Distribution of Sample (by Region)

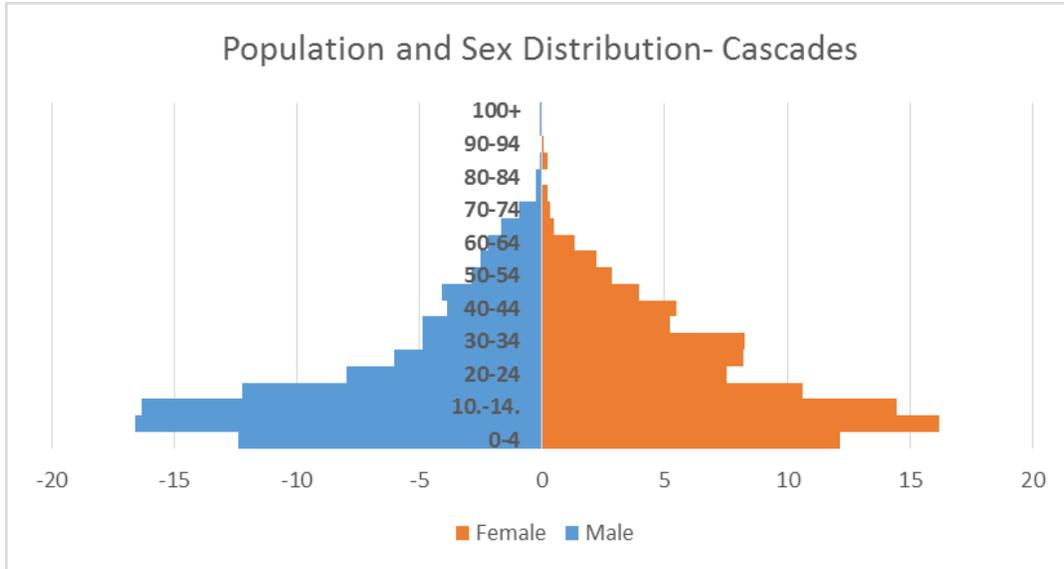


Source: ISSER – Burkina Faso Baseline Data (AGRA)

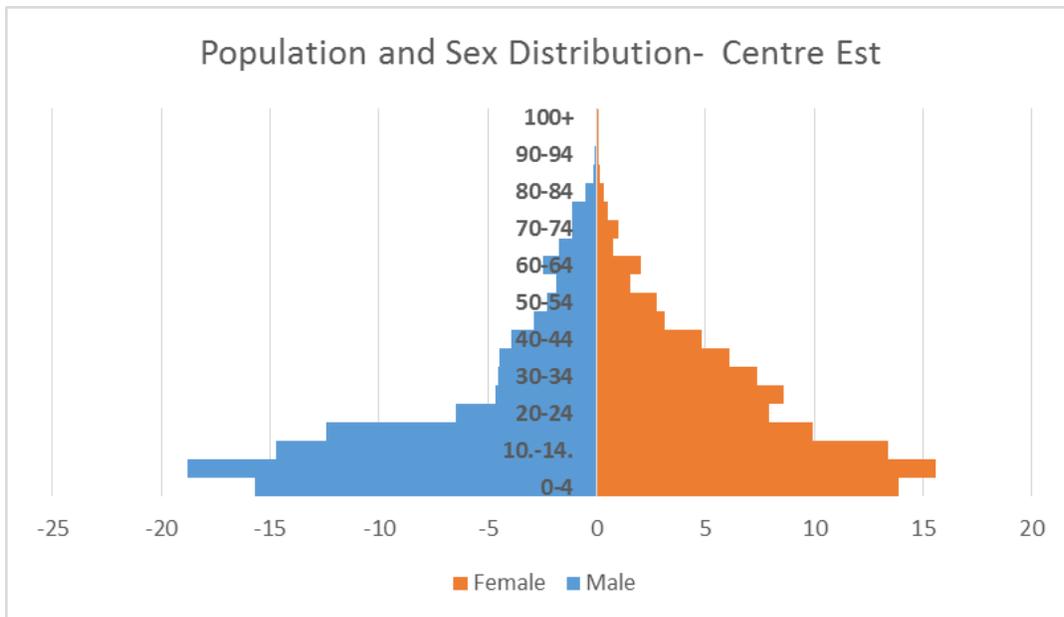


Source: ISSER – Burkina Faso Baseline Data (AGRA)

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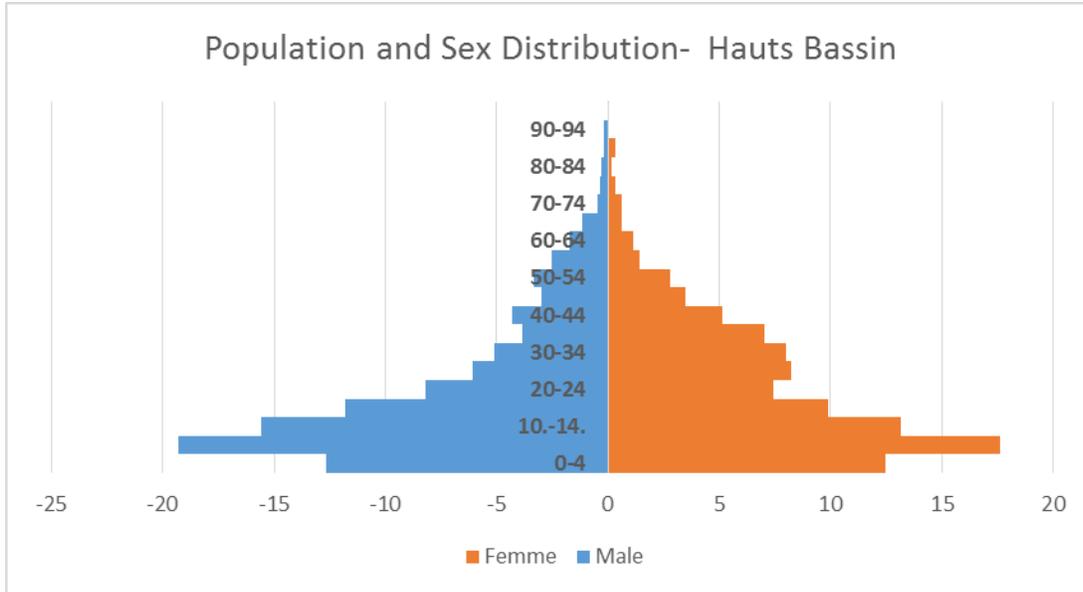


Source: ISSER – Burkina Faso Baseline Data (AGRA)

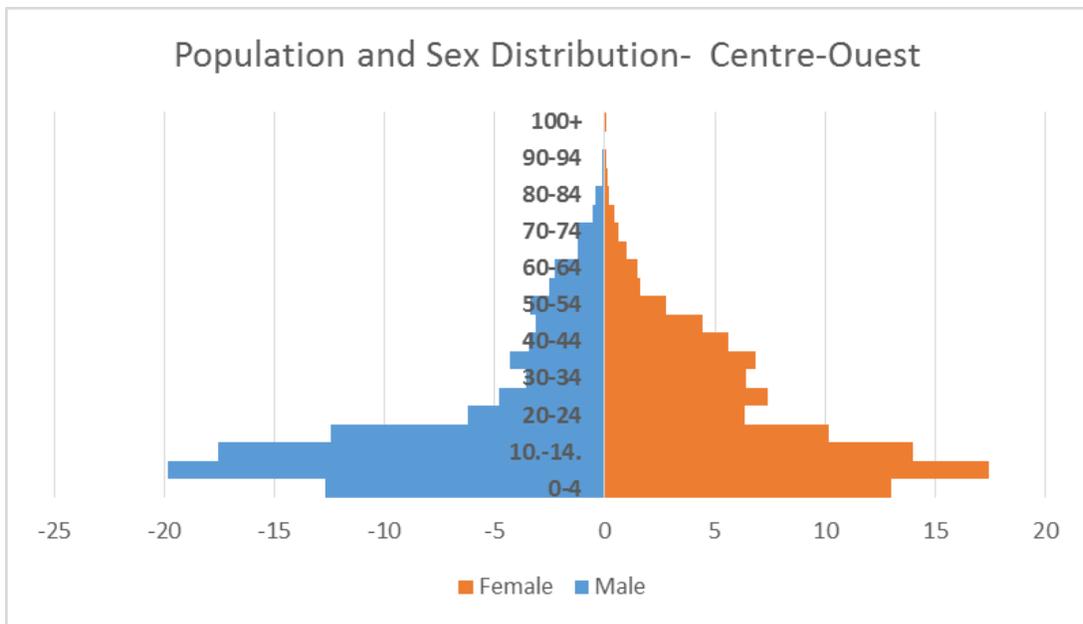


Source: ISSER – Burkina Faso Baseline Data (AGRA)

AGRA Baseline Study in Burkina Faso



Source: ISSER – Burkina Faso Baseline Data (AGRA)



Source: ISSER – Burkina Faso Baseline Data (AGRA)

Finally, we look at the marital status of household heads. Majority of the overall sample (56.40%) are in monogamous unions. The proportion is very high for Boucle de Mouhoun, Cascades and Centre-Est regional households, as there are more heads in monogamous marriages, especially compared to the status of other regional heads. Another interesting trend shows that no heads in the sampled regions (Table 4) cohabited.

4.2 Education and Literacy

This section assesses educational access and literacy of household heads and members. This characteristic is an important determinant of the success of agricultural interventions, as it influences uptake of inputs, practice of agronomic practices and understanding of extension advice. Respondents asked to indicate whether they had ever attended school and literacy levels, defined by their ability to read or write a phrase in English.

At 18.5 percent, less than a quarter of the household heads interviewed had completed at least one level of education. We observe some marked differences between the focus regions for this particular indicator. The proportion of educated household heads in Boucle de Mouhoun, Cascades, and Hauts-Bassins appear larger than they are in the Centre-Est and Ouest regions. When it comes to current enrolment, investigated for all households and a subset of members of school going age (3-25), two key trends stand out. First, the overall the share of household members currently enrolled in school (28.16%) surpass that of household heads that have ever attended school. By region, similar trends occur except for maize households in Boucle de Mouhoun as well as rice households in Cascades. The second observation is that, in the case of current enrolment, the Boucle de Mouhoun, Cascades and Centre-Ouest region has a larger percentage of current enrolment than the Centre-Est and Hauts-Bassins region. (Table 5)

The sample hosts slightly above a quarter illiterate adult populations, with only 21.60% and 20.77% of household members, aged 15 and above, indicating that they could read or write, respectively. The share of literate household head is slightly smaller: 18.37% reading and 17.14% writing. Following the trend of school attendance, literacy rates are lower in the Centre-Est region than in the remaining four regions

Table 5: Education and literacy of households

Indicator and Region	Target Crop							
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Ever Attended (HH Heads)								
Boucle de Mouhoun	34.4	13.3	24.3	18.5				
Cascades	20.0	8.9	18.7	36.7				
Centre-Est	17.7	14.4	15.7	13.4				
Centre-Ouest	14.6	16.4	16.1	15.8				
Hauts-Bassins	24.7	19.2	10.8	21.0				
Overall	22.7	15.3	17.3	19.2				
Total Sample	18.5							
Current Enrolment	All Ages				Ages 3-25			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	30.1	26.1	26.7	25.0	46.5	40.6	41.0	37.4
Cascades	36.9	27.8	29.7	31.2	58.8	40.9	48.6	51.2
Centre-Est	27.2	23.7	26.4	26.2	41.8	37.1	40.8	40.5
Centre-Ouest	31.3	31.1	32.4	35.8	47.2	47.4	49.8	54.5
Hauts-Bassins	30.8	26.3	21.4	27.0	48.2	39.0	33.9	41.7
Overall	30.5	27.0	27.1	28.4	47.2	41.4	42.1	43.8
Total Sample	28.2				43.5			
Adult Literacy (15+)	% that can read				% that can write			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	28.4	20.8	21.4	22.1	26.0	18.3	19.1	21.3
Cascades	30.3	12.1	20.0	22.9	29.9	12.1	20.0	22.7
Centre-Est	21.0	16.7	20.1	18.3	20.9	16.5	19.7	18.2
Centre-Ouest	23.0	19.1	20.7	27.5	22.1	18.4	20.6	26.6
Hauts-Bassins	24.0	18.5	21.1	23.9	23.6	18.2	20.8	23.6
Overall	24.9	18.8	20.8	22.2	24.0	17.7	20.0	21.7
Total Sample	21.6				20.8			
HH Head Literacy	% that can read				% that can write			
	Maize	Sorghum	Cowpea	Rice	Maize	Sorghum	Cowpea	Rice
Boucle de Mouhoun	31.7	20.9	22.8	15.6	26.7	17.3	19.6	15.6
Cascades	16.0	8.9	15.4	23.3	16.0	8.9	15.4	23.3
Centre-Est	18.3	12.6	17.0	11.6	18.3	11.7	15.3	11.6
Centre-Ouest	17.6	13.9	16.1	19.2	15.8	12.8	16.1	17.5
Hauts-Bassins	22.6	15.9	18.0	22.9	21.3	15.9	18.0	22.9
Overall	22.0	16.0	18.2	17.1	20.1	14.4	17.1	16.8
Total Sample	18.4				17.4			

Source: ISSER – Burkina Faso Baseline Data (AGRA)

5 Household Welfare

In this section, we examine the welfare indicators for farmers of the four (4) target crops in Burkina Faso, provided by the country business plans published by AGRA in relation to their outlined strategy for the country. This baseline report looks particularly at five welfare indicators: Income and Employment, Food Security, Access to Credit and Saving, Household Assets and Housing Characteristics.

5.1 Income and Employment

This chapter presents the results of the employment and income levels of target crop farmers in the survey. Although, the sampled farmers are primarily engaged in farming, the survey also looks at income earned from self-employment or non-farm employment, which, in one way or the other, may supplement the income of the household. In addition to this, the report also looks at the ability of farmer households to employ other people in their households by paying these employees some wages. In terms of general welfare, the ability to take care of one's self as well as other members in a household cannot be underestimated.

As we analyse income in terms of the annual wages received from the various activities, the study also looks at the most common forms of activities that our study population cover. In this way, the study tries to draw some inferences from what farmers do outside their usual farming activities.

The section starts by looking at the number of farmers who as at the time of the survey had salaried individuals working in their households. Although, among the target crop farmers no significant number has salaried employees, it is worth mentioning that, some few fall within this category. Table 6 below shows the number of people who have salaried workers as well as those farmers who do not. This is broken down at the target crop level and at the regional level.

It shows that just 34 farmers agreed that they had some individuals who they paid at the end of each month for some services they rendered to them. In terms of regional distribution, Sorghum farmers in the Centre Est region had the highest number of individuals who had salaried employee, followed by Cowpea farmers in the Centre Ouest region, with five farmer households who indicated that they paid salaries to employees.

Table 6: Farmers with Salaried Employees by target crop and region

Indicator and Region	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Salaried Employees											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	0	180	0	225	3	252	0	135	3	792
	%	0.0	100.0	0.0	100.0	1.2	98.8	0.0	100.0	0.4	99.6
Cascades	Freq.	4	71	0	45	0	91	3	87	7	294
	%	5.3	94.7	0.0	100.0	0.0	100.0	3.3	96.7	2.3	97.7
Centre Est	Freq.	0	175	6	105	3	226	0	216	9	722
	%	0.0	100.0	5.4	94.6	1.3	98.7	0.0	100.0	1.2	98.8
Centre-Ouest	Freq.	3	162	1	194	5	250	2	118	11	724
	%	1.8	98.2	0.5	99.5	2.0	98.0	1.7	98.3	1.5	98.5
Hauts-Bassins	Freq.	2	148	0	149	0	195	2	103	4	595
	%	1.3	98.7	0.0	100.0	0.0	100.0	1.9	98.1	0.7	99.3
Total	Freq.	9	736	7	718	11	1,014	7	659	34	3,127
	%	1.2	98.8	1.0	99.0	1.1	98.9	1.1	99.0	1.1	98.9

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 7: Distribution of Farmers Engaging in off-farm Activities by Crop and Region

Indicator and Region	Target Crop					
		Maize	Sorghum	Cowpea	Rice	Overall
Engages in Non-farm Activities						
Boucle Du Mouhoun	Freq.	132	101	174	99	506
	%	10.1	6.0	9.2	10.4	8.7
Cascades	Freq.	12	0	22	15	49
	%	2.4	0.0	4.1	2.5	2.6
Centre Est	Freq.	87	42	137	115	381
	%	7.9	5.6	9.3	8.2	8.1
Centre Ouest	Freq.	65	89	95	42	291
	%	6.1	7.9	5.9	5.7	6.4
Hauts-Bassins	Freq.	56	41	79	48	224
	%	4.7	3.9	5.4	6.9	5.1
Total	Freq.	352	273	507	319	1,451
	%	6.8	5.6	7.3	7.3	6.8

Source: ISSER – Burkina Faso Baseline Data (AGRA)

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Next, we look at the number of household members who are engaged in off-farm activities. The study assessed several off-farm activities. However, not all these activities could feature specifically in the analysis.

For ease of expression and clarity, the top ten (10) non-farm activities, selected and categorized, with the remaining activities labelled as “Other”.

Table 7 above shows the distribution of the number of farmers that engage in non-farm activities recorded in the survey based on the target crop and the region in which they grow. Among farmers surveyed in the study, 1,451 (6.7%) agreed that they in one way or the other engaged in non-farm activities irrespective of their usual activities on their farms.

In the Boucle de Mouhoun region, 506 farmers (8.6%) had some non-farm activities they engaged in. This region had the highest number and proportion of farmers engaged in non-farm activities. In this region, 174 Cowpea farmers, representing about 9.17% of the total population of cowpea growers stated that, apart from growing cowpea, they engaged in other activities that had nothing to do with cassava cultivation. This was followed by 132 (10.06%) of Maize farmers in the region. The lowest number of households with off-farm participation is in Rice households, with 99 households making 10.42% of the sample. The lowest number and proportion of farmers performing off-farm activities are in the Cascades region; 49 farmers (2.55 %). There were no sorghum farmers recording non-farm activities in this region. Farmers engaged in off-farm work remain at double-digit level for this region.

From the study, we see that, farmers in non-farm employment earned an average net profit of \$273.22 in the 2015/2016 farming season. In terms of regional and crop breakdown Maize farmers engaged in non-farm activities in the Centre-Est region made the most net profit earnings of \$507.76 annually, as the highest in the study. Sorghum and Rice farmers in the Hauts-Bassins region who are engaged in non-farm activities made some losses (\$44.67 and -1.16 annually respectively). Cowpea farmers in Cascades engaged in non-farm activities also made some losses (\$45.69 annually)

The study also tries to ascertain the number of sampled target crop farmers engaged in salaried employment in the 2015/2016 farming season. In terms of salaried work, the study includes pensions as well as local and foreign remittances. Table 10 below shows the distribution of individuals who agree they had some kind of salaried employment.

Table 8: Distribution of 10 Most Common Non-Farm Activities by Target Crop and Region

Region and crop Type	Du	Boucle	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Agricultural Trading	Manufacturing Beverages	Retail Shop/Kiosk	Livestock Trading	Pet Breeding	Earning dividends	Masonry	Building	Clothes/Shoes Business	Fish Trading	Tailor	Other
	Du	MZ	3.6	1.2	3.6	1.2	3.2	2	0.8	2	0.4	2	0	80				
		SG	3	0	0.8	0.4	1.9	3.8	0.4	1.5	0	2.6	0	85.7				
		CP	8	1.2	1.8	2.4	2.7	3.6	0.6	1.2	1.8	0	0.9	76				
		RC	4.4	0	1.7	1.7	1.1	0.6	0.6	1.7	0	0.6	0.6	87.4				
		OV	5	0.7	1.9	1.5	2.3	2.7	0.6	1.6	0.7	1.3	0.4	81.5				
	Cascades	MZ	0	0	8	1.3	0	0	1.3	0	1.3	0	2.7	85.3				
		SG	0	0	0	0	0	0	0	0	0	0	0	100				
		CP	0	8.2	2	0	0	0	0	1	0	0	1	87.8				
		RC	1.1	0	2.2	0	0	0	1.1	0	2.2	0	2.2	91				
		OV	0.3	2.6	3.2	0.3	0	0	0.7	0.3	1	0	1.6	90				
	Centre Est	MZ	2.5	2	1	1.5	0.5	0	1.5	0.5	0.5	0	0	90.2				
		SG	0	0	1.6	0.8	0	0	0	0	0.8	0	0	96.9				
		CP	4.9	1.4	0.7	1.7	0	0	0.4	0.7	0.7	0	0.7	88.7				
		RC	5.9	2.4	0.8	0.8	0	0	1.2	0	1.2	0	1.2	86.7				
		OV	3.9	1.6	0.9	1.3	0.1	0	0.8	0.3	0.8	0	0.6	89.7				
	Centre Ouest	MZ	8	2.1	0	2.7	0	0.5	0.5	0.5	0	0.5	0	85.1				
		SG	15.4	5.3	1.3	0.9	0	0.4	0.9	0.4	0.9	0.4	0.4	73.7				
		CP	14.3	3.1	1.4	2.1	0	0	0.7	0	0.4	1.1	0.4	76.7				
		RC	10.9	2.3	0	4.7	0	1.6	0.8	0.8	0.8	0	0.8	77.3				
		OV	12.6	3.4	0.8	2.3	0	0.5	0.7	0.4	0.5	0.6	0.4	77.9				
Hauts-Bassins	MZ	4.7	3.6	3	0	0	0	1.8	0.6	0	0.6	0	85.8					
	SG	2.4	11.6	1.2	0.6	0.6	0	0	0	0	0	1.2	82.3					
	CP	3.5	4.9	2.7	0.4	0.4	0	1.3	0	0	0.9	0.4	85.4					
	RC	0.8	7.3	1.6	0	0	0	0	0	0.8	0.8	1.6	87					
	OV	3.1	6.6	2.2	0.3	0.3	0	0.9	0.2	0.2	0.6	0.7	85					

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Notes: *MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

Table 9: Mean Annual Non-farm Income by Target Crop and Region

Indicator and Region	Target Crop				
	Maize	Sorghum	Cowpea	Rice	Overall
Mean Annual Non-farm Income by Crop and Region (US\$)					
Boucle Du Mouhoun	220.43	419.15	197.83	211.23	247.49
Cascades	278.18	-	-45.69	252.60	167.37
Centre-Est	507.76	468.31	341.90	319.89	387.40
Centre-Ouest	253.19	261.54	259.84	285.56	262.91
Hauts-Bassins	29.18	-44.67	49.57	-1.16	22.17
Total	313.22	327.08	236.99	251.86	273.22

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 10: Distribution of Farmers with in Salaried Employment by Target Crop and Region

Indicator and Region		Target Crop									
		Maize		Sorghum		Cowpea		Rice		Overall	
Does Household Member have Salaried Employment?											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	8	1,304	9	1,667	27	1,871	12	938	56	5,780
	%	0.6	99.4	0.5	99.5	1.0	99.0	1.3	98.7	1.0	99.0
Cascades	Freq.	11	483	0	300	4	530	1	593	16	1,906
	%	2.2	97.8	0.0	100.0	0.8	99.3	0.2	99.8	0.8	99.2
Centre Est	Freq.	10	1,088	5	744	9	1,462	11	1,394	35	4,688
	%	0.9	99.1	0.7	99.0	0.6	99.0	0.8	99.0	0.7	99.3
Centre Ouest	Freq.	21	1,043	18	1,114	11	1,595	5	735	55	4,487
	%	2.0	98.0	1.6	98.4	0.7	99.3	0.7	99.3	1.2	98.8
Hauts-Bassins	Freq.	5	1,177	14	1,046	30	1,448	21	676	70	4,347
	%	0.4	99.6	1.3	98.7	2.0	98.0	3.0	97.0	1.6	98.4
Total	Freq.	55	5,095	46	4,871	81	6,906	50	4,336	232	21,208
	%	1.1	98.9	0.9	99.1	1.2	98.8	1.1	98.9	1.1	98.9

Source: ISSER – Burkina Faso Baseline Data (AGRA)

In Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 10 232 (1.1%) individuals agreed to the fact that they were engaged in some sort of salaried employment. In the Hauts-Bassins region, 70 farmers (1.6%) had some salaried employment they engaged in. This region recorded the largest number of salaried individuals in on-farm employment. In this region, 2.0% of cowpea farmers were engaged in non-cowpea farm salaried jobs, 21 representing 3.01% of rice growers in the region agreed that apart from growing rice, they engaged in other wage related activities closely followed by 1.32% among sorghum farmers and, finally, 0.42% among maize farmers.

In the Cascades region, the lowest number of farmers (16) had some salary related activities they engaged in, making 0.84 of the regional sample. There were no sorghum farmers, recording salaried employment in this region. Eleven, representing 2.23% of maize growers in the region agreed that apart from growing maize, they engaged in salaried followed by 0.75% among cowpea farmers and finally 0.17% among Rice farmers.

In addition to this, we calculated the average earnings that target crop farmers made from these salaried engagements. Aggregation for annual incomes obtained from salaried employment captured in two ways. First, if the respondent confirmed that monthly income never changed in the course of the year, a sum over the 12 months gave annual salaried employment income. However, in cases where the respondent confirmed that payments were uneven over the course of the year, efforts were made to aggregate the different amounts obtained each month over the course of the year. Table 11 below shows the distribution of average annual income earned from salaried employment.

Table 11: Mean Annual Salaried Employment Income by Target Crop and Region

Indicator and Region	Target Crop				
	Maize	Sorghum	Cowpea	Rice	Overall
Average salary received by HH employees (US\$)					
Boucle Du Mouhoun	785.11	152.17	532.39	403.75	487.17
Cascades	465.40	-	588.03	19.37	460.19
Centre Est	154.73	1550.84	791.57	336.90	432.46
Centre Ouest	775.31	753.96	588.03	827.27	730.24
Hauts-Bassins	306.61	350.18	389.64	411.63	382.89
Total	548.95	516.36	506.41	427.98	499.82

Source: ISSER – Burkina Faso Baseline Data (AGRA)

From the study, we see that, farmers engaged in salaried employment earned an average income of \$500 in the 2015/2016 farming season. In terms of regional and crop breakdown, sorghum farmers engaged in salary related activities in the Centre Est region earned the highest salaries of \$1550 annually. Rice farmers in the Cascades region who are engaged salaried employment made the least profits (\$19 annually).

5.2 Food Security

Despite long-standing efforts to improve the food security situation of populations globally, food deprivation and its physical consequences remain a continuing problem in resource-poor areas

throughout the world. The Food and Agriculture Organization of the United Nations (FAO) estimated that, in 2010 alone, 925 million people worldwide did not have access to sufficient food to meet their dietary energy requirements (Coates, et al., 2007).

Household food access defined as the ability to acquire sufficient quality and quantity of food to meet all household members' nutritional requirements for productive lives.

Given the variety of activities implemented by AGRA to improve household food access and the significant challenges most surveys face in measuring household food access for reporting purposes, there is a need to build consensus on appropriate household food-access impact indicators. This section provides an approach to ascertain household dietary diversity as well as some measures of household food access. This is done in terms target crops and region.

The first step is to ascertain the types of food available and commonly consumed by households. This will inform the study on how food-secure-households are. USAID defines food security as, "when all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life." The three distinct variables essential to the attainment of food security include: 1) Food Availability. This is about the sufficient quantities of appropriate, necessary types of food from domestic production, commercial imports or donors other than USAID, which are consistently available to the individuals, are within reasonable proximity to them, or are within their reach. 2) Food Access: It is about individuals having adequate incomes or other resources to purchase or barter to obtain levels of appropriate food needed to maintain consumption of an adequate diet/nutrition level. 3) Food Utilization: This is where food is properly used, proper food processing and storage techniques employed, there is adequate knowledge of nutrition and childcare techniques exist and applied and adequate health and sanitation services exist (USAID, 1992).

Since availability of food is the first key to food security, the survey investigates the availability of some food crops in the household, which indicates some kind of household food security. Table 12 below shows the distribution of the five most commonly consumed foods in the surveyed household.

Table 12: Commonly Consumed Food Crops (Top 5)

Indicator and Region		Target Crop				
		Maize	Sorghum	Cowpea	Rice	Overall
Most commonly consumed foods (Top 5)						
Maize	Boucle Du Mouhoun	46.7	29.3	27.5	51.9	36.5
	Cascades	92.0	97.8	75.8	82.2	85.1
	Centre Est	62.3	39.6	51.5	53.7	52.9
	Centre Ouest	27.3	20.5	24.3	14.2	22.3
	Hauts-Bassins	96.6	68.0	92.8	79.1	85.1
	Total	60.6	40.8	48.8	54.1	50.8
Sorghum	Boucle Du Mouhoun	44.4	55.1	46.7	24.4	44.8
	Cascades	0.0	0.0	1.1	0.0	0.3
	Centre Est	28.0	48.7	36.2	23.6	32.4
	Centre Ouest	70.3	75.4	69.8	80.8	73.2
	Hauts-Bassins	0.0	26.7	5.1	5.7	9.4
	Total	33.0	50.3	38.2	28.1	37.6
Millet	Boucle Du Mouhoun	5.6	14.7	22.0	11.9	14.5
	Cascades					
	Centre Est	8.6	9.9	6.1	8.3	7.9
	Centre Ouest	2.4	4.1	5.1	4.2	4.1
	Hauts-Bassins	0.7	2.7	2.1	1.0	1.7
	Total	4.0	7.7	8.5	6.0	6.7
Cowpea	Boucle Du Mouhoun	0.6	0.9	3.9	3.0	2.1
	Cascades	1.3	0.0	0.0	0.0	0.3
	Centre Est	0.0	0.9	2.6	0.0	1.0
	Centre Ouest	0.0	0.0	0.8	0.0	0.3
	Hauts-Bassins	2.0	2.7	0.0	0.0	1.2
	Total	0.7	1.0	1.8	0.6	1.1
Rice	Boucle Du Mouhoun	2.8	0.0	0.0	8.9	2.1
	Cascades	6.7	2.2	23.1	17.8	14.3
	Centre Est	1.1	0.9	3.5	14.4	5.8
	Centre Ouest	0.0	0.0	0.0	0.8	0.1
	Hauts-Bassins	0.7	0.0	0.0	14.3	2.7
	Total	1.8	0.3	2.8	11.3	3.8

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The study revealed that Maize, Sorghum, Millet, Cowpea and Rice were the five most commonly consumed food. However, among these food crops, dried maize was most available in the surveyed households. The largest proportion of households 50.82% agreed that they had maize stocks for their food needs. The next most common food crop consumed was sorghum where 37.59% of households confirmed that they had sorghum in stock for consumption. Third most consumed food crop is millet and 6.74% households had this crop in stock. Fourth food crop recorded is rice where 3.77% agreed to the fact that they had this food crop in stock. Last is cowpea where 1.08% households had this food crop in stock.

In discussing food security, the study also tries to investigate the number of households that are currently experiencing or have experienced food shortages in the last 12 months. This food shortage experience is usually at the regional and the target crop level. **Error! Not a valid bookmark self-reference.** shows this distribution. From the surveyed sample of 3,163 households, a total 807 households (25.5%) agreed that they experienced food shortages in the course of the year.

In terms of regional distribution of food shortage Table 13 shows that the Centre Ouest region had the largest number of households experiencing food shortages; 288 households (35.69%), as compared to 44 households (5.45%) in the Cascades region. Farmers in a qualitative focus group discussion attributed the low food shortage in the Cascades region to both highland and lowland rice farming as well as the improved seed varieties that were adopted in the farming season. The following quotes shows how farmers linked adoption of improved varieties and mixed land rice farming to low food shortage in the Cascades region.

“...R3: It was a good feeling to use new rice seeds, it is good for low rain season and is better than old one, food and harvest is better than old seeds...” Male farmer in a FGD in Cascades

In a similar revelation, quantitative results showed that although Cascades had the lowest agricultural population among the study regions, the region adopted 13.3% of the nation's improved seed varieties.

“...Interviewer: How do you cope during food shortage?

Respondent: last year rainfall was not good, so water farming (lowland rice farming) rice farm was bad but many farmers also do dryland (upland farming) so we got rice from dryland farms...” male rice farmer in Cascades

The Cascades region is noted for both upland and lowland rice farming as noted in the regional profiles.

Table 13: Distribution of Households that Experienced Food Shortages

Indicator		Target Crop									
		Maize		Sorghum		Cowpea		Rice		Overall	
Household experience food shortage?											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	22	158	21	204	36	219	23	112	102	693
	%	12.2	87.8	9.3	90.7	14.1	85.9	17.0	83.0	12.8	87.2
Cascades	Freq.	9	66	6	39	15	76	14	76	44	257
	%	12.0	88.0	13.3	86.7	16.5	83.5	15.6	84.4	14.6	85.4
Centre Est	Freq.	84	91	39	72	83	146	72	144	278	453
	%	48.0	52.0	35.1	64.9	36.2	63.8	33.3	66.7	38.0	62.0
Centre Ouest	Freq.	74	91	78	117	103	152	34	86	289	446
	%	44.9	55.2	40.0	60.0	40.4	59.6	28.3	71.7	39.3	60.7
Hauts-Bassins	Freq.	14	136	24	126	37	158	21	84	96	504
	%	9.3	91.0	16.0	84.0	19.0	81.0	20.0	80.0	16.0	84.0
Total	Freq.	203	542	168	558	274	751	164	502	809	2,353
	%	27.3	72.8	23.1	76.9	26.7	73.3	24.6	75.4	25.6	74.4

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The next step in the study is to weigh households on a hunger scale to know target farmer households that are more or less prone to hunger. Arguably, one of the first steps to effectively addressing food insecurity is to establish reliable methods for measuring it. In the absence of reliable measurement, it is not possible to target interventions appropriately, to monitor and evaluate programs and policies, or to generate lessons learned to improve the effectiveness of these efforts in the future.

This study uses the Household Hunger Scale (HHS) to measure household hunger in food secure areas. The HHS is different from other household food insecurity indicators in that it has been specifically developed and validated for cross-cultural use. This means that the HHS produces valid and comparable results across cultures and settings so that the status of different population groups clearly shows in a meaningful and comparable way. The HHS is a household food deprivation scale, derives from the United States (U.S.) module for household food security survey for use in a developing country context and from research to assess the validity of the Household Food Insecurity Access Scale (HFIAS) for cross-cultural use.

Indicator		Target Crop				
		Maize	Sorghum	Cowpea	Rice	Overall
Hunger Scale						
Boucle du Mouhoun						
Little or no hunger	Freq.	125	155	147	97	524
	%	69.4	68.9	57.7	71.9	65.9
Moderate hunger	Freq.	53	65	97	37	252
	%	29.4	28.9	38.0	27.4	31.7

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Severe hunger	Freq.	2	5	11	1	19
	%	1.1	2.2	4.3	0.7	2.4
Cascades						
Little or no hunger	Freq.	68	38	67	76	249
	%	90.7	84.4	73.6	84.4	82.7
Moderate hunger	Freq.	7	7	21	14	49
	%	9.3	15.6	23.1	15.6	16.3
Severe hunger	Freq.	0	0	3	0	3
	%	0.0	0.0	3.3	0.0	1.0
Centre-Est						
Little or no hunger	Freq.	49	31	78	90	248
	%	28.0	27.9	34.1	41.7	33.9
Moderate hunger	Freq.	122	78	151	121	472
	%	69.7	70.3	65.9	56.0	64.6
Severe hunger	Freq.	4	2	0	5	11
	%	2.3	1.8	0.0	2.3	1.5
Centre-Ouest						
Little or no hunger	Freq.	89	119	146	75	429
	%	53.9	61.0	57.3	62.5	58.4
Moderate hunger	Freq.	68	70	98	42	278
	%	41.2	35.9	38.4	35.0	37.8
Severe hunger	Freq.	8	6	11	3	28
	%	4.9	3.1	4.3	2.5	3.8
Hauts-Bassins						
Little or no hunger	Freq.	100	95	94	59	348
	%	66.7	62.9	48.2	56.2	57.9
Moderate hunger	Freq.	50	56	101	46	253
	%	33.3	37.1	51.8	43.8	42.1
Severe hunger	Freq.	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0
Overall						
Little or no hunger	Freq.	431	438	532	397	1,798
	%	57.9	60.3	51.9	59.6	56.8
Moderate hunger	Freq.	300	276	468	260	1,304
	%	40.3	38.0	45.7	39.0	41.2
Severe hunger	Freq.	14	13	25	9	61
	%	1.9	1.8	2.4	1.4	1.9

below shows the distribution of household susceptibility to hunger by target crops and region.

Table 14: Hunger Scale by Target crop and Region

Indicator	Target Crop					
		Maize	Sorghum	Cowpea	Rice	Overall
Hunger Scale						
Boucle du Mouhoun						
Little or no hunger	Freq.	125	155	147	97	524
	%	69.4	68.9	57.7	71.9	65.9
Moderate hunger	Freq.	53	65	97	37	252
	%	29.4	28.9	38.0	27.4	31.7
Severe hunger	Freq.	2	5	11	1	19
	%	1.1	2.2	4.3	0.7	2.4
Cascades						
Little or no hunger	Freq.	68	38	67	76	249
	%	90.7	84.4	73.6	84.4	82.7
Moderate hunger	Freq.	7	7	21	14	49
	%	9.3	15.6	23.1	15.6	16.3
Severe hunger	Freq.	0	0	3	0	3
	%	0.0	0.0	3.3	0.0	1.0
Centre-Est						
Little or no hunger	Freq.	49	31	78	90	248
	%	28.0	27.9	34.1	41.7	33.9
Moderate hunger	Freq.	122	78	151	121	472
	%	69.7	70.3	65.9	56.0	64.6
Severe hunger	Freq.	4	2	0	5	11
	%	2.3	1.8	0.0	2.3	1.5
Centre-Ouest						
Little or no hunger	Freq.	89	119	146	75	429
	%	53.9	61.0	57.3	62.5	58.4
Moderate hunger	Freq.	68	70	98	42	278
	%	41.2	35.9	38.4	35.0	37.8
Severe hunger	Freq.	8	6	11	3	28
	%	4.9	3.1	4.3	2.5	3.8
Hauts-Bassins						
Little or no hunger	Freq.	100	95	94	59	348
	%	66.7	62.9	48.2	56.2	57.9
Moderate hunger	Freq.	50	56	101	46	253
	%	33.3	37.1	51.8	43.8	42.1
Severe hunger	Freq.	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0
Overall						
Little or no hunger	Freq.	431	438	532	397	1,798
	%	57.9	60.3	51.9	59.6	56.8
Moderate hunger	Freq.	300	276	468	260	1,304
	%	40.3	38.0	45.7	39.0	41.2
Severe hunger	Freq.	14	13	25	9	61
	%	1.9	1.8	2.4	1.4	1.9

Source: ISSER – Burkina Faso Baseline Data (AGRA)

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Indicator	Target Crop					
		Maize	Sorghum	Cowpea	Rice	Overall
Hunger Scale						
Boucle du Mouhoun						
Little or no hunger	Freq.	125	155	147	97	524
	%	69.4	68.9	57.7	71.9	65.9
Moderate hunger	Freq.	53	65	97	37	252
	%	29.4	28.9	38.0	27.4	31.7
Severe hunger	Freq.	2	5	11	1	19
	%	1.1	2.2	4.3	0.7	2.4
Cascades						
Little or no hunger	Freq.	68	38	67	76	249
	%	90.7	84.4	73.6	84.4	82.7
Moderate hunger	Freq.	7	7	21	14	49
	%	9.3	15.6	23.1	15.6	16.3
Severe hunger	Freq.	0	0	3	0	3
	%	0.0	0.0	3.3	0.0	1.0
Centre-Est						
Little or no hunger	Freq.	49	31	78	90	248
	%	28.0	27.9	34.1	41.7	33.9
Moderate hunger	Freq.	122	78	151	121	472
	%	69.7	70.3	65.9	56.0	64.6
Severe hunger	Freq.	4	2	0	5	11
	%	2.3	1.8	0.0	2.3	1.5
Centre-Ouest						
Little or no hunger	Freq.	89	119	146	75	429
	%	53.9	61.0	57.3	62.5	58.4
Moderate hunger	Freq.	68	70	98	42	278
	%	41.2	35.9	38.4	35.0	37.8
Severe hunger	Freq.	8	6	11	3	28
	%	4.9	3.1	4.3	2.5	3.8
Hauts-Bassins						
Little or no hunger	Freq.	100	95	94	59	348
	%	66.7	62.9	48.2	56.2	57.9
Moderate hunger	Freq.	50	56	101	46	253
	%	33.3	37.1	51.8	43.8	42.1
Severe hunger	Freq.	0	0	0	0	0
	%	0.0	0.0	0.0	0.0	0.0
Overall						
Little or no hunger	Freq.	431	438	532	397	1,798
	%	57.9	60.3	51.9	59.6	56.8
Moderate hunger	Freq.	300	276	468	260	1,304
	%	40.3	38.0	45.7	39.0	41.2
Severe hunger	Freq.	14	13	25	9	61
	%	1.9	1.8	2.4	1.4	1.9

shows that out of the total sample of 3,163 households, about 56.84% of this number were found to be experiencing little or no hunger at all when placed on the hunger scale. A thousand seven hundred and ninety-eight (1,798) households made this tally whereas 1,304 households (41.23%) when assessed on the hunger scale were found to be moderately hungry. In terms of households experiencing severe hunger, 61 households (1.93%) through the hunger scale were assessed to be experiencing severe hunger. In terms of regional assessment more than half of the target crop

farmers in all regions except Centre Est, experienced little to no hunger. Boucle du Mouhoun and Cascades had the top two largest proportion of households that experience very little hunger, 65.91 and 82.72 percent respectively. Centre Ouest (58.37%) and Hauts-Bassins (57.9%) follow these. Centre-Est recorded the largest level of household hunger, with 64.57% experiencing moderate hunger and 1.5% experiencing severe hunger. However, Centre Ouest recorded the largest share of households experiencing severe hunger (3.81%).

Finally, the study relying on the business plan for the country tried to evaluate the number of months in which households surveyed had adequate food supply. Although, these households farming households, there is no doubt about the seasonal nature of agriculture amongst small-scale farmers in Burkina Faso. There is therefore the need to know if there is any chance some households experience food shortages within the survey period. From Table 15 below, it can be seen that on the average most households did not experience food shortages, thus were adequately fed. Most households experienced at least 11 months of adequate food provision (Table 15).

Table 15: Average Number of Months of Adequate Food Provision

Indicator and Region	Target Crop				
	Maize	Sorghum	Cowpea	Rice	Overall
Average Number of Months of Adequate Food					
Boucle Du Mouhoun	11	10.8	10.8	10.6	11.0
Cascades	10.2	10.8	10.8	10.1	11.0
Centre Est	10.9	10.9	11.0	11.0	11.0
Centre Ouest	10.8	10.8	10.8	11.0	11.0
Hauts-Bassins	11.0	11.0	11.0	10.6	11.0
Total	11.0	11.0	11.0	11.0	11.0

Source: ISSER – Burkina Faso Baseline Data (AGRA)

5.3 Access to Credit and Savings

Agricultural credit access is significant to development in rural areas where farmer households reside. Improving local agricultural production starts with farmers financing the purchase of inputs, technology and mechanization and labour needed for expansion. It is therefore important to know the current situation concerning how farmer households obtain credit to run their day-to-day activities. This section tries to investigate if the first place farmers tried to get credit. Moreover, if they did, where did they seek it? Did they succeed in getting the credit? Lastly, if granted what was the credit used for? This section also looks at the saving attitudes of farmers surveyed. The study seeks to understand if savings exist in the first place as well as the channels through which savings pass.

To ascertain whether farmers tried to obtain credit, the study uses a period of 12 months probe if, within this period, any household member tried to get credit in cash or in kind for any purpose. Table 16 below shows the distribution among households in our two study regions who tried to obtain a loan taking into consideration the target crop they cultivated.

Table 16: Distribution of Households that tried to get Credit

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Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Did household try to get credit											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	24	156	6	219	18	237	21	114	69	726
	%	13.3	86.7	2.7	97.3	7.1	92.9	15.6	84.4	8.7	91.3
Cascades	Freq.	6	69	0	45	4	87	15	75	25	276
	%	8.0	92.0	0.0	100.0	4.4	95.6	16.7	83.3	8.3	91.7
Centre Est	Freq.	16	159	7	104	12	217	14	202	49	682
	%	9.1	90.9	6.3	93.7	5.2	94.8	6.5	93.5	6.7	93.3
Centre Ouest	Freq.	29	136	30	165	37	218	9	111	105	630
	%	17.6	82.4	15.4	84.6	14.5	85.5	7.5	92.5	14.3	85.7
Hauts-Bassins	Freq.	30	120	20	130	55	140	25	80	130	470
	%	20.0	80.0	13.3	86.7	28.2	71.8	23.8	76.2	21.7	78.3
Total	Freq.	105	640	63	663	126	899	84	582	378	2,784
	%	14.1	85.9	8.7	91.3	12.3	87.7	12.6	87.4	12.0	88.1

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Out of the surveyed households, 378 households representing 11.9% confirmed that some household members tried to obtain credit whereas the remaining 88.05% of the target crop farmers replied in the negative that they did not try to get any form of credit within the period specified, either in cash or in kind. In regional terms, the most target crop farmers seeking credit were found in the Hauts-Bassins region (130 representing 21.67%), compared to the least (25 farmers) found in the Cascades region.

In the next paragraphs, the study looks at where the credit came from. In this case, we look at the main channels through which households get credit. For the purposes of this baseline study, we selected ten (10) main channels for our investigation.

These are neighbours, Farmer groups, savings and credit cooperatives (SACCO), commercial banks, and relatives/friends, non-governmental organizations (NGO's) and Micro-finance Institutions (MFI), agricultural finance corporation (AFC), rural banks, informal moneylenders and traders. By anecdotal evidence, these are the main channels where most usually go when seeking credit.

Table 17 below shows this distribution by region and target crop.

From among farmers who sought credit, most households went to SACCO, Agricultural Financing Corporations, relatives, neighbours or traders, and this was the case for most farmers in the target crop groups in each region. NGOs and microfinance institutions were the least patronised credit source. In Boucle de Mouhoun, 49.28% of households sought credit from AFCs and 11.59 from SACCO. In the Cascades region, households popularly seek credit from SACCO (23.08%) and traders (23.08%) The Centre Est region has majority households, who seek credit, sourcing them from Relatives (55.1%) and Neighbours (12.24%). The Centre Ouest region mimics Boucle du Mouhoun with majority households seeking credit from SACCO (32.38%) and AFC (16.19%). Finally, households in the Hauts-Bassins region show a preference for SACCO and relatives as credit sources. However, a large majority (67.69%) indicated that they used other sources not covered by the survey.

Table 18 presents the results on the number of households that got the credit they sought taking into consideration the region and the target crop the household cultivated. Out of the 379 households that sought for loans, about 92.3% representing about 350 households actually obtained the credit requested. This is not surprising, because in

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Table 17 , we observe that most loans are from credit groups, relatives and neighbours. These groups rarely refuse them credit. Although rare, 29 (7.65%) households had their credit applications turned down.

Table 17: Sources of Household Credit by Target Crop and Regions

			Source of Credit sought										
			Neighbour	Farmer group	SACCO	Commercial bank	Relative/friend	NGO/MFI	AFC	Rural bank	Informal money lender	trader	Other (specify)
Region and target crop	Duhou	MZ	4.2	4.2	12.5	4.2	8.3	0	50	0	4.2	4.2	8.3
		SG	0	0	0	0	0	0	66.7	0	16.7	16.7	0
		CP	11.1	16.7	5.6	0	11.1	0	33.3	0	5.6	5.6	11.1
		RC	0	0	19.1	0	9.5	0	57.1	4.8	9.5	0	0
		V	4.4	5.8	11.6	1.5	8.7	0	49.3	1.5	7.3	4.4	5.8
	Cascades	MZ	0	0	0	0	0	0	0	0	0	83.3	16.7
		SG	0	0	0	0	0	0	0	0	0	0	0
		CP	0	50	50	0	0	0	0	0	0	0	0
		RC	6.3	12.5	25	0	0	0	18.8	0	0	6.3	31.3
		OV	3.9	15.4	23.1	0	0	0	11.5	0	0	23.1	23.1
	Centre Est	MZ	6.3	12.5	6.3	0	50	0	12.5	0	0	12.5	0
		SG	28.6	0	0	0	57.1	0	0	0	0	14.3	0
		CP	8.3	0	8.3	8.3	66.7	0	0	0	0	8.3	0
		RC	14.3	0	21.4	0	50	0	0	0	0	7.1	7.1
		OV	12.2	4.1	10.2	2	55.1	0	4.1	0	0	10.2	2
	Centre Ouest	MZ	17.2	3.5	51.7	0	10.3	0	6.9	3.5	0	3.5	3.5
		SG	6.7	13.3	23.3	6.7	10	0	26.7	0	10	0	3.3
		CP	8.1	16.2	21.6	0	29.7	0	16.2	0	0	2.7	5.4
		RC	11.1	22.2	33.3	11.1	11.1	0	11.1	0	0	0	0
		OV	10.5	11.4	32.4	2.9	17.1	0	16.2	1	2.9	1.9	3.8
Hauts-Bassins	MZ	0	3.3	3.3	3.3	6.7	0	3.3	0	0	13.3	66.7	
	SG	5	0	10	0	10	5	0	0	0	5	65	
	CP	5.5	1.8	5.5	0	10.9	0	0	1.8	0	7.3	67.3	
	RC	4	4	0	0	8	0	0	0	0	12	72	
	OV	3.9	2.3	4.6	0.8	9.2	0.8	0.8	0.8	0.8	0	9.2	67.7

Source: ISSER – Burkina Faso Baseline Data (AGRA),

Notes: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

Table 18: Distribution of Household that obtained Credit requested

Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Did household get credit											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	24	0	5	1	18	0	21	0	68	1
	%	100.0	0.0	83.3	16.7	100.0	0.0	100.0	0.0	98.6	1.5
Cascades	Freq.	6	0	0	0	4	0	15	1	25	1
	%	100.0	0.0	0.0	0.0	100.0	0.0	93.8	6.3	96.2	3.9
Centre Est	Freq.	15	1	7	0	10	2	11	3	43	6
	%	93.8	6.3	100.0	0.0	83.3	16.7	78.6	21.4	87.8	12.2
Centre Ouest	Freq.	28	1	30	0	35	2	8	1	101	4
	%	96.6	3.5	100.0	0.0	94.6	5.4	88.9	11.1	96.2	3.8
Hauts-Bassins	Freq.	27	3	18	2	45	10	23	2	113	17
	%	90.0	10.0	90.0	10.0	81.8	18.2	92.0	8.0	86.9	13.1
Total	Freq.	100	5	60	3	112	14	78	7	350	29
	%	95.2	4.8	95.2	4.8	88.9	11.1	91.8	8.2	92.4	7.7

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The exact amount households got was also of interest to the survey. This is shown in Table 19 below. The average credit amounts household received was about US\$485 annually. Most households sought for loans above US\$100, pointing to the fact that money might not only be needed for consumption but for investments as well.

Maize farmers in Hauts-Bassins obtained the highest amount in loans (US\$1,486), whereas rice farmers in Centre-Est obtained the least in loans (US\$114). A similar result was obtained for the regional averages as households in Hauts-Bassins obtained the highest credit amounts obtained while households in Centre-Est obtained the least amounts.

Table 19: Distribution of Credit Amounts Received (US\$)

Indicator and Region	Target Crop				
	Maize	Sorghum	Cowpea	Rice	Overall
Mean Annual Credit Obtained by Crop and Region (US\$)					
Boucle Du Mouhoun	376.27	742.65	309.22	302.62	362.72
Cascades	131.53	-	283.91	519.70	388.81
Centre-Est	188.74	115.72	135.54	113.74	145.29
Centre-Ouest	176.01	240.28	162.63	199.50	192.32
Hauts-Bassins	1485.90	849.67	700.13	983.32	969.34
Total	576.98	450.43	404.06	507.87	484.55

Source: ISSER – Burkina Faso Baseline Data (AGRA)

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The survey looks at the uses of the credit obtained. There were six (6) categories of uses considered; school fees, medical, household consumption, building a house, farming and other purposes.

Table 20 below shows the distribution of these uses by the region as well as the target crop.

Since the study concerned small-scale farmers, it is not surprising that the use of credit obtained for farming purposes topped the list of uses 85.29% for Boucle du Mouhoun, 84% for Cascades, 60.4% for Centre Ouest and 92.04% for Hauts-Bassins. For Centre Est, school fees (37.21%) were the most common use of credit.

The study now looks at the saving behaviour of the surveyed households in terms of their location and the target crop they cultivated. First, the study tried to investigate the number of households whose members had a bank account. For the purposes of this study a bank account could be held in a corporative or ROSCAS. Table 21 below shows this distribution.

About 255 households representing 8.06% of the survey household population confirmed that they had bank accounts. Most of the households (91.94%) do not have bank accounts. This is low and may be due to the levels of formal education; annual income and unavailability of financial institutions prevent such individuals from using formal financial saving instruments.

Table 22 below shows the various locations where the bank accounts are. As discussed in previous paragraphs, the rural nature of household concerned in the study reveals a similar category that recorded the most saving account holdings. Commercial banks are the most common locations in the survey where farmer households in Boucle Mouhoun and Cascades, Centre Ouest and Hauts-Bassins kept their savings. For Centre Est, 61.9% of bank accounts are in MFIs.

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Table 20: Uses of credit by household

			Uses of credit							
			School fees	Medical	Business	Buy Land	Household consumption	Build a house	Farming	Other
Region and Target crop	Boucle Mouhoun	MZ	0	0	0	0	12.5	0	83.3	4.2
		SG	0	0	0	0	0	0	100	0
		CP	0	5.6	0	0	22.2	0	72.2	0
		RC	0		0	0	4.8	0	95.2	0
		OV	0	1.5	0	0	11.8	0	85.2	1.5
	Cascades	MZ	0	0	0	0	33.3	0	66.7	0
		SG	0		25	0	0	0	75	0
		CP	0		0	0	0	0		0
		RC	0	6.7	0	0	0	0	93.3	0
		OV	0	4	4	0	8	0	84	0
	Centre Est	MZ	46.7	6.7	0	0	13.3	0	26.7	6.7
		SG	28.6	28.6	0	0	28.6	0	14.3	0
		CP	50	10	0	0	20	0	20	0
		RC	18.2	27.3	9.1	0	0	0	36.4	9.1
		OV	37.2	16.3	2.3	0	14	0	25.6	4.7
	Centre Ouest	MZ	10.7	10.7	7.1	0	3.6	0	64.3	3.6
		SG	3.3	6.7	20	0	6.7	0	60	3.3
		CP	5.7	8.6	11.4	0	5.7	2.9	57.1	8.6
		RC	12.5	0	12.5	0	0	12.5	62.5	0
		OV	6.9	7.9	12.9	0	5	2	60.4	5
Hauts-Bassins	MZ	0	0	0	3.7	0	0	92.6	3.7	
	SG	0	0	0		0	0	94.4	5.6	
	CP	0	0	0	2.2	0	0	95.6	2.2	
	RC	4.4	0	0	13	0	0	82.6	0	
	OV	0.9	0	0	4.4	0	0	92	2.7	

Source: ISSER – Burkina Faso Baseline Data (AGRA).

Notes: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

Table 21: Distribution of Households that have Bank Accounts

Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Bank Account Ownership											
		Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Boucle Du Mouhoun	Freq.	14	166	2	223	11	244	9	126	36	759
	%	7.8	92.0	0.9	99.0	4.3	96.0	6.7	93.3	4.5	95.5
Cascades	Freq.	8	67	1	44	11	80	11	79	31	270
	%	10.7	89.3	2.2	97.8	12.1	87.9	12.2	87.8	10.3	89.7
Centre Est	Freq.	7	168	3	108	20	209	10	206	40	691
	%	4.0	96.0	2.7	97.3	8.7	91.3	4.6	95.4	5.5	94.5
Centre Ouest	Freq.	34	131	17	178	18	237	16	104	85	650
	%	20.6	79.4	8.7	91.3	7.1	92.9	13.3	86.7	11.6	88.4
Hauts-Bassins	Freq.	22	128	17	133	13	182	11	94	63	537
	%	14.7	85.3	11.3	88.7	6.7	93.3	10.5	89.5	10.5	89.5
Total	Freq.	85	660	40	686	73	952	57	609	255	2,907
	%	11.4	88.6	5.5	94.5	7.1	92.9	8.6	91.4	8.1	91.9

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 22: Distribution of Account locations by Region and Target crop

			Place of Bank Account					
			Commercial bank	SACCO	MFI	Groups (ROSCAs)	Village bank/Rural	Phone banking/mobile
Target Crop and Region	Boucle Du Mouhoun	MZ	21.4	0	21.4	42.9	14.3	0
		SG	0	0	50	50	0	0
		CP	54.6	0	9.1	27.3	0	9.1
		RC	66.7	0	33.3	0	0	0
		OV	41.7	0	22.2	27.8	5.6	2.8
	Cascades	MZ	70	0	30	0	0	0
		SG	0	0	100	0	0	0
		CP	86.7	0	13.3	0	0	0
		RC	53.9	0	38.5	0	0	7.7
		OV	69.2	0	28.2	0	0	2.6
	Centre Est	MZ	14.3	0	42.9	14.3	28.6	0
		SG	0	0	100	0	0	0
		CP	4.6	0	59.1	22.7	13.6	0
		RC	20	0	70	0	0	10
		OV	9.5	0	61.9	14.3	11.9	2.4
	Centre Ouest	MZ	57.1	0	14.3	19.1	9.5	
		SG	50	0	0	33.3	11.1	5.6
		CP	64	0	4	20	0	12
		RC	31.3	0	37.5	12.5	12.5	6.3
		OV	53.5	0	12.9	20.8	7.9	5
	Hauts-Bassins	MZ	56.5	0	26.1	17.4	0	0
		SG	57.9	0	10.5	31.6	0	0
		CP	80	0	13.3	6.7	0	0
		RC	64.3	0	28.6	7.1	0	0
		OV	63.4	0	19.7	16.9	0	0

Source: ISSER – Burkina Faso Baseline Data (AGRA)

*MZ:Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

Table 23: Distance to Nearest Banking Point

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			Distance to Nearest Banking Point				
			Less than 5km	5-15km	15-30km	30-50km	Above 50km
Region and Target Crop	Boucle Du Mouhoun	MZ	57.1	0	7.1	35.7	0
		SG	0	50	50	0	0
		CP	36.4	36.4	18.2	9.1	0
		RC	55.6	11.1	22.2	0	11.1
		OV	47.2	16.7	16.7	16.7	2.8
	Cascades	MZ	80	0	20	0	0
		SG	0	0	0	100	0
		CP	40	6.7	46.7	7	0
		RC	23.1	15.4	53.9	7.7	0
		OV	43.6	7.7	41	7.7	0
	Centre-Est	MZ	28.6	28.6	14.3	28.6	0
		SG	0	0	33.3	66.7	0
		CP	18.2	18.2	18.2	40.9	4.6
		RC	30	40	30	0	0
		OV	21.4	23.8	21.4	31	2.4
	Centre-Ouest	MZ	9.5	26.2	61.9	2.4	0
		SG	33.3	5.6	16.7	38.9	5.6
		CP	8	40	36	16	0
		RC	50	25	6.3	6.3	12.5
		OV	19.8	25.7	38.6	12.9	3
	Hauts-Bassins	MZ	0	13	30.4	13	43.5
		SG	47.4	10.5	21.1	15.8	5.3
		CP	13.3	26.7	13.3	26.7	20
		RC	42.9	28.6	21.4	0	7.1
		OV	23.9	18.3	22.5	14.1	21.1

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Note: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

P: Cowpea, RC: Rice, OV: Overall

Table 23 above shows the distances that individuals have to travel to their various banking points. More often than not, a study would be interested in how close or how far individuals have to travel to cash some money from their savings. Usually distance to banking point is a strong incentive for individuals to hold savings accounts in the first place hence the importance of this variable in this study.

More than half of the surveyed farmers for this category (50.8%) have their saving accounts located less than 15km from where they live. At the regional level, most households are closer to banking points Boucle du Mouhoun, with 47.22% less than 5km away. However, for the other regions, banking points are generally further away. Centre-Est has the most households (30.95%) 30-50 km away.

5.4 Household Assets

Assets are key determinants of household welfare. Ownership or access to a range of assets largely determines the livelihood strategies of poor rural households and their ability to come out of poverty. In agriculture, the combination of assets endowments and access to agrarian institutions is crucial in forming the incentives faced by agricultural households and their ability to respond to changes in markets and policy. This is why a sizeable share of the agricultural economics literature, particularly those concerning developing regions, is devoted to the study of issues in wealth and asset creation for farmer households (Zezza, et al., 2007).

For the purposes of this study, we group assets into four (4) main categories namely: large mechanized agricultural assets, small agricultural assets, large household assets and small household items. Large agricultural assets comprise items such as animal traction, harrows, planters, power saws, etc., whereas small household assets consist of chaff cutters, hammers, wheelbarrows etc. On the other hand, large household assets comprise bicycles/motorcycles, computers etc.

Table 24 to Table 26 below shows the distribution ownership of household assets by region and target crop. No households recorded ownership of small agricultural assets.

For large agricultural assets, about a quarter of the households surveyed made up of about 1173 households (5.47%) had none of these assets in their households as compared to 3155 households who confirmed that they had at least one of such items in their household.

Table 24 shows this ownership distribution by target crop and region

Table 25 on the other hand shows the number of households who whether or not own a Large Household Assets. More than 99% of the households surveyed had large household asset in their homes. More often than not, such large household assets categorized for the basis of this study (Boreholes, wells, Bicycles) are located in rural homes hence this large percentage share. On the other hand, about 0.22% of households had no large household asset in their possession.

Lastly, for Small household assets of the households surveyed made up of about 49 households (1.55%) had none of such assets in their households compared to 3,113 households (98.45%)

who confirmed that they had at least one of such items in their household Table 26 shows this ownership distribution by target crop and region.

Table 24: Large Agricultural Asset Ownership by Region and Crop

Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Large Agricultural Assets Ownership											
		None	At least one	None	At least one	None	At least one	None	At least one	None	At least one
Boucle Du Mouhoun	Freq.	9	171	8	217	6	249	9	126	32	763
	%	5.0	95.0	3.6	96.4	2.4	97.7	6.7	93.3	4.0	96.0
Cascades	Freq.	16	59	3	42	12	79	18	72	49	252
	%	21.3	78.7	6.7	93.3	13.2	86.8	20.0	80.0	16.3	83.7
Centre Est	Freq.	14	161	4	107	11	218	9	207	38	693
	%	8	92	3.6	96.4	4.8	95.2	4.17	95.83	5.2	94.8
Centre Ouest	Freq.	7	158	8	187	8	247	4	116	27	708
	%	4.2	95.8	4.1	95.9	3.1	96.9	3.3	96.7	3.7	96.3
Hauts-Bassins	Freq.	4	146	5	145	14	181	4	101	27	573
	%	2.7	97.3	3.3	96.7	7.2	92.8	3.8	96.2	4.5	95.5
Total	Freq.	50	695	28	698	51	974	44	622	173	2,989
	%	6.7	93.3	3.9	96.1	5.0	95.0	6.6	93.4	5.5	94.5

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 25: Large Household Asset Ownership by Region and Crop

Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Large Household Assets Ownership											
		None	At least one	None	At least one	None	At least one	None	At least one	None	At least one
Boucle Du Mouhoun	Freq.	0	180	0	225	0	255	0	135	0	795
	%	0	100	0	100	0	100	0	100	0	100
Cascades	Freq.	0	75	0	45	0	91	0	90	0	301
	%	0	100	0	100	0	100	0	100	0	100
Centre Est	Freq.	0	175	3	108	2	227	1	215	6	725
	%	0.0	100.0	2.7	97.3	0.9	99.1	0.5	99.5	0.8	99.2
Centre Ouest	Freq.	0	165	0	195	1	254	0	120	1	734
	%	0.0	100.0	0.0	100.0	0.4	99.6	0.0	100.0	0.1	99.9
Hauts-Bassins	Freq.		150	0	150	0	195	0	105	0	600
	%		100	0	100	0	100	0	100	0	100
Total	Freq.	0	745	3	723	3	1,022	1	665	7	3,155
	%	0.0	100.0	0.4	99.6	0.3	99.7	0.2	99.9	0.2	99.8

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 26: Small household Asset Ownership by Region and Crop

Indicator	Target Crop										
		Maize		Sorghum		Cowpea		Rice		Overall	
Small Household Assets Ownership											
		No ne	At least one	No ne	At least one	No ne	At least one	No ne	At least one	No ne	At least one
Boucle Du Mouhoun	Fre q.	0	180	1	224	3	252	1	134	5	790
	%	0.0	100.0	0.4	99.6	1.2	98.8	0.7	99.3	0.6	99.4
Cascades	Fre q.	1	74	0	45	3	88	1	89	5	296
	%	1.3	98.7	0.0	100.0	3.3	96.7	1.1	98.9	1.7	98.3
Centre Est	Fre q.	2	173	7	104	8	221	4	212	21	710
	%	1.1	98.9	6.3	93.7	3.5	96.5	1.9	98.2	2.9	97.1
Centre Ouest	Fre q.	1	164	1	194	2	253	6	114	10	725
	%	0.6	99.4	0.5	99.5	0.8	99.2	5.0	95.0	1.4	98.6
Hauts-Bassins	Fre q.	0	150	3	147	3	192	2	103	8	592
	%	0.0	100.0	2.0	98.0	1.5	98.5	1.9	98.1	1.3	98.7
Total	Fre q.	4	741	12	714	19	1,006	14	652	49	3,113
	%	0.5	99.5	1.7	98.4	1.9	98.2	2.1	97.9	1.6	98.5

Source: ISSER – Burkina Faso Baseline Data (AGRA)

5.5 Housing Characteristics

In this section, we discuss the household features encountered during the baseline study. This will enable readers appreciate the nature of the localities visited during the survey.

One of the three basic needs of humanity aside food and clothing is shelter. A great deal of the household activities takes place in the home. The household structure serves as a place of sleeping for household members, receiving visitors, resting, cooking and as a shelter for farm animals where applicable. For households with sizeable compounds it also serves as playground for children. Other sub-structures such as toilet facilities are also essential for the comfort and sanitary conditions of the home. This section discusses rents and rental arrangements of the households, dwelling structure and amenities and utilities.

For the purposes of this study, a household may possess four main occupancy statuses in relation to the dwelling in which they live. The household may own, rent, ownership by relative or some other type of ownership. Across the five regions, most of the households own the dwelling in which they live (more than 98% for all). Other occupancy status was on the low side and accounted for about 0.5% of the sample in each case (See **Error! Not a valid bookmark self-reference.**).

Table 27: Distribution of Ownership Status by Region and Target Crop

Indicator			Ownership Status			
			Owned	Rented	Owned by relative	Other (specify)
Region and Target Crop	Boucle du Mouhoun	MZ	100	0	0	0
		SG	100	0	0	0
		CP	98.8	0.4	0.8	0
		RC	99.3	0.7	0	0
		OV	99.5	0.3	0.3	0
	Cascades	MZ	100	0	0	0
		SG	100	0	0	0
		CP	98.9	1.1	0	0
		RC	98.9	1.1	0	0
		OV	99.3	0.7	0	0
	Centre Est	MZ	95.4	2.3	0	2.3
		SG	99.1	0	0.9	0
		CP	99.6	0.4	0	0
		RC	100	0	0	0
		OV	98.6	0.7	0.1	0.6
	Centre Ouest	MZ	97.6	1.2	0.6	0.6
		SG	99	0.5	0.5	0
		CP	98.4	0.8	0	0.4
		RC	100	0	0	0
		OV	98.6	0.7	0.4	0.3
Hauts-Bassins	MZ	99.3	0.7	0	0	
	SG	96.7	2	1.3	0	
	CP	100	0	0	0	
	RC	100	0	0	0	
	OV	99	0.7	0.3	0	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Note: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

One other important element for a complete household is water for drinking and for general use. Different households used different sources as their main source of water supply. In the dry seasons, most households in each region source water from protected springs or pipes found outside their compound. See Table 28.

The situation and distance of sources of water for household consumption is a crucial factor in determining how much time households can allocate to other household chores especially when it comes to fetching water for drinking and for general use in the dry season. On average, households travel less than 1km to source water. Maize households in the Centre Ouest region (0.62 km) travel the longest average distance, while maize households in Boucle du Mouhoun travel the shortest (0.21km). Table 29 below shows this distribution.

Table 28: Distribution of roofing types by region and target crop

			Type of roofing			
			Grass/thatch	Iron sheet	Tiles	Other
Region and Target Crop	Boucle Du Mouhoun	MZ	2.8	92.8	0	4.4
		SG	4.4	92	0	3.6
		CP	7.8	87.5	0.8	3.9
		RC	14.1	79.3	0	6.7
		OV	6.8	88.6	0.3	4.4
	Cascades	MZ	5.3	94.7	0	0
		SG	6.7	93.3	0	0
		CP	15.4	84.6	0	0
		RC	10	90	0	0
		OV	10	90	0	0
	Centre Est	MZ	27.4	72	0.6	0
		SG	37.8	60.4	0.9	0.9
		CP	24	72.9	0.4	2.6
		RC	15.3	82.9	0	1.9
		OV	24.4	73.7	0.4	1.5
	Centre Ouest	MZ	16.4	80	3.6	0
		SG	21	73.9	5.1	0
		CP	16.1	82.4	1.6	0
		RC	17.5	80	2.5	0
		OV	17.7	79.2	3.1	0
Hauts-Bassins	MZ	4.7	92.7	1.3	1.3	
	SG	4	89.3	0.7	6	
	CP	5.1	89.2	0	5.6	
	RC	1.9	96.2	0	1.9	
	OV	4.2	91.3	0.5	4	

Source: ISSER – Burkina Faso Baseline Data (AGRA)*

Note: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

Table 29: Average distance in KM to water source in the Dry season by Target Crop and Region

Indicator	Target Crop				
	Maize	Sorghum	Cowpea	Rice	Overall
Distance to water source in Dry season (km)					
Boucle du Mouhoun	0.2	0.3	0.4	0.3	0.3
Cascades	0.4	0.9	0.4	0.7	0.6
Centre-Est	0.5	0.7	0.6	0.5	0.6
Centre-Ouest	0.6	0.3	0.4	0.4	0.4
Hauts-Bassins	0.4	0.4	0.5	0.4	0.4
Overall	0.4	0.4	0.5	0.4	0.4

Source: ISSER – Burkina Faso Baseline Data (AGRA)

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Table 30: Distribution of water sources during the Dry Season

Indicator	Region and Target Crop																									
	Boucle Du Mouhoun					Cascades					Centre Est					Centre Ouest					Hauts-Bassins					
	MZ	SG	CP	RC	OV	MZ	SG	CP	RC	OV	MZ	SG	CP	RC	OV	MZ	SG	CP	RC	OV	MZ	SG	CP	RC	OV	
Water Sources In the Dry Season (%)																										
Pond	0.0	0.4	0.8	2.2	0.8	0.0	0.0	1.1	0.0	0.3	0.0	1.8	0.9	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.1	0.0	4.7	1.5	1.0	1.8
Dam/sand dam	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stream/river	0.0	0.0	0.0	0.0	0.0	4.0	2.2	3.3	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	2.9	0.8	0.0
Unprotected spring	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Protected spring	0.0	0.0	0.0	0.0	0.0	1.3	0.0	11.0	11.1	7.0	0.0	0.0	0.0	0.5	0.1	7.3	3.6	8.2	1.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Well	66.7	60.0	60.0	65.9	62.5	6.7	26.7	36.3	12.2	20.3	18.3	16.2	13.1	27.8	19.2	48.5	42.6	34.1	40.8	40.7	40.7	46.0	49.2	60.0	48.2	
Borehole	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	
Piped into compound	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.1	1.8	10.3	5.1	3.3	5.4	0.0	0.7	0.5	1.0	0.5	
Piped outside compound	33.3	39.6	39.2	30.4	36.5	86.7	71.1	48.4	73.3	68.8	72.6	72.1	76.4	61.6	70.5	38.8	40.0	50.2	50.8	45.0	46.7	40.0	41.0	35.2	41.2	
Water tankers	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	
Roof catchments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
water hawkers-cart/bicycle transporters	0.0	0.0	0.0	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.7	8.0	6.3	9.6	10.2	8.9	2.4	3.6	1.6	2.5		11.3	8.7	7.7	0.0	7.5	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Note: MZ: Maize, SG: Sorghum, CP: Cowpea, RC: Rice, OV: Overall

6 Women Empowerment in Agriculture Index

This section assesses the welfare of women in terms of empowerment in household production and decision-making, as well as their food security as defined by meal diversity.

6.1 Decision-making and Empowerment

This analysis of women empowerment in the household is adapted from the Women Empowerment in Agriculture Index, initially developed by the USAID ‘Feed the Future’ initiative (2012). The original WEAI looks at five domains, namely: production, income, resources, leadership and time use (or workload). In this survey, the WEAI is adapted to consider production, income and leadership quantitatively and examine time use qualitatively. For the resource domain, both household asset ownership and credit use originally combine to rate resource use, but in this survey, we were only interested in asset use and ownership. In keeping with the proposed analysis of the indices, the section will look at the overall state of empowerment along gender lines for self-identified primary and secondary respondents in a household, as defined by adults involved in decision-making. Majority of the households have both male and female decision-makers, accounting for 86.28% overall, 85.82% for Boucle du Mouhoun, 88.82% for Cascades, 80.15% for Centre Est, 89.4% for Centre Ouest and 89.21% for Hauts-Bassins (An individual’s adequacy for each domain is determined to create an ad-hoc empowerment index.

Adequacy means:

- Production decisions: Individual is adequate if they gave some input into at least 2 particular farm production activity that they and the household were involved in or felt to a medium extent that they could make decisions if they wanted to, over the past twelve months. Farm production refers to food crop farming, cash crop farming, livestock rearing and fishing or fishpond culture.
- Income decisions: Individual is adequate if they gave some input into the decision regarding use of income generated from at least one of both farm and non-farm activities.
- Resource decisions: Individual is adequate if they felt they had sole or joint ownership of at least one household asset that was not a minor asset such as fowls, non-mechanized farm equipment and small consumer durables.
- Leadership: Individual is adequate if they felt that they were comfortable speaking in public in at least one setting within the community.
- Time use (workload): This dimension concerns the allocation of time to productive and domestic tasks and satisfaction with available time for leisure activities

Figure 3).

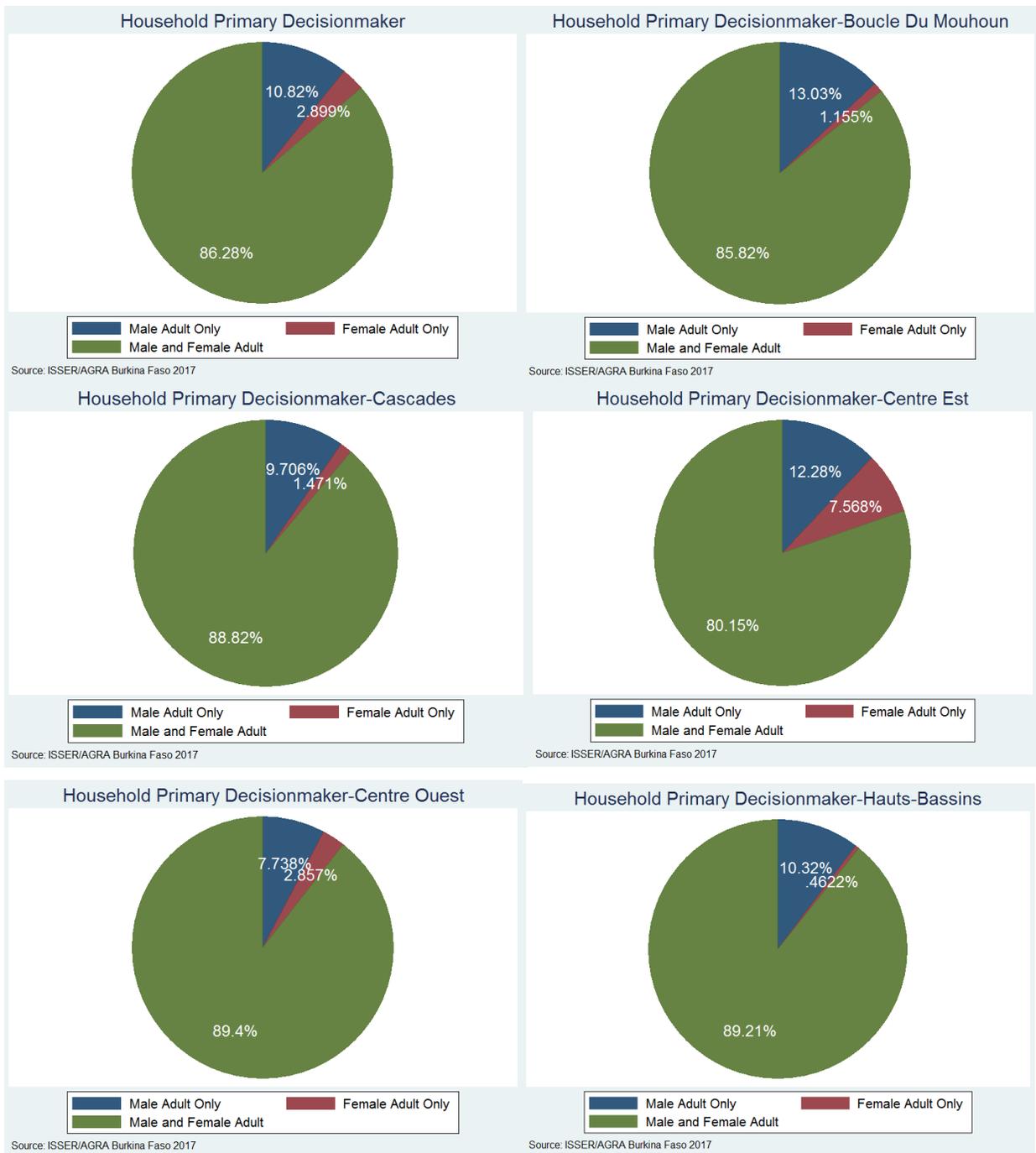
An individual's adequacy for each domain is determined to create an ad-hoc empowerment index.

Adequacy means:

- Production decisions: Individual is adequate if they gave some input into at least 2 particular farm production activity that they and the household were involved in or felt to a medium extent that they could make decisions if they wanted to, over the past twelve months. Farm production refers to food crop farming, cash crop farming, livestock rearing and fishing or fishpond culture.
- Income decisions: Individual is adequate if they gave some input into the decision regarding use of income generated from at least one of both farm and non-farm activities.
- Resource decisions: Individual is adequate if they felt they had sole or joint ownership of at least one household asset that was not a minor asset such as fowls, non-mechanized farm equipment and small consumer durables.
- Leadership: Individual is adequate if they felt that they were comfortable speaking in public in at least one setting within the community.
- Time use (workload): This dimension concerns the allocation of time to productive and domestic tasks and satisfaction with available time for leisure activities

Figure 3: Household Decision-Making Structure

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Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 31 shows the level of individual empowerment for each of the domains for men and women in each region. Observations show that for all domains, men are more empowered than women

are. The smallest gap is for income and resource decision domains, while the largest gap is for empowerment in leadership.

Focus group discussions with women revealed similar patterns in household decision-making as identified in the quantitative survey. When asked how household decisions were made, majority of women provided responses similar to the following

“...**Interviewer:** Here at home how do you decide on what to?

Respondent 2: Husband is the head of the house he decides this or that

Respondent 4: women may contribute but the man will do what he wants...”

Women discussants reported challenges with land acquisition for agricultural purposes. Some women also indicated temporal land tenure arrangements as shown in the following quotes

“...**Interviewer:** Here at home is there difficulty in obtaining land to cultivate?

Respondent 7: it is complicated.

R3: it is complicated because it is achieved through tough negotiations.

“...**Interviewer:** Is the allocation of the land permanent or temporary?

Respondent 4: it is temporary...”

Respondent 5: the landowner will not give you a land permanent

Time use component of women empowerment in agriculture examined how women spent time on paid activities, household duties and any cited leisure activities. Nearly all discussants (29 out of 32) said they were involved in non-farm businesses outside farming as a way of generating income. Fewer women (13 out of 32) mentioned using their time to perform gender assigned household duties. Much more women (18 out of 32) gave quotes that revealed that their older daughters in same household performed female household duties. None of the discussants reported engaging in any form of leisure activity. The following samples quotes are examples of how women expressed time use under paid time burden, unpaid gender household duties (both women and girls) in the absence of any leisure activity.

Paid time burden

“...**Interviewer:** What do you do in order to earn some money?

Respondent 3: We do petty trading

Respondent 7: I sell millet porridge

Respondent 5: I also sell cooked rice...”

For unpaid gender household duties (including girl child duties) this transpired

“...**Interviewer:** how are duties assigned in the household?

“...Respondent 4: The husband provides money and wives take care of children

Respondent 6: and also cooking

Interviewer: Is that all

Respondent 8: We do all the work in the house, everything if you have a daughter she will help you

Interviewer: Do you take you baby to your store?

Respondent 3: no her big sister takes care of her she also cooks for the house...”

In terms of time use for leisure, this transpired

Interviewer: What do you do for leisure?

Respondent 2: I do not play

Respondent 4: children play women do not play you have to sell for money for home

More women engaged in paid activities as ways of supplementing household income than any other time use component. The revelation that women in farming households do not use any of their time for leisure and even say that time use for leisure is solely for children hints the likely of time poverty among women in farming communities. Time poverty describes a time use condition where time burden on paid activities is so much that an individual has little or no time for other symbolically significant psychosocial activities for human development. We recommend that Interventions that require significant use of women’s time in farming communities in the study regions should examine the nuances of time overlaps on gendered activities as a key determinant.

An Empowerment index defines as an average of adequacy in the four selected domains, with a minimum of zero for no empowerment and one for complete empowerment.

In Table 32 , we observe that more men than women are primary or secondary household members in terms of decision-making. Overall, empowerment index values are about 19% higher for men than for women in Boucle du Mouhoun, 20% in Cascades, 15% higher in Centre Est, 18% higher in Centre Ouest and 27% higher in Hauts-Bassins. Furthermore, respondents are empowered with two key cut-off points

- (1) First, an empowerment index of at least .75, indicating empowerment in three domains or more.
- (2) Second an empowerment in at least production and income decisions.

The gender empowerment gap for (1) is lower than that of (2). Between regions, the gender parity for (1) is significantly larger for households in Hauts-Bassins (about 52 pp) and lowest for Centre Ouest (17 pp). For (2), Centre Ouest records the largest gap (about 52 pp), while Cascades records the lowest (16 pp). Similar trends are at crop level for each region.

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Table 31: Individual empowerment for each domain

Indicator	Maize		Cassava		Rice		Soybean		Overall	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Boucle Du Mouhoun										
Production (%)	51.5	10.4	53.0	12.2	51.5	7.4	50.9	14.3	51.8	10.8
Income (%)	85.2	77.1	82.0	70.3	87.6	77.9	87.3	66.7	85.4	73.3
Resources (%)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Leadership (%)	80.5	66.7	80.5	60.8	80.9	57.4	76.4	33.3	80.0	56.0
Cascades										
Production (%)	52.9	61.1	40.0	14.3	39.3	0.0	57.3	35.3	47.9	32.1
Income (%)	88.0	83.0	78.0	29.0	76.0	43.0	77.0	76.0	80.0	64.0
Resources (%)	100.0	100.0	100.0	100.0	98.9	100.0	100.0	100.0	99.7	100.0
Leadership (%)	78.0	28.0	96.0	43.0	92.0	43.0	83.0	41.0	87.0	38.0
Centre Est										
Production (%)	49.7	28.57	57.0	15.8	44.1	21.4	57.3	26.4	51.2	23.9
Income (%)	96.9	92.9	99.1	84.0	96.7	95.2	97.3	86.8	97.3	90.1
Resources (%)	99.4	100.0	99.0	100.0	98.6	100.0	98.9	98.1	99.0	99.3
Leadership (%)	86.7	60.7	84.0	74.0	90.1	45.2	83.8	73.6	87.1	62.7
Centre Ouest										
Production (%)	69.5	5.1	68.9	6.7	70.0	22.0	64.2	15.4	68.7	13.4
Income (%)	92.1	84.6	86.0	89.0	89.3	88.4	87.7	88.5	88.8	87.7
Resources (%)	99.3	100.0	99.4	95.6	100.0	100.0	100.0	100.0	99.7	98.9
Leadership (%)	92.7	74.4	91.0	76.0	91.5	72.5	87.7	76.9	91.1	74.3
Hauts-Bassins										
Production (%)	60.3	5.9	54.8	10.0	54.3	17.1	48.1	0.0	54.8	11.5
Income (%)	94.5	35.3	95.9	60.0	97.1	58.5	91.4	50.0	94.9	52.6
Resources (%)	100.0	100.0	100.0	90.0	99.4	100.0	100.0	100.0	99.8	98.7
Leadership (%)	98.0	70.6	96.6	70.0	96.6	85.4	97.1	50.0	97.0	75.6

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 32: Gender differences in Empowerment Index

Indicator	Maize		Sorghum		Cowpea		Rice		Overall	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
Average Empowerment Index										
Boucle Du Mouhoun	0.8	0.6	0.8	0.6	0.8	0.6	0.8	0.5	0.8	0.6
Cascades	0.8	0.7	0.8	0.5	0.8	0.5	0.8	0.6	0.8	0.6
Centre Est	0.8	0.7	0.9	0.7	0.8	0.7	0.8	0.7	0.8	0.7
Centre Ouest	0.9	0.7	0.9	0.7	0.9	0.7	0.9	0.7	0.9	0.7
Hauts-Bassins	0.9	0.5	0.9	0.6	0.9	0.7	0.8	0.5	0.9	0.6
Number of observations										
Boucle Du Mouhoun	169	48	200	74	241	68	110	42	720	232
Cascades	68	18	45	7	89	14	82	17	284	56
Centre Est	159	28	107	19	213	42	185	53	664	142
Centre Ouest	151	39	180	45	224	69	106	26	661	179
Hauts-Bassins	146	17	146	10	175	41	104	10	571	78
% empowered										
Boucle Du Mouhoun	74.6	56.3	73.5	48.7	76.8	48.5	74.6	31.0	75.0	47.0
Cascades	83.8	66.7	77.8	14.3	75.3	21.4	73.2	41.2	77.1	41.1
Centre Est	93.1	67.9	92.5	63.2	93.0	57.1	90.3	71.7	92.2	65.5
Centre Ouest	91.4	69.2	85.6	66.7	89.3	73.9	84.9	76.9	88.1	71.5
Hauts-Bassins	93.8	23.5	95.2	40.0	95.4	51.2	89.4	40.0	93.9	42.3

Source: ISSER – Burkina Faso Baseline Data (AGRA)

6.2 Women's Dietary Diversity

Another indicator used to assess women empowerment in households is their dietary diversity score. In many homes, dietary diversity is influenced by age and sex of household members, as these are traditionally indicators of economic contribution to the household, as such, determinants of nutritional requirement. Women in the households aged 15 and above, identified the food groups that each had consumed in the past 24 hours. The dietary diversity measure, modelled after the USAID Household Dietary Diversity Score (HDDS)⁵, looks at a sum of the number of food groups consumed by each individual, categorised as:

⁵ Swindale, A., Bilinsky, P., Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide VERSION 2, September 2006, Food and Nutrition Technical Assistance III Project (FANTA), USAID

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- Cereals
- Root and tubers
- Vegetables
- Fruits
- Meat, poultry, offal
- Eggs
- Fish and seafood
- Pulses/legumes/nuts
- Milk and milk products
- Oil/fats
- Sugar/honey
- Miscellaneous

Table 33: Household women's' dietary diversity score, by region and target crop

Region/Target Crop	Dietary Diversity Score	% of HHs with women consuming at least 50% of food groups	No. of Obs.
BOUCLE DU MOUHOUN			
Maize	3.8	24.8	117
Sorghum	3.9	29.0	145
Cowpea	3.9	26.0	146
Rice	4.0	33.6	119
Total	3.9	28.3	527
CASCADES			
Maize	6.2	61.1	72
Sorghum	5.2	54.6	44
Cowpea	5.3	51.8	85
Rice	5.4	56.6	83
Total	5.5	56.0	284
CENTRE EST			
Maize	3.0	12.1	166
Sorghum	3.7	20.0	105
Cowpea	3.2	18.7	214
Rice	3.9	21.2	203
Total	3.4	18.0	688
CENTRE OUEST			
Maize	4.4	19.1	157
Sorghum	4.1	13.1	183
Cowpea	4.3	17.6	239
Rice	4.5	23.2	108
Total	4.3	17.6	687
HAUTS-BASSINS			
Maize	3.9	19.3	145
Sorghum	3.7	17.8	146
Cowpea	3.6	18.3	186
Rice	3.7	20.4	103
Total	3.7	18.8	580
OVERALL			
Maize	4.0	23.0	657
Sorghum	4.0	22.0	623
Cowpea	3.9	22.8	870
Rice	4.2	28.6	616
Total	4.0	23.9	2,766

Source: ISSER – Burkina Faso Baseline Data (AGRA)

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In this case, the score recorded by each female adult member averaged for the household. In Table 33 we observe that on average, women consume a third of the listed food groups (4 groups). This score is highest for households sampled in Cascades at 5.53 and lowest for households sampled from Centre Est (3.44). Maize-growing households record the highest score in Cascade (6.16).

The table also shows the share of households in which women on average consume at least six of the twelve food categories daily. Overall, 23.93 percent of households have a women's dietary diversity score of six and above. This share is largest for Cascades households (55.99%) and lowest for Centre Est households (18.02%). When investigated by target crops, we find the largest share of households with women's dietary diversity score over six in maize-growing households in Cascades.

In conclusion, there is a clear distinction in women empowerment as defined by decision-making, access to resources, leadership and diet along regional lines. These differences vary from dimension to dimension, when comparing households by target crop allocation. In relation to male household members, women are less empowered across the five domains explored in the empowerment index.

7 Agricultural Production and Input Access

The analysis for this section was done on two fronts with hindsight that there is a possibility that farmers are likely to overestimate or underestimate some indicators. First, based on farmers estimation of some key agricultural indicator and second based on the actual values obtained during the baseline study. Whiles reported values were used directly to calculate required indicators; actual values were imputed using correction factors obtained from logger devices used on the field. The latter aided in the recalculation of plot sizes, yields, fertilizer use per land size to more realistic values. Actual values are found in parenthesis in some tables below.

7.1 Plot Characteristics and Soil Quality

We find that a higher proportion of households (44.9%) cultivated two farm plots in the last major farming season. Overall, only 10% of households were cultivating more than three plots. Comparing the number of plots cultivated by households across the study regions show that households in the Centre Est and Centre Ouest regions generally cultivated a relatively higher number of plots compared to their counterparts in the other three regions. The mean cultivated plot size for all crops combined is 2.4 hectares, with Rice and Cowpea recording the largest (16.1 Ha) and the smallest (1.9 Ha) mean cultivated plot sizes respectively. In terms of soil quality, the survey tries to investigate each farmers' perception of the soil on which they grow their crops. We find that more than a half of households indicated from their own observations that their soil quality is at least good. Comparing farmers' assessment of their soil quality across region, we find that greater proportion of households in the Boucle Mouhoun region pointed more to good soil quality compared to those in the other 4 regions (See Table 34). We realize that actual figures are relatively lower than what was reported by farmers. This point to the fact that in the survey most farmers overestimated their plot sizes especially in terms of the average cultivated area by each household as can be seen in Table 34 and ed for the other target crops.

Table 34: Plot Characteristics and Soil Quality by Region

Indicators	Region						N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
% of households cultivating:							
1 plot	33.8	22.0	6.3	0.7	24.8	16.9	3162
2 plots	46.4	48.3	22.3	52.5	59.4	44.9	3162
3 plots	17.0	23.0	40.6	37.8	13.5	27.2	3162
4+ plots	2.8	6.7	30.8	9.0	2.3	11.0	3162
Mean number of plots	2	2	3	3	2	2	3162
Mean cultivated area by crop (Ha):							
Maize	1.6 (1.0)	2.3 (1.5)	2.6 (1.5)	1.8 (1.0)	2.8 (1.9)	2.2 (1.4)	2204
Sorghum	2.2 (1.4)	1.4 (1.0)	2.2 (1.5)	2.2 (1.4)	2.3 (1.5)	2.2 (1.4)	2156
Cowpea	1.5 (0.7)	1.2 (0.6)	2.1 (1.2)	1.8 (1.0)	2.4 (1.0)	1.9 (1.0)	1685
Rice	2.9 (1.0)	1.3 (0.8)	26.1 (2.0)	13.3 (1.3)	24.1 (1.1)	16.1 (1.4)	1068
Mean total plot size (Ha)	2.4 (1.6)	1.9 (1.3)	2.8 (1.8)	1.9 (1.2)	2.6 (1.6)	2.4 (1.5)	3162
% of households indicating soil quality is:							
Very Good	4.0	6.5	1.5	2.5	2.8	2.9	3162
Good	44.9	71.1	49.3	58.4	68.2	55.6	3162
Average	40.6	18.5	46.0	26.2	19.6	33.3	3162
Poor	10.3	3.7	3.2	12.9	9.3	8.1	3162
Very Poor	0.1	0.2	0.0	0.0	0.1	0.1	3162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 35 Plot Characteristics and Soil Quality by Target Crop Groups

Indicators	Target Crop Group					
	Maize	Sorghum	Cowpea	Rice	Overall	N
% of households cultivating:						
1 plot	18.0	19.6	13.0	18.9	16.9	3162
2 plots	45.8	51.0	45.9	35.9	44.9	3162
3 plots	25.8	21.6	30.3	30.0	27.2	3162
4+ plots	10.5	7.9	10.8	15.2	11.0	3162
Mean number of plots	2	2	2	2	2	3162
Mean cultivated area by crop (Ha):						
Maize	2.2 (1.3)	2.3 (1.4)	2.0 (1.3)	2.6 (1.6)	2.2 (1.4)	2204
Sorghum	2.4 (1.5)	2.3 (1.5)	1.9 (1.2)	2.3 (1.5)	2.2 (1.4)	2156
Cowpea	2.0 (1.1)	1.5 (0.9)	1.8 (0.9)	2.2 (1.0)	1.9 (1.0)	1685
Rice	8.1 (1.4)	12.6 (1.8)	11.0 (1.7)	20.9 (1.2)	16.1 (1.4)	1068
Mean total plot size (Ha)	2.5 (1.5)	2.5 (1.6)	2.2 (1.4)	2.4 (1.5)	2.4 (1.5)	3162
% of households indicating soil quality is:						
Very Good	3.0	2.9	2.6	3.3	2.9	3162
Good	54.0	55.8	52.9	61.3	55.6	3162
Average	33.6	31.4	35.7	31.2	33.3	3162
Poor	9.4	9.8	8.8	4.1	8.1	3162
Very Poor	0.0	0.1	0.1	0.1	0.1	3162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

We find that a higher proportion of households selected for Rice generally recorded a relatively higher number of cultivated plots (3 and more plots) compared to their counterparts selected for the other target crop groups. We observe that households selected for Maize and Sorghum reported a larger cultivated area for all crops (2.5 Ha each) compared to their counterparts selected for the other target crops. A similar observation goes for rice. On the other hand, households selected for maize reported larger cultivated plot sizes for cassava compared to those selected for cassava and the other crops. On a scale, we find that a relatively higher proportion of households selected for Rice reported high quality soil compared to their cohorts selected for the other target crops.

7.2 Farm Labour

Table 36 shows the person-days as well as relative shares of various categories of labour used during the last major farming season. We find that overall; the mean total person-days used per hectare are 244. Among the three labour categories, family labour provided the highest person-days per hectare (206) whilst communal labour provided the least person-days per hectare (17). Across the study regions, we observe that households in the Centre Est region generally reported higher person-days per hectare for all the categories of labour compared to their counterparts in the other study regions.

Table 36: Farm Labour by Region

Indicators	Region						Over all	N
	Boucle du Mouhoun	Casca des	Centre Est	Centre Ouest	Hauts-Bassins			
Per hectare total man-days used on the farm	177	76	390	290	137	244	3162	
Per hectare family man-days used on the farm	154	64	300	257	127	206	3162	
Per hectare hired man-days used on the farm	57	28	91	31	41	49	3162	
Per hectare communal man-days used on the farm	8	7	41	16	7	17	3162	
Share of family labour in total farm labour (%)	76.1	60.5	79.6	78.9	70.5	75.0	3162	
Share of hired labour in total farm labour (%)	10.7	13.6	1.9	2.3	16.7	8.1	3162	
Share of communal labour in total farm labour (%)	13.2	25.9	18.5	18.8	12.8	16.9	3162	
Share of female labour in total family farm labour (%)	27.1	27.2	41.1	37.7	30.1	33.4	3162	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

We make a similar observation for the person-days per hectare of the various categories of labour with exception to hired labour. Overall, the share of family labour in total farm labour is 75.0%, followed by communal labour (16.9%). In addition, the share of female labour in total family labour is 33.4%.

Further, we observe in Table 37 that households selected for Rice reported higher total person-days used on plot per hectare (269 days) compared to those selected for the other target crops.

Table 37 Farm Labour by Target Crop Group

Indicators	Target Crop Group					
	Maize	Sorghum	Cowpea	Rice	Overall	N
Per hectare total man-days used on the farm	258	183	259	269	244	3162
Per hectare family man-days used on the farm	217	139	227	231	206	3162
Per hectare hired man-days used on the farm	26	88	44	47	49	3162
Per hectare communal man-days used on the farm	14	18	17	19	17	3162
Share of family labour in total farm labour (%)	76.5	73.9	76.0	73.0	75.0	3162
Share of hired labour in total farm labour (%)	9.2	8.5	6.7	8.6	8.1	3162
Share of communal labour in total farm labour (%)	14.3	17.6	17.2	18.4	16.9	3162
Share of female labour in total family farm labour (%)	34.0	31.3	33.5	34.9	33.4	3162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

7.3 Chemical Use

We observe from

We find in Table 39 that households selected for Maize reported the highest proportion of households (65.6%) using agro-chemicals among the 4 target crop groups. A similar observation goes for the proportion of households using inorganic fertilizers. Mean expenditure on chemicals and inorganic fertilizers are highest (US\$239.23 and US\$208.56 respectively) for households selected for Maize. Households selected for Cowpea (US\$58.47) report a relatively higher mean expenditure on herbicides/weedicides. On chemical quantities, households selected for Maize generally reported relatively higher quantities of fertilizer used (401.3 Kg), while their counterparts selected for Rice reported comparatively higher quantities weedicides used (465.1 Litres).

Focus group discussions were undertaken to understand why chemical use among farmers was generally high (58.1%) as discovered from the quantitative survey. Figure 4 shows result of a word frequency query run on coded responses of farmers on their understanding of what affects soil quality (text search query was set at advanced synonyms). In order of frequency farmers believed that fertilizers, chemicals and inorganic substances increased the quality of soil. Search words as fertilizer, chemical and inorganic were associated mostly with soil quality as shown in the figure below. Farmers believed that using chemicals improved soil quality.

Table 38 that overall, a high proportion of households (61.7%) used chemical inputs (in the form of fertilizers and herbicides) in the last major farming season, though a higher proportion of households in the Hauts-Bassins region (80.8%) reported chemical use compared to those in the other regions. Overall, 58.1% of farm households in the study regions used inorganic fertilizers in the past major farming season. Across region, we find that a higher proportion of households in the Hauts-Bassins region (70.8%) used inorganic fertilizers relative to households in the other four study regions. We find that the mean expenditure on all chemicals is US\$205.10, fertilizer is US\$178.50 and herbicides/weedicides is US\$55.44. Compared to households in the other four regions, we observe that households in the Hauts-Bassins region generally reported a higher expenditure on chemicals, though households in the Cascades region reported a slightly higher expenditure for herbicides/weedicides. The mean quantity of fertilizer used by the average household is 360.9 Kg, and that for herbicides/weedicides is 116.2 litres. We identify that the most common source of chemicals for households in the sample is the Market (56.2%). A significant proportion of households (22.7%) also sourced chemicals from agro-dealers.

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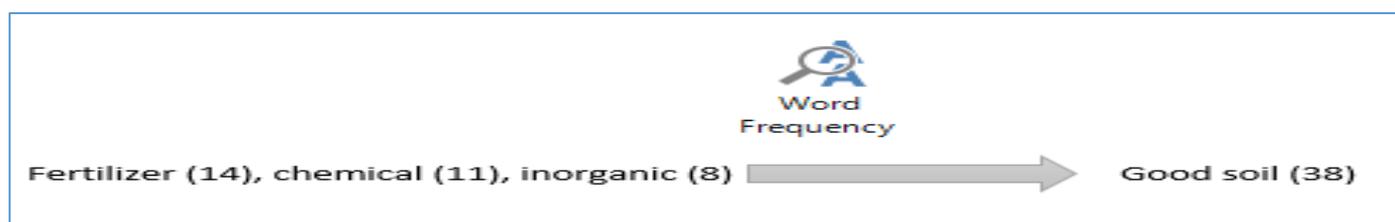
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Table 38 Chemicals Use by Region

Indicators	Region						
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	N
% of households using chemicals (i.e. fertilizers, weedicides, pesticides)	51.5	73.7	55.3	50.6	80.8	61.7	2,295
% of households using inorganic fertilizer	51.0	73.7	54.1	46.7	70.8	58.1	2,295
Mean expenditure on chemicals (US\$)	127.82	281.13	145.54	140.82	311.55	205.10	4865
Mean expenditure on inorganic fertilizers (US\$)	120.05	227.82	129.85	111.47	297.66	178.50	3306
Mean expenditure on herbicides/weedicides (US\$)	36.71	70.13	44.38	48.25	67.83	55.44	1465
Mean quantity of fertilizer used (Kg)	243.5	488.6	265.8	268.2	550.5	360.9	4865
Mean quantity of herbicides/weedicides used (Litre)	9.7	6.0	527.5	37.3	16.2	116.2	4865
% of households that acquired chemicals from:							
Agro dealers	28.5	11.3	16.4	16.8	29.9	22.7	2,295
Market	24.4	76.2	66.6	72.1	34.6	49.4	2,295
Other sources (such as gifts, borrowed, exchanged, organisations, etc.)	47.1	12.5	17.1	11.1	35.5	27.8	2,295

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Figure 4 Frequency of responses of farmers’ understanding of soil quality effects



Specific quotes as the following shows how some farmers explained soil quality because of chemical use

“...Respondent 6: soil quality was low which and as a result we practice these different cultures and chemical applications so that we don’t go out without anything of the season...” Male cowpea farmer

“...Respondent 3: before soil was bad and farming was not good in the season now I use fertilizer to make good soil and corn for the season...” Male maize farmer

Farmers used many chemicals because they believed that soil quality was improved by using fertilizers and other inorganic chemicals. This shows in the positive correlation in chemical use and perception of soil quality in the quantitative

We find in Table 39 that households selected for Maize reported the highest proportion of households (65.6%) using agro-chemicals among the 4 target crop groups. A similar observation goes for the proportion of households using inorganic fertilizers. Mean expenditure on chemicals and inorganic fertilizers are highest (US\$239.23 and US\$208.56 respectively) for households selected for Maize. Households selected for Cowpea (US\$58.47) report a relatively higher mean expenditure on herbicides/weedicides. On chemical quantities, households selected for Maize generally reported relatively higher quantities of fertilizer used (401.3 Kg), while their counterparts selected for Rice reported comparatively higher quantities weedicides used (465.1 Litres).

Focus group discussions were undertaken to understand why chemical use among farmers was generally high (58.1%) as discovered from the quantitative survey. Figure 4 shows result of a word frequency query run on coded responses of farmers on their understanding of what affects soli quality (text search query was set at advanced synonyms). In order of frequency farmers believed that fertilizers, chemicals and inorganic substances increased the quality of soil. Search words as fertilizer, chemical and inorganic were associated mostly with soil quality as shown in the figure below. Farmers believed that using chemicals improved soil quality.

Table 38 and Table 34 respectively.

Table 39 Chemical Use by Target Crop Group

Indicators	Target Crop Group					
	Maize	Sorghum	Cowpea	Rice	Overall	N
% of households using chemicals (i.e. fertilizers, weedicides, pesticides)	65.6	58.7	58.9	64.5	61.7	2,295
% of households using inorganic fertilizer	61.9	56.8	54.1	61.0	58.1	2,295
Mean expenditure on chemicals (US\$)	239.23	214.12	187.76	180.64	205.10	4865
Mean expenditure on inorganic fertilizers (US\$)	208.56	194.30	156.92	157.10	178.50	3306
Mean expenditure on herbicides/weedicides (US\$)	57.59	55.56	58.47	48.31	55.44	1465
Mean quantity of fertilizer used (Kg)	401.3	389.9	314.9	346.5	360.9	4865
Mean quantity of herbicides/weedicides used (Litre)	10.0	22.1	24.7	465.1	116.2	4865

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% of households that acquired chemicals from:						
Agro dealers	19.9	32.1	21.6	18.2	22.7	2,295
Market	47.6	44.7	52.1	53.0	49.4	2,295
Other sources (such as gifts, borrowed, exchanged, organisations, etc.)	32.5	23.3	26.4	28.8	27.8	2,295

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The interest in chemical use was not just limited to how much was used per target crop or region. From AGRA's business plans, the study realized that there was an equal interest in the land size on which some chemical were being used. As a result, the report shows tables that calculate the average fertilizer use per plot cultivated for each target crop as well as each region. In Table 40, we see that fertilizer use per plot size is highest for Boucle de Mouhoun (106Kg/Ha) and least for Cascades (34Kg/Ha). For the average fertilizer per plot cultivated for each target crop it can be seen that fertilizer use for maize per plot is highest (80.3Kg/Ha) while that of cowpea is lowest (71.6Kg/Ha) as seen in Table 40. On the average, we can see an increase in the average fertilizer use per land size using the actual imputed plot sizes. For the Cascades region average use increased from 129kg/ha to 191kg/ha. A similar trend was observed for the target crop groups.

Table 40: Average Fertilizer Use per Plot Size by Region

Indicators	Regions					
	Boucle de Mouhoun	Cascades	Centre-Est	Centre-Ouest	Hauts-Bassins	Overall
Average Plot Size	2.4 (1.6)	1.9 (1.3)	2.8 (1.8)	1.9 (1.2)	2.6 (1.6)	2.4 (1.5)
Average Number of Plots Per HH	2	2	3	3	2	2
Total Plot Size per HH	4.8(3.1)	3.8(2.6)	8.4(5.3)	5.7 (3.6)	5.2 (3.2)	4.8 (3.0)
Quantity of Fertilizer Used per HH	243.5	488.6	265.8	268.2	550.5	360.9
Average use Kg/Ha	50.7 (77.5)	128.6 (190.5)	31.6 (50.4)	47.1 (74.6)	105.9 (172.7)	75.2 (119.5)

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 41: Average Fertilizer Use per Plot Size by Target Crop

Indicators	Target Crops Group*				
	Maize	Sorghum	Cowpea	Rice	Overall
Average Plot Size	2.5 (1.5)	2.5 (1.6)	2.2 (1.4)	2.4 (1.5)	2.4 (1.5)
Average Number of Plots Per HH	2	2	2	2	2
Total Plot Size per HH	5 (3.1)	5 (3.2)	4.4 (2.9)	4.8 (3.0)	4.8 (3.0)
Quantity of Fertilizer Used per HH	401.3	389.9	314.9	346.5	360.9
Average use Kg/Ha	80.3 (131.4)	78.0 (121.2)	71.6 (110.3)	72.2 (113.9)	75.2 (119.5)

Source: ISSER – Burkina Faso Baseline Data (AGRA)

*Note: Crops listed (maize, sorghum, cowpea, rice) refer to farmer households for whom those are dominant crops.

7.4 Awareness of hybrid/improved seed varieties and usage

% households aware of	11.7	7	16.1	6.1	13	11.2	3162
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hybrid/improved seed variety of their target crop that they do not currently produce							
% households that used hybrid/improved seed variety before	61.3	42.9	40.7	40	33.3	44.5	355
% households that planted improved variety in the past cropping season	22.5	24.9	16.1	14.7	29.2	20.7	158
% awareness of improved seed varieties currently not cultivated							
Maize	-	-	-	-	-	-	355
Sorghum	2.2	4.8	5.1	37.8	5.1	8.5	355
Cowpea	8.6	4.8	49.2	20	1.3	21.7	355
Rice	17.2	0	29.7	4.4	2.6	15.5	355

presents the results of awareness and use of hybrid/improved seed varieties by region. The results indicate that few households are aware of hybrid/improved seed varieties of their target crops that they do not currently cultivate. The results shows that about 11 percent of all households sampled are aware of hybrid/improved seed varieties of their target crop that they do not currently cultivate. However, 44.5 percent of these households indicated that they have used the hybrid/improved seeds before. Out of households that cultivated the improved seeds in the past, 62 percent of them had planted the seed varieties in the last cropping season.

Table 42: Awareness and cultivation of hybrid/improved varieties

	Region						N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
% households aware of hybrid/improved seed variety of their target crop that they do not currently produce	11.7	7	16.1	6.1	13	11.2	3162
% households that used hybrid/improved seed variety before	61.3	42.9	40.7	40	33.3	44.5	355
% households that planted improved variety in the past cropping season	22.5	24.9	16.1	14.7	29.2	20.7	158

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% awareness of improved seed varieties currently not cultivated							
Maize	-	-	-	-	-	-	355
Sorghum	2.2	4.8	5.1	37.8	5.1	8.5	355
Cowpea	8.6	4.8	49.2	20	1.3	21.7	355
Rice	17.2	0	29.7	4.4	2.6	15.5	355

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The regional analysis shows that the greatest percentage of respondents who are aware of hybrid/improved seed varieties of their target crop but currently do not cultivate them are found in Centre Est and the least percentage of respondents is in Cascades with 16.4 percent and 7.00 percent respectively. However, the highest percentage (61.29%) of households that have used hybrid/improved seed varieties of their target crop in the past are in Boucle Mouhoun and the least percentage (33.33%) of households that have used these seeds in the past are in Hauts-Bassins.

Currently, no household is aware of improved maize varieties that they are not cultivating. About 8.5, 21.7 and 15.5 percent of households said they know of hybrid/improved sorghum, cowpea and rice varieties respectively that they currently do not cultivate.

Table 43 shows the awareness and cultivation of hybrid/improved seed varieties based on target crop farmers cultivated. The highest percentage of farmers who are aware of hybrid/improved seed varieties of their target crop but are not currently cultivating them are maize farmers (15.84%) followed by sorghum farmers (10.74%). Cowpea farmers have the least percentage (8.98%) of households that know hybrid/improved cowpea varieties but currently do not cultivate them.

Farmers in Centre-Est have the highest percentage of farmers who have used hybrid/improved seed varieties of their target crop in the past but currently do not cultivate them with a percentage of 13.0. On the other hand, farmers in Cascades recorded the least number of households who have used hybrid/improved seed varieties of their target crop in the past but currently do not cultivate them. It is seen that, 21 percent of the farmers planted these varieties in the last cropping season. Farmers in Centre-Est have the least percentage (16%) of households that have used hybrid/improved seed varieties of their target crop in the past cropping season. In the past cropping season, farmers in the Hauts-Bassins region recorded the highest number of households that planted improved varieties.

No maize farmer knows of a hybrid/improved maize variety that he/she does not currently cultivate. More rice farmers (41.79%) are aware of improved rice varieties that they currently do not cultivate compared to any other target crop farmer. For sorghum and cowpea, the percentage of farmers not cultivating improved seeds, which they are aware of, are 10.26 and 30.43 percent respectively.

Table 43: Awareness and cultivation of hybrid/improved seed varieties by region

Indicators	Target Crop Group					N
	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	
% households aware of hybrid/improved seed variety of their target crop that they do not currently produce	15.8	10.7	9.0	10.1	11.2	3162
% households that used hybrid/improved seed variety before	50.9	41.0	40.2	43.3	44.5	355
% households that planted improved variety in the past cropping season	23.9	15.7	18.6	25.8	20.7	3162

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% awareness of improved seed varieties currently not cultivated						
Maize	-	-	-	-	-	355
Sorghum	11.9	10.3	5.4	4.5	8.5	355
Cowpea	15.3	14.1	30.4	29.9	21.7	355
Rice	9.3	6.4	12.0	41.8	15.5	355

Source: ISSER – Burkina Faso Baseline Data (AGRA)

7.5 Agricultural mechanisation

This section covers the ownership and use of tractor and animal draught services in agricultural activities. In addition, it shows the average household cost of tractor and animal draught services.

7.5.1 Machinery

As pertains to other African countries, smallholder farmers in Burkina Faso dominate agricultural sector. The use of machinery in production has been limited in scope. Table 44 presents results of tractor and animal draught services. From our sample, more households use animal draught services compared to tractor services. Every household engaged in the survey engaged in some form of cropping activity in the cropping season under study.

Out of the 3,162 households surveyed, only 344 representing about 10.9 percent indicated that they employed tractor services on their farms. The region with the most usage of tractor services is Hauts-Bassins with a value of 22.46 percent. While the region with the least usage of tractor services is Centre Ouest with a value of 3.27 percent. Out of the households that used tractor services on their farms, about 48.6 percent of these households own the tractors. Tractor ownership is highest in Cascades and lowest in Boucle de Mouhoun. The average cost of tractor services is US\$210.82. Tractor services are most expensive in Cascades with an average price of US\$263.36.

Table 44: Tractor and animal draught services

Indicators	Region					Overall (%)	N
	Boucle Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)		
% households engaged in cropping activities	100	100	100	100	100	100	3162
o/w							
% households using tractors	8.2	18.3	8.9	3.3	22.5	10.9	3162
o/w							
% households own a tractor	29.2	87.3	46.2	41.7	44.4	48.6	344
Cost of tractor services (US\$)	246.7	263.4	76.8	96.8	257.0	210.8	344
% household using animal draught	86.5	74.0	91.1	75.0	92.9	84.9	3162

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o/w							
% households own animal draught	84.3	63.5	88.7	94.7	77.2	84.4	2685
Cost of animal draught services (US\$)	110.0	95.5	125.1	121.2	128.4	118.7	2685

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 45: Tractor and animal draught services by target crop

Indicators	Target Crop Group				Overall (%)	N
	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)		
% households engaged in cropping activities	100	100	100	100	100	3162
o/w						
% households using tractors	14.0	7.6	8.1	15.3	10.9	3162
o/w						
% households own a tractor	48.1	50.9	56.6	41.2	48.6	344
Cost of tractor services (US\$)	250.8	224.8	209.4	163.7	210.8	344
% household using animal draught	83.2	88.3	85.9	81.7	84.9	3162
o/w						
% households own animal draught	82.7	85.7	86.5	81.3	84.4	2685
Cost of animal draught services (US\$)	126.0	116.5	128.1	97.7	118.7	2685

Source: ISSER – Burkina Faso Baseline Data (AGRA)

The use of animal draught is high among the sampled households. About 85 percent of households said they use animal draught for their cropping activities. Out of this percentage, about 84 percent own the animal draughts. The average cost of animal draught services is US\$118.69. The cost of the service is highest in the Hauts-Bassins Region (US\$128.44) followed by Centre Est (US\$125.13). Households in Cascades (US\$95.52) pay the least for animal draught services.

Table 45 presents the use of machinery by households for cropping activities by target crop. The use of tractor service is most predominant among rice farmers. About 15 percent of rice farmers indicated that they use tractor services in their cropping activities. The proportion of households using tractor services is least among sorghum farmers with a percentage of about 7.6. Cowpea farmers with a percentage of 8.1 closely follow this.

Contrary to rice farmers, using tractor services the most, tractor ownership is highest among cowpea farmers (56.63%). Among the four target crops groups, the proportion of farmers who own tractors the least is rice farmers (41.18%). Interestingly, maize farmers pay the most for tractor services. The average cost of tractor services among maize farmers is US\$250.81. Sorghum, cowpea and rice farmers with average cost of US\$224.75, US\$209.39 and US\$163.71 respectively follow this.

Animal draught usage is least among rice farmers with a percentage of about 82. Sorghum farmers (88.29%) use animal draught services the most. However, cowpea farmers who use (85.85%) animal draught services own (86.48%) the draught animals too. In addition, cowpea farmers pay the most for animal draught services. The average cowpea farmer will pay about US\$128.07 for animal draught services compared to rice farmer who pay US\$97.68, which is the least cost among the target crop groups.

7.5.2 Use of machinery in cropping activities

Table 47 presents the results of tractor and animal draught services in cropping activities by target crop. Tractor services are mainly for ploughing and chemical application while animal draught services plough and weed. The percentages of maize farmers who use tractor service to plough and apply chemicals are about 67.3 and 15.4 percent. For sorghum farmers, 65.45 and 36.36 percent of them use it to plough and apply chemicals respectively. Rice farmers (74.51%) use tractor services the most to plough while cowpea farmers use it the least (53.01%) to plough.

About 94, 96, 97 and 93 percent of maize, sorghum, cowpea and rice farmers respectively use animal draught service for ploughing. In addition, about 51, 55, 56 and 48 percent of maize, sorghum, cowpea and rice farmers respectively use it for weeding purposes.

Table 46 presents the results of the activities in which tractor and animal draught services are used. The findings show that majority of households only engage tractor services to plough their farms. About 66 percent of households that engage tractor services for ploughing their farms. The second most popular activity for which tractor services are used is chemical application with about 23 percent of households indicating that they use tractor services to apply chemicals on their farms. More than 10 percent of households each also use tractor services for weeding and clearing purposes. The least activity for which tractors are used is planting. Less than 5 percent of households use tractor services for planting.

The two most popular cropping activities for which animal draught services are used are ploughing and weeding. About 95 and 53 percent of respondents said they use draught animals to plough and weed their farms respectively. Animal draught services are least applied during chemical application with only 2.7 percent of households indicating they use it for this purpose.

Table 47 presents the results of tractor and animal draught services in cropping activities by target crop. Tractor services are mainly for ploughing and chemical application while animal draught services plough and weed. The percentages of maize farmers who use tractor service to plough and apply chemicals are about 67.3 and 15.4 percent. For sorghum farmers, 65.45 and 36.36 percent of them use it to plough and apply chemicals respectively. Rice farmers (74.51%) use tractor services the most to plough while cowpea farmers use it the least (53.01%) to plough.

About 94, 96, 97 and 93 percent of maize, sorghum, cowpea and rice farmers respectively use animal draught service for ploughing. In addition, about 51, 55, 56 and 48 percent of maize, sorghum, cowpea and rice farmers respectively use it for weeding purposes.

Table 46: Use of tractor and animal services in cropping activities by region

Cropping activities	Usage of tractor							Use of draught animal						
	Regions							Region						
	Boucle du Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)	Overall (%)	N	Boucle du Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)	Overall (%)	N
Clearing	18.5	3.6	23.1	12.5	5.9	11.6	344	7.0	0.9	27.2	8.2	4.8	11.3	2685
Ploughing	83.1	76.4	61.5	45.8	58.5	65.7	344	95.4	98.7	96.1	96.0	93.0	95.5	2685
Planting	9.2	1.8	1.5	0.0	4.4	4.1	344	6.0	0.9	4.4	5.8	11.8	6.3	2685
Chemical application	4.6	21.8	3.1	8.3	44.4	23.0	344	0.9	0.0	1.2	0.5	9.9	2.7	2685
Weeding	3.1	50.9	21.5	12.5	4.4	15.4	344	51.9	20.3	52.7	66.8	53.2	52.8	2685
Harvesting	4.6	0.00	12.3	33.3	0.7	5.8	344	11.9	0.00	31.8	18.0	2.0	15.1	2685

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 47: Use of tractor and animal services in cropping activities by target crop

Cropping activities	Usage of tractor						Use of draught animal					
	Target Crop Group						Target Crop Group					
	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	N	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	N
Clearing	5.8	10.9	16.9	13.7	11.6	344	11.6	7.5	13.3	12.1	11.3	2685
Ploughing	67.3	65.5	53.0	74.5	65.7	344	94.2	96.3	97.2	93.2	95.5	2685
Planting	1.0	0.0	9.6	4.9	4.1	344	5.5	6.6	7.4	5.3	6.3	2685
Chemical application	15.4	36.4	33.7	14.7	23.0	344	3.4	2.2	3.5	1.1	2.7	2685
Weeding	14.4	7.3	13.3	22.6	15.4	344	50.7	54.8	55.8	48.2	52.8	2685
Harvesting	9.6	1.8	7.2	2.9	5.8	344	15.0	13.4	16.9	14.0	15.1	2685

Source: ISSER – Burkina Faso Baseline Data (AGRA)

7.6 Farmer Based Organisations’ (FBOs) membership

Table 48 presents the results of membership of Farmer Based Organisations (FBOs) by region. Less than a quarter of sampled households belong to FBOs. 22.5 percent of respondents said they belong to FBOs. The highest percentage of households belonging to FBOs is in Hauts-Bassins (39.60%) while the least percentage is in Cascades (7.67%). Crop production FBOs are the most common among households with 62 percent of households belonging to them. About 8 percent of farmers also stated they belong to aquaculture FBOs while another 4.9 percent indicated they belong to beekeeping FBOs. Membership of seed production and multiplication FBOs are among the least households find themselves. Seed production and multiplication FBOs account for just 2.3 percent of total FBO membership. About 62.5 percent of households in the seed production and multiplication, FBOS are producing their target crops. In addition, about 62.5 percent of households belonging to the seed production and multiplication FBOs have received training on seed production and marketing.

Table 48: Household membership of Farmer Based Organisations (FBOs)

Indicators	Regions					Overall (%)	N
	Boucle Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)		
% households members of FBOs	29.1	7.7	9.4	20.5	39.6	22.5	3162
Type of FBOs							
Seed production and multiplication	0.4	17.4	7.3	2.7	0.8	2.3	712
Livestock production	1.3	13.0	1.5	4.6	0.0	2.0	712
Value addition	1.3	8.7	0.0	0.0	0.4	0.8	712
Aquaculture	21.2	0.0	2.9	2.7	0.8	8.0	712
Beekeeping	2.6	0.0	4.4	2.7	9.2	4.9	712
Crops production	71.4	39.1	75.4	80.8	39.1	61.9	712
Membership of seed production and multiplication FBO							
% households producing target crop seeds	100.0	50.0	60.0	75.0	50.0	62.5	16
% households trained in seed production and marketing	100.0	75.0	80.0	50.0	0.0	62.5	16

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 49 presents the results of household membership of FBOs by target crop. About 26, 24, 20 and 21 percent of maize, sorghum, cowpea and rice households belong to FBOs respectively. Majority of households belonging to FBOs, belong to crop production FBOs. About 63, 66, 58 and 62 percent of maize, sorghum, and cowpea and rice households respectively belong to crop production FBOs. Seed production and multiplication FBOs account for approximately 2.1, 0.6, 2.9 and 3.6 percent of maize, sorghum, cowpea and rice households respectively.

Out of the membership of seed production and multiplication FBOs, 25 percent of maize farmers are production maize seeds, 100 percent of sorghum farmers are producing sorghum seeds, 66.7 percent of cowpea farmers are producing cowpea seeds, and 80 percent of rice farmers are producing rice seeds. No

sorghum farmer has been trained in the production and marketing of sorghum seeds although they are all producing sorghum seeds. However, all rice producing households have been trained in the production and marketing of rice seeds. About half of maize and cowpea producing households indicated that they have received some form of training in maize, and cowpea seed production and marketing.

Table 49: Household membership of Farmer Based Organisations (FBOs) by target crop

Indicators	Target Crop Group					
	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	N
% households members of FBOs	25.8	23.6	20.3	21.2	22.5	3162
Type of FBOs						
Seed production and multiplication	2.1	0.6	2.9	3.6	2.3	712
Livestock production	1.6	1.8	1.9	2.8	2.0	712
Value addition	0.0	0.6	1.0	2.1	0.8	712
Aquaculture	7.3	6.4	7.7	11.4	8.0	712
Beekeeping	7.3	4.1	3.9	4.3	4.9	712
Crops production	62.5	66.1	57.7	62.4	61.9	712
Membership of seed production and multiplication FBO						
% households producing target crop seeds	25.0	100.0	66.7	80.0	62.5	16
% households trained in seed production and marketing	50.0	0.0	50.0	100.0	62.5	16

Source: ISSER – Burkina Faso Baseline Data (AGRA)

7.7 Awareness and application of agronomic practices

Table 50 presents farmers’ awareness and application of agronomic practices. The results show that although more than half of farmers in our sample aware of the agronomic practices presented to them, very few of them are actually applying these practices.

More specifically, about 52 percent of our sample is aware of the twenty-two (22) agronomic practices presented. The regional breakdown indicates that farmers in the Hauts-Bassins Region are most aware of the presented agronomic practices compared to their counterparts in the other regions. The region with the lowest awareness of agronomic practices is Boucle Mouhoun with a percentage of 46.39 percent. This region and Centre Est are the only regions that have less than 50 percent of households being aware of the presented agronomic practices. The most popular agronomic practice in each region is use of farmyard manure. About 94, 90, 89, 88 and 94 percent of households in Boucle Mouhoun, Cascades, Centre Est, Centre Ouest and Hauts-Bassins respectively identified the use of farmyard manure as an agronomic practice.

The application of these agronomic practices is very low among farmers. On average, 19 percent of farmers said they applied the presented agronomic practices on their farms. The application of agronomic practices is 9.22 percent in Cascades and 22.79 percent in Centre Est. The most applied agronomic practices are use of inorganic fertilisers (59.71%) and use of farmyard manure (59.60%). The least applied agronomic practice is use of lime. None of the households, who are aware of the use of lime as an agronomic practice, applies this technique on their farms.

Table 51 presents the awareness and application of agronomic practices by target crop. From the results, maize and rice cultivating households have the highest percentage of awareness of the twenty-two (22) agronomic practices presented. The average awareness of agronomic practices by maize and rice farmers is about 53 percent each. The third and fourth are sorghum (52.17%) and cowpea (50.47%) respectively. However, cowpea-cultivating households (20.20%) apply the agronomic practices they are aware of the most while rice-cultivating households (17.14%) apply the practices they are aware of the least. Among maize, sorghum and rice cultivating households, they apply inorganic fertilisers the most and use lime the least. For cowpea cultivating households, they apply farmyard manure the most and use lime the least.

Table 50: Awareness and application of agronomic practices by region

Practices	Awareness of agronomic practices							Application of agronomic practices						
	Regions							Regions						
	Boucle du Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)	Overall (%)	N	Boucle du Mouhoun (%)	Cascades (%)	Centre Est (%)	Centre Ouest (%)	Hauts-Bassins (%)	Overall (%)	N
Terracing	14.5	3.7	16.1	18.1	30.3	17.7	3162	2.6	0.0	51.7	1.5	2.8	12.7	559
Mulching/cover cropping	38.5	33.3	39.0	50.3	67.7	46.4	3162	13.7	2.0	15.1	13.2	13.3	12.9	1468
Minimum tillage	75.0	44.3	51.3	44.8	77.7	60.1	3162	47.7	13.5	21.9	37.7	13.1	30.0	1900
Wind breaks	17.7	26.7	27.2	31.2	52.6	30.5	3162	1.4	0.0	0.0	4.4	0.6	1.5	965
Contour farming	60.9	68.3	39.3	59.6	71.6	58.3	3162	5.0	2.0	1.4	3.4	1.4	2.9	1844
Crop rotation	92.5	87.0	83.7	87.5	94.7	89.2	3162	38.5	42.2	19.4	39.0	34.5	34.0	2820
Water pans/planting basins	44.9	24.0	49.4	68.6	61.9	52.7	3162	1.7	1.4	6.1	12.7	0.5	5.7	1666
Grass strips	23.1	42.0	41.7	51.3	59.6	42.7	3162	0.5	0.8	17.7	25.5	2.5	11.9	1350
Afforestation	48.6	71.7	55.7	61.4	82.2	61.8	3162	3.9	3.7	2.0	6.7	1.2	3.4	1953
Agro forestry (legumes trees)	32.5	66.0	27.9	31.7	50.3	37.8	3162	16.7	2.0	9.8	32.2	0.0	11.9	1195
Agro forestry (other trees)	17.4	65.0	16.0	15.2	45.9	26.5	3162	0.0	0.0	0.0	6.3	0.4	1.0	838
Gabions/storm bands	60.1	65.7	85.0	73.6	88.0	74.8	3162	15.5	1.0	44.0	28.3	17.2	25.1	2366
Cut-off drains/soil bounding	60.4	70.7	64.4	66.7	90.2	69.4	3162	46.3	22.2	27.2	40.6	45.2	38.3	2195
Fallow	82.1	82.7	75.0	83.7	80.7	80.6	3162	4.6	1.2	1.5	1.3	1.0	2.1	2549
Composting	80.6	86.0	74.8	81.2	84.7	80.7	3162	44.6	16.3	60.2	47.9	23.4	41.6	2552
Use of inorganic fertilisers	64.8	85.3	62.4	77.1	93.0	74.4	3162	58.1	23.8	62.1	50.4	85.2	59.7	2353
Use of green manure fertilisers	20.9	43.7	29.0	37.3	42.9	32.9	3162	1.8	6.9	29.3	20.1	24.8	18.5	1041
Use of farm yard manure	94.5	90.0	88.9	88.2	93.5	91.1	3162	61.0	32.6	74.3	55.3	58.7	59.6	2881
Slash and burn	47.3	63.7	48.6	58.1	71.4	56.2	3162	12.0	20.9	2.8	4.9	6.8	8.2	1778
Growing legume crops	39.4	60.7	47.2	49.0	53.4	48.1	3162	15.3	1.1	21.7	7.2	14.3	13.0	1521
Use of inoculum	2.8	10.7	2.6	3.7	15.5	6.1	3162	0.0	0.0	10.5	0.0	1.1	1.6	193
Use of lime	2.4	8.0	1.4	1.2	10.2	3.9	3162	-	-	-	-	-	-	123
Average percentage	46.4	54.5	46.7	51.8	64.5	51.9	3162	18.6	9.2	22.8	20.9	16.6	18.8	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 51: Awareness and application of agronomic practices by target crop

Indicators	Awareness of agronomic practices						Application of agronomic practices					
	Target Crop Group						Target Crop Group					
	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	N	Maize (%)	Sorghum (%)	Cowpea (%)	Rice (%)	Overall (%)	N
Terracing	18.4	17.1	17.4	18.0	17.7	3162	16.8	8.1	12.4	13.3	12.7	559
Mulching/cover cropping	49.0	45.3	46.0	45.5	46.4	3162	15.1	13.4	12.5	10.6	12.9	1468
Minimum tillage	60.9	60.7	60.3	58.1	60.1	3162	28.6	33.6	31.9	24.3	30.0	1900
Wind breaks	32.8	27.6	30.2	31.7	30.5	3162	1.6	0.5	1.3	2.4	1.5	965
Contour farming	59.3	60.6	56.5	57.5	58.3	3162	3.2	3.4	3.1	1.6	2.9	1844
Crop rotation	90.1	90.9	89.2	86.3	89.2	3162	38.9	32.9	36.1	26.3	34.0	2820
Water pans/planting basins	48.1	55.9	53.1	53.8	52.7	3162	5.9	5.4	6.1	5.3	5.7	1666
Grass strips	43.0	41.1	40.7	47.3	42.7	3162	12.8	10.7	10.6	14.0	11.9	1350
Afforestation	65.4	60.7	59.0	63.1	61.8	3162	4.9	3.2	3.3	2.1	3.4	1953
Agro forestry (legumes trees)	37.1	38.4	34.3	43.2	37.8	3162	8.0	10.4	16.2	11.8	11.9	1195
Agro forestry (other trees)	27.1	25.8	23.8	30.8	26.5	3162	1.0	0.5	0.8	1.5	1.0	838
Gabions/storm bands	76.6	71.1	73.8	78.5	74.8	3162	23.6	21.3	27.3	27.2	25.1	2366
Cut-off drains/soil bounding	70.7	71.2	66.4	70.6	69.4	3162	37.2	43.1	38.8	33.6	38.3	2195
Fallow	80.4	81.1	79.5	82.0	80.6	3162	2.0	2.2	2.3	1.8	2.1	2549
Composting	78.9	83.8	80.5	79.7	80.7	3162	36.9	42.9	46.3	38.0	41.6	2552
Use of inorganic fertilisers	76.4	75.9	71.0	75.8	74.4	3162	61.7	61.3	58.9	56.8	59.7	2353
Use of green manure fertilisers	34.9	33.6	31.3	32.4	32.9	3162	16.9	17.6	24.3	13.0	18.5	1041
Use of farm yard manure	93.0	91.5	90.7	89.2	91.1	3162	59.0	60.2	63.0	54.2	59.6	2881
Slash and burn	60.3	56.8	54.2	54.4	56.2	3162	9.6	8.3	7.8	6.9	8.2	1778
Growing legume crops	51.0	47.3	43.5	52.9	48.1	3162	12.6	6.7	17.9	13.1	13.0	1521
Use of inoculum	4.8	7.2	5.8	6.9	6.1	3162	0.0	0.0	3.4	2.2	1.6	193
Use of lime	4.0	4.4	3.1	4.4	3.9	3162	-	-	-	-	-	123
Average percentage	52.8	52.2	50.5	52.8	51.9	3162	18.9	18.4	20.2	17.1	18.8	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 51 presents the awareness and application of agronomic practices by target crop. From the results, rice-cultivating households have the highest percentage of awareness of the 22 agronomic practices while soybean cultivating households have the lowest percentage of awareness of agronomic practices. The average percentage of awareness by rice cultivating households is 60.46. The second is maize cultivating households with 59.51 percent of maize cultivating households aware of the agronomic practices. The third and fourth are cassava (56.27%) and soybean (53.25%). Most (14.86%) households of soybean cultivating households apply the agronomic practices they know. Rice cultivating households (11.03%) apply the agronomic practices they are aware of the least.

7.8 Crop Yields

We report crop yields computed as total output on plot as a ratio of cultivated size of plot, and measured in metric tonnes per hectare (MT/Ha) in Table 52. Overall, the reported yield for Maize is 1.2MT/Ha, Sorghum yield is 0.6MT/Ha, Cowpea yield is 1.0MT/Ha, and Rice is 1.2MT/Ha. Comparing crop yields across regions, we find that households in the Centre Ouest region generally reported relatively higher yields for Maize and Cowpea, while comparatively higher yields of Sorghum (1.4 MT/Ha) were reported by households in Boucle Mouhoun, Centre Est, and Hauts-Bassins regions (0.7 MT/Ha each). We also observed that households in the Hauts-Bassins region reported comparatively higher yields for Rice (1.7 MT/Ha). For actual crop yields, the Hauts-Bassins region recorded the highest average yield of 2.9Mt/Ha as compared to 1.7Mt/Ha. On the average, yields are higher using the correction factor.

Table 52 Crop Yields by Region

Indicators	Region						N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
Maize Yield (MT/Ha)	1.0 (2.1)	0.9 (1.9)	1.1 (1.9)	1.4 (1.9)	1.3 (2.8)	1.2 (2.2)	2142
Sorghum Yield (MT/Ha)	0.7 (1.5)	0.3 (1.2)	0.7 (1.8)	0.6 (1.6)	0.7 (1.9)	0.6 (1.7)	2007
Cowpea Yield (MT/Ha)	0.4 (1.3)	0.6 (1.5)	0.8 (1.5)	2.0 (1.5)	0.6 (1.4)	1.0 (1.4)	1637
Rice Yield (MT/Ha)	1.4 (1.9)	0.9 (1.5)	0.9 (1.6)	2.0 (2.1)	1.7 (2.9)	1.2 (1.9)	1030

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Disaggregating crop yields into target crop groups in Table 53 shows that except for Cowpea, households selected for specific target crops reported relatively higher yields for such crops compared to households selected for some other crop categories. In the case of Cowpea,

households selected for Rice reported comparatively higher yields compared to their counterparts selected for the other target crops.

Generally, Boucle du Mouhoun is considered a high maize-yielding region in Burkina Faso considering that the region produces about 15% of the country’s maize as well as 16% supply of the country’s certified maize seeds. From Table 52 it is clear that reported maize yields in Boucle du Mouhoun is the second lowest for the data collection period but the highest for the actual yields based the correction factors used. Maize farmers in the Region were interviewed in attempt to understand why their reported maize yields were low. Responses from maize farmers indicated that maize farming was severely affect by low rainfall and lack of technical support in this particular farming seasons prior to data collection. The following quotes reveal how maize farmers explained low yields because of low rainfall, lack of fertilizer and agricultural training

Respondent 2: “...the rain did not come like before so we did not get many corn...” male maize farmer in a FGD in Boucle du Mouhoun

Respondent 4: “... if someone was helping us with technical support and equipment (ploughs and training) this would help us to increase production. Organic manure is more accessible with the expansion of the population...” male maize farmer in a focus group discussion in Boucle du Mouhoun.

Table 53 Crop Yields by Target Crop Groups

Indicators	Target Crop Group*					N
	Maize	Sorghum	Cowpea	Rice	Overall	
Maize Yield (MT/Ha)	1.3 (2.1)	1.0 (2.1)	1.2 (2.2)	1.2 (2.2)	1.2 (2.2)	2142
Sorghum Yield (MT/Ha)	0.6 (1.6)	0.7 (1.7)	0.6 (1.7)	0.7 (1.7)	0.6 (1.7)	2007
Cowpea Yield (MT/Ha)	1.0 (1.4)	0.7 (1.5)	1.0 (1.4)	1.4 (1.5)	1.0 (1.4)	1637
Rice Yield (MT/Ha)	1.0 (2.1)	0.8 (1.7)	1.0 (1.7)	1.4 (2.0)	1.2 (1.9)	1030

Source: ISSER – Burkina Faso Baseline Data (AGRA)

* Note: Crops listed (maize, sorghum, cowpea, rice) refer to farmer households for whom those are dominant crops.

7.9 Pre-harvest Crop Losses

Table 54 displays the distribution of pre-harvest crop losses by region. Overall, the mean pre-harvest losses reported for Maize is 48.6%, Sorghum is 54.9%, Cowpea is 44.2%, and Rice is 38.6%. We observed that households in the Boucle Mouhoun region generally reported higher pre-harvest crop losses for Maize and Sorghum compared to those in the other study regions, while households in the Hauts-Bassins and Centre Ouest regions reported higher pre-harvest crop losses for Cowpea and Rice respectively.

Table 55 shows that households selected for Maize reported relatively higher average pre-harvest crop losses for Sorghum, Cowpea and Rice compared to their counterparts selected for the other

target crops; while households selected for Cowpea and Maize in comparison to households reported a relatively higher pre-harvest Maize losses selected for other target crops.

Table 54: Pre-Harvest Crop Losses by Region

Indicator	Region						N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
Maize (%)	54.8	34.8	46.2	51.4	43.8	48.6	722
Sorghum (%)	59.4	50.2	42.6	50.4	57.8	54.9	695
Cowpea (%)	46.0	40.4	37.6	43.5	48.4	44.2	518
Rice (%)	40.2	35.7	35.2	45.4	36.0	38.6	258

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 55: Pre-Harvest Crop Losses by Target Crop Group

Indicators	Target Crop Group*					N
	Maize	Sorghum	Cowpea	Rice	Overall	
Maize (%)	46.4	54.5	46.5	49.1	48.6	722
Sorghum (%)	57.2	54.0	55.8	48.7	54.9	695
Cowpea (%)	46.3	43.1	43.9	43.8	44.2	518
Rice (%)	50.5	45.9	40.5	34.2	38.6	258

Source: ISSER – Burkina Faso Baseline Data (AGRA)

* Note: Crops listed (maize, sorghum, cowpea, rice) refer to farmer households for whom those are dominant crops.

7.10 Post-Harvest Storage, Crop Sales, Processing and Market Price Information

7.10.1 Post-Harvest Crop Storage

We find from Table 56 that overall, 59.3% of households stored their crops in various forms after harvest. Comparing across regions, a higher proportion of households (77.8%) in the Centre Est region reported post-harvest crop storage compared to those in the other study regions. We observed that overall; a comparatively higher proportion (47.0%) stored their crops in Silos at home/farm, followed by storage in Bags at home/farm (32.2%). Additionally, we find that overall, 59.3% of households use chemicals for storage; and a relatively higher proportion of households (77.8%) in the Centre Est region reported having used chemicals for storage compared to households in the other study regions.

Table 56 Post-Harvest Crop Storage by Region

Indicators	Region						Overall	N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins			
% of households that stored crop after harvest	43.5	45.0	77.8	57.1	67.6	59.3	3,162	
% of households that stored crop in:								
Silos at home/farm	30.2	43.3	61.6	43.7	57.2	47.0	3,162	
Bags at home/farm	12.3	1.3	47.5	14.3	20.1	21.4	3,162	
Other storage	8.7	0.3	1.9	15.9	5.0	7.3	3,162	
% of households that store crops with chemicals	43.5	45.0	77.8	57.1	67.6	59.3	3,162	

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 57 Crop Storage by Target Crop Group

Indicators	Target Crop Group				Overall	N
	Maize	Sorghum	Cowpea	Rice		
% of households that stored crop after harvest	59.7	52.6	61.6	62.8	59.3	3,162
% of households that stored crop in:						
Silos at home/farm	47.8	41.2	49.3	48.8	47.0	3,162
Bags at home/farm	18.7	17.2	23.7	25.2	21.4	3,162
Other storage	5.9	8.0	9.2	5.3	7.3	3,162
% of households that store crops with chemicals	59.7	52.6	61.6	62.8	59.3	3,162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Across target crop groups, we observe that a higher proportion of households (62.8%) selected for rice reported having stored their crops after harvest, followed by those selected for Cowpea (61.6%) while households selected for Sorghum reported the least proportion (52.6%). Also, the highest proportion of households that reported having stored crops in silos at home/farm is highest for those in the Cowpea group (49.3%), while those in the Rice group reported the highest

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proportion for those who stored crops in bags at home/farm (25.2%). In addition, compared to households selected for the other target crops, a relatively higher proportion of households selected for Rice (62.8%) reported having stored crops with chemicals, followed by households in Cowpea group (61.6%).

7.10.2 Crop Sales

Overall, the highest quantity of crop sales is reported for Maize (1.45 MT), followed by Sorghum (0.75 MT) while the lowest quantity is reported for Cowpea (0.29 MT). Across region, except for Cowpea, households in the Hauts-Bassins region reported relatively higher sales volumes of all other crops compared to their counterparts in the other study regions (see Table 58).

Table 58: Quantity of Crop Sold by Region

Indicators	Region						N
	Boucle du Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
Mean quantity sold of:							
Maize (MT)	0.96	2.06	0.68	0.90	2.62	1.45	939
Sorghum (MT)	0.70	0.76	0.65	0.71	1.11	0.75	1040
Cowpea (MT)	0.56	0.25	0.23	0.24	0.30	0.29	687
Rice (MT)	0.52	1.04	0.58	0.47	1.04	0.69	472

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 59: Quantity of Crop Sold by Target Crop Group

Indicators	Target Crop Group					N
	Maize	Sorghum	Cowpea	Rice	Overall	
Mean quantity sold of:						
Maize (MT)	1.51	1.42	1.44	1.42	1.45	939
Sorghum (MT)	0.77	0.77	0.72	0.75	0.75	1040
Cowpea (MT)	0.23	0.40	0.30	0.22	0.29	687
Rice (MT)	0.70	0.55	0.51	0.78	0.69	472

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 59 shows that except for Cowpea, households selected for specific target crops generally reported relatively higher sales volumes of such crops compared to their counterparts selected for the other target crops.

7.11 Sources of Market Price Information

Households in the sample revealed having obtained market price information from various sources. The main source of market price information reported by the majority of households is Market traders (93.1%). We find that across regions, a relatively higher proportion of households in the Cascades region (99.0%) reported having received market price information from Market traders compared to their cohorts in the other four regions. We find in

Table 61 that compared to households selected for the other target crops, a higher proportion of households selected for Rice received market price information from Market traders.

Table 60 Source of market price Information by Region

Indicators	Region						N
	Boucle Mouhoun	Cascades	Centre Est	Centre Ouest	Hauts-Bassins	Overall	
% of households that received market price information from:							
Market traders	87.8	99.3	95.1	93.9	91.8	93.1	3,162
Other farmers	12.5	0.7	0.4	6.3	2.2	4.4	3,162
Radio/Newspapers	0.3	0.0	0.2	0.2	8.0	1.9	3,162
Cooperatives	1.1	0.0	1.4	0.7	0.2	0.8	3,162
Other sources	2.9	0.7	7.2	1.2	0.7	3.2	3,162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

Table 61 Source of Market Price Information by Target Crop Group

Indicators	Target Crop Group					N
	Maize	Sorghum	Cowpea	Rice	Overall	
% of households that received market price information from:						
Market traders	92.4	91.5	93.7	94.1	93.1	3,162
Other farmers	4.9	7.7	3.6	1.9	4.4	3,162
Radio/Newspapers	3.1	1.3	1.9	1.2	1.9	3,162
Cooperatives	0.5	0.8	0.6	1.7	0.8	3,162
Other sources	2.2	1.8	3.3	5.2	3.2	3,162

Source: ISSER – Burkina Faso Baseline Data (AGRA)

8 Conclusion

The results of this survey outline the practices of farmer households in Boucle de Mouhoun, Cascades, Centre-Est, Centre-Ouest and the Hauts-Bassins regions and their productivity and welfare. They discuss decisions at all stages of production pre- and post-harvest and how demographic characteristics, such as gender and age breakdown, household size and culture,

influence them. The quantitative results show how farmers perform against the key indicators and observe that:

Farmer households are mostly illiterate, male-headed, with mostly young members. This demographic has impact on decision-making, production, land use, ownership, and food security. Household structures lean more on cultural norms based on marriage, inheritance and community.

- ◆ Farming is the number one source of income for majority of the farmers. Very few engage in economic activity outside of the farm. Furthermore, even the most common non-farm activity links to farming, through the trade of agricultural produce or hiring out casual labour. It is rare that farmers are salary earners or employers for salary earners. Labour hiring is at a casual daily or hourly rate.
- ◆ Sustaining food security is by the consumption of staple crops grown locally in the region. Tubers and cereals are standard for most households. However, the minority, less than a third of households experience food shortages at some point during a 12-month period, which is still a significant share.
- ◆ Credit access is low for households in both regions and still very informal. Majority source loans from neighbours, local collaborative funding sources and moneylenders within the community. Very few use financial institutions such as commercial banks. In fact, few own a bank account to begin with.
- ◆ There is a gender gap in terms of household empowerment with regard to production and income use. It is not surprising observing this in a country that most citizens are Muslims. The right to asset ownership although not stipulated, favours males than females.
- ◆ Household plots are large in all regions, with majority owning at least a plot. Centre-Ouest plots are characterised by poor soil quality compared to those in Cascades and the other three regions, given their respective ecological zones. As a result, the successes of interventions geared toward soil improving input and agronomic practices are likely to vary between the two regions.
- ◆ Farm labour come from households, especially in the Hauts-Bassins, where households are larger, compared to those in the other four regions.
- ◆ Input use, especially chemical use, is high for farmer households. They access these inputs mainly from agro-dealers. Interestingly, when observed at the regional level, agro-dealers are a more popular source for Hauts-Bassins and Boucle de Mouhoun households than other three regions, who rely mostly on markets for chemicals. In additions, less than half of the households use hybrid seed varieties, although more than half of households in Boucle de Mouhoun use hybrid seeds.
- ◆ Farm mechanization is limited for most households, given small-scale nature of production. Most use tractors or animal draught for ploughing and clearing land. The rest of the farming activities, like planting and fertilizer application are still labour intensive. Tractor use is very high on Hauts-Bassins and Cascades plots, compared to Centre-Est, Centre-Ouest and Boucle de Mouhoun, due to the large average plot sizes in these regions.
- ◆ The exchange of farm innovation and skills through FBOs and extension services is limited among the sampled households. Very few are members of FBOs and are unaware of opportunities for extension assistance and demonstration.
- ◆ Agronomic practices are widely practiced. The most common methods are preserving or improving soil quality. Most households apply fertilizer and engage in fallowing, composting and mulching.

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- ◆ Yields recorded vary by crop and region. Centre-Ouest households record higher average yields for maize, sorghum, cowpea and rice, while most households record higher average yields for sorghum. Sorghum yields are quite low in most regions and this is attributed to the rainfall pattern during the farming season.
- ◆ Pre-harvest crop losses are highest for sorghum and maize. Farmers mostly store produce on their own, either in silos or bags at home or on their farms. They rarely use chemicals to protect or preserve the grain. Sale of crops is concentrated in markets, where most farmers access pricing information.

We recommend that AGRA take into account these key observations in the course of developing programs and policies aimed at increasing farmer productivity and welfare. It is especially important to understand how cultural norms and financial constraints affect the adoption of certain inputs and farm innovations.

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