



Burkina Faso Food for Progress FY 2013 CRS RECOLTE project

Baseline Evaluation

December 2014

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Baseline Study of the RECOLTE Project

Final Version of the Quantitative Report

December 2014



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This is the quantitative report of the baseline study for the project entitled Revenue Through Cotton Livelihoods, Trade, and Equity (RECOLTE). This project was funded by USDA and implemented through its partnership with Catholic Relief Services (CRS) in Burkina Faso, the National Union of Cotton Producers in Burkina Faso (UNPCB), the Institute of Environmental and Agricultural Research (INERA) and the University of Texas A&M.

The Center for Research and Economic and Social Management - AFRICA (CEMES-AFRICA) carried out the baseline study and produced the two reports (quantitative and qualitative). The document was written by a team of consultants including a team leader, an agronomical cotton specialist, an associate consultant, a monitoring and evaluation specialist and a statistician.

The research bureau acknowledges all of the CRS staff who supported the study. CEMES-AFRIQUE would like to especially thank the CRS Resident Representative of Burkina Faso for his patience and openness. CRS' RECOLTE director and the managers of Monitoring and Evaluation, Accountability and Learning (SERA) provided all the necessary support for this process.

The managers and staff of the National Union of Cotton Producers of Burkina Faso (UNPCB) strongly contributed to the success of the baseline, particularly the point person for the RECOLTE project and the Manager of Monitoring and Evaluation. CEMES-AFRIQUE would like to thank them.

The chiefs of the zones, the technical agents of organic cotton and the various people responsible for the producer groups worked hard to mobilize households for interviews.

The households welcomed the various teams and thanks to their patience, the study team was able to collect all the necessary information for a sample of the selected producers, providing quality data. CEMES-AFRIQUE extends its thanks to all the respondents.

Finally, the enumerators deserve credit for the data. Their devotion and strong work ethic in collecting the data collection as well as their knowledge of the rural areas produced the quality data.

EXECUTIVE SUMMARY

Catholic Relief Services (CRS) together with the National Union of Cotton Producers in Burkina Faso (UNPCB), the Institute of Environmental and Agricultural Research (INERA) and the University of Texas A&M implemented a five-year project to sustainably develop organic cotton: the project Revenue Through Cotton Livelihoods, Trade, and Equity (RECOLTE).

The baseline for this study was entrusted to CEMES-AFRIQUE through an open process of selecting consultants. This study comprises a quantitative and qualitative section. The quantitative survey is a sample survey with two degrees of freedom conducted on a representative sample and significant at each of the RECOLTE project's seven intervention areas. These seven zones correspond to the organic cotton production zone of the National Union of Cotton Producers in Burkina Faso (UNPCB).

The main results of the study are summarized below:

The average area cultivated for organic cotton is 0.67 ha for a yield of 393 kg/ha, which is below the yield calculated in the UNPCB database estimated at 460 kg/ha. The main technical weakness of the producers is the low dose of organic manure which was on average one ton compared to the recommended 2.5 tons/ha.

About 30% of organic plots were on the lower slopes or in the valley floor, which are more fertile than the plots on top or the higher slopes (70%).

Various trainings were carried out for the producers covering four main areas: (1) post-harvest techniques which benefitted 72% of producers, (2) water and soil and agroforestry techniques (CES/AGF) of which only 18% of producers were trained on at least two of the techniques, (3) techniques on managing production units of which only 9% of producers were trained on at least three techniques, (4) techniques for improving productivity and food security of which 52% of producers were trained in at least three techniques.

The analysis shows that the average revenue was 147,377 FCFA/ha or \$295. This revenue is estimated at 160,395 FCFA/ha or \$321 for men, compared to 108,811 FCFA/ha or \$218 for women. Women made 47% less than men.

Concerning rotational crops, the average revenue per hectare was 127,579 FCFA or \$255 for peanuts, 313,190 FCFA or \$626 for sesame and 73,573 FCFA or \$147 for soy.

The gross margin per cotton producer was 126,328 FCFA/ha or \$253 on average.

Inputs are deposited in the Producer Groups of Organic Cotton (GPCB) warehouses where they are stored before distributing to producers. Only 12.5% of producers store their seeds in a GPCB warehouse, of which 14% were men and 10% were women.

Access to credit is quite low: 37% for men and 32% for women. The main constraint is lack of producers' collateral.

The main constraints for organic cotton production, in order of importance, are: lack of organic fertilizer (47.8%), late distribution of seeds (41%) and challenges related to transportation of organic fertilizer.

The main shocks were social shocks (45.7%) and droughts (16.3%).

Finally, the expectations of future beneficiaries regarding the RECOLTE project in order of importance are: uptake of new agricultural technologies (61.2%), borrowing of micro-credit (50.4%), subsidizing inputs (45.1%) and capacity building (41.4%).

Based on the results above, the following main recommendations were made:

- 1) Lower the project's target for average area of organic cotton per producer, because of:
(i) poor quality plots for new producers; (ii) women, who represent about 38%, having difficulties in accessing own land for organic production; (iii) insufficient manure to cover one hectare despite support for the project because of challenges in acquiring start-up materials without initiating animal husbandry (cow dung, animal manure, etc.). For the beginning, it is more realistic that the average plot size will increase from 0.6 hectares per producer to 0.8 hectares instead of 1 hectare.
- 2) Decrease the target yield from 600 kg/ha for organic cotton to 527 kg/ha based on the average yield of the past season (460 kg/ha) because of producers' poor technical performances and the expected new producers (about 40% of all producers) will have limited experience.
- 3) Work to maintain the current rate of 38% female participation in organic cotton production.
- 4) Include construction of warehouses in project activities to increase the storage capacity in the organic sector. This is a necessary recommendation given the expected increase in producers, the increased quantities of inputs to manage, and the delayed ginning for organic production.

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ACRONYMS AND ABBREVIATIONS

IGA	Income Generating Activity
APROCA	Association of Cotton Experts in Africa
ATB	Organic Technical Agent
CFAAA	Financing Fund for Agro-pastoral and Artisan Activities
CCC	Commodity Credit Corporation
CDE	Center for Development and Environment
CEF	Small holder farms advisory services
CEMES- AFRIQUE	Center for Research and Economic and Social Management – AFRICA
CES/AGF	Water and Soil Conservation /Agroforestry
GMC	Genetically Modified Cotton
CRS	Catholic Relief Services
CSPro	Census and Survey Processing System
DRS/CES	Soil Protection and Restoration/ Water and Soil Conservation
FCFA	Franc of the African Financial Community
FLOCERT	Fairtrade Labelling Organizations Certification – Independent Organization for Certification and Inspection
GPCB	Organic Cotton Producer Groups
GPS	Global Positioning System
ICCO	Dutch NGO
INERA	Institute of Environmental and Agricultural Research
MASA	Ministry of Agriculture and Food Security
GMO	Genetically Modified Organism
NGO	Non-Government Organization
PADDAB	Danish Development and Agriculture Support Program
PDR	Rural Development Project
PICOFA	Community Investment Program for Agricultural Fertility
PNGT2	National Program of Land Management, Phase 2
RECOLTE	Revenue through Cotton Livelihoods, Trade, and Equity
SECO	Swiss Development Cooperation
MIS	Market Information System
SN CITEC	<i>Société Nouvelle CITEC</i>
SPSS	Statistical Package for Social Sciences
SOFITEX	<i>Société Burkinabé des Fibres Textiles</i>
SONAGESS	<i>Société Nationale de Gestion du Stock de Sécurité Alimentaire</i>
UNPCB	National Union of Burkina Faso Cotton Producers
USA	United States of America
USDA	United States Department of Agriculture

INTRODUCTION

Organic production has experienced major fluctuations over the past decade often resulting in crisis situations in the cotton sector in Africa, with negative impacts on the livelihoods of small producers (poor revenue, indebted producers, food insecurity).

It is in this context that a program is being implemented to improve farmers' production conditions, by encouraging them to adopt fair trade and organic products, and engaging them in market systems to improve their economy. Usually produced in a sustainable manner, within a community system of mixed farming and livestock, organic cotton offers an intrinsic high quality fiber. Organic and fair trade cotton is a real opportunity for producers in the South to improve their income and quality of life. If properly integrated into existing channels (sesame, peanuts, soy, grains) it can also be a powerful lever for development.

As a representative of all cotton producers in Burkina Faso, the National Union of Burkina Cotton Producers (UNPCB) originally started this initiative with farmers in the North (textile buyers and fair trade actors). The goal was to capitalize on this market opportunity, particularly given the current crisis in the African cotton sector, to benefit a maximum of cotton producers.

In West and Central Africa, the development of organic cotton started in four countries: Mali, Burkina Faso, Benin and Senegal in 2002 with the Helvetas project, supported in particular by the Swiss Development Cooperation (SECO) and ICCO (a Dutch NGO), for a total of about three million Euros (until 2007), in partnership with textile manufacturers and retailers.

In 2006, production reached 406 tons of organic cotton, for 2,445 hectares and 4,677 producers, of which 40% were women (Aproca, 2011).

To ensure higher remunerative prices to producers of organic cotton, producer organizations were certified as "fair trade" by Fairtrade Labelling Organizations Certification – the Independent Organization for Certification and Inspection (FLO Cert) in the 2004/2005 season. Thus, the combination of the premium 'organic cotton' of 34 FCFA/kg plus the minimum fair trade price (234 FCFA/kg) resulted in a price of 306 FCFA/kg of fair trade organic seed cotton, far higher than the price of conventional cotton in the current sub region.

In Burkina Faso, the organic cotton program started in 2004 under the leadership of UNPCB. With a production of less than 200 tons in 2005/2006, production reached 337 tons in 2006/2007 and rose rapidly to 1,893 tons in 2011/2012, and in 2013/2014 the goal of 2,000 tons was achieved with a production of 2,038 tons (UNPCB, 2014). Compared to the average estimated yield of 412 kg/ha in 2004/2005, there was an average annual increase of 8% between 2004 and 2009: 466 kg/ha in 2005/2006, 507 kg/ha in 2006/2007, 550 kg/ha in 2007/2008 (Helvetas, 2009). With a yield of 540 kg/ha in 2008/2009, organic cotton experienced its first decline (-1.8%). Available figures from 2012 indicate that organic cotton was produced by 6,978 producers, of which 32% were women (UNPCB, 2012), who devoted 0.66 % of ha for organic cotton with an average yield of 466 kg/ha. Organic cotton represents less than 0.7% of cotton area at the national level with increasing area in the last years.

Lower yields in 2008 were because of: i) the doubling of new producers as compared to the previous year, whose yields were low (even lower skills in organic techniques in the new areas of Tenkodogo and Tapoa in the extreme East), ii) late delivery of seeds from cotton

companies, and iii) an increase of more than 50% new ATBs with even poorer skills and trained techniques (Helvetas, 2009). These same reasons explain the stagnation, or even decline, in yields over the past three years (Aproca, 2013). This poses a problem for professional actors and capacity building of field staff.

The rate of women participation was estimated at 20.8% at the start of the program (2004), and then increased to 45% in 2005/2006, 42% in 2006/2007 and 40% in 2007/2008 (CDE, 2009). There was a decrease in 2008/2009 to 28.2% of women, but then an increase in 2011 to finally attain 32% in 2012/2013 (UNPCB, 2014). The decrease in participation of women during that period may be because of increased men producing organic crops and therefore the difficulty for women to access land for organic production, resulting in women abandoning organic cotton.

To run the organic program, UNPCB received external support over several phases. In the first phase of the program (2004-2007) organic cotton production was proven feasible and a subsector of organic cotton was established.

During the second phase (2008-2011), the program expanded its activities to new areas and strengthened the independence and sustainability of the sub-sector under the auspices of the UNPCB. At the same time, the program worked to professionalize producers to improve farming practices, increase profitability and diversify production of the organic sector. Today, UNPCB has become the operator of the whole chain all the way to the FOB fiber, including ginning in concert with the cotton companies, Sofitex and Faso Coton. UNPCB has reached a good level of proficiency in production, certification and internal control.

Achievements are important but organic production is marked by:

- Poor productivity, linked with a decrease in soil fertility, poor equipment of producers and poor knowledge of crop management systems, especially with those who are new to organic farming;
- Absence of national policies on organic farming, which does not ensure the security of organic production, especially with the development of GMC because of the memorandums of understanding that give cotton companies exclusive production and marketing of cotton in the respective areas of intervention of organic cotton (58% of the area of cotton in GMC);
- Strong dependence of the organic sector in the conventional sector/GMC in ginning seed cotton with the consequent risk of contamination of organic cotton by GMC, and the delay in ginning which further delays the marketing of cotton among producers;
- Poor economic profitability due to high costs for the structure and certificate;
- A business partnership based on an exclusive customer.

The challenges in improving conditions for small organic producers are important and the RECOLTE project aims to reduce these constraints in economic and human development, to increase agricultural productivity of small organic cotton producers and expand trade of agricultural products locally, regionally and internationally. It aims to improve the value chain of organic cotton, increase income and improve economic prospects and food security of small farmers in Burkina Faso, particularly women.

It is in this context that the baseline study was conducted. It will determine the baseline values of project indicators and indicate how the RECOLTE project can better intervene to improve the well-being of small producers. This document is the quantitative component of the study.

I. OVERVIEW OF THE PROJECT, GOAL AND EXPECTED OBJECTIVES OF THE STUDY

This section provides an overview of the objectives, activities, organic cotton production zones, partners and budget of the project. It also provides the objectives and the expected results of this study.

1.1 Description of the RECOLTE project

(a) Project objectives

The following are the objectives for the RECOLTE project:

- Increase the production of organic cotton by improving agricultural management and production of organic cotton; building the capacity of producer and cooperative groups; and multiplying organic seeds and management systems;
- Increase marketing of fair trade, organic cotton by improving post-harvest treatment; facilitating agricultural lending; improving market links; promoting the participation of women in organic cotton production, and changing norms of child labor.

The project is funded through the monetization of 11,750 tons of white rice by CRS over about three years; the revenue from sales will be used to implement this project in Burkina Faso.

(b) Description of project activities

CRS will collaborate with UNPCB to put in place the following activities:

- ❖ **Ensure training on organic cotton production**
CRS will work to improve and increase organic cotton production by developing and conducting trainings for producers in organic cotton production.
- ❖ **Ensure training on agricultural management of organic cotton**
CRS will train field agents who will be deployed to the various zones to train producers in agricultural management.
- ❖ **Facilitate the certification process of organic and fair trade cotton**
CRS will train personnel and organic cotton producers in topics like organic cotton certification, Global Organic Textiles Standards and best practices.
- ❖ **Build the negotiation capacities of cooperatives**
CRS will conduct trainings in the "Five Skill Sets for Enhanced Farmer Groups and Marketing."
- ❖ **Develop services**
CRS will increase the provision of organic seeds in close collaboration with seed producers on farms.
- ❖ **Improve post-harvest processing**
CRS will train field agents per zone to train producers in post-harvest treatment techniques and in the treatment of rotational crops.

- ❖ **Financial services: facilitate access to agricultural credit**
CRS will establish funds to guaranty loans with a projected average of \$250 in order for producers to access financial services.
- ❖ **Improve access to markets for increased organic cotton trade**
CRS will ensure that producers are informed in available systems to obtain market information and encourage producers to access and use this information.
- ❖ **Facilitate policies and regular dialogue on production of organic cotton**
CRS will facilitate participation of producers, staff and government representatives in dialogues on national and regional policies of organic agriculture and fair trade, focusing on the promotion of the agricultural sector and knowledge of government.
- ❖ **Gender and preventing child labor**
CRS will conduct a three-day training session to promote the increased participation of women in organic cotton production.
- ❖ **Capacity building: Develop negotiating skills among service providers**
CRS can select additional sub-recipients among local and international organizations.

(c) Project targets

According to the strategic analysis document, CRS will improve value chains of organic cotton through the implementation of the RECOLTE project. The national implementing partner is UNPCB, and they have already worked with 6,589 producers of which 28% are women during the first phase of the project. By 2018, the project's objective will be to increase the number of producers of organic cotton to 10,589 (4,000 new producers) of which at least 30% are women. The indirect beneficiaries of the project are 50,000 people. The actual number of producers of organic cotton during the 2013/2014 season was 7,094 producers - 38.3% women.

(d) Zones of project intervention

The project will be implemented in the zones where UNPCB currently produces organic cotton, which covers the following zones: Boulgou, Comoe, Gourma, Ioba, Nayala, Oubritenga and Ziro. The production zone will cover multiple provinces (see box 1 below).

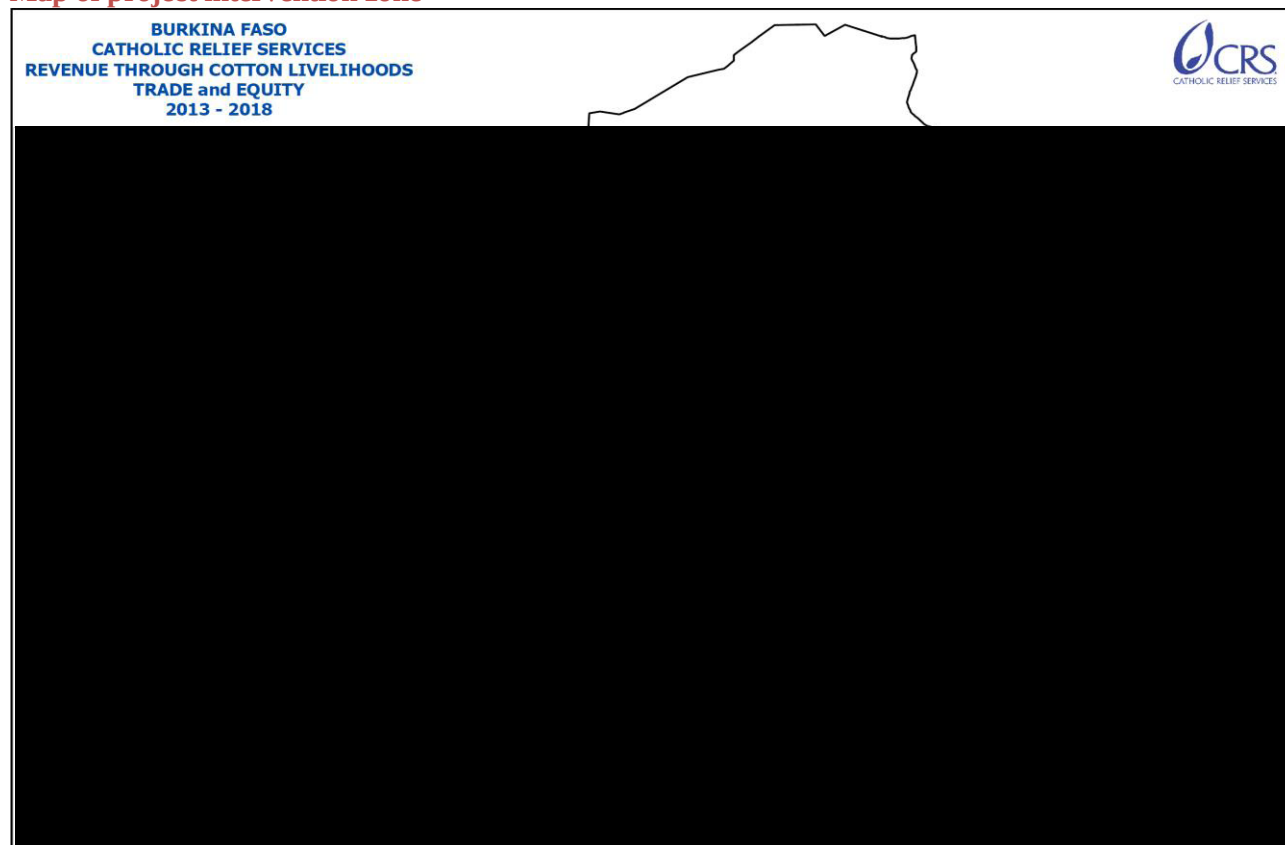
Encadré n° 1: Description of the zones of the intervention

ZONES	PROVINCES
COMOE	Comoé
BOULGOU	Boulgou
GOURMA	Gourma et Koulpelogo
IOBA	Bale, Bougouriba, Ioba, Poni, Tuy
NAYALA	Nayala
OUBRITENGA	Oubritenga
ZIRO	Bazéga, Sissili, Ziro

Thus the seven intervention zones defined in the project cover 14 provinces.

Figure 1 below indicates the organic cotton production zones in Burkina Faso and the number of producers per zone.

Map of project intervention zone



(e) Partners and overall budget of the project

CRS will assume leadership in project implementation, in partnership with UNPCB and Texas A&M – AgriLife Research. The project will also develop a partnership with the Institute of Environmental and Agricultural Research (INERA) and will work with the Ministry of Commerce and the Ministry of Agriculture and Food Security (MASA). Finally, the private sector will be involved with project implementation to provide more opportunities to beneficiaries.

The total cost of the intervention is a little over 10.3 million U.S. Dollars. The duration of the project is five years (2013-2018). The project is funded through the agreement number: FCC-686-201-2013/027-00 signed between CRS and the Government of the United States (USA) acting through the agency called “Commodity Credit Corporation – CCC”, which is an institute to secure revenue and stabilize the price for American farmers. This is an entity of the United States Department of Agriculture (USDA). Box 2 summarizes the key project information.

Box n° 2: Key project information

PROJECT NAME	RECOLTE
TIMEFRAME	5 years
BUDGET	10.304.606, 75 USD
DIRECT TARGETS	10.589 farmers
INDIRECT TARGETS	50.000 farmers
ZONES	7 zones
PARTNERS	UNPCB, Texas A&M , INERA, Ministry of Agriculture
FUNDING SOURCE	USDA/Government of America

1.2 Goal and expected results of the study

The goal of this baseline study is to provide reference data for the RECOLTE project indicators and to make recommendations on project targets for each indicator. At the end of the study, the following documents were produced:

- Baseline data of the cleaned data
- A qualitative report (in French and English)
- A quantitative report (in French and English)
- The table of performance indicators (Annex E of the CRS-USDA agreement) updated with recommendations from the baseline study.

II. METHODOLOGY AND BASELINE STUDY – Quantitative Part

2.1 Type of study

This is a descriptive study. The study targets UNPCB organic cotton farmers. The study took place in the zones of Comoe, Nayala, Ziro, Ioba, Gourma, Oubritenga and Boulgou.

2.2 Data collection tools

Data collection was conducted using a questionnaire (a household section and a section for the selected farmer). The questionnaire, which was designed by consultants, was submitted to the RECOLTE project team, and revised during a meeting on the methodology which took place on May 19th, 2014. The final version of the questionnaire was approved after the changes were taken into account.

2.3 Sample size and survey questionnaire

❖ Guidelines for sampling

Sampling should generate appropriate and necessary data to monitor progress with project beneficiaries. Sampling aims to ensure:

- Data representativeness at the level of all production zones to reflect overall progress at the level of selected indicators;
- Values of indicators can be compared from the baseline to those calculated at mid-term and final evaluations;
- Stratification, taking into account gender and ensuring that all producer groups have the same chance to be selected.

❖ Determination of household sample size

The number of participants necessary for the quantitative study was obtained using the following formula:

$$n = \frac{1}{t_{response}} * \frac{n_1}{1 + \frac{n_1}{N}} \text{ où } n_1 = Deff * \frac{(s_1^2 + s_2^2)(Z_\alpha + Z_\beta)^2}{(X_2 - X_1)^2}$$

n= sample size;
t_{response} = rate of response for this study was 10%;
N = Total number;

$Deff^1$ = effect of sampling is 2;

$Z_\alpha = 1.65$ represents the coefficient for a confidence level of 95%;

$Z_\beta = 0.84$ represents the coefficient for the statistical power of 80%;

X_1 = Parameter to estimate the baseline situation;

X_2 = Parameter to estimate the final situation;

S_1 = Variance linked to the X_1 parameter;

S_2 = Variance linked to the X_2 parameter.

This formula was used to obtain the sample size, because it takes into account the baseline situation of variables of interest and the project's final target. Three variables of interest were chosen to be used for the sample. They were: the average production (in kg) of organic cotton per hectare, the average area of land (in ha) used for the production of organic cotton and finally the average production revenue in FCFA. In the end, the sample was 450 producers. It was the largest sample of the three variables of interest.

This sample was obtained following a systematic sample using two degrees of freedom. The starting point for the sample was provided by UNPCB and included all organic cotton producers in the seven zones of organic production. It allowed one to identify each producer by zone, group, municipality and village. It also provided information on personal characteristics (first and last name and sex) of the producer, the area of land used for the production of organic cotton and the production expected.

Producers were systematically selected, taking into account their expected annual production of organic cotton. Producer groups were randomly selected in proportion to the size of the different provinces and the size of the different zones and the size of the groups with the number of producers. Forty-five groups were then selected of which 191 were in the first level of selection. Then, for the second level, ten producers were selected in each group, taking into account their expected annual organic cotton production. To do this, producers were organized by zone. Excel was used to select the groups and producers to interview. In each selected group, ten producers would be interviewed. In total, 450 producers were selected to participate in the study. This number corresponds to the representative sample. The producers are distributed in the zones, as indicated in the following table:

Table 1: Summary of the survey sample

Zone	# of producers	# of GPCB	# of GCPB sampled	Farmers sample size
COMOE	316	22	3	30
IOBA	995	54	6	60
NAYALA	393	6	3	30
BOULGOU	2793	60	16	160
GOURMA	1794	30	10	100
OUBRITENGA	135	4	3	30
ZIRO	668	15	4	40
TOTAL	7094	191	45	450

Source: UNPCB and RECOLTE baseline study, 2014

¹ Using two degrees often indicates a loss of accuracy (compared to a sample with the same number of units surveyed) due to the fact that units located within the same primary unit often are similar. Correcting this structural effect requires that we have a similar survey pulling out groups in the first degree and second degree producers. One can then determine the DEFF of the variable of interest.

2.4 Implementation of the baseline survey and post survey activities

Conducting the baseline study includes several steps, including the following main ones:

- Reviewing project documents;
- Conducting the baseline (recruitment; training of enumerators; data collection in the field; data entry, cleaning and analysis);
- Report writing.

❖ Recruitment and training of enumerators

Recruitment of personnel for the quantitative study: Recruitment of enumerators occurred through a call for applications. A total of 73 applications were received. A team from the CEMES-AFRIQUE and CRS offices conducted the recruitment. Screening criteria for selecting enumerators included a university degree, survey experience in rural areas and knowing at least two local languages of the targeted organic cotton production zones. In total, five teams consisting of a supervisor and three enumerators were recruited.

Training of enumerators: A three-day training was organized for the 24 enumerators and supervisors, which took place in the CEMES-AFRIQUE conference room. The various modules as well as questionnaire administration were presented in the conference room. A pre-test of the questionnaire was conducted on the third day of the training, and after that a test was organized to retain fifteen enumerators and five supervisors. The questionnaire modules are as follows:

- ❖ Module A: Identification of the producer
- ❖ Module B: Practices and Agricultural Production
- ❖ Module C: Access to services and agricultural infrastructure (2013/2014 season)
- ❖ Module D: Livestock
- ❖ Module E: Food Security
- ❖ Module F: Revenue and use of cotton revenue
- ❖ Module G: Household shocks
- ❖ Module H: Household assets
- ❖ Module I: Storage and Equipment
- ❖ Module J: Constraints and future of organic cotton
- ❖ Module K: Household information

Testing of the questionnaire: The quantitative questionnaire was tested in a village in the central plateau in an organic cotton production zone of Oubritenga with farmers. The results of the test were used to correct the questionnaire. They also determined the average time needed for each enumerator to administer the questionnaire which helped adjust interview planning.

The test showed that the values provided by the producers for the area reserved for organic cotton production was very different than that which was provided by UNPCB. This discrepancy can be explained by the fact that producers approximated their answers whereas UNPCB uses a GPS to measure. The number of producers interviewed for the test was very

low compared to the sample and thus, it was not possible to propose a correction factor for the different responses on the areas reserved for production.

❖ Data collection

Strategy for administering the questionnaire: The teams were deployed into the field according to the different languages spoken, so that each team was made of enumerators who spoke the main languages of the zone.

The teams applied the *balayage* method for data collection. In this approach the whole group conducted the survey in a village and then moved to the next village, instead of having one enumerator per village. The surveys were conducted from May 26th to June 5th, 2014.

Survey supervision: Two teams consisting of a consultant and a person in charge of monitoring, evaluation, accountability and learning from CRS conducted the survey supervision. All enumerator teams were visited. Any limitations were automatically corrected and shared with other teams to ensure that the same errors were not made. At the same time, these consultants collected information (surveys with key informants) from institutional structures such as UNPCB and INERA.

❖ Data cleaning and analysis

○ Data entry

Six entry clerks spent four days entering data into the CSPRo program. A supervisor, put under the direct responsibility of the statistician consultant for data cleaning, was recruited for data verification and responded to technical problems.

○ Data cleaning and analysis

Data cleaning began once the data was entered to correct any inconsistencies by creating frequency tables and cross-checked tables of the main variables of interest in the study. Data was cleaned without any delays. Data analysis was conducted according to a data analysis plan developed by the consultant and senior associate consultant. SPSS software was used for statistical analysis.

Table 2: Summary producers sampled vs. interviewed

ZONE	Women		Men		Total	
	Sampled	interviewed	Sampled	Interviewed	Sampled	interviewed
COMOE	19	19	11	9	30	28
IOBA	08	07	52	44	60	51
NAYALA	21	19	9	7	30	26
BOULGOU	48	45	112	106	160	151
GOURMA	24	24	76	74	100	98
OUBRITENGA	14	14	16	14	30	28
ZIRO	13	11	27	24	40	35
Total	147	139	303	278	450	417

SOURCE: Results of the baseline study, June 2014

In total, among the 450 producers selected, 417 were interviewed, which is a 92.7% response rate.

2.5 Constraints and limitations of the study

❖ Difficulties identifying all the producers in the central database

During supervision, it was discovered that one of the farmers groups split into several smaller groups; this change had not been recorded in the sampling base. Multiple producers were not found in the groups to which they were supposed to belong. The surveyors had to travel long distances in the fields to find farmers in the sample and were assisted by UNPCB field agents. It was necessary to ensure the completeness of the baseline before selecting the sample for the next step in data collection.

❖ Survey duration and composition of the teams

In total, 20 field agents, composed of 15 enumerators and five supervisors, collected the data over ten days. All teams finished their work in the targeted timeframe. While the number of field agents or days may have been sufficient, the response rate could have been higher with more time or enumerators on a team.

With three enumerators per survey team, each team had one day per village to interview ten organic farmers on average. Three enumerators per team did not allow enumerators to wait for producers who were included in the sample but not present at the time. This can explain the non-response rate of 7.33%.

There should have been seven teams instead of five to allow for more time in villages and to improve the response rate. With two enumerators per team, there would have been seven teams and seven supervisors (which would have had implications on the budget). With this reconfiguration, enumerators would have had more than one day per village; this would have allowed enumerators to return to interview producers who were absent (for a short period), which could have improved the response rate.

❖ The database lacking households-related information

The database which was used to select the respondents included information on individual farmers and none on the household they belong to. However, it appeared necessary to obtain socio-demographic characteristics of producers and their households for a better interpretation of the level of indicators obtained.

To remedy this situation, surveyors wrote down the names of all farmers who belonged to the same household so that information about one household would only be counted once in the calculation of household level indicators.

This situation should be taken into account and integrated into the questionnaire for the mid-term and final evaluations - one identifier should be determined as the household's respondent.

III. Main Characteristics of producers and their households

This section provides the average household size, whether or not respondents own agricultural equipment, and the productive potential of the household in terms of available area and the size of the plot currently farmed.

3.1 Average household size

Overall, the average household size is about eight people. These results correspond to other similar studies carried out in rural areas. In Comoe, the average size was as high as nine people.

3.2 Agricultural equipment of households

The most common agricultural equipment in households was the disc bedder (Graph 1). The analyses indicate that 61% of households own one. Other equipment, in order of importance, were: a sprayer (54%), a hoe, a handcart and an ox cart.

Producers of Nayala were the most numerous equipped with disc bedders followed by Gourma (81% and 76% respectively). Producers in Comoe were most likely to have a sprayer, followed by Ziro and Ioba producers (78%, 74% and 61% respectively). See Annex 1.

Sowing machines were not used frequently among producers (14% among all producers). Almost no one owns a tractor at the household level (0.7%). In Comoe, tractors are used by 11% of households).

The data on available equipment shows that hoeing is the most common ways to prepare the soil in the zones of organic production. This is a technique that can only work with relatively moist soil (at least 20 mm of rain), which can delay planting and reduce yields in cases where there is limited rain at the beginning of the season. There are other techniques for preparing soil like working with dry soil, tilling ridges, and direct sowing which is more suitable in dry zones or when rain is delayed. The use of these techniques allows one to reduce the amount of work time and plant early.

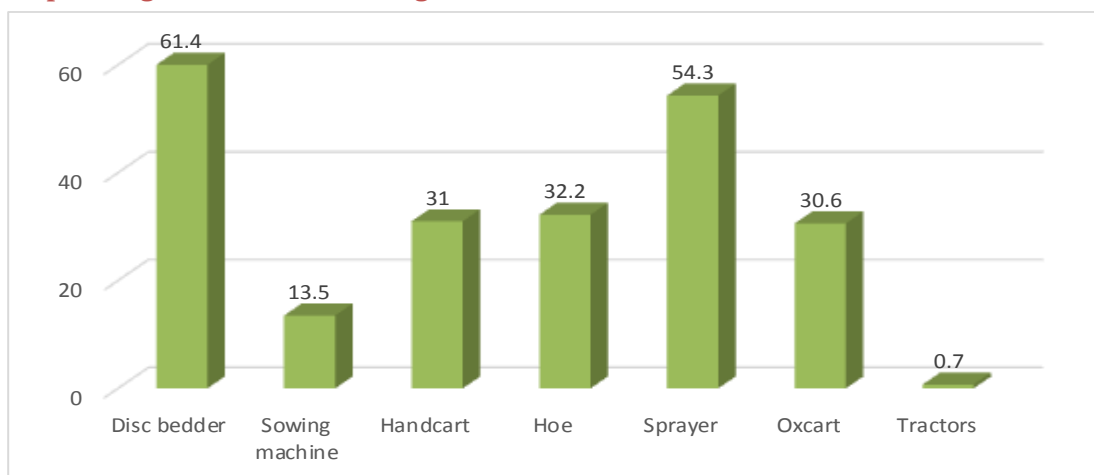
It is important to note the lack of sowing machines. This means that sowing is almost manual, like the other cultural farming techniques. It is labor intensive to install and maintain the plots.

Carts for transport of manure and harvest are not widely available, which explains the challenges of working with organic fertilizer.

The numbers hide the women and the small-scale producers' equipment situation since they generally have no agricultural equipment.

Given the low level of equipment among producers and their socio-economic conditions, it is recommended that producers are supported through subsidization of agricultural equipment for each agro-ecological zone.

Graph 1: Agricultural tools on organic farms

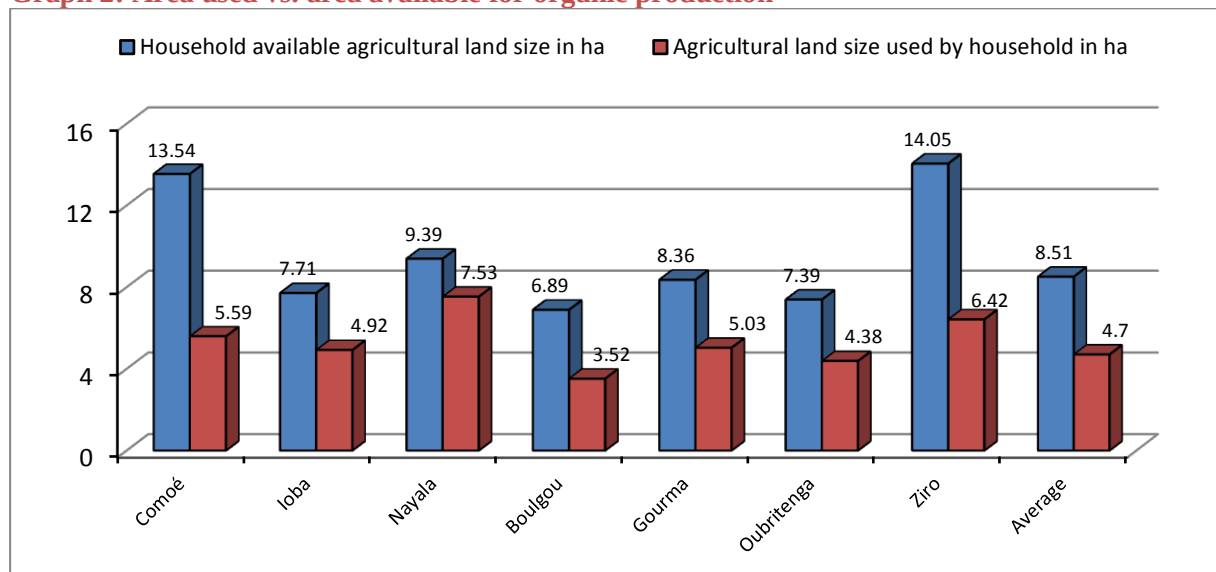


3.3 Average size plot used by respondents and their household

The average plot used by households is 8.5 ha (Graph 2). The questionnaire allowed one to collect data on the area used by producer respondent and members of a GPCB. The average area used by the producer is 4.7 ha considering all their plots. Nayala, Ziro and Comoe had the largest average plot size (7.5 ha, 6.4 ha and 6 ha respectively). There is more land available in these areas. Boulgou and Oubritenga had the smallest average plots (4 ha and 4.4 ha respectively) whilst Gourma and Ioba had an average plot-size of 5 ha each.

The project expects to support producers to increase their average plot of organic cotton size from 0.6 ha to 1 ha. The comparison between the average size of the land available (8.5 ha) and the average size plot that is used (4.7 ha) shows that there is a potential for such an increase. Therefore, the lack of equipment could represent the only real limitation.

Graph 2: Area used vs. area available for organic production



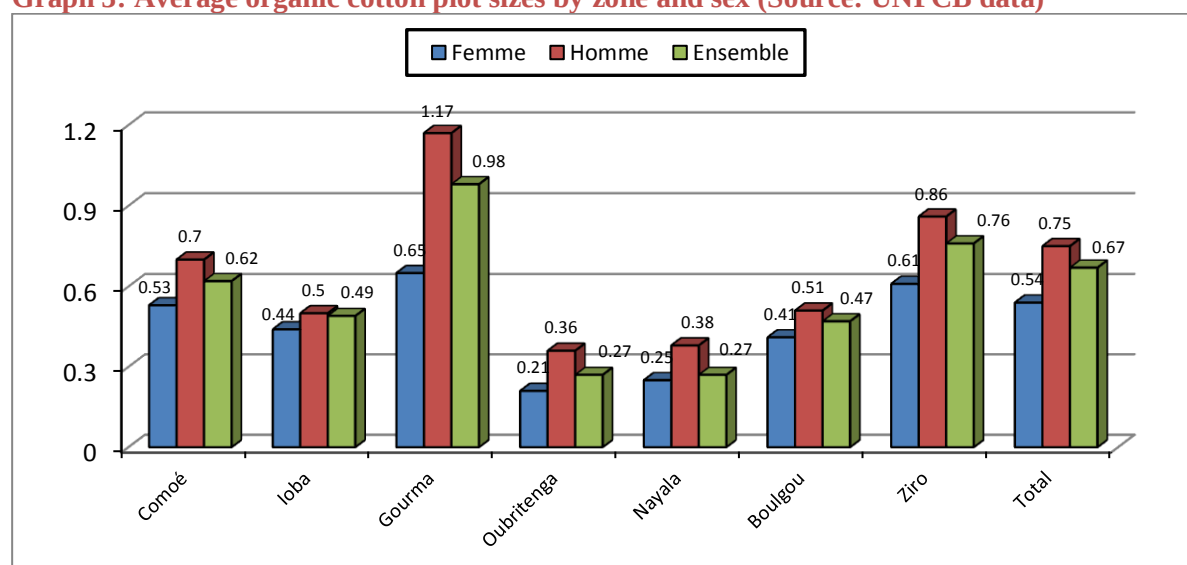
IV. Presentation of data according to Strategic objective 1: improving agricultural productivity

This section presents the results of data analyzed related to objective 1; improving agricultural productivity.

4.1 Average area used by respondent for organic cotton

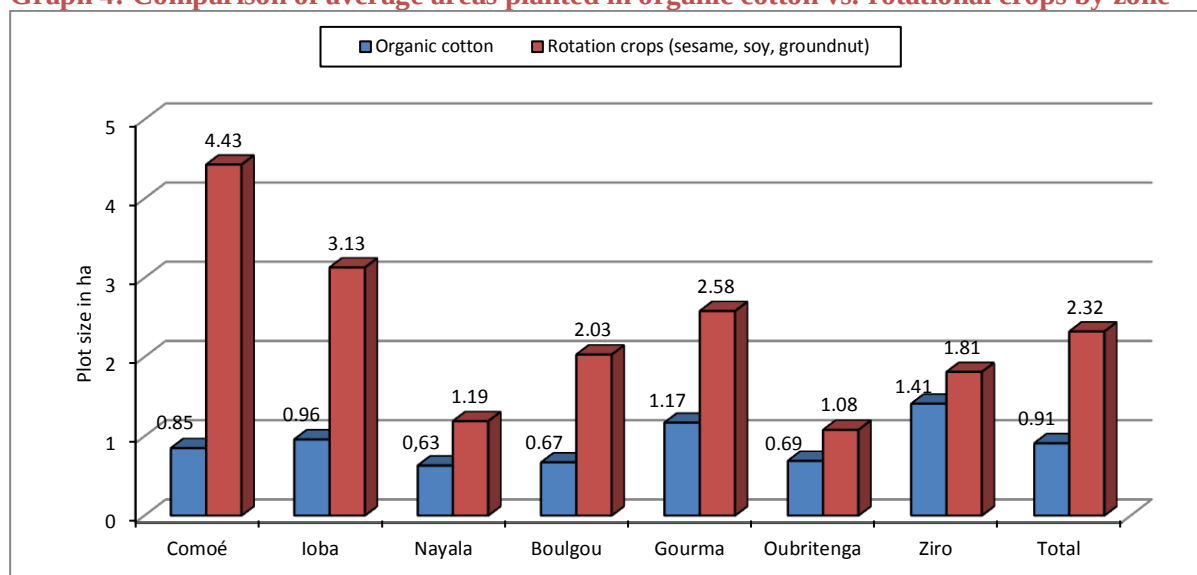
Graph 3 summarizes the average plot size used for organic cotton, which is based on data provided by UNPCB. The average area of organic cotton is 0.67 ha per producer - 0.75 ha for men compared to 0.54 ha for women. In the zones like Gourma, Ziro and Comoe, producers had relatively large plots of 0.6 to 1.17 ha, whereas producers in Ioba and Boulgou had plots varying between 0.4 ha and 0.5 ha. In the new areas like Nayala and Oubritenga, organic cotton areas are much smaller- between 0.21 ha and 0.38 ha.

Graph 3: Average organic cotton plot sizes by zone and sex (Source: UNPCB data)



According to the survey data, (Graph 4) plot land used for organic cotton is on average 0.9 ha and 2.3 ha for rotational crops (sesame, soy, peanuts). There is a significant difference between the data from the UNPCB database and from this baseline survey.

Graph 4: Comparison of average areas planted in organic cotton vs. rotational crops by zone



UNPCB uses GPS to measure the plots' size. Based on this, one can argue that the UNPCB data of organic production areas are more reliable than the statements from respondents. The problem probably stems from the idea that the majority of producers are illiterate and do not know exactly the size of their plots. The measurement units best known by producers are hectares. The areas become more approximate the smaller the area.

For this study, the areas seem to be over-estimated by about 0.23 ha (34%) between the respondents' statements and the area measured by UNPCB.

4.2 Quality of the soil

Yields are strongly related to the quality of soil. One of the key project indicators is the percentage of plot area cultivated, while following the standards of soil quality (FFPr 1.1a). There will be a study on soil quality for organic production. Until then, a proxy for soil quality (toposequence) was used in the study. This allows project managers to have information to guide the development of terms of reference for the study on soil quality.

The type of soil and toposequence are commonly used indicators to assess soil quality. The baseline study conducted by phase 2 of the National Program on Land Management (PNGT 2) in 2006 used among these two criteria for information on soil quality². Soil toposequence used under this study gives the position in terms of cultivated slope land.

Results of the analysis (Table 3) show that the majority of land used is "on top the slope" (about 30%) and on the "upper slope" (about 31%). Only 18% of plots are in the valley floors or near the valley floors and about 12% are on the "lower slope". The provincial differences are more pronounced for the toposequence of "lower slope". Boulgou has 65% of plots on top of the slope compared to Oubrietenga (57%), Gourma (48%), Comoé (44%) and Ziro (40%). Ioba and Nayala have similar rates for this toposequence (34% and 33% respectively).

² PNGT 2.2006. Conditions of life, revenue and poverty of rural households in Burkina Faso in 2004: results of the PNGT2 baseline survey. March.

Table 3: Percent of types of soil for organic farming using topo-sequence by zone

Province	Upper slope	Lower slope	On top the slope	Valley floors/near valley floors
Boulgou	28.1	5.3	64.9	1.8
Comoé	23.3	10.2	44.1	22.3
Gourma	20.1	26.0	48.0	5.9
Ioba	33.0	10.4	34.4	22.2
Nayala	39.3	9.4	32.9	18.4
Oubritenga	11.1	11.1	57.3	20.4
Ziro	26.1	27.1	39.6	7.3
Total	30.7	11.9	39.3	18.1

Source: Results of the baseline study, June 2014

Plots in the valley floor and the lower slopes are the more fertile because they conserve the nutrients and water which come from above or from upper slopes. Based on this, the study concluded that only 30% of plots are on relatively fertile soil (12% on the lower slopes and 18% on the valley floor). However, it is important to note that organic cotton farming is not always possible in the valley floors and the lower slopes. In Gourma, producers farm in the valley floor or near the valley floor, in contrast to Comoé where the valley floor is not appropriate for organic cotton production.

The table shows that 70% of plots are on poor soil (31% of plots are on top of the slope and 39% on the upper slope). With these numbers, the expected study on soil will be strategic for this project. The study will provide a good map of soil of the organic cotton production zones. Based on this mapping, we would propose a strategy to maintain and improve soil fertility.

4.3 Application of agricultural technologies on plots

❖ Use of inputs

Intensification is a lever to increase agricultural production. The quantity of inputs used per unit area is the appropriate indicator to assess the level of agricultural intensification. The main inputs used in growing organic cotton are certified organic seed, neem seed as organic pesticide, and Batik, which is a certified organic product and organic fertilizer. The study team collected data on the use of these inputs (refer to Table 4).

The results from the seven areas indicate that the amount of organic fertilizer used per hectare is 1 ton/ha. This rate is well below the recommended 2.5 ton/ha. It should be noted that this standard was not attained in any of the seven zones. While efforts were made by producers in Comoé and Oubritenga to reach higher levels of organic manure (1.7 tons/ha), the project will have to put forth considerable effort to improve levels in all zones. Particular emphasis should be put in the zones of Nayala, Gourma and Ziro.

Overall, producers use an average of 34.7 kg/ha of certified seed. Producers in Comoé, Ioba and Ziro apply higher doses than the technical standards of 30 kg/ha (over 37 kg/ha). Other areas meet the recommended standards.

Table 4: Average quantity of inputs/ha for organic cotton farming by zone

Agricultural inputs	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Seed (kg/ha)	37.4	42	32	33.3	30.3	30.3	37.5	34.7
Manure (T/ha)	1.7	1.2	0.6	0.2	0.5	1.7	0.9	1.0
Neem (amande) (kg/ha)	4.9	3.3	2.9	0.6	3.3	8.2	7.5	4.4
Batik (sachet)/ha	7.8	4.8	1.7	0.3	3.4	5.5	6.7	4.3

Source: Results of the baseline study, June 2014

The average amount of neem seed used is 4.4 kg/ha for all producers. This rate is close to the standard of 5 kg/ha. Only producers in Comoé meet the technical standards. However, use of insecticide depends on the level of parasites on plots, which may explain the variance among the different zones.

The average quantity of Batik used is 4 bags/ha, which is the maximum recommended amount. Producers in Nayala, Boulgou and Gourma abide by the recommendation, whereas Comore, Ioba, Oubritenga and Ziro apply too much Batik.

4.4. Yields of organic cotton production and rotational crops per hectare

❖ Productivity of organic cotton and rotational crops

Productivity is one of the key indicators of agricultural projects. In this study it is measured by determining the production per unit of land conceptually called a yield.

The analysis of Table 5 shows that the average yield of organic cotton is 393 kg/ha, a difference of 15% compared to the producer's average yield based on UNPCB (460 kg/ha) for the same agricultural season (2013/2014). The low yield obtained in this study could be a result of underestimating the size of land used. In general, the volume of cotton production is better known by producers than the size of land because cotton is weighed in their presence.

Organic cotton yields were lower among women (290 kg/ha) compared to men (428 kg/ha). The qualitative study revealed that women don't own land, and it could be taken away from them one year to another by the plot's actual owner in exchange for less fertile land. This inequity in land access for women is one of the factors limiting women's production.

Analysis by zone shows that the highest yields are obtained in Gourma and Ziro. In contrast, the lowest yields were obtained in Oubritenga and Nayala, where producers have only been farming organic cotton for three years, and therefore are two areas with many new organic farmers who have no experience or proper training.

Based on the results, two important conclusions were made:

- The RECOLTE project will emphasize strategically producing and updating training modules for field agents and producers in order to increase yields. It seems that covering all training topics is the way forward;
- A large increase in organic farmers could result in a reduction and stagnation in yield and returns, according to Helvetas and APROCA. The project intends to increase the current number of producers by 66%. This large increase in new producers must be taken into account to determine the target yield for the end of the project (2018).

Yields for rotational crops were 510, 391 and 617 kg/ha for peanuts, sesame and soy respectively. Women's peanuts yields were higher than men (519 compared to 335 kg/ha).

Table 5: Average yield per crop by sex and zone (Kg/ha)

Zones	Sexe	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
coton bio	Men	621	390	284	509	375	402	361	428
	Women	338	193	206	333	230	164	384	290
	Total	454	349	238	473	348	319	372	393
Arachide	Men	259	490	0	670	439	194	286	489
	Women	490	403	164	515	200	308	2,474	544
	Total	376	465	164	611	403	225	957	510
Sésame	Men	414	544	0	320	355	388	152	335
	Women	405	3,500	520	314	392	200	491	519
	Total	411	991	520	319	361	283	331	391
Soja	Men	213	3,438	0	199	323	0	1	766
	Women	400	294	0	484	217	0	35	294
	Total	320	2,666	0	264	305	0	27	617

Source: Results of the baseline study, June 2014

❖ Average production of organic cotton and rotational crop

Average production expresses the total quantity produced by the total reported number of producers. The project seeks to increase the income of small producers and this should come from an increase in production. The average production is a relevant indicator for the project.

Data collected and analyzed show that the average production of organic cotton is 458 kg per producer for farmers in the seven zones (see Table 6).

The average for men was 557 kg and 258 kg for women. The highest yields were obtained in Gourma and Ziro (568 and 500kg respectively). Not surprisingly, the new zones of Nayala and Oubritenga had the lowest yields (174 and 207 kg per producer).

For rotational crops, the average yield of peanuts was 337 kg per farmer. The zones of Ziro and Comoé produced the highest yields with 593 and 517 kg respectively.

Women are the highest producers of peanuts in Ziro with 940 kg on average per producer. This result indicates that peanuts could be a good alternative to organic cotton for women in Ziro. The average yield of sesame was 326 kg per farmer. Women produced higher yields than men – 340 kg compared to 317 kg. However, there is a large disparity in the other zones. The extremes are in Ioba with an average of 1,400 kg per farmer and in Oubritenga with 91 kg per farmer. Finally, the average production of soy was 400 kg per producer with 592 kg for men and 142 kg for women. Ioba had the highest record with 1,285 kg on average per producer.

Table 6: Average production per crop by sex and zone (kg)

Tableau n°6 : Average production by sex and zone (kg)									
Crop	Sex	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
cotton bio	Men	679	370	312	593	660	366	450	557
	Women	252	171	123	231	285	70	571	258
	Total	389	326	174	484	568	207	500	458
Groundnut	Men	600	310	0	355	205	305	246	335
	Women	483	312	156	235	100	148	940	341
	Total	517	310	156	305	190	218	593	337
Sesame	Men	776	817	0	217	329	155	273	317
	Women	290	1400	650	91	224	100	621	340
	Total	475	1050	650	178	303	128	487	326
Soja	Men	160	1964	0	168	250	0	1	592
	Women	400	96	0	156	65	0	61	142
	Total	280	1285	0	163	188	0	41	400

Source: Results of the baseline study, June 2014

4.5 Average monetary value of organic cotton production and rotational crop per hectare (FFPr S01.c)

The monetary value of organic cotton and rotational crop production per hectare is an indicator of revenue that will evaluate whether the project contributed to an increase in producers' incomes. It is calculated by multiplying the yield by the selling price post-harvest (375 FCFA/kg of organic cotton, 250 FCFA/kg soy, 800 FCFA/kg sesame, 250 FCFA/kg peanuts).

The analysis (in Table 7) shows that the average income from the sales of organic cotton is 147,377 CFA/ha. This income is estimated at 160,395 FCFA for men compared to 108,811 FCFA/ha for women, which is only two-thirds of men's sales.

Producers in Boulgou have the highest average income per hectare at 177,276 FCFA/ha, whereas Nayala had an average revenue of 89,116 FCFA/ha.

Women generally obtained the lowest income per hectare, except in Ziro where they earned an average income of 144,032 FCFA/ha compared to 135,486 FCFA/ha for men. Support is needed to increase revenue especially in Ioba and the new zones of Nayala and Oubritenga, with emphasis on addressing the disadvantaged women.

Table 7: Average revenue per crop of organic cotton producers (FCFA/ha)

Produit agricole	province	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
cotton bio	Men	232 804	146 158	106 509	190 694	140 444	150 759	135 486	160 395
	Women	126 917	72 308	77 263	124 740	86 225	61 654	144 032	108 811
	Total	170 375	130 757	89 116	177 276	130 392	119 670	139 376	147 377
Groundnut	Men	64 851	122 471	-	167 516	109 821	48 413	71 564	122 367
	Women	122 620	100 824	40 987	128 710	50 000	77 083	618 421	135 978
	Total	93 891	116 338	40 987	152 656	100 758	56 322	239 149	127 579
Sesame	Men	331 093	435 556	-	256 202	283 733	310 000	121 511	268 298
	Women	324 301	2 800 000	416 160	251 265	313 600	160 000	393 188	415 153
	Total	328 494	792 453	416 160	255 414	288 817	226 667	265 173	313 191
Soja	Men	53 333	859 375	-	49 697	80 645	-	250	191 440
	Women	100 000	73 462	-	121 111	54 167	-	8 643	73 573
	Total	80 000	666 604	-	66 010	76 351	-	6 778	154 175

Source: Results of the baseline study, June 2014

In terms of rotational crops, the average revenue per hectare was 127,579 FCFA for peanuts, 313,190 FCFA for sesame, and 73,573 FCFA for soy.

Table 7 shows the results by zone and sex. Producers in Ziro had the highest average revenue for peanuts (about 240,000 FCFA/ha). For sesame, producers in Ioba had the highest revenue (about 420,000 FCFA/ha). Finally, for soy, producers in Ioba had the highest revenue per hectare again (about 670,000 FCFA/ha). Producers in Nayala and Oubritenga don't grow soy given their recent entry into organic cotton production.

4.6 Organic cotton seed produced

Seed requirements are increasingly important in the context of variability and climate change. Frequent droughts during the planting season result in frequent replanting and therefore an increased use of seed. The production of organic seed is an important indicator for assessing the ability to meet the needs of producers. According to UNPCB, during the 2013/2014 season, cotton foundation seed was only multiplied in Gourma by the [REDACTED] farmers group that encompasses two villages including [REDACTED] and [REDACTED]. A total of 49 farmers, of which four were women and 45 men, planted an area of 44 ha to produce 32,080 kg of cotton seed and 17,753 kg of seed (G2³). The yield of seed production is high at 729 kg of seed/ha.

However, with an estimated total of 6,807 ha registered for the 2014-2015 planting season, the seed needed amounts 204,210 kg (because of 30kg/ha of seed). There is obviously a problem of seed supply. Under these conditions, UNPCB produced only 8.6% of seed needs for farmers. UNPCB is obligated to resort to other sources of seed this year- which could cause mixtures of seed types.

Once set up and functional, the seed production and multiplication component of the RECOLTE project will have an impact on achieving the project's objectives. Achieving a quality supply of sufficient quantity of seed will overcome a major recurrent problem faced by UNPCB and the subsector of organic cotton production in Burkina Faso. The project team should pay special attention to this seed production and multiplication component in their implementation of the project.

4.7 Access to quality storage

Inputs and harvest (cotton and rotational crops) require storage. The majority of farmers store their harvest in their homes, in a hut used as a form of warehouse, under an open-air shelter, in a bedroom, or in granaries. In general, the inputs provided by the UNPCB headquarters are stored in a GPCB warehouse (in zones where available) before distributing to producers. The place where inputs are stored is important to preserve the quality of inputs and harvest. For seed, poor storage could decrease the germination rate. Another potential problem with poor storage is the risk of contaminating cotton seed and organic production. In the current situation, quality storage is defined as storage in a GPCB warehouse or in a proper warehouse of a producer. This study evaluated access to storage of inputs in the organic cotton production zone according to the different storage facilities available.

³ Second generation seed

❖ Storage of organic cotton inputs

Access to adequate storage facilities permits producers to store according to quality standards⁴. For this project, quality storage corresponds to well protected inputs, proper ventilation, space between lots, and use of palettes.

Results of the analysis (Graph 5) show that only 12.5% of producers have access to a village level warehouse, of which 14% were men and 10% women. This concerns farmers who store their inputs in the group warehouse until it is time to plant.

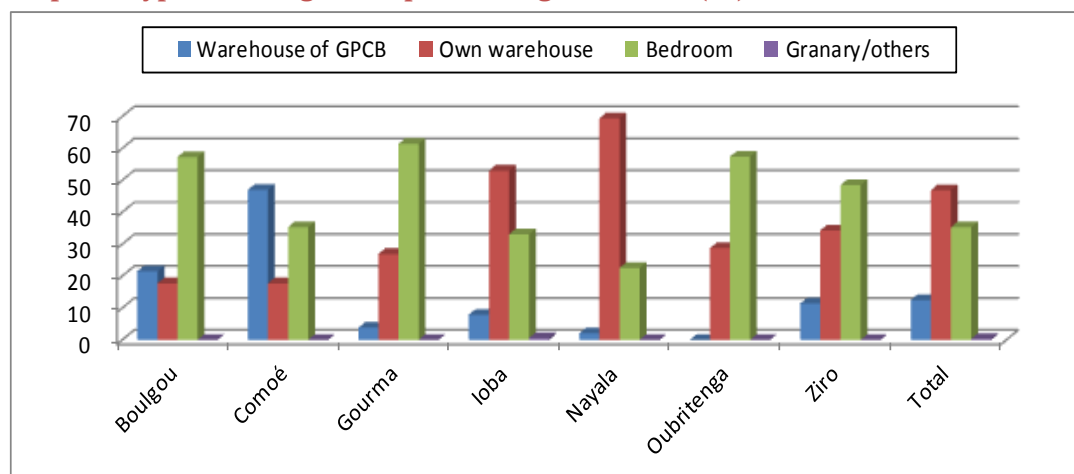
Analysis disaggregated by zone indicates that 47% of farmers in Comoe have access to a village level warehouse (54% men and 25% women), which is the highest rate of access. Farmers in Boulgou are second in access with 21% (22.5% men and 21% women). In Ziro, 11% of farmers have access, with 9.5% men and 14% women. In the other zones, the rate of access to a village level warehouse is low. In Oubritenga, where they recently began organic cotton production, none of the farmers have access to a warehouse.

A personal warehouse for a farmer could include a house or a hut made specifically for storage. The quality of such storage unit depends on the owner's wealth. The results show that 47% of producers use this type of storage (48% men and 44% women). It is most commonly used in Nayala (69%) and Ioba (53%).

Bedrooms, where the couple or children sleep, are also used by 35% of farmers (33% men and 41% women). The zones where they are used the most for storage are Gourma (61% of farmers), Boulgou and Oubritenga (57%) and Ziro (49%). Bedrooms are discouraged as storage units, because seed risk being contaminated or polluted by people or unclean substances brought in the house by people who stay there.

The results show that granaries are not used to store organic inputs but rather for rotational crops harvested.

Graph 5: Types of storage for inputs for organic cotton (%)



❖ Storage of inputs for rotational crops

⁴ These standards should be discussed by the project team, and adapted to the specific context of production and storage of cotton, rotational crop and inputs.

Storage of inputs for rotational crops is as important as for organic cotton inputs, as indicated above.

The results (Graph 6) show low usage rates of quality storage areas by farmers. Five percent of total farmers use a village level warehouse, and 22% use their own (personal) warehouse across all zones (22% by men and 23% by women).

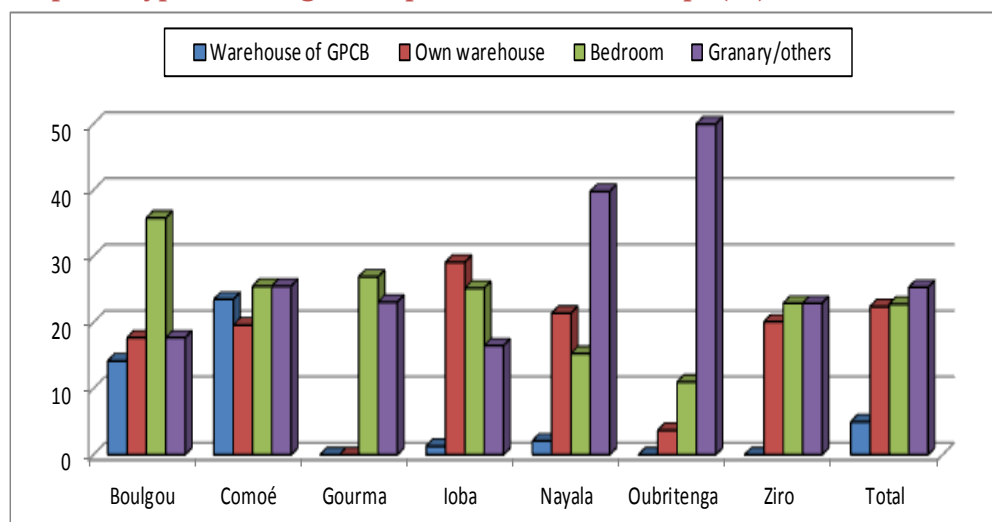
The farmers in Comoe and Boulgou are the highest users of village level warehouses (14% in Boulgou and 24% in Comoe).

Personal storage facilities are most frequently used for storage by organic cotton farmers in Ioba (29%), Comoe and Nayala (20%).

Storing inputs in bedrooms is practiced by 23% of farmers (19% men and 28% women). The zones where this is practiced the most are: Boulgou (36%), Gourma (27%), Comoe and Ioba (25%). This type of storage for the inputs is not recommended for the same contamination risks provided for cotton storage in bedrooms.

Storing inputs in granaries is practiced by 25% of producers, of which 28% are men and 19% are women. There is a risk that the quality of inputs deteriorates in granaries that are not properly ventilated, like reducing the seed germination rate. This type of storage for inputs should also be avoided.

Graph 6: Types of storage for inputs for rotational crops (%)



Given the high rates of organic cotton farmers who use inappropriate storage facilities like bedrooms (35%) and granaries (23%) for inputs, it is recommended that adequate warehouses are constructed to improve the quality of storage to preserve the quality of inputs until they are used by producers.

For the definition of quality standards in relation to cotton and inputs storage, one recommendation will be for the project team to discuss with UNPCB to contextualize them to the specifics of cotton production and then make an inventory of warehouses available to the organic cotton value chain.

4.8 Access to financial services for male and female producers

Financing agricultural activities poses a problem with no real solutions given that the financial support often doesn't align with the reality's cost. Agricultural activities present a financial risk (due to climate uncertainties), hence the reluctance of financial services to provide loans to farmers. Very often collateral is required, which is difficult for farmers to provide.

The approach "lending for a group of farmers who stand security for each other" has been very successful in the development of agriculture value chains like conventional cotton in Africa. This approach also has limitations because it relies on trust and solidarity rules between the members of the group. It is increasingly denounced by particularly large farmers who frequently reimburse loans contracted by the small farmers of their lending groups when the small farmers cannot repay.

To finance other activities, most development organizations make funds for collateral available (guaranteed fund) to microcredit institutions to allow small producers obtain loans without collateral. The RECOLTE project plans to use this same approach to increase access to loans for organic cotton farmers.

There are many types of loans for agricultural activities. The loan for inputs or "factors of production" is short-term, lent to a farmer in the form of necessary inputs for production. UNPCB withholds the amounts owed by the farmers from the value of the cotton production sold during the commercialization. The loan for equipment and agricultural tools is long-term, which allows a farmer to obtain equipment or agricultural tools. The size of the latter loan is tied to the farmer's repayment capacity which is assessed based on his farm size, assets and production history. These two types of loans can be obtained through UNPCB.

Producers may use other financing sources (microcredit institutions, banks, etc.) to meet other needs. This last type of loan is considered in this study as a financial loan.

This study looks at all three types of credit.

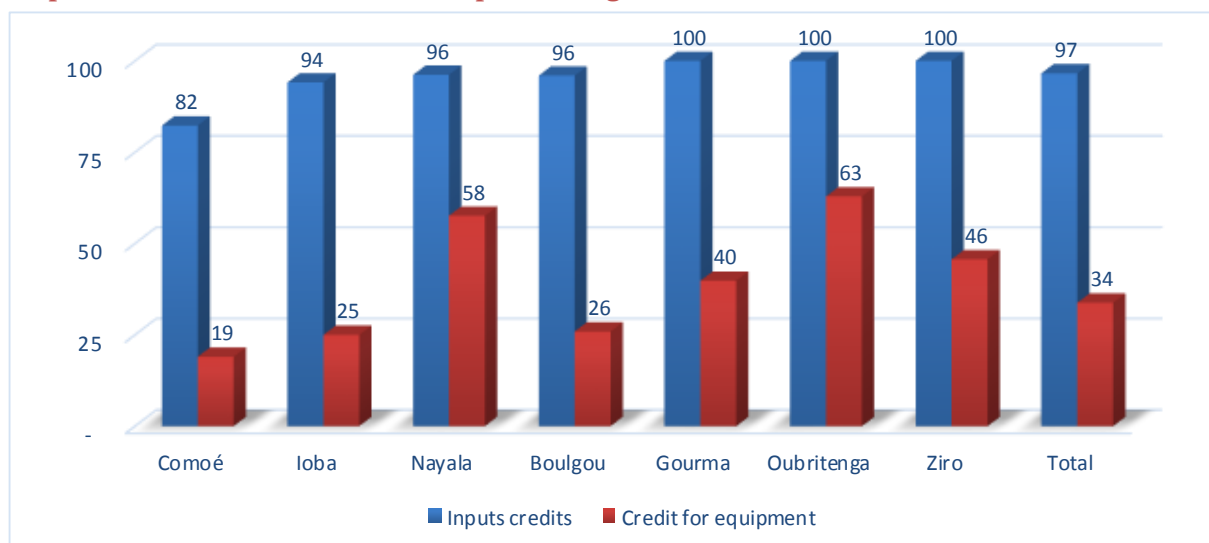
❖ Access to credit for inputs and equipment

This project plans to provide microcredit, so it is important to understand the rate of access to various financial services in this baseline study.

The results in Graph 7 show that 97% of producers have access to loan for inputs (factors of production) which are lent to them by UNPCB. In Ziro, Oubritenga and Gourma, access to loan for inputs is equitable between men and women. However, in the other areas, the difference in access to loan for inputs between men and women is unequal.

The rate of access to loan for equipment and agricultural tools is 34% on average, of which 32.5% of men and 37% of women have access. Farmers in Oubritenga have a high rate of access with 63% of them benefiting from this type of loan (78% of women and 46% of men). They are followed by farmers in Nayala with 58% of producers (53% of women and 72% of men), then Ziro with 46% of farmers on average (57% of men and 28.5% of women).

Graph 7: Rate of access to loans for inputs and agricultural tools



❖ Access to financial loan

Financial loan is obtained from credit unions, NGOs and other microfinance institutions. The analysis shows that for those who benefit from credit unions, 0.7% of organic cotton farmers access financial loan (see Table 8). Fifty percent of farmers in Ioba benefit from this type of loan, which is the zone with the highest access to loan lent from credit unions. For those who access other kinds of financing (NGO, other microfinance organization), less than 4.1% of producers have access. Once again, Ioba has the highest rate of access with 50% of organic cotton farmers who have access to these other financing sources. Likewise, 50% of producers in Comoé, 8.1% in Gourma and 1.4% in Boulgou benefit from these other financing sources.

Table 8: Percentage of producers benefitting from financial credit

Province	Caisse populaire (credit unions)	Others
Boulgou	0,0%	1,4%
Comoé	0,0%	50,0%
Gourma	0,0%	8,1%
Ioba	50,0%	50,0%
Nayala	0,0%	0,0%
Oubritenga	0,0%	0,0%
Ziro	0,0%	0,0%
Total	0,7%	4,1%

Source: Results of the baseline study, June 2014

One must note that financial loans and loans for agricultural tools are the ones farmers face problems to access to. For the guaranteed fund the project plans to establish, the project team should focus on defining the type of loans that will allow for the acquisition of equipment and agricultural tools as planned, but also that will respond to the producers' other financial needs.

❖ Factors facilitating farmers' access to loans

Proximity to microfinance institutions, presence of a development project providing small credit, membership of a farming organization and credibility of the producer's activities are factors that benefit producers trying to access loans (agricultural tools and financial). The highest rates of access to agricultural tools are in Oubritenga, Nayala and Ziro, which can be explained by the presence of dynamic associations and therefore the presence of the factors mentioned above.

Since the end of development projects like PICOFA project (Community Investment Program for Agricultural Fertility) in the east, PDR-Boulgou (Rural Development Project in Boulgou), PADDAB (the Danish support program to agricultural development in Burkina Faso) in the Center-East, these zones have relatively low rates of access to equipment and agricultural tools. The rapid expansion of credit unions and other microfinance institutions and the potential of important agricultural activities in Ioba and Comoe may explain why these zones have better access to microcredits.

In short, access to loans often improves with the support of a project through the provision of collateral. Due to organic producers' small plots, a financial loan based on the forecast earnings of cotton stands no chance of receiving financing from an institution. This justifies putting in place a guaranteed fund for the RECOLTE project to improve access to loans for small producers in the organic sector.

The main production constraints mentioned by farmers (problem with equipment linked to problem with organic fertilizer) is support with the provision of collateral. This study shows that the amount of financial loans received is 20,013 FCFA per beneficiary on average. This relates to loans obtained through credit unions during the 2013/2014 season. This is very low and shows again the difficulties in accessing financial credit in terms of access to loan amounts important enough to allow the borrower to make significant investment (like buying farming tools).

The RECOLTE project proposes to provide collateral (guaranteed fund) to allow farmers who meet the requirements to receive financial credit. Sustainability should be central to RECOLTE proposing such system. The project proposes to work with microfinance organizations to provide a system of collateral and provide loans tailored to small organic farmers. UNPCB already has a small microfinance institution called the Financing Fund for Agro-pastoral and Artisan Activities (CFAAA), in the administrative division of Padema. This functional institution started implementing savings and credit activities in 2009. One recommendation for the project team is to study the possibilities and conditions of using this model and replicating it for organic cotton farmers.

❖ **Difficulties in accessing credit**

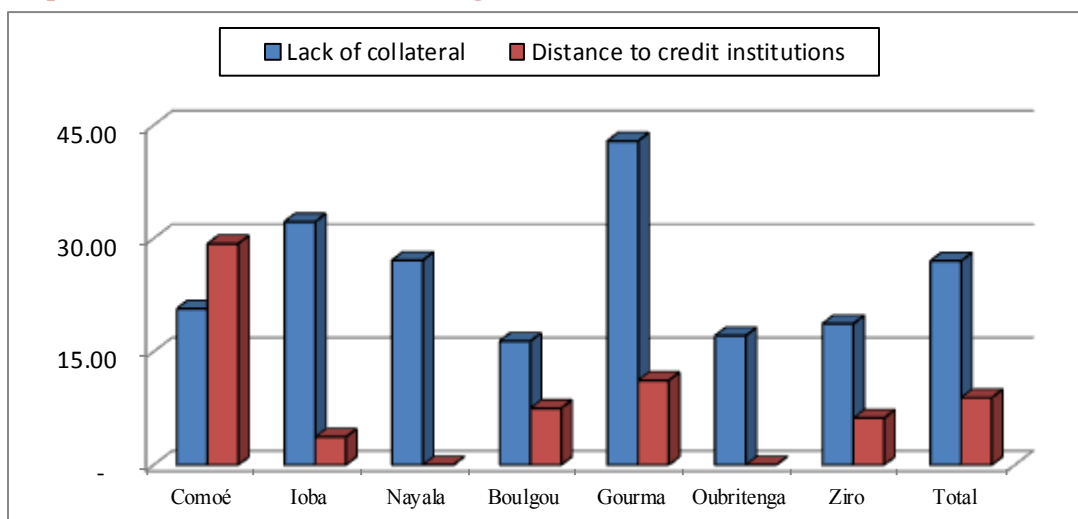
In the study, 36% of farmers say they had difficulties accessing credit because of lack of collateral and the distance to microfinance institutions as the main reasons.

The Graph 8 below shows that 27% of producers say that lack of collateral asked by the microfinance institutions was the reason they could not access credit. This opinion is shared by 21% of women and by 30% of men. In the zones, the lack of collateral is mentioned by 60% of men in Nayala, 47% in Gourma and 41% in Ioba. This is also the case with 43% of

women in Gourma, 32% of women in Ioba, 27% of women in Nayala and 21% of women in Comoé. In the other zones, less than 20% of producers indicated that this was a problem.

Distance of farmers to financial institutions was indicated as a constraint in accessing credit for equipment by 9% of producers (7% women and 10% men). This challenge was most common in Comoé (29%).

Graph 8: Main constraints in accessing financial credits



The financial system which will be put in place by the project should take into account these constraints and adapt the products and services to better provide for organic cotton producers.

4.9 Trainings to improve agricultural techniques and technologies

The project planned several training topics to reinforce technical capacities and technologies used by the organic cotton farmers. It is therefore important to have an idea of the extent of trainings that producers have already received and their level of knowledge to orient the project team.

The study was interested in the following training topics: (i) post-harvest techniques, (ii) water and soil conservation techniques/ agroforestry (CES/AGF), (iii) improved farms management techniques and (iv) improved productivity and food security techniques.

In addition to these aforementioned trainings, the study evaluated knowledge about rotational crops, governance, administration and management of the farmers group finances and the adoption of improved management techniques.

❖ Post-harvest techniques

The results (Table 9) show that post-harvest techniques (treatment and processing of harvest) were used by 72% of farmers – 73% men and 68% women. Farmers in Boulgou applied this technique the most with 79% farmers, followed by 75% of Nayala producers, 68% in Ioba and 66% in Gourma. This high rate can be explained because producers received numerous trainings on preserving the quality of cotton due to requirements for organic fair-trade production. It is therefore evident that post-harvest activities are well-known by producers.

Table 9: Percent of producers who were trained in post-production by sex and zone

provinces		Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Trainings received									
Post-harvest activities	Men	44,6	69,3	100,0	77,5	68,5	72,2	85,0	73,8
	Women	57,9	63,7	66,7	83,0	58,3	57,4	57,1	68,0
	Sample	53,5	68,0	75,0	79,2	66,0	63,9	73,5	72,0

Source: Results of the baseline study, June 2014

❖ Water and Soil conservation techniques/Agroforestry (CES/AGF)

This study looked at three components of CES/AGF techniques including stone contour lines, *demi-lunes* and grass strips. These are essentially techniques to conserve land and fertility. Table 10 shows that the most common component in training was stone contour lines (96% of producers received this training – 97% for men and 93% for women). Analysis by zone shows all farmers in Boulgou, Comoé, Nayala and Oubritenga were trained in this technique.

Producers were less likely to be trained in the other techniques (*demi-lunes* and grass strips). There was not a significant difference between the number of men and women trained.

Table 10: Percent of producers who were trained in CES/AGF activities by sex and zone

ZONE	Field bunds			Micro-catchment			Hedge grass			Other		
	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women
Boulgou	100	100	100	0	0	0	11	24	0	0	0	0
Comoé	100	100	100	0	0	0	0	0	0	0	0	0
Gourma	92	100	88	0	0	0	39	20	50	46	20	63
Ioba	95	98	86	1	2	0	26	22	36	0	0	0
Nayala	100	100	100	12	8	25	45	39	62	1	2	0
Oubritenga	100	100	100	0	0	0	19	17	23	19	25	11
Ziro	84	78	100	8	6	14	32	39	14	16	22	0
Total	96	97	93	5	4	7	29	26	35	5	4	6

Source: Results of the baseline study, June 2014

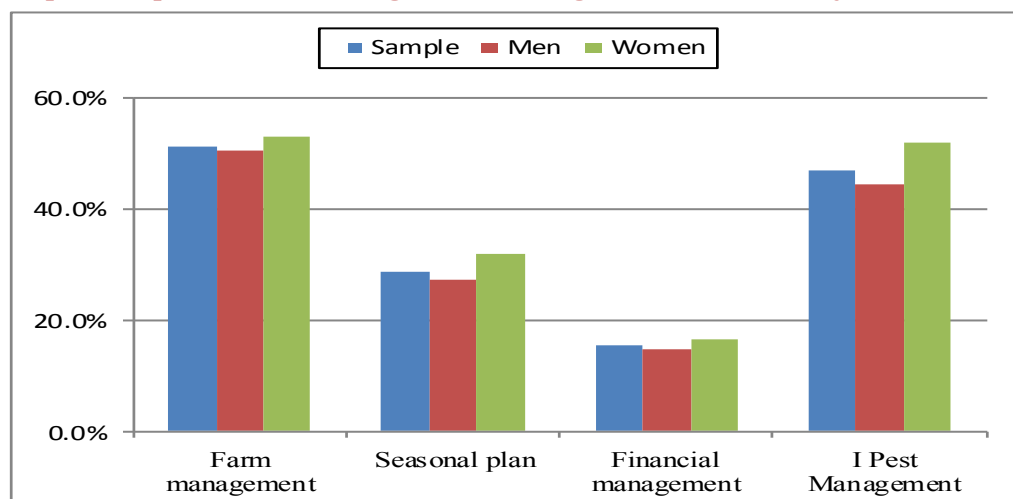
Only 18% of producers were trained in at least two of the three CES/AGF techniques; which shows that there is still a lot to be done, especially among women, who often only have access to less fertile soil.

❖ Improved farm management techniques

Improved Farm management trainings include four modules namely, agricultural advisory services, seasonal activity plan, budgeting and financial management plan and integrated pest management. Farmers were asked whether or not they had received training for these different topics. Graph 9 shows that overall training on agricultural advisory services and integrated pest management were most frequently cited by producers (51% and 47%). The seasonal activity plan and budgeting and financial management plan were the topics least included in trainings. Only 28% of producers were trained on the seasonal activity plan and 15% on the budgeting and financial management plan.

Gourma and Ziro (74% and 71%) were the areas where the most farmers had their capacities built in terms of training on the seasonal activity plan and on integrated pest management. However, no farmers were trained on the seasonal activity plan and budgeting and financial management plan in Comoé and Boulgou (Annex 9).

Graph 9: Improved farm management training modules received by sex



It is the combined use of these techniques that will allow producers achieve better results. The study therefore evaluated the number of producers who were trained in at least three out of the four modules. The results in Table 11 show that among farmers, only 9% were trained in at least three techniques of management of farm units (12% of women compared to 8% of men). The most farmers were in Ziro (43%) and Gourma (38%). In contrast, no producers in Boulgrou or Comoé were trained in at least three techniques. This was also the case for women in Ioba.

Table 11: Percent of producers by sex who have trained in at least 3 out of 4 modules of improved farm management training

ZONE	Sample	Men	Women
Boulgou	0,0	0,0	0,0
Comoé	0,0	0,0	0,0
Gourma	38,4	14,3	47,4
Ioba	2,0	2,8	0,0
Nayala	7,1	6,7	8,4
Oubritenga	14,7	15,6	13,7
Ziro	42,8	47,8	35,7
Total	9,0	7,6	11,9

Source: Results of the baseline study, June 2014

❖ Improved productivity and food security techniques

Techniques to improve productivity and food security include at least six key elements. The majority of farmers were trained (Table 12) on the rules of organic cotton production (93%), planting and maintenance of crops (75%), identification and preparation of plots (64%), and harvest techniques (59%). Marketing and management of coexistence between organic cotton

and other types of cotton remain the topics least discussed (21% and 44%). Gourma, Oubritenga and Ziro were the zones where farmers received the most training in techniques to improve productivity and food security.

Table 12: Percent of producers trained in improved productivity and food security (by sex and zone)

ZONES	Rules of organic cotton production			Identification, preparation of cotton plots			Planting and maintenance of crops			Harvests techniques			Marketing			Management of the coexistence between organic and non-organic cottons		
	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women
Boulgou	79	86	77	46	57	41	71	71	71	21	29	18	0	0	0	17	43	6
Comoé	94	93	100	85	90	60	76	79	60	24	28	0	3	4	0	24	28	0
Gourma	100	100	100	100	100	100	90	80	93	75	60	80	45	40	47	55	20	67
Ioba	94	94	94	40	42	35	66	69	59	66	64	71	24	24	24	43	46	35
Nayala	90	96	71	77	79	71	80	81	77	70	74	59	20	21	18	63	62	65
Oubritenga	100	100	100	67	69	62	94	100	87	94	100	87	28	40	13	61	50	74
Ziro	100	100	100	96	100	83	85	85	83	50	50	50	27	25	33	39	40	33
Total	93	95	89	64	67	57	75	76	71	59	59	58	21	20	22	44	46	41

Source: Results of the baseline study, June 2014

This study assessed farmers who were trained in at least three techniques to improve productivity and food security. Table 13 shows that 52% of producers were trained in at least three techniques. Outside of Boulgou, Comoé and Ioba, between 50% and 73% of producers received training in at least three of these techniques. Men were more likely trained (58%) compared to 41% of women in at least three techniques. Women in Comoé and Boulgou were the least trained (8.5% and 21%).

Table 13: Percent of producers trained in at least three out of six improved productivity and food security techniques

ZONE	Sample	Men	Women
Boulgou	32.1	55.9	20.9
Comoé	45.1	56.4	8.5
Gourma	73.1	57.1	78.8
Ioba	48.3	51.9	40.0
Nayala	55.1	58.1	45.9
Oubritenga	64.2	76.6	53.4
Ziro	65.8	85.8	35.6
Total	52.2	57.8	40.9

Source: Results of the baseline study, June 2014

❖ Advantages of crop rotation

Given the importance of crop rotation in organic cotton farming, the study evaluated the level of farmers' knowledge regarding this question. The advantages cited by farmers in this study evidenced that they are well aware of the benefits (Table 14) of crop rotation in organic cotton farming. Benefits to improving soil fertility were the most frequently cited (91.9%) by farmers, followed by the positive lasting effects of organic cotton fertilization for rotational crops (43.6%). On the contrary, pest and weed control and break cycles of pest infestation

were not mentioned frequently, evidenced by the respective rates of 15.3% and 18.5% of farmers that cited them.

There is no significant difference in opinion across the provinces or between men and women. Regardless of the area and sex, producers have the same understanding of the benefits of crop rotation.

Table 14: Percent of producers who can cite advantages of crop rotation by sex and zone 1.2.4.b)

Zones	Improve soil structure			Lasting effects for rotational crops			Break cycles of pest infestation			Pest and weed control		
	Sample	Men.	Women	Sample	Men.	Women	Sample	Men.	Women	Sample	Men.	Women
Boulgou	96.5	100.0	94.9	82.3	66.7	89.3	7.3	10.9	5.1	14.2	10.9	15.8
Comoé	92.2	94.9	83.3	82.3	87.1	66.7	9.8	7.8	16.7	19.6	15.4	33.3
Gourma	92.4	100.0	89.6	46.2	42.5	47.2	0.0	0.0	0.0	11.4	42.5	0.0
Ioba	90.7	89.5	93.4	18.5	21.0	13.3	15.2	11.4	24.4	25.2	25.7	22.2
Nayala	91.9	91.9	91.6	42.9	41.9	45.8	21.4	18.9	29.2	10.2	12.2	4.1
Oubritenga	92.6	100.0	86.3	25.0	30.2	20.5	14.0	23.4	6.8	32.4	38.1	26.4
Ziro	94.3	95.3	92.9	77.1	76.3	78.7	20.1	28.7	7.1	14.2	19.0	7.1
Total	91.9	92.2	91.4	43.6	43.9	43.5	15.3	14.3	17.3	18.5	19.8	15.0

Source: Results of the baseline study, June 2014

❖ Training in governance, administration and finance

Training on group governance, administration and finance reached 61.5% of farmers (Table 15), including 58% women and 63% men. In terms of areas, more farmers in Ziro, Ioba and Gourma were trained on this topic; 80%, 78% and 61.5% respectively. Farmers in Comoé, Nayala and Boulgou represent between 53% and 58% of producers trained. Only 27% of producers were trained in this topic in Oubritenga. With the exception of Gourma and Oubritenga, the rate of women trained on this topic is significantly high and varies between 53% and 75%.

Table 15: Percent of producers trained in governance, administration, finance (FFPr 1.3.a) by sex and zone

Topic		Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Governance, administration and financial management	Men	55.4	78.9	57.5	56.7	57.6	32.8	90.5	63.1
	Women	52.6	74.9	58.0	47.7	73.9	22.1	64.4	58.2
	Sample	53.5	78.0	57.6	54.4	61.5	27.0	79.9	61.5

Source: Results of the baseline study, June 2014

❖ Adoption of improved management techniques

Improved management includes agricultural advisory services, preparation of seasonal activity plan, budgeting and financial management plan and integrated pest management. The adoption of these improved management techniques is needed to better plan agricultural activity and for more profitability. The results on the application of these techniques (Table 16) show that 65% of farmers apply them, 61% of women compared to 68% of men. At zones level, between 50% and 69% of producers in Ziro, Gourma, Boulgou, Ioba, Comoé and Nayala apply these improved management techniques. The farmers in Oubritenga apply these techniques the least. The gap between women and men who apply the improved management

techniques is not significant and in the zones this difference often varies favoring women (e.g. Gourma).

Table16 : Percent of farmers using improved management techniques by sex

Topic		Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Improved farm management	Men	66.7	69.7	57.5	72.4	62.5	34.1	66.6	67.6
	Women	50.0	60.0	47.1	58.3	81.9	18.5	64.4	60.8
	Sample	56.0	67.5	50.0	68.6	67.4	24.7	65.7	65.4

Source: Results of the baseline study, June 2014

V. Presentation of results by strategic objective 2: increasing the marketing of agricultural production, nationally regionally and internationally

Strategic Objective 2 (SO2) aims to diversify trade in the production of organic crops. Two important outcome indicators are used to measure this objective: the value and the volume of agricultural produces in the project that are marketed regionally and internationally. The other indicators refer to the volume of produces certified as organic cotton that meet international standards, the number of producers surveyed who use improved post-harvest management practices (harvesting, drying, cleaning, hermetic storage, proper storage for rotational crops - peanut, sesame and cereals), number of fairs and marketing events UNPCB assisted on behalf of the organic cotton program, and number of countries to which produces are exported. This section discusses the results from the primary data analysis as well as secondary data collected from UNPCB.

5.1 Volume and financial value of exported organic cotton

The volume of cotton exported is determined by the level of production of seed cotton. Table 17 summarizes information on production and income from the sale of seed cotton per zone. Overall, the volume of production of cotton seed from the 2013-2014 planting season is 2,105 tons for a distributed income of just over 789 million FCFA (UNPCB, 2014).

Analysis by zone indicates that Boulgou and Gourma have the largest production volumes (respectively 881 metric tons and 757 metric tons). Both areas consequently have the highest incomes. In contrast, the production of organic fair trade cotton is still low in the zones of Oubritenga and Nayala compared to other areas (respectively 14 metric tons and 58 metric tons).

Table 17: Revenue structure of the sale of organic seed cotton by zone (money received by the farmers)

Zones	Production (kg)	Cotton value (375 CFA F/Kg)	Input cost CFA F	Net Revenue for farmers	Fairtrade premium (34 CFA F/kg)	Commercialization bonus (3.5 CFA F/Kg)	Total Revenue (CFA F)
Comoe	88,820	33,307,500	1,667,875	31,639,625	3,019,880	310,870	34,970,375
Gourma	756,966	283,862,250	5,466,610	278,395,640	25,736,844	2,649,381	306,781,865
Ioba	172,460	64,672,500	4,047,275	60,625,225	5,863,640	603,610	67,092,475
Nayala	57,940	21,727,500	854,655	20,872,845	1,969,960	202,790	23,045,595
Oubritenga	14,140	5,302,500	305,775	4,996,725	480,760	49,490	5,526,975
Boulgou	811,614	304,355,250	5,082,805	299,272,445	27,594,876	2,840,649	329,707,970
Ziro	203,340	76,252,500	3,521,260	71,881,240	6,913,560	711,690	79,506,490

Total	2,105,280	789,480,000	20,946,255	767,683,745	71,579,520	7,368,480	846,631,745
Total (\$ USD)							
		1,578,960	41,892	1,535,367	143,159	14,737	1,693,263

Source: UNPCB, 2013/2014 (1 \$ USD = 500 FCFA)

Table 18 shows the change in volume quantities of seed cotton and cotton fiber exported over three agricultural seasons. Over the past three years, the accumulation of organic seed cotton fiber exported internationally was 2,237 metric tons, of which 864 came from the last 2013/2014 planting season. The sole buyer nationally is UNPCB, which buys cotton seed from producers at the end of the agricultural season. Once purchased, it is ginned in the SOFITEX factory (*Société Burkinabé des Fibres Textiles*). Cotton fiber is sold on the international market to the sole purchaser which is Limited Brands (Victoria's Secret) based in the United States of America. On the contrary, seed from the cotton ginning is sold on the local market with multiple buyers including modern factory units (SN CITEC, JOSSIRA factories) as well as smaller ones.

The production of organic cotton fiber in 2012/2013 fell to only 565 metric tons. During the 2012/2013 planting season, the price was not announced to producers at the beginning of the season by the cotton producer umbrella organization. Therefore, many producers abandoned the production of organic fair trade cotton. This might be a consequence of the lesson learned from the 2011/12 planting season, when the cotton value chain umbrella organization did not announce the price early in the season and finally paid 365 FCFA per kg instead of 395 FCFA per kilogram for the previous season (2010/2011).

Table 18: Quantities of organic cotton exported from 2012 to 2014

Planting season	Organic and fair seed cotton (MT)	Organic and fair cotton fiber (MT)
2011/12	1,893	808
2012/13	1,300	565
2013/14	2,138	864
Total	5,231	2,237

Source: UNPCB statistics, 2013

Organic cotton is an important source of revenue. According to UNPCB (2014), the 2013/2014 planting season sales of cotton fiber brought in revenue at 1,482,136, 254 FCFA (\$2,964,272) of which 1,409,263,980 FCFA (\$2,818,528) was for the sale of fiber, 69,750,000 FCFA (\$139,500) for the sale of seed for oil, 2,656,124 FCFA (\$5,312) for the sale of shea nuts and 466,150 FCFA (\$932) for the sale of soy.

5.2. Average cost of production per hectare and profit margin

Production costs comprise cost of inputs and labor. The study bases its average cost of production per hectare in the zones on inputs. Table 19 summarizes information about the zones of interest. Overall, the average cost of inputs was about 21,047 FCFA/ha or \$42 (19,611 FCFA/ha or \$39 for men compared to 23,952 FCFA/ha or \$48 for women).

Table 19: Average cost of inputs

ZONE	Sample	Men	Women
Comoé	31258	38582	27788
Ioba	22 724	24 172	17 588
Nayala	21 695	13 192	24 828
Boulgou	23 487	20 302	30 921
Gourma	11 424	11 942	9 827
Oubritenga	18 387	24 465	13 120
Ziro	29 885	30 151	29 507
Total	21 047	19 611	23 952

Source: Results of the baseline study, June 2014

The cost of inputs depends on the zone. Oubritenga and Boulgou have production costs less than the overall average (18,387 FCFA or \$37 and 11,424 FCFA or \$23 respectively). The differences in terms of production cost explains the fundamental difference in terms of level of inputs used per hectare in each zone.

The results indicate that women use more inputs. This is mainly because they often use more cotton seed to replant areas of a poor farms where cotton previous planted has not germinated.

The profit margin after farmers have paid back credit on inputs (*MARI*) was, on average, 126,330 FCFA/ha or \$253 per ha. Concerning labor, the questionnaire only evaluated paid labor, but not family labor. Therefore, to evaluate the net margin, (net margin = *MARI* – total labor (salary + family)) the total cost of labor was evaluated using secondary data (Vognan (2012 and 2013), CDE⁵ (2009)) and primary data based on communication with the UNPCB heads of the zones. Thus, the estimated cost was 64,600 FCFA/ha or \$129 per ha, which generated a net profit of 49,414 FCFA/ha or \$99 per ha of organic cotton (refer to Table 20). This net margin varies between production zones. Thus, Boulgou has the best net profit with 82,136 FCFA/ha or \$164 per ha, followed by Comoe with 72,617 FCFA/ha or \$145 per ha. The lowest profit margin, which was not a surprise, was Nayala with 18,690 FCFA/ha or \$37 per ha and Oubritenga with 26 280 FCFA/ha or \$53 per ha.

Table 20: Net margin per hectare for organic cotton farming by zone

ZONE	Inputs cost (FCFA)	Value of production	MARI (FCFA)	Labor (FCFA)	Net margin (FCFA)
Comoé	31,258	170,375	139,117	66,500	72,617
Ioba	22,724	130,757	108,033	67,653	40,380
Nayala	21,695	89,116	67,421	48,731	18,690
Boulgou	23,487	177,276	153,789	71,653	82,136
Gourma	11,424	130,392	118,968	70,713	48,255
Oubritenga	18,387	119,670	101,283	75,003	26,280
Ziro	29,885	139,376	109,491	61,950	47,541
Total	21,047	147,377	126,330	64,600	49,414

Source: Results of the baseline study, June 2014

⁵ CDE: Centre for Development and Environment

5.3. Access to information

The RECOLTE project plans to help organic cotton farmers access information on markets for agricultural produces. The idea is to connect farmers to existing and functional platforms of market information systems (MIS). The MIS platform from the *Direction Générale de la Promotion de l'Economie Rurale* (DGPER) of the Ministry of Agriculture and Food Security was identified by the project for this activity. The study was interested in different MIS which serve farmers of the cotton zone through evaluating whether cotton farmers are aware or not of the existence of the identified MIS.

Access to information is important for farmers to make decisions in guiding agricultural production. The majority of farmers resort to informal sources of information (70%) (Table 21). APEX, as a source of information, is known only to exporters because it advertises export produces and provides advisory support and assistance to exporters. The SONAGES MIS is well known among farmers but only 34% of them use this MIS as a source of market information. This low rate of the use of market information system could be explained by the fact that UNPCB exports farmers' cotton produces and there is no grouped sales strategy for the rotational crops.

Table 21: Rate of access to (% farmers) to existing MIS by zone

Zones	APEX	SONAGES	Others/Market
Comoé	0.0	2.2	1.9
Ioba	0.0	5.5	8.0
Nayala	0.0	8.9	4.1
Boulgou	0.3	16.8	30.0
Gourma	3.1	0.2	16.0
Oubritenga	0.0	0.3	1.8
Ziro	0.3	0.0	8.1
Total	3.6	33.8	69.8

Source: Results of the baseline study, June 2014

For farmers' optimal use of market information, the project team needs to ensure in relation with the chosen MIS (SONAGES is well positioned) that all organic cotton zones are covered and information on organic cotton as well as rotational crops will be available to farmers.

The organic nature of the produces is a major factor that needs to be discussed to determine the best conditions for implementing this activity.

VI. Analysis of additional questions

The study analyzed a number of additional questions, which are relevant to the RECOLTE project. This section provides the results related to the six main additional questions. They include constraints in organic cotton production, access to land, use of revenue from the sale of organic cotton, possession of livestock, child labor, food security and shocks that households face.

6.1 Constraints in organic cotton production

According to farmers' statements (men and women), the three main constraints linked to organic cotton production, in order of importance (refer to Table 22) are: insufficient organic manure (48%), delays in providing seed (41%) and difficulties transporting organic manure (37%). These factors affect agricultural productivity. These results are in line with the

strategic analysis produced during the proposal writing for the RECOLTE project (see Attachment 1: Strategic Analysis, page 2). Also, UNPCB organic technical agents confirm, based on the qualitative survey, that the main constraints in organic production were access to organic fertilizer and its transportation.

The time to convert a conventional cotton farm to an organic cotton farm is an important factor for increasing new farmers, which the project intends to do. The project team should be mindful of the 7 % of farmers who mentioned this as a constraint.

Table 22: Main constraints to organic cotton production by zone

	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Delays in providing seed	50,0	78,4	46,2	22,5	43,9	64,0	42,8	41,0
Insufficient quantity of organic manure	53,5	54,9	50,0	57,6	33,7	67,6	25,7	47,8
Difficulties transporting organic manure	60,8	60,8	50,0	39,7	11,2	39,0	37,1	36,7
Building compost pit	57,3	41,2	34,5	37,1	9,2	50,0	14,2	29,5
Distant farming plot	50,0	23,5	15,5	21,8	4,1	14,0	14,2	17,6
Time of reconversion to organic	3,5	21,6	7,6	4,6	4,1	0,0	5,7	7,0

Source: Results of the baseline study, June 2014

Amongst additional questions, there is the question of women's access to land for farming. Paradoxically, women themselves do not bring up land access as a major constraint for farming. They highlight four main difficulties: access to organic manure, long distance to their plots, lack of agricultural tools and challenges in building compost pits.

The analysis (refer to Table 23) reveals that overall, women first cite lack of agricultural tools (73%) and access to organic manure (48.8%) as the two main constraints. When asked about long distance to the farming plot, only 25% of them estimated that their farms are far from their homes.

The overall trend is the same among all zones. Lack of agricultural tools and access to organic manure are the two main constraints cited by women within each zone. Building compost pits is an even bigger constraint than the distant farms.

Table 23: Women-specific challenges in organic production by zone

Challenges	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Low access to manure	64.2%	68.6%	34.5%	56.3%	31.6%	67.6%	31.4%	48.8%
Distant plots	39.2%	41.2%	26.9%	36.4%	8.1%	7.4%	0.0%	25.5%
Lack of agricultural tools	78.5%	80.4%	69.3%	68.2%	85.7%	78.7%	51.5%	73.5%
Building compost pit	50.0%	53.0%	30.7%	35.1%	14.3%	46.3%	31.4%	32.6%

Source: Results of the baseline study, June 2014

When asked to propose solutions for these issues, the respondents proposed a subsidy for agricultural tools (80% of respondents) as a response to specific challenges that women face. With the exception of Ziro (62%), more than 75% of respondents in other zones proposed this to solve the problem of lack of agricultural tools. Improving access to land ownership was proposed by 30% of respondents. Differences exist across zones about improving access to

land ownership, but almost half of respondents in Comoe and Ioba indicated the need for improved access to land for women. The rates for Gourma, Boulgou and Nayala were respectively 33%, 28% and 23%. Only few respondents reported this need in Oubritenga and Ziro (7% and 6% respectively).

The question of land for women is discussed in great detail in the qualitative report. The analysis shows that the land issue for women is the same in all zones, because women never own land. However, access depends on the pressure for land in the area. So, access to land for women is easier in Ioba, Comoe and Ziro, although the land given to women is generally the poorest. In Nayala and Oubritenga, land is generally poor and there is not sufficient fertile land for men; therefore women are always entrusted with the poorest plots in the farm. In these two zones, where the pressure for land is high, women do not have the opportunity to significantly expand their plot, despite their interest to increase profits from organic produce.

Overall, the problem of access to land is a problem of accessing fertile soil. In this respect, women run into several challenges: they generally have access to poor land, cannot expand their plot, they often do not have a fixed plot because it may be withdrawn by the land owner who could offer a different plot of land or none at all (if it is not her husband). Women who have farming land provided by their husbands are more secure with their land.

6.2 Access to land (source of acquisition) for organic cotton production

Source of land acquisition gives an indication of the precarious nature of land. In this baseline study, two sources of land acquisition were identified (refer to Table 24): land is acquired through family (inherited from the father, the mother and the family) and land is also acquired through friends.

For the most part, plots are acquired through family relationships. Results indicate that the problem of land insecurity is not a major constraint for production. However, this conclusion must be carefully considered because the rights exercised on the plot were not the focus of the survey. Some rights to use the land are limited in rural areas and transfer rights are few despite the fact that land acquisition is through family relationships.

Table 24: Sources of land acquisition by zone (%)

Sources of land acquisition	Zones of the organic cotton production							Total
	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	
inherited from the father	28.5	6.6	2.9	6.9	58.1	36.0	4.5	5.9
inherited from the mother	1.8	0	0	0	1	0	0	0.7
Through other family members	50.0	13.8	42.4	15.9	20.4	39.0	42.8	22.7
Through friends	3.5	0	7.6	3.3	4.1	3.7	2.8	3.2
Sharecropping	0	0	0	0	0	0	0	0

Source: Results of the baseline study, June 2014

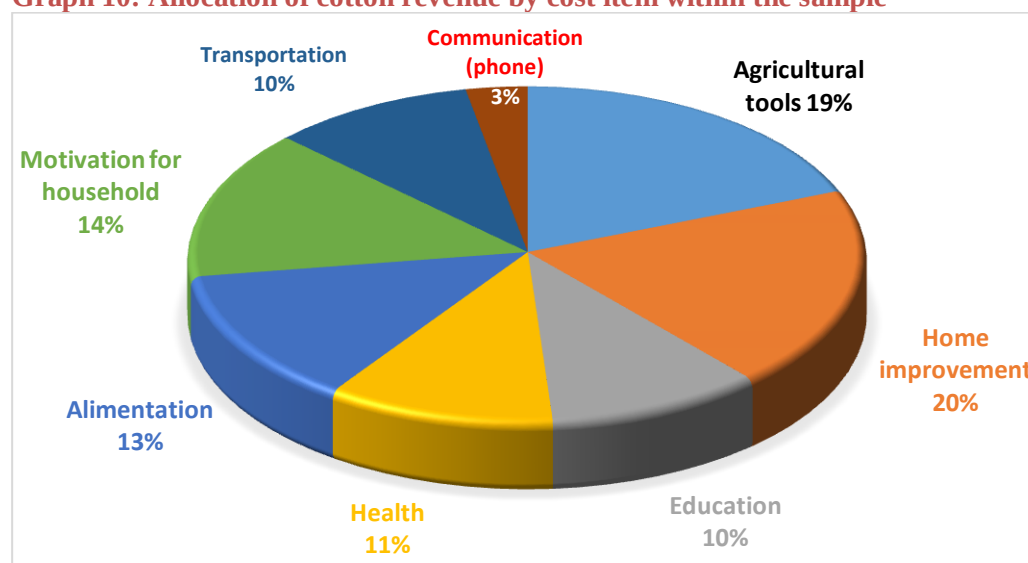
6.3 Use of organic cotton revenue

Graph 10 provides information on the use of cotton revenue according to the different expenses for the whole sample. Table 25 compares these expenses for men and women and by zone.

Overall, the two main expenses were home and agricultural tools (20% and 19% respectively). Cotton revenue enhances the quality of life of households and reinforces the means of production across the farm. Farmers spend 27% of their revenue to satisfy food needs and as payment to family members who helped on the farm (13% and 14% respectively). Finally, the three other areas are health (11%), transportation means (bicycle, motorcycle for 10%) and education (10%).

An analysis on larger expenditures (food versus non-food items) shows that households spend 13% on food compared to 73% on non-food items; the remainder (14%) was dedicated to motivate family members for their participation in the farm work.

Graph 10: Allocation of cotton revenue by cost item within the sample



One should note that there is a difference in allocation of expenses by gender. For men, the highest expenses are agricultural tools representing 20.3%, whereas women spent more on home improvement expenses at 23%.

Table 25 shows the comparative analysis of the use of revenue by women and men (as a proportion of the total expenses of each). The proportion of expenses by men on agricultural tools, healthcare, transportation (bicycle, motorcycle...) are higher than for women.

However, for other spending categories, such as expenses for the home improvement and education, women spend more than men. Women spend 13.3% and men 9.7% on education.

The data analysis confirms the hypothesis often used by development programs to support participation of women, which confirms that women invest more than men in the well-being of the family. For this study, women spend 60% of expenses on the well-being of their family (house, food, education and health) compared to 52% of men. By investing more in the well-being of the household, women have few resources left to invest in productive capital (agricultural tools for example), which justifies greater emphasis on supporting women to acquire agricultural tools in the RECOLTE project.

Payment of family members, which represent about 15% of expenses, could be a proxy of expenses that correspond to family labor, which is often very difficult to estimate.

Table 25: Use of cotton revenue (%) by men and women in the household

Type d'utilisation/Poste de dépense	Men	Women	Sample
Agricultural equipment	20.3	12.8	18.0
Home improvement	18.7	23.0	20.0
Education	9.7	13.3	10.8
Health	11.2	9.8	10.8
Food	12.9	13.1	13.0
Motivation for household	14.1	15.9	14.6
Transportation	10.3	8.5	9.7
Communication	2.8	3.6	3.0
Total (%)	100.0	100.0	100
Total revenue spent (FCFA)	115,344	48,665	164,009

Source: Results of the baseline study, June 2014

6.4 Livestock of organic and fair trade farmers

Risk is an important dimension in the conceptual framework of CRS' Integral Human Development. Possession of cattle is a way for households to manage risk,⁶ which aims to reduce risk⁷ and household's vulnerability to shocks, cycles and trends. In case of a shock, the household uses assets available, starting most often with livestock to cope. Table 26 shows the economics of livestock possession across households.

Table 26: Number and type of animals present in the household

Type of animal	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Sheep	8.4	8.0	5.8	12.5	9.5	10.6	4.1	9.8
Goats	10.7	9.2	7.4	10.5	10.4	8.1	8.9	9.9
Chickens	15.0	16.2	11.8	18.3	17.6	20.7	24.1	17.9
Guinea fowls	5.1	9.6	6.2	4.7	5.4	6.4	10.2	6.2
Cattle	7.5	2.3	3.0	4.3	5.4	4.9	1.1	4.1
Donkeys	0.3	0.2	1.8	1.8	1.7	2.3	1.7	1.5
Oxen	1.7	1.1	2.4	3.7	2.0	1.2	2.4	2.6

Source: Results of the baseline study, June 2014

Small ruminant animals and poultry make up the majority of livestock in households (on average ten sheep and goats and 18 chickens). Cattle are present in the sample (average of three oxen per household). There are zonal disparities in possession of cattle. Oxen possession is highest in Boulgou (about four oxen per household). Oubritenga and Ziro dominate in terms of average poultry possession (chickens and guinea fowls respectively).

6.5 Child labor on organic cotton farms

⁶Sakurai and Savadogo. 2009. Covariate Shocks and Rural Poverty in Burkina Faso. IAAE Conference in Beijing.

⁷Heinrich et al. 2008. A user's guide to Integral Human Development (IHD): A practical guidance for CRS staff and partners. **Page 6.**

It is important to describe child labor on organic farms before beginning the RECOLTE project. The data collection tool categorized children in three age groups to evaluate the extent of child labor in organic cotton production: children less than 12 years old, children between 12 and 15 years old and children 16 to 18 years old. The questionnaire also allowed for data collection on actions taken to reduce this phenomenon. Tables 26 and 27 summarize information about child labor.

Overall, results indicate that participation of children in organic agriculture depends on the age group. The number of children working increases as their age group increases. This trend is true also for the individual zones. It is important to note that children are partially involved and only with specific aspects of farming activities. In addition, children are not compensated for their help in the farm work. Furthermore, in rural areas “child labor” is considered as training on farm management for the children in order to prepare them to take over the family business or to take care their own farm.

Children in the youngest age group (less than 12 years) help herding oxen while children in the next group (12-15 years old) participate in the transportation of organic manure while guiding the donkey hitch to go to the field. Finally, the oldest age group (16-18 years) helps in various cultivation activities to the extent of their capacity.

According to the results of the baseline data, children in the 16-18 year age group spend an average of five hours per day working. Children in the 12-15 year age bracket spend an average of four hours per day. Finally, the youngest children spend less than four hours per day.

Analysis of the causes of child labor reveals that the main reason is that households perceive it as part of their agricultural education (44%). Parents must prepare children to take charge of their future adult life. Children are matched, according to age, to a type of work compatible to their physical strength. The second factor highlighted is poverty (39%). Poor households are forced to entrust some tasks for children because they do not have the resources to hire labor. However, only 30% of households cited inadequate manpower as a reason that leads them to make children help in farm work. Finally, fortunately, only about 16% of households explain that their children no longer go to school, therefore they have to help in the farm.

The analysis across zones indicates that the most important factor to explain child labor is introducing children to farm work as a form of education; except Boulgou where the first factor is poverty (43%). As a second reason for child labor, Comoé and Ioba associate child helping in farming to poverty, in contrast Gourma cites the lack of manpower. Households in Boulgou and Oubritenga cited the fact that their children don’t go to school. Nayala and Ziro farmers cited two reasons of equal proportion: poverty and insufficient labor.

Table 27: Participation of children in organic cotton production (%)

Children age group	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Children below 12	17.7	34.7	13.5	4.2	16.9	3.8	13.3	13.7
Children between 12-15	35.8	64.7	42.4	10.3	35.4	7.4	34.3	29.7
Children between 16-18	73.0	72.6	55.9	34.0	44.1	50.0	44.1	46.3

Source: Results of the baseline study, June 2014

Households have been reached with various activities to decrease child participation in agricultural production. Awareness is by far the most common strategy to reduce the

phenomenon (58% across the overall sample). Comoé, Ioba and Gourma are three areas where there was a strong emphasis on awareness (respectively 86%, 90% and 73%).

Table 28: Measures taken to reduce child labor in organic cotton production

Types of measures	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Sensitization	85.8	90.2	26.9	45.0	73.5	36.0	31.4	57.9
Certification requirements	25.0	21.6	3.8	15.9	39.8	7.4	0.0	20.8
Functional literacy for children	10.8	7.8	0.0	17.9	24.5	14.0	8.5	15.9

Source: Results of the baseline study, June 2014

6.6 Food security

Income is one of the determinants of a household's well-being. Increased income has an impact on food security, quality of life (housing and equipment), and household spending. The questionnaire included questions on household food consumption.

The project specifically highlights the objective of improving household food security, hence the need to include an indicator on household food security. The household food consumption score and the problem of substitution between cotton and food crops were examined.

The food consumption score helps classify households into three groups of consumption; poor food consumption (0-28), borderline food consumption (28-42) and acceptable food consumption (> 42). The analysis shows that for the entire sample, 68% of households have acceptable food consumption. Overall, 23% of households have borderline food consumption compared to 9% who have poor food consumption. These results indicate that 9% of households live with food insecurity and 23% fall into insecurity as a result of an adverse shock which would have a significant impact on consumption.

The analysis sought to understand how food insecurity manifests itself according to who heads a household (male or female head of household). The results indicate that households headed by women are doing relatively better than those headed by men, with 29% of female-headed households being food insecure⁸ compared to 33% of those headed by men. This could be empirical proof that women invest better in food and an increase in their revenue could translate to better well-being of the rest of the family, relative to men.

Results from analyzing the problem of substitution, inform that 29% of farmers perceive substitution as an issue and therefore increasing the area for organic cotton production could have a negative impact on the production of grain crops (millet, sorghum, corn) and other crops. According to farmers' statements, this problem is most relevant in Comoé (43%), Ioba (25%), Gourma (44%) and Ziro (26%).

The questionnaire collected information on crops whose production declined as a result of organic cotton production. The data analysis shows that households mainly reduced their production of sorghum and corn (respectively 30% and 11% of households). The percentage of households that reduced production of cowpea and rice is low (1% and about 7% respectively). By combining data on usable land available to the household, it appears that households grow below their available potential. The reason to substitute is therefore not a

⁸ Food insecurity includes both food groups (poor consumption and borderline).

question of land availability. Sorghum is the most likely to be substituted in the zones, with the exception of Comoé where it is corn.

6.7 Households facing shocks

The household survey took into account the important aspect of Integral Human Development⁹ through a series of questions about the shocks suffered by households, types of shocks, and mitigation measures. The questionnaire also sought to identify farmers' expectations vis-à-vis the project. This aspect is particularly helpful to CRS and UNPCB to adapt the project's interventions to these expectations or simply incorporate them.

Tables 29 to 33 summarize the results from the statistical analysis regarding the question of shocks faced by households.

Table 29: Rate of households who faced shocks by zone

	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
% of households that has been knocked during 2013/14 campaign	91.2	80.4	80.7	56.3	63.5	67.6	65.7	65.3

Source: Results of the baseline study, June 2014

The fundamental question is whether or not households suffered a shock in the last 2013/14 season, which would have positively or negatively affected their well-being. Table 29 provides the responses for the entire sample and by zone. Positive shocks are related to acquisition of additional labor, increased revenue and particularly good agricultural production. Negative shocks were droughts, problems with pests (locusts, pests), loss of money or support, and loss of labor.

Overall, 65% of households in the sample reported a shock in the 2013/2014 season that was analyzed. This result hides the specific trends according to potential farmers in the organic cotton production zones. Thus, if the general observation was true for the zones of Gourma, Oubritenga and Ziro, over 80% of households suffered a shock in the three zones of Comoé, Ioba and Nayala.

Table 30 explores in detail the types of shocks by household. The results indicate that in all, three types of shocks were the most frequently cited by households: negative social impacts reflecting death or illness (46%), negative impact on agricultural production (16%) and a positive shock on revenue (11%). Zonal differences are acute and Nayala is the only zone where 19% of households experienced a positive impact on agricultural production (Table 30).

Table 30: Types of shocks that affected the organic cotton farmers by zone

Household level shocks	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Locusts, pests and harvest failures	33.3	26.8	23.9	18.8	5.0	5.4	4.3	16.3
Loss of money or support	0	2.5	4.7	0	1.6	0	4.3	1.6
Labor migration	0	0	0	0	0	0	0	0
Social negative shocks	38.0	63.3	14.2	52.9	36.7	16.1	43.5	45.7

⁹ Heinrich et al. 2008. A user's guide to Integral Human Development (IHD): A practical guidance for CRS staff and partners.

Household level shocks (death ; illnesses)	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Additional labor	0	0	0	0	0	0	0	0
Increased income	9.7	0	0	2.4	38.3	0	0	10.6
Very good harvests	0	4.9	19.2	0	3.4	0	4.3	3.4

Source: Results of the baseline study, June 2014

Table 31 explores the question of whether or not shocks affected everyone in the household, or just one person of a particular sex.¹⁰ The analysis reveals that the shocks are not idiosyncratic in most cases (66% of households say that shocks affected the whole household).

Table 31: Categories of people affected (%) by zone

Categories	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Ensemble
Men	0	4.8	0	31.3	25	0	0	17
Women	0	7.2	5.2	14.5	12.6	10.8	13.0	11
Children	0	12	10.5	2.4	12.6	0	0	6.2
Household	100	76.1	84.3	51.8	49.9	89.2	87	65.9

Source: Results of the baseline study, June 2014

The team collected information on how households responded to negative shocks. Table 32 shows that the type of mitigation measure depends on the type of shock.

The results for the overall sample indicate two types of mitigation mechanisms: Farmers use their savings (both forms, monetary and non-monetary - by selling animals - respectively 28% and 17%). They also appealed to community solidarity mechanisms through transfers received, solidarity donations and loans (15.5%). Nearly a quarter of the sample did not adopt a mitigation measure.

The analysis reveals that Comoé uses solidarity (38%) as the first coping mechanism. Ioba, Gourma, Oubritenga and Ziro, meanwhile, highlighted the sale of animals (24%, 25%, 21%, and 30% respectively). Comoé, Ioba, Nayala and Ziro had the highest number of households who did not take any specific mitigation action. These are the same areas where the probability of suffering a shock is higher; many households do not have the "ability to respond".

Table 32: Measures taken by households to face negative shocks by zone

Types of measures	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
No mitigation	33.3	39	47.6	10.7	12.6	11.5	30.1	22.3
Sell livestock	14.3	24.4	15.7	5.9	25	21.8	30.1	16.8
Money transfers received	0	0	0	1.2	0	0	0	0.4
Solidarity	38	4.9	5.2	10.7	7.5	0	0	9
Informal credit	0	4.9	5.2	9.5	0	11.5	9.9	6.1
Sell land	0	0	0	0	0	0	0	0
Migration	0	0	0	0	0	0	0	0
Use savings	9.7	7.4	15.7	45.3	27.5	27.6	19.9	27.7

Source: Results of the baseline study, June 2014

¹⁰ The first case was not idiosyncratic and the second was idiosyncratic.

6.8 Producers' expectations vis-à-vis the project

The project team must take into account expectations and aspirations of the direct beneficiaries of the project. The household questionnaire sought to gather information on farmers' expectations vis-à-vis the project. Table 33 summarizes the results of this question.

The results show that farmers have high expectations in terms of support to increase production and productivity. This is encouraging because these expectations can be easily taken into account in the framework of this initiative, which aims to increase agricultural productivity.

Overall, farmers want access to new agricultural techniques and technologies (61%) and micro-credit oriented to financing agriculture (50%). They also would like subsidies on inputs (45%).

The overall project planned activities that respond to farmers' important expectations. An important capacity building component will be implemented with target farmers, UNPCB agents, ginning staff, public service agents (Ministry of Agriculture, INERA staff) and project personnel.

Access to organic fertilizer is an important lever in increasing agricultural productivity. Overall, only a few (40%) of the farmers in the study sample expressed interest in a training on composting or raising livestock (which also provides good organic fertilizer).

The project plans to put in place funds for collateral to increase farmers' rate of access to savings and lending services. The annual objective of 600 farmers seems low compared to the expectations and the number of farmers engaged in organic cotton production.

As far as subsidizing inputs, the project plans to provide new farmers with kits of inputs to start production. It is, however, unclear how current farmers will react if they find out that they will not have the same access to the project subsidized items as the new farmers will do. This problem could potentially hinder project implementation. The project team must carefully reconsider an approach that will include both older and new farmers when it comes to the subsidies. This activity is likely to be the one in which the project team will have more difficulties in addressing farmers' (both older and new) expectations.

However, RECOLTE project managers should not respond to these overall expectations universally or indiscriminately. In fact, there were strong zonal disparities in terms of priorities between the study areas (see Table 33). For example, there were high expectations for new agricultural techniques and technologies in Boulgou (78%), Ioba (74%) and Gourma (68%). In contrast, these expectations were moderate¹¹ in Comoe (50%), Ziro (52%) and Oubritenga (51%). They were considered low in Nayala (31%). These zonal disparities also exist for other expectations. It therefore requires targeted actions in terms of response package to the various organic cotton zones.

¹¹ Half the sample of producers in the province expressed

Table 33: Farmers' expectations (%) by zone

Farmers' expectations	Comoé	Ioba	Nayala	Ziro	Boulgou	Gourma	Oubritenga	Total
Training on livestock raising	35.8	56.9	42.4	47.7	17.3	61.0	54.3	41.4
New techniques and agricultural technologies	50.0	74.5	30.7	52.3	79.6	67.6	51.5	61.2
Training in building composting pits	53.5	45.1	34.5	51.0	12.3	57.4	40.0	38.7
Subsidize inputs	53.5	74.5	57.6	47.7	20.4	46.3	45.7	45.1
Microcredit for agriculture	75.0	74.5	57.6	36.4	49.0	53.7	60.0	50.4
Microcredit for IGAs	28.5	39.2	42.4	23.8	31.6	42.6	22.9	29.5
Support for literacy training	7.3	7.8	11.4	31.8	7.1	39.0	17.2	18.7

Source: Results of the baseline study, June 2014

VII. CRITICAL ANALYSIS AND RECOMMENDATIONS

This section provides a critical analysis of project targets; both targets in terms of objectives and targets for the indicators. This section therefore comprises two sub-sections.

7.1 Revision of targets in terms of objectives

According to the strategic analysis document, the current number of farmers producing organic cotton is 6,000 farmers, of which 28% are women. The CRS project's objective is to increase the number of organic cotton farmers to 10,000 with 30% women. In terms of targets for the project, it is to reach 4,000 new organic cotton farmers and increase the percentage of female farmers from 28% to 30% or two additional points (2%). The UNPCB 2014 database gives 6,978 as the number of farmers, with 38.3% women in organic farming.

The consultants recommend maintaining a rate of 38% participation of women in organic cotton production. This rate takes into account new farmers particularly in Nayala and Oubritenga, but also those leaving organic farming, women facing problems either because of the lack of suitable land or because of the need to travel outside their area, as in Boulgou where some villages will be moved under the implementation of the project Bagré Pole. The following factors help retain farmers:

- The favorable price of organic cotton (325 F/kg in 2011, 350 F/kg in 2012, 375 F/kg in 2013) associated with the organic premium;
- The prospect of a support from the project in terms of building farmers' capacities, through facilitating their access to micro-credit and agricultural tools (our hypothesis is that some men push their wives to engage in organic production to benefit from this support);
- The potential to increase the number of organic women farmers in Nayala and Oubritenga where organic cotton farming is considered as a surrogate activity to other crops (case of organic cotton replacing pepper in Nayala).

The project overall target is to reach 10,080 farmers. UNPCB data show that the number of farmers is currently 6,978, thus there is a gap of 3,102 farmers to reach the project target. Given how attractive the project activities would make organic cotton, the target of 10,080 farmers is reasonable.

7.2 Revision of targets for project indicators

Number of individuals receiving short-term agricultural sector productivity or food security training as a result of USDA assistance.

This indicator does not determine the level of farmers' training (trained, well-trained, poorly trained) as the producer may not have participated in all training modules but say he/she was trained. We propose replacing the indicator with the following: Percentage of farmers who received training in at least three techniques for improving productivity and food security. The baseline study shows that 52% of farmers were trained in at least three techniques for improving productivity and food security. This represents 3,629 out of 6,978 farmers, who can qualify as well-trained. The other 3,349 farmers and 3,102 new farmers need to be trained (in at least three techniques). The activities planned under this project allow to set the target at 95%.

Number of individuals and others who have received a short-term training on CES/AGF activities as a result of USDA assistance.

The CES/AGF techniques consist of stone contour lines, grass strips and *demi-lunes*. Training in one or two of these activities allows one to say that the person received the necessary training to enable them to apply CES/AGF techniques. The baseline study shows that 18% of farmers were trained in at least two CES/AGF activities. This represents 1,260 farmers. Out of the 8,820 farmers to train taking into account new farmers, we recommend setting the target at 85%.

Value of agricultural and rural loans provided as a result of USDA assistance.

The baseline study showed that the average financial credit per farmer was 20,013 FCFA or \$40¹². However, to enable farmers to purchase agricultural tools necessary to improve organic cotton farming, a credit of 100,000 FCFA or \$200 could be borderline. But it is preferable to limit the level of the loans at this amount in order to reach at least 750 farmers every year.

Number of public-private partners formed as a result of USDA assistance.

UNPCB sells the cotton fiber to only one international partner Limited Brands (Victoria's Secret) and Ivatex for local processing at the national level. The cotton seed goes to the oil manufactures at the national level as well. Locally, other organizations are involved in the export of rotational crops: Burkinature for sesame and Burkarina for shea butter. The project should explore other export markets for cotton fiber and rotational crops. Marketing rotational crops through UNPCB increases chances of lasting customer loyalty. The ability to make the best rotational crops will have a positive impact on farmers' revenue and could then increase the area allocated to organic crops.

Number of farmers and others who have received training on improved farm management practices (i.e., governance, administrative and financial management) as a result of USDA assistance.

This indicator was previously reformulated to: percentage of farmers who attended at least three types of training on improved farm management practices. Technical management of production units includes six techniques, which means a producer who has not been trained in at least three techniques might not be effective in improving his overall farm management. The baseline study showed that only 9% of farmers (628 producers) were trained in a least three out of the six techniques. About 6,350 farmers were left out, plus 3,102 new farmers

¹² The generic exchange rate of 500 FCFA for \$1 was used.

gives a total of 9,452 farmers to be trained in a least three improved farm management techniques. **Given the importance of this aspect of the capacity building activities, it is necessary that at least 95% of farmers are well trained, hence a proposed target of 8,979 farmers for this activity.**

Number of farmers and others using financial services as a result of USDA assistance.

The baseline study shows that 335 (4.8%) farmers have access to financial services compared to 6,633 farmers (95.2%) who do not. The project approach in addressing this issue is to put in place a guaranteed fund allowing for an increase in beneficiaries to access financial services. **The proposed target is 750 farmers every year (based on the average loan amount of 100,000 FCFA or \$200).**

Number of farmers and others who have received training on improved agriculture techniques and technologies as a result of USDA assistance.

Not defined. This includes all trainings proposed by the project. We must therefore consolidate targets for all training provided to farmers to determine the target for this indicator.

Volume of selected crops produced/harvested per hectare (yield).

The initial target yield for cotton is 600 kg/ha. The surveys estimate the average yield to be 393 kg/ha and from UNPCB's database to be 460 kg/ha. On one hand, the UNPCB database is a comprehensive database where the areas are identified by GPS and productions are produces are weighed by the field agents, which provides credibility. However, the UNPCB data is not current and includes farmers' who are no longer there. **We propose using both yields and following their evolution (midterm, final). Compared to the target of 600 kg/ha, it must be decreased to 527 kg/ha** due to the current low level of technical performance of farmers and the entry of new inexperienced farmers. The literature review shows that the main causes of yield reduction from 2006 to 2009 when yields were 550 kg/ha on average were the arrival of new inexperienced farmers in the program and the limited trained field agents. Despite project investments in capacity-building, access to inputs and tools, access to loans, change at the community level is slow.

Value of production per hectare (FCFA).

For the yield of the baseline production (393 kg/ha), the monetary value was 147,377 FCFA/ha whereas the yield from the UNPCB database was 172,500 FCFA/ha. The goal is 195,000 FCFA/ha. The target of 195,000 FCFA/ha is realistic because it is obtained with a yield of 520kg/ha. If the current price is maintained while the target yield is 527kg/ha the target should be revised to 197,625 FCFA per hectare.

Average area cultivated per farmer (ha).

The project objective is to increase from 0.66 ha to one hectare the average area cultivated per farmer. This objective is not realistic for the following reasons: (i) poor land sown by new farmers; (ii) difficulties in access to land suitable for organic cultivation for women who represent about 38%; (iii) insufficient organic manure to cover and (iv) the fact that subsidized inputs and agricultural materials are uniquely for new farmers. We propose revising the target to 0.8 hectare per farmer.

Number of individuals benefiting directly from USDA-funded interventions.

The target of 10,080 farmers as direct beneficiaries is deemed realistic. The study results show that there are 6,978 farmers, and there is therefore a gap of 3,102 farmers remains to

reach the 10,080 farmers. Given the effective activities planned for the project and the current context of cotton production, this target seems reasonable.

Number of individuals benefiting indirectly from USDA-funded interventions.

The target of 50,000 indirect beneficiaries is less than what the current situation would suggest. All household members, which are on average 8 people according to baseline results, benefit from project activities. This target could reach 80,640 people based on 10,080 direct beneficiaries, but estimating that at least 10% of the farmers belong to the same household, it is recommended to target 72,576 individuals benefiting indirectly from the RECOLTE project.

Percentage of hectareage meeting threshold standards for soil quality (to be determined).

The quality of the soil and plots can be determined using the topo-sequence. Plots on the lower slope and on the valley floor are most fertile, because they retain the nutrients and water that come from the high slopes. On this basis, 30% of plots have relatively fertile soil (12% on the lower slope that are relatively fertile and 18% in the valley floor) while 70% of the plots have less fertile soil (31% of plots are on top of the slope and 39% on the upper slope). Organic farming takes place on the fertile lands. In some areas such as Gourma, farmers are growing organic cotton in the valley floor. By contrast, in Comoé, valley floors are inappropriate for growing organic cotton. These indications will feed the scope of work of the soil study which will determine the threshold standards for soil quality as well as the target.

Number of farmers and others who have applied new techniques as a result of USDA assistance.

Farmers will draw new techniques from all capacity building topics (post-harvest, of water and soil conservation techniques / agroforestry, improved farm management, improved productivity and food security) making it realistic to target 8,000 farmers for this indicator.

Volume of seed produced/harvested by seed farm per hectare (yield).

A 527 kg/ha yield of seed cotton allows for a yield of 305 kg/ha of seed. Therefore, the target of 300 kg/ha of seed remains reasonable for the seed farms.

Number of loans disbursed to farmers and others as a result of USDA assistance.

The baseline study shows that 335 farmers (4.8%) have had access to financial services during the last planting season (2013/2014). The project initial target was to disbursed 600 loans every year. This target was revised to 750 farmers by reducing the average loan amount from \$250 to \$200.

Percentage of farmers in the region who can explain the key uses and benefits of the new crop rotation technique.

The baseline study shows that at least 42% of farmers can explain the main applications and benefits of crop rotation technique in organic cotton farming. The target of 70% of farmers is reasonable.

Number of farmers and others who have applied the improved farm management practices (i.e. governance, administration, financial management).

The baseline survey shows that 62% of farmers applied improved farm management techniques. About 38% or 2,660 of farmers do not apply these techniques. Taking into account the new farmers, the gap would be approximately 5,660 farmers. ut the target of

7,000 farmers would be reasonable, because of the need to take into account those who will be retrained.

Value of regional (or international) trade in selected agricultural products.

The products concerned are (i) cotton fiber that is sold for export, and (ii) cotton seed to oil manufactures and rotational products sold at the national level. The baseline value is estimated for cotton fiber at 1,409,263,980 FCFA or \$2,818,529, for cotton seed for oil at 69,750,000 FCFA or \$139,500, for rotational crops at 3,122,274 FCFA or \$6,244. The total baseline value of the sales is 1,482,136,254 FCFA (\$2,964,272). Rigorously the only commodity regionally or internationally traded was the cotton fiber. That means that the baseline value for this indicator is \$2,818,529. We recommend maintaining the target by 2018 at \$4,785,000 which represents nearly a 70% increase.

Volume of regional (or international) trade in selected agricultural products.

The different products marketed are seed cotton at the national level and fiber cotton for international trade. The baseline value is 2,138 metric tons for a target of 3,300 tons. This target is reasonable but may be increased to 4,000 tons based on the expected average yield (527 kg/ha) and the average projected area (0.8 ha) of seed cotton. The baseline value for the cotton fiber is 864 metric tons. For a target of 4,000 tons of cotton seed, the target for cotton fiber will be 1,640 tons with a fiber rate of 41%¹³.

Number of farmers surveyed who say used improved post production practices for rotation crops.

The baseline study shows that 72% report using the improved post production practices compared to 28% (corresponding to 1,986) farmers who did not use them. A target of 5,088 farmers (1,986+3,102 new farmers) seems to be reasonable. But with retraining required for some farmers, recommendation is to set a 6,000 farmers target for this indicator.

Percent of farmers who have accessed current market information in the last week/month; etc.

The baseline study shows that only 34% of farmers had access to market information (SONAGES). This MIS airs the market information through national radio. It would suffice to encourage farmers to use this information to improve their sales opportunities (individual or group). A target of 85% is doable. A sales or negotiation strategy for rotational crop should be developed by UNPCB.

Number of countries to which the selected agricultural products are exported.

Targeting one country is justified because Limited Brands (USA) is currently the sole buyer of organic cotton fiber in Burkina Faso. However, countries like Switzerland could be interested in selected agricultural products. But given the prices offered by Limited Brands it will be difficult to competitor to get a share of the Burkina organic cotton fiber; this the ground suggesting to maintain the target to one country for this indicator.

¹³ Source: UNPCB, Results of factory milling in Banfora II

Table 34: Project Indicators

Activities	Indicators	Data (2013)	Baseline (2014)	Project Target	New target
Provide training on production of organic cotton	Number of trainings of organic cotton producers	0	0	2	2
	Number of demonstration plots created (field schools)	0	0	250	250
	Number of UNPCB zone managers and field agents trained via training of trainers	0	0	118	118
Provide training on improved organic cotton farm management	Number of UNPCB zone managers and field agents via training of trainers	0	0	118	118
Facilitate organic and fair trade cotton certification process	Number of farmer fields certified	6,000	6,860	10,000	10,000
Develop cooperative business capacity	Number of National Union of Burkina Faso Cotton producers management staff receiving training in management, finance and operations	0	0	30	30
Develop business service providers	Number of kilograms of organic cotton seeds procured	0	2,372	6,750	6,750
	Number of kilos of organic rotational crop seeds procured	0	0	6,800	6,800
	Number of organic cotton foundation seed multiplication plots planted	0	1	1	1
	Number equipment grants provided	0	0	150	150
	Number cotton and rotational seed multiplication farms created	0	0	3	3
Improve post-production, processing and handling	Number of trainings conducted in post-production, processing and handling	0	0	2	2
	Number of trainings conducted in improved cotton ginning and storage standards	0	0	4	4
Financial services: Facilitate agricultural lending	Number of trainings in improved agricultural loan products held	0	0	1	1
Improve market linkage for increased trade in organic cotton	Number of UNPCB zone managers and fields agents trained	0	0	118	118
Facilitate policy and regulatory dialogue on organic cotton production	Number of round tables facilitated	0	0	4	4
Gender and child labor prevention awareness	Number of trainings held in gender awareness and prevention of child labor	0	0	2	2

Activities	Indicators	Data (2013)	Baseline (2014)	Project Target	New target
Contributions to Feed the Future	Number of hectares under improved techniques or technologies as a result of USDA assistance	0	0	6,000	6,000
	Number of farmers and others who have applied new techniques or technologies as a result of USDA assistance	0	0	8,000	8,000
	Number of individuals receiving short –term agricultural sector productivity or food security training as a result of USDA assistance	0	0	10,000	6,451
	Value of agricultural and rural loans provided as a result of USDA assistance	0	0	150,000	150,000
	Number of public-private partnerships formed as a result of USDA assistance	0	0	1	2
	Number of farmers and others who have applied improved farm management practices (i.e., governance, administrative and financial management) as a result of USDA assistance	0	0	7,000	6,285
	Number of farmers and others who have received training on improved farm management practices (i.e., governance, administrative and financial management) as a result of USDA assistance	0	0	10,000	8,979
	New: Percentage of farmers and others who have received training in at least three out of six improved farm management techniques		0	0	95
	New: Number of individuals and others who have received a short-term training on CES/AGF activities as a result of USDA assistance		0	0	8,820
	Number of farmers and others using financial services as a result of USDA assistance		0	600	750
	Number of farmers and others who have received training on improved agricultural techniques and technologies as a result of USDA assistance	0	0	10,000	10 000
increased Agricultural productivity	Volume of selected crops produced /harvested per hectare (yield)	470	460	600	527
	Value of production per hectare	152,000	172,500	195,000	197, 625

Activities	Indicators	Data (2013)	Baseline (2014)	Project Target	New target
	(FCFA)				
	Average area cultivated per farmers (ha)	0.6	0.67	1	0.8
	Number of individual benefitting directly from USDA-funded interventions	0	0	10,080	10,080
	Number of individual benefitting indirectly from USDA-funded interventions	0	0	50,000	72,576
Increased leverage of private sector resources	Number of public-private partnerships formed as a result of USDA assistance	0	0	1	2
	Number of private sector institutions that are providing monetary or in-kind resources in support of agricultural productivity (e.g., in areas including Ag. Information, agricultural inputs, etc. research, market.)	1	1	2	2
Improved capacity of key groups in the agriculture production sector (cooperatives and small shareholder farmers)	Number of new and improved management practices applied by UNPCB	0	0	1	1
	Number of producers enrolled in UNPCB's organic cotton program	6,000	7,094	10,000	10,000
	Value of budget/revenues of targeted producer associations and cooperatives (\$)		2,964,272	4,800,000	4,800,000
Improved Quality of land and water resources	Percent of hectareage meeting thresholds standards for soil quality (standards to be determined)		TBD ¹⁴	80	TBD
Increased use of improved agricultural techniques and technologies	Number of hectares under improved techniques or technologies as a result of USDA assistance	0	0	6,000	TBD
	Number of farmers and others who have applied new techniques and technologies as a result of USDA assistance	0	0	8,000	8,000
Increased availability of improved inputs	Volume of seed produced/harvested by seed farms per hectare (yield)	0	71	300	300
Increased capacity of government institutions	Number or percentage of government-funded of agriculture research and outreach/extension facilities with sufficient infrastructure and supplies, etc.	0	0	1	1
	Number of individual beneficiaries who have received USG supported short term agricultural sector productivity or food security training	0	0	10,000	10,000

¹⁴ Standars to be determined by the planned soil study

Activities	Indicators	Data (2013)	Baseline (2014)	Project Target	New target
Increased use of financial services	Number of farmers and others receiving financial services as a result of USDA assistance	0	0	600	750
	Number of loans disbursed to farmers and others as a result of USDA assistance	0	0	600	750
	Value of agricultural and rural loans provided with USDA assistance (\$)	0	0	150,000	150,000
Increased knowledge by farmers of improved agricultural techniques and technologies	Number of individual who have received USG supported short- term agricultural sector productivity or food security training	0	0	10,000	6,451
	Number of farmers and others who have received USDA supported training on improved agricultural techniques and technologies	0	0	10,000	10,000
	Percentage of farmers in the region who can explain the key uses and benefits of the new crop rotation technique	0	42	70	70
Improved farms management (operations, finance)	Number of farmers and others who have received USDA supported trainings on improved farm management practices (i.e., governance, administration or financial)	0	0	10,000	8,979
	Number of farmers and others who have applied improved farm management practices (governance, administration or financial management)	0	0	7,000	6,285
Expanded trade of agricultural products (domestic, regional and international)	New: Values of regional (international) trade in selected agricultural products (rotational crops)	0	145,744	0	189,467
	Values of regional (international) trade in selected agricultural products (cotton fiber)	0	2,818,528	4,785,000	4,785,000
	Volume of regional (international) trade in selected agricultural products (MT)	2,000	2,105	3,300	4,000
Increased leverage of private- sector resources	Number of joint public private initiatives aimed at expanding trade capacity	1	1	2	2
Increased use of post-production processing and handling practices	Number of farmers surveyed who say they use improved post-production practices for rotation crops	0	5,107	6,000	6,000
Increased access to improved market information	Percent of farmers who have accessed current market information in the last week/month,		34	85	95

Activities	Indicators	Data (2013)	Baseline (2014)	Project Target	New target
	etc.				
Increased access to markets to sell agricultural products	Number of countries to which selected agricultural products are exported	1	1	1	1

CONCLUSION

The baseline study shows that organic cotton has potential for development in Burkina Faso and it is an important lever for improving the income of smallholder farmers including women farmers. After several years of implementing the UNPCB organic cotton program, significant achievements have been made. However, a number of constraints still hinder its performance.

In terms of production, constraints include low productivity of cotton and rotational crops due to several factors, including low capacity to transport organic manure, low level of equipment of producers, and supply of quality seed and certified organic.

In terms of ginning, the issue the organic cotton value chain faces is the absence of a dedicated ginning facility. As a result, the organic value chain depends a lot on the cotton companies (SOFITEX for ginning) which have their main focus on the other types of cotton. The consequence is serious planning issues to make sure the organic cotton production is timely ginned. The subsequent delay impact the timely payment of the farmers.

On the market aspect, having one exclusive buyer is somewhat risky. Also, rotational crops are not properly taken into account by the extension services and marketing is not always driven by UNPCB; which does not facilitate valorizing these products and expanding the commercial base for the smallholder farmers.

The RECOLTE project's activities aim to reduce constraints and also capture existing opportunities. Given the background of organic production, we recommend revising some of the targets, including reduced productivity and number of hectares per producer, but increase the number of producers to be trained and review the training curriculum.

There are numerous challenges. However, the project has major assets to achieve its objectives, particularly the shared vision and strategic interventions of the two main partners (CRS and UNPCB), the existence of a functional organization on the ground (GPCB) and the field agents who will need to be motivated beyond training.

This study provides a range of information and baseline data which the RECOLTE project can rely on to begin implementation.

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ANNEXES

Annex 1: Distribution of households (%) by province according to possession of assets (at least one unit) of agricultural equipment

Equipment	Comoé	Ioba	Nayala	Boulgou	gourma	Oubritenga	Ziro	Total
Ridger tool	50,0	51,0	81,2	57,5	75,6	46,7	51,3	61,4
Seeding tool	10,8	7,8	0,0	18,5	17,3	11,1	0,0	13,5
Handcart	32,0	9,8	7,6	27,1	56,1	11,1	28,6	31,0
Weeding tool	24,7	45,1	57,8	25,1	43,9	17,8	2,8	32,2
Sprayers	78,5	60,9	15,5	48,3	58,1	36,3	74,4	54,3
Oxcart	25,3	33,4	57,8	35,1	7,1	75,6	48,5	30,6
Tractors	10,8	0,0	0,8	0,0	0,0	0,0	0,0	0,7

Source: Results of the baseline study, June 2014

Annex 2: Distribution (%) of producers by production zone by sex and area

Zone of production	Beginners farmers			New farmers			All		
	Women	Men	Sample	Women	Men	Sample	Women	Men	Sample
Comoé	0,56	0,76	0,65	0,43	0,53	0,48	0,53	0,70	0,62
Ioba	0,48	0,57	0,56	0,35	0,36	0,36	0,44	0,50	0,49
Gourma	0,74	1,34	1,17	0,57	0,85	0,72	0,65	1,17	0,98
Oubritenga	0,32	0,42	0,38	0,17	0,27	0,20	0,21	0,36	0,27
Nayala	0,37	0,51	0,39	0,15	0,30	0,17	0,25	0,38	0,27
Boulgou	0,48	0,51	0,50	0,29	0,51	0,42	0,41	0,51	0,47
Ziro	0,69	1,02	0,91	0,55	0,66	0,61	0,61	0,86	0,76
Total	0,54	0,80	0,71	0,55	0,66	0,61	0,54	0,75	0,67

Source: Results of the baseline study, June 2014

Annex 3: Distribution (%) of soil types by zone

rovince	Slope height	Down and fairly steep slope	Versant Slope	Shallows
Boulgou	28,1	5,3	64,9	1,8
Comoé	23,3	10,2	44,1	22,3
Gourma	20,1	26,0	48,0	5,9
Ioba	33,0	10,4	34,4	22,2
Nayala	39,3	9,4	32,9	18,4
Oubritenga	11,1	11,1	57,3	20,4
Ziro	26,1	27,1	39,6	7,3
Total	30,7	11,9	39,3	18,1

Source: Results of the baseline study, June 2014

Annex 4: Storage capacity of organic cotton inputs

Province	Warehouse of GPCB			Own warehouse			In bedroom			Granary/others		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
Boulgou	21,5	22,5	21,0	17,7	33,3	10,7	57,3	33,3	68,4	0,0	0,0	0,0
Comoé	47,0	53,9	25,1	17,7	18,0	16,7	35,3	28,3	58,3	0,0	0,0	0,0
Gourma	3,8	14,2	0,0	26,9	28,3	26,4	61,4	57,5	63,2	0,0	0,0	0,0
Ioba	7,9	7,6	8,9	53,0	51,4	55,5	33,1	33,3	33,3	,6	,9	0,0
Nayala	2,1	1,3	4,1	69,4	66,2	79,1	22,5	25,7	12,5	0,0	0,0	0,0
Oubritenga	0,0	0,0	0,0	28,7	30,2	26,4	57,4	61,9	53,4	0,0	0,0	0,0
Ziro	11,4	9,5	14,2	34,3	38,2	28,5	48,5	52,4	42,9	0,0	0,0	0,0
Total	12,5	13,8	10,0	46,9	48,0	44,4	35,3	32,9	40,5	,3	,4	0,0

Source: Results of the baseline study, June 2014

Annex 5: Storage of inputs for crop rotation

ZONE	Warehouse of the GPCB			Own warehouse			In bedroom			Granary/Others		
	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women
Boulgou	14,2	10,9	15,8	17,7	33,3	10,7	35,8	44,6	31,6	17,7	10,9	21,0
Comoé	23,5	20,5	33,3	19,6	23,1	8,5	25,5	28,3	16,7	25,5	23,1	33,3
Gourma	0,0	0,0	0,0	0,0	0,0	0,0	26,9	14,2	31,6	23,1	42,5	15,7
Ioba	1,3	1,9	0,0	29,1	26,7	35,6	25,2	21,0	33,3	16,5	20,0	8,9
Nayala	2,1	1,3	4,1	21,4	20,3	25,0	15,3	16,2	12,5	39,8	41,9	33,3
Oubritenga	0,0	0,0	0,0	3,7	0,0	6,8	11,0	7,9	13,7	50,0	61,9	39,7
Ziro	0,0	0,0	0,0	20,1	14,2	28,5	22,9	19,0	28,5	22,9	28,7	14,2
Total	5,0	4,7	5,5	22,4	22,4	22,6	22,8	20,8	26,2	25,3	28,4	19,4

Source: Results of the baseline study, June 2014

Annex 6: Access to credit (FFPr SO 1.2.3.a)

Type de credits	Sex	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Inputs credit	Men	77,5	92,2	100,0	96,2	100,0	100,0	100,0	96,7
	Women	84,2	100,0	94,8	95,6	100,0	100,0	100,0	96,3
	Sample	82,3	94,1	96,2	96,0	100,0	100,0	100,0	96,6
Financial credit	Men	16,4	20,6	71,7	26,5	36,5	46,0	57,1	32,5
	Women	20,1	50,0	52,8	25,0	50,0	77,9	28,5	36,8
	Sample	19,0	25,0	57,6	25,9	39,8	62,9	45,7	33,8

Source: Results of the baseline study, June 2014

Annex 7: Difficulties in accessing credit

Main credit access difficulties	Sexe	Comoé	Ioba	Nayala	Boulgou	Gourma	Oubritenga	Ziro	Total
Lack of guarantee	Men	25,6	40,9	60,0	15,1	47,3	8,6	9,0	29,7
	Women	18,8	0,0	0,0	20,0	29,2	27,8	40,0	21,2
	Sample	20,7	32,2	27,1	16,4	42,9	17,1	18,7	27,0
Unavailability of credit institutions	Men	12,2	4,7	0,0	9,7	13,5	0,0	0,0	9,6
	Women	37,6	0,0	0,0	2,4	4,1	0,0	20,0	7,2
	Sample	29,3	3,7	0,0	7,5	11,2	0,0	6,2	8,9

Source: Results of the baseline study, June 2014

Annex 8: Percentage of producers who attended at least two trainings on CES/AGF activities

ZONE	Sample	Men	Women
Boulgou	3,5	10,9	0,0
Comoé	0,0	0,0	0,0
Gourma	19,3	14,2	21,2
Ioba	12,6	12,2	13,3
Nayala	34,7	31,1	45,8
Oubritenga	14,0	15,6	13,7
Ziro	25,7	33,3	14,2
Total	17,6	17,5	17,9

Source: Results of the baseline study, June 2014

Annex 9: Percentage of those trained on each management production unit

ZONE	Farm training			Campaign plan			Financial management Plan			Protection of cotton			Others		
	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women	Sample	Men	Women
Boulgou	53,1	59,6	50,0	17,7	59,6	0,0	0,0	0,0	0,0	17,7	0,0	25,0	23,4	0,0	33,3
Comoé	50,0	42,0	77,8	7,6	9,8	0,0	0,0	0,0	0,0	10,0	9,8	11,4	30,0	35,5	11,4
Gourma	73,2	75,0	72,9	80,2	50,0	91,0	33,3	25,0	36,5	80,2	25,0	100,0	6,6	25,0	0,0
Ioba	41,9	40,9	44,5	9,7	12,1	3,6	7,5	6,1	11,0	54,8	57,6	48,1	0,0	0,0	0,0
Nayala	52,3	56,5	42,1	41,5	39,1	47,4	10,8	13,1	5,2	58,5	54,4	68,4	0,0	0,0	0,0
Oubritenga	55,8	50,0	66,7	65,9	50,0	100,0	11,4	17,2	0,0	77,3	82,8	66,7	0,0	0,0	0,0
Ziro	71,4	79,0	55,6	71,4	68,3	77,9	71,4	73,8	66,9	42,9	42,1	44,4	0,0	0,0	0,0
Total	51,4	50,7	52,9	28,7	27,2	32,0	15,4	14,8	16,5	46,9	44,5	51,9	6,3	7,2	4,3

Source: Results of the baseline study, June 2014

Baseline Study of the RECOLTE Project

Qualitative Report, January 2015

BURKINA FASO



Source: Field photo, June 2014; GPCB [REDACTED] of [REDACTED]

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ACRONYMS AND ABBREVIATIONS

IGA: Income Generating Activities

ATB: Organic Technical Agent

CDI: Open-ended Contract

GMC: Genetically Modified Cotton

CRS: Catholic Relief Services

CVD: Village Development Council

GPCB: Organic Cotton Producer Groups

GPS: Global Positioning System

INERA: Institute of Environmental and Agricultural Research

ITK: Crop Management System

PUH: Urban Habitation Permit

RECOLTE: Revenue through Cotton Livelihoods, Trade, and Equity

UNPCB: National Union of Burkina Faso Cotton Producers

USDA: United States Department of Agriculture

EXECUTIVE SUMMARY

The RECOLTE project aims to increase agricultural productivity of small organic cotton producers and expand trade of agricultural products locally, regionally and internationally. The project planned a baseline study to provide reference data and to enable the project to eventually measure the impact on beneficiaries. The study comprises a qualitative and quantitative section. This report concerns the qualitative information.

The qualitative section analyses the main challenges to the various segments in the organic cotton value chain and studies the vulnerability and resilience as well as actions implemented by producers in light of shocks.

Results of the 43 focus groups within the Organic Cotton Producer Groups (GPCB) show that producers are gaining interest in organic cotton production. Interest in organic production is because of: (i) increased revenue and profitability compared to other crops in the area and producers' ensuing increased revenue, (ii) its contribution to food security, (iii) its relative low cost of production, and (iv) its contribution to community development through Fairtrade premiums.

Women play an important role in organic cotton, representing 38% of producers. Women are represented on almost all GPCB boards and are presidents in 11.1% GPCBs. They make up the majority in 9% of GPCBs.

Producers have acquired new approaches and production methods that are environmentally friendly and that produce sustainably on the same soil in a context of variability and climatic changes.

Revenue generated by organic production are invested in nutrition, agricultural equipment, construction of improved houses, means of transportation and communication, health of the family and education of children. Many authors and observers have stated that organic cotton improves the household livelihoods and strengthens overall farming and farm livelihoods.

The importance of animals in the household is an indicator of wealth and their presence in the household is a means of risk management (reduce risks and vulnerability of the household in case of a shock, cycle or long-term trends).

The most important factors in farming, according to producers, are land and agricultural tools and equipment, which influence vulnerability and resilience of households. In case of negative shocks, household strategies according to priorities are: (i) selling livestock; (ii) resorting to family outside farming for support; (iii) reverting to activities such as cutting wood, forest products and gardening; and (iv) reaching out to the community for support.

Producers expect topics in the organic farming training curriculum to be strengthened. New activities that producers wish to be strengthened by the RECOLTE project are: capacity building of farmers (pest management, farm management), facilitating access to agricultural

tools and equipment, infrastructure, support in building storage units, supply of quality seed in sufficient quantities, and functional literacy. On the other hand, training in livestock (pigs, cattle, poultry), soap making, weaving traditional cloths, sewing and gardening, requested by women are not included in the RECOLTE project.

The main constraints upstream were the late arrival of inputs for producers and the dissatisfaction of producers' needs in terms of quantity of seeds. Downstream, producers often go long periods of waiting between harvest and commercialization, and sometimes between commercialization and payment of cotton. The current organization of organic cotton and its strong dependence on the conventional cotton value chain for ginning do not allow one to change the situation in the short or medium term. Setting up seed farms under the management of the Profit Center should allow one to influence the system of seed supply.

Organic crops are still marked by poor yields linked to the lack of agricultural tools, equipment and organic manure to fertilize poor land. The combination of activities planned for the RECOLTE project should induce improved productivity and increased revenues. The main activities are to: create and roll out a comprehensive training curriculum, provide agricultural tools and equipment to producers, establish seed farms, and facilitate access to credit.

The problem of land infertility is the main constraint specific to women. During interviews, women explained that they have access to land for production but not fertile land. In addition to this problem, in zones like Nayala and Oubritenga where there is even more pressure for land, women run into additional difficulties: (1) she seldom has the possibility to increase her plot size; and (2) she does not often produce sustainably on the same plot which could be taken from her in exchange for a less fertile plot by the land owner.

For field agents, their main constraints are the high work load, the difficulties in transport and tools. But the most worrying problem is their gradual loss of motivation because of the above-mentioned constraints and lack of incentives. This situation could have an impact on the productivity of the agents in carrying out their activities.

INTRODUCTION

Cotton production has experienced major fluctuations over the past decade, often resulting in crisis situations in the cotton industry in Africa with negative impacts on the livelihoods of small producers (poor revenue, indebtedness of producers, food insecurity).

The organic cotton initiative was put in place to revitalize cotton production conditions to benefit producers:

- (1) by encouraging them to adopt organic cotton and Fairtrade production methods; and
- (2) by involving them in the commercialization system so they can benefit the maximum.

The National Union of Burkina Faso Cotton Producers (UNPCB), as the umbrella structure of all cotton producers in Burkina Faso, was associated with this organic cotton initiative from the beginning, with European and American operators (promoters and buyers of organic cotton and Fairtrade actors). The objective was to benefit the maximum number of cotton producers from this market opportunity, especially welcome in the context of the African cotton crisis.

The development of organic crops started in 2002 in four African countries: Mali, Burkina Faso, Benin and Senegal. In Burkina Faso, starting in 2002, seven crops were certified for export (Valenghi and al. 2004). They were sesame, mango, cashews, shea nuts, sugar cane, bananas and hibiscus flowers (bissap).

The organic cotton program started its activities in 2004 under the umbrella of UNPCB. The main objective of the program was to promote organic, Fairtrade cotton made in Burkina Faso in the international market, to improve the livelihoods of farmers, particularly women and small producers in a profitable and sustainable manner (Helvandas, 2009).

The first regional project which brought together Mali, Benin, Senegal and Burkina Faso, was initiated by the Swiss NGO, Helvetas. This project, which had a budget of about three million Euros, was supported by the Swiss Cooperation (SECO) and ICCO (a Dutch NGO). It ended in 2007 and was carried out in partnership with the cotton industry and large European distribution firms.

Since 2005, production in Burkina Faso is certified as Fairtrade by Max Havelaar, in addition to the 'organic' label. The organic certification was done by Ecocert International and Fairtrade certification by FLO (FairTrade Labelling Organization).

Therefore, the combination of the organic premium of 34 FCFA/kg and the minimum price guaranteed (238 FCFA/kg) gives a minimum buying price to the producer of 272 FCFA/kg. The farmers' groups receives the Fairtrade premium (34 FCFA/kg), for community investments. With this price scheme the minimum purchase price of 306 FCFA/kg of organic and Fairtrade cotton seed was reached in the 2013/2014 season, far higher than the price of conventional cotton (225 FCFA/kg) in Burkina Faso.

With a production of less than 200 tons in 2005/2006, production reached 337 tons in 2006/2007, thus an increase of more than 68.5%. The increase in volume of production continued and reached 1,893 tons in 2011/12. In 2013/2014, the 2,000 ton bar was exceeded with 2,105 tons (UNPCB, 2014).

The average yield was estimated at 412 kg/ha in 2004/2005 with an annual increase of 8% on average between 2004 and 2009, thus 466 kg/ha in 2005/2006, 507 kg/ha in 2006/2007 and 550 kg/ha in 2007/2008 (Helvetas, 2009). With a yield of 540 kg/ha in 2008/2009, organic cotton yield experienced its first decline (-1.8%).

The decrease in yield in 2008 is due to a two fold increase the previous year in new producers, whose yields were poor (low level of knowledge in organic techniques, new zones of Tenkodogo and Fada in the extreme East), the delay in delivery of seeds from cotton companies, and an increase in over 50% of new Organic Cotton Technical Agents (ATB) with lesser training and skills (Helvetas, 2009). These same reasons explain the stagnation or decreased yields in the last three years (Aproca, 2013). This points at the issue of professionalization of the organic cotton value chain actors and the capacity building strategy to benefit the technical and field agents.

The UNPCB 2012 statistics indicate that organic cotton was produced by 6,978 producers who have on average 0.66 ha of organic cotton and an average yield of 466 kg/ha; 32% of these producers were women (UNPCB, 2012).

The rate of women participating, estimated at 20.8% at the beginning of the program reached 45% in 2005/6, 42% in 2006/7 and 40% in 2007/8 (Center for Development and Environment, 2009). This rate declined in 2008/9 to 28.2% of women, but increased in 2011 to 32% in 2012/13 (UNPCB, 2014). The relative decline in female participation during this period may be due to the large number of men joining organic production. Additionally the difficulties for women to own land for organic production may have resulted in some giving up organic cotton production.

Organic cotton saw two main phases. In its first phase (2004-2007), organic cotton production was proven feasible and a sub-sector for organic cotton was established. The second phase (2008-2011) expanded production to new areas and strengthened autonomy and sustainability of this sub-sector under the support of UNPCB. In parallel, the program sought to professionalize the producers to improve their farming practices and increase profitability and diversity of organic production. With some technical and financial partners providing support to the program at the beginning, UNPCB became the operator of the entire program up to the FOB fiber, including a negotiated agreement for cotton ginning with SOFITEX the biggest cotton company in Burkina. At the production, certification and internal control levels, UNPCB has improved its operations.

The achievements are significant, but organic cotton production remains marked by:

- ✓ poor productivity, linked to a decline in soil fertility, producers' lack of agricultural tools and equipment, lack of knowledge in techniques especially among new organic producers;
- ✓ a problem of securing production areas and that of cohabiting between organic cotton and other types of cotton (conventional and genetically modified cotton): (i) the Government of Burkina has given an exclusive concession to exploit and market cotton to three companies focused on conventional and genetically modified cotton. Organic cotton production is tolerated in small pockets within the three zones (ii) frequent misunderstandings between neighboring producers of the two systems of crop and potential contamination of organic cotton put at risk its future;
- ✓ constraints linked to sub-contracting with cotton companies for ginning organic seed cotton: (i) organic cotton ginning after Genetically Modified Cotton (GMC) in the same unit could be a source of contamination if rigorous measures are not taken (cleaning the factory, decommissioning the first 20 bags of seed, conditioning and storing the seed, securing transport all the way to the storage unit in the area), (ii) lack of independence of ginning could cause delays in commercialization of cotton among organic producers and their payment;
- ✓ decreased economic profitability linked to the high costs of structure and certification.

The challenges to improve the livelihoods of small producers in organic production are important and the RECOLTE project will work to reduce them by aiming to increase agricultural productivity of small organic cotton producers and increasing agricultural trade locally, regionally and internationally. The RECOLTE project aims to upgrade the organic cotton value chain and increase revenue, economic opportunities and food security of small producers in Burkina Faso, especially among women.

The project's monitoring and evaluation planned to create a baseline situation for project indicators. The baseline quantitative study responded to this by providing baseline values for key project indicators. A qualitative study was also planned to support the quantitative results. This is the qualitative report.

The rest of this document is divided into five main sections: the first provides the objective and methodology of the study. The second section concerns the organization and operation of the GPCB. Production constraints, socio-economic impact of organic cotton and the resilience of households are analyzed in the third section. The fourth section focuses on actions organic cotton technical agents (ATB) should take to reduce the constraints and the techniques to improve organic production. The last section makes conclusions and recommendations based on this qualitative study.

I. OBJECTIVES AND METHODOLOGY OF THE STUDY

This section provides the overall and specific objectives of the study and also provides the methodology used.

1.1. Objectives of the study

The overall objective of the qualitative study is to increase our understanding of the major constraints, the socio-economic impact of organic production and the capacity of producers to respond to shocks. More specifically, it involves (i) analyzing the determinants of adhering to organic cotton production by producers, the constraints and opportunities to improve organic production; (ii) analyzing producers' perception of wealth and the capacity of households to respond to shocks.

1.2. Methodology for data collection

Focus groups or group interviews and individual interviews of key informants were used to collect information for the qualitative study. In qualitative studies like this, it is recommended to have 7-12 participants in each focus group. Based on this recommendation, there were eight to ten producers in each focus group per GPCB. In total, 43 focus groups were conducted, 19 for men, 17 for women and seven were mixed. Separating men and women was based on the hypothesis that in general women do not express their opinions openly in the presence of men.

Topics covered in this qualitative study will allow project staff to deepen their understanding of producers' motives and their interest in organic cotton production, their constraints, participation of women, child labor, source of contamination in organic cotton, local definition of wealth and the capacity of producers to respond to shocks.

Individual interviews took place at several levels:

- ✓ Interviews with GPCB board members looked at the question of management and governance.
- ✓ Interviews with organic cotton technical agents (ATB) and Zone Managers (CZ) discussed work load, constraints affecting supervision of producers and areas to improve.
- ✓ Interviews with project partners (UNPCB, INERA and CRS) at the management level discussed strategic questions: project coherence with UNPCB's organic cotton program development goals and the capacity to satisfy producers' needs.

Interviews were conducted by two types of personnel:

- (1) Group interviews were conducted by experienced agents. Six people in three teams of two carried out the focus groups with the GPCBs;
- (2) Individual interviews with key informants were conducted by the main consultant.

1.3. Selection of study areas

Organic cotton production is organized in seven production zones. The RECOLTE project works in the current UNPCB organic cotton production areas, covering the following areas: Boulgou (Tenkodogo), Comoé (Banfora), Gourma (Fada), Ioba, Nayala, Oubritenga and Ziro. According to the definition, the production area can include multiple provinces (see Box 1 below).

The various zones are characterized by different agro-ecological factors. Consequently, we expect that the constraints or factors affecting the behavior of organic cotton producers could be different from one zone to the next. Also, for full representativeness, the study included all production areas in the sample.

<i>Box 1: Description of organic cotton production areas</i>	
ZONES	PROVINCES CONCERNED
COMOE	Comoé
BOULGOU	Boulgou
GOURMA	Gourma and Koulpelogo
IOBA	Bale, Bougouriba, Ioba, Poni, Tuy
NAYALA	Nayala
OUBRITENGA	Oubritenga
ZIRO	Bazéga, Sissili, Ziro

Figure 1 below shows the organic cotton areas in Burkina Faso.

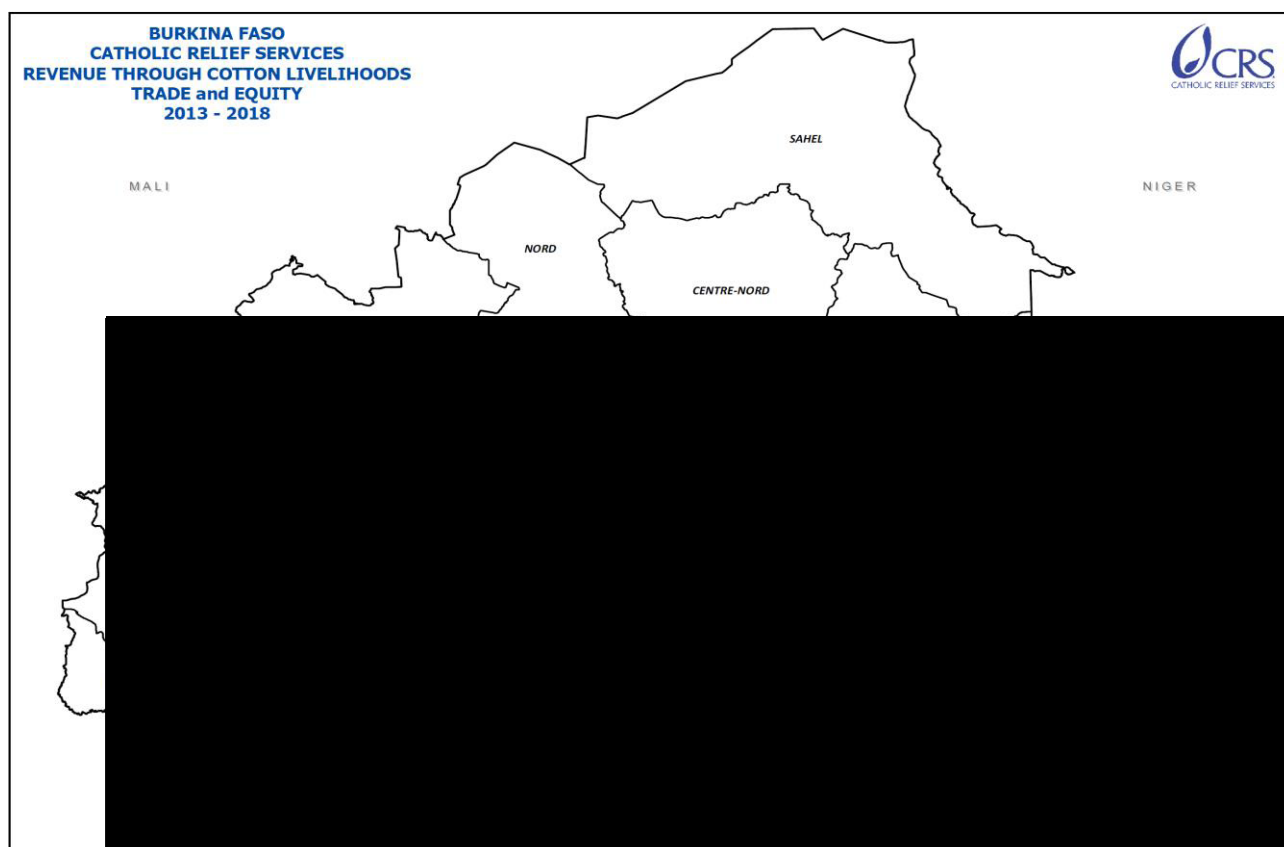


Figure 1: Project intervention areas

1.4. Sampling of GPCBs and identification of key informants

Organic cotton producer groups (GPCB) are the basis of organic production in the villages. At the time of the interviews, the program consisted of 191 GPCBs.

The weight of each of the seven was used to determine the allocation of the 23 GPCB (12% in total) of the sample. At each zone level a random selection of GPCBs was made to determine which GPCB would be in the sample. The geographic representation and the production level were used to make some changes and obtain the final sample. This convenience selection is based on taking into account the spatial location of the villages and the GPCBs. For example, two villages next to each other would likely have similar constraints. In other words, variability could be limited, whereas selecting one of these two villages and adding a farther village could provide new and more diverse information. Furthermore, it was deemed necessary to include focus groups of mixed GPCB (men and women) per zone/area (1 focus group).

In total, 43 focus groups were conducted, 19 for men, 17 for women and seven mixed (men and women together). The rationale to separate men and women was that women would not express their opinions freely in the presence of men. The final sample is represented in the following Table 1.

Table 1: List of GPCBs sampled

Zone/ Area	GPCB	Gender	Number of interviews
Comoé		Mixed and men	2
		Men and women	2
		Men and women	2
Ioba		Men	1
		Men and mixed	2
		Men and women	2
		Men and women	2
		Men and women	2
Boulgou		Men and mixed	2
		Men and women	2
		Men and women	2
		Men and women	2
Gourma		Mixed	1
		Men and women	2
		Men and women	2
		Men and women	2
Ziro		Men and women	2
		Men and women	2
		Mixed	1
		Men and women	2
Oubritenga		Men and women	2
		Women and mixed	2
Nayala		Women and mixed	2
Total	23		43

The individual interviews with key informants were conducted by the main consultant. It concerned personnel from the organizations involved in the implementation of the RECOLTE project, namely UNPCB, INERA and CRS. For each institution, employees (list annex 2) of the various levels of responsibility (managerial, field agent) were interviewed.

1.5. Data transcription and analysis

The data collected were synthesized by zone and province. The team's reports were produced and provided to the principle consultant, who analyzed the information together with the key informant interviews and synthesized. The report was produced by theme and by actor, linking frequently to information from the quantitative report.

II. ORGANISATION AND OPERATION OF THE GPCB

Topics covered under this section are the organization of the farmers' groups, governance, constraints, training, gender, organic cotton's importance within UNPCB and access to market information.

2.1. Organic cotton producer groups (GPCB)

Organic cotton is organized in base units titled Organic Cotton Producer Groups (GPCB), made exclusively of organic cotton producers. The number of producers per GPCB varies between 33 (GPCB of in Nayala) and 112 (GPCB of in Ziro).

Farmers belonging to the same group elect an executive committee composed of six members in general, including a president, secretary and treasurer, with each assisted by a deputy. In addition to the executive committee, there is a control committee composed of two to three people who are in charge of monitoring activities, managing the organization of events and information. The main objective of the GPCB is to facilitate organic cotton production through management of credit, inputs, primary cotton collection and trainings. Their rules of operation include the required organic and Fairtrade certification standards.

2.2. Governance of GPCB and management of the organic premium

- Governance of GPCB

The Government of Burkina has enacted a law called 'law 14' that organizes the creation and operation of farmers' organization; the constitution of Organic Cotton Producer Group follows the standards of that law. The GPCB is a non-profit organization farmers have the liberty to freely join or leave. The principle criteria of selecting producers into the organic and Fairtrade cotton program of UNPCB are:

- ✓ Cannot be a **duplicate** producer (producer of both organic and other type of cotton) and does not engage with other kinds of cotton for the entire season;
- ✓ Committed to not use genetically modified inputs (seed, etc) and synthetic chemicals (fertilizer, pesticide) on all crops and progressively transforms production to organic;
- ✓ Does not belong to a **household** (nuclear family) where one of the members produces other types of cotton (other conventional or GMO);
- ✓ Has sufficient land to ensure rotation.

The mandate for delegates is for three years, renewable once. During the first three years of the GPCB creation a third of the delegates is renewed each year. Starting in the fourth year of the GPCB, renewal will occur every three years. However, this mandate varies in some

GPCBs. In some GPCBs, for example, the delegates are routinely renewed at the end of their term if their management is considered good by its members; this is the case of most GPCBs in the Boulgou zone. In these cases, GPCB management is often monopolized by the same people who are systematically renewed into office. However, when management is poor, a delegate's post can be cut short.

The statutory General Assembly (GA) is held once a year and is announced to all members 15 days before the meeting. It takes at least 1/3 of the members and if 1/3 of the members are not reached, the GA is postponed for a week and takes place regardless of presence of the quorum. In practice, there are on average three meetings per year with all GPCB members, which seems sufficient to cover the bulk of GPCB activities. This was confirmed with the old GPCBs (zones of Comoé, Gourma Ioba and Boulgou) which had on average three meetings with a first meeting for the identification of needs, a second for the organization of the marketing of cotton and a third to discuss investment projects using the Fairtrade premium. The number of meetings with all members is usually higher in newly formed GPCBs, which is on average six because there is more to discuss.

The number of meetings is on average three per year for board members, but there could be more if necessary.

Dysfunctional GPCBs may cause unmotivated members and the internal conflicts leading to a split in the GPCB (case encountered in the Boulgou zone).

- **Management of the premium**

The Fairtrade premium is 34 FCFA paid to the GPCB for each kg of seed cotton sold. For the 2013/2014 season, with a production of 2,105,280 kg of seed cotton, the total premium reaches 71,596,520 FCFA. These funds serve to carry out projects to benefit the entire community. Each GPCB defines these investment projects during a General Assembly in which the Organic Technical Agent (ATB) assists. The projects selected by producers are submitted to the Fairtrade Working Group (GTE), which makes the final selection from all those proposed by the GPCBs. The projects selected by the GTE are implemented during the year. The GPCB whose projects were not selected should either improve their proposed projects, or replace them with more pertinent ones. In these cases, the premium from the current year constitutes a deposit for GPCBs for the following year.

The GTE is composed of an organic delegate by zone, two members of UNPCB board, all Zone Managers and the UNPCB Profit Center Program Managers.

Through these investment projects, many GPCBs constructed storage units for storage and boreholes. GPCBs also built or repaired at least one meeting and training room. The GPCBs which had a significant accumulation of two to three years could make more significant investments (storage units of inputs). It is important to note that the premiums are very low for the GPCBs that had poor production like Bénéwendé in Boulgou with an average

production of 1,950 kg/year who received on average a premium of 66,300 FCFA/year between 2011 and 2013. The Fairtrade premium is disbursed after the use of the previous one has been liquidated. Some GPCB members hope to have more liberty in using the premium. They base their hope on the analogy they make between Fairtrade premium and the discount paid by cotton companies to cotton producers.

2.3. Difficulties encountered in the operation of the GPCB

In analyzing the focus groups, the mission team notes that the difficulties linked to the operation of the GPCB could be grouped into three categories which are: i) management constraints of the sub-sector by UNPCB; ii) instability created by the GPCB members and iii) the lack of means for the board members to do their work.

- Constraints of sub-sector management by UNPCB

The three constraints of the GPCBs are the delay in providing inputs and their insufficiency (especially seed); delay in the marketing, leading to a long period of waiting after the end of the harvest before paying the producer; and the loss of the organic certification of some plots especially when the owners of those plots do not understand the reasons why their plots are discarded.

The repercussions on the GPCB of these constraints could be serious. The analysis reveals that unhappy producers turn towards GPCB board members to express their anger and sometimes doubt their work and their capacity to solve their problems. This often creates tensions which undermine the authority of the GPCB board and its organization; on the other hand, it often leads to unmotivated producers and even some to resign.

- Instability created by members of the GPCB

Some producers' behaviors identified in the data analysis of focus groups leads to believe that they are likely to endanger the GPCB's operation and stability. Of these, one needs to note: the problem of plots for production especially for women (examples encountered in the area of the Comoé and Ioba), the pressure that some producers put on board members when seed cotton marketing and payment of the premium are late, overestimation of the area to cultivate in cotton by some members, and the registration of a single producer who then distributes inputs to several other people (often family members). These problems are often exacerbated by a lack of communication between the GPCB board and producers, sometimes resulting in conflict situations where conciliation becomes very difficult.

- Lack of means of GPCB board members

Producers' representative functions on the board (president, vice-president, secretary, etc) are generally voluntary. However, it requires a significant amount of work, especially when

managing problems linked to producers' production and revenue. Some board members revealed that the cost of transport is often out of their own pockets and the time invested for the GPCB work negatively impacts their financial resources and their agricultural production. This often discourages board members and ends in their lack of motivation to play their full role.

Given these difficulties, the following solutions could be considered:

✓ Supply of inputs

For timely supply of inputs: (i) identify producers' needs early, (ii) explore ways to reduce time for the seed certification process, (iii) make seed farms operational to ensure quality seed is produced, and (iv) transport inputs all the way to the producers' village or the GPCB storage unit if it exists to make inputs more accessible to producers. UNPCB is trying to make supplies available near villages, but several producers reported needing to go to the Zone Manager's location to get their inputs, and then transporting them with a cart or bicycle.

✓ Marketing

For delays in seed cotton marketing and payment of organic cotton farmers two solutions are possible while waiting for UNPCB and partners to build a ginnery dedicated to organic cotton:

- (1) First, producers must be encouraged to harvest cotton early and UNPCB should initiate discussions with the SOFITEX cotton company for ginning so that it is done right after harvesting organic cotton. The conventional and GM cotton farmers harvest usually earlier than their organic cotton counterpart. That is why conventional and GM cottons are ginned first and organic cotton last;
- (2) Secondly, UNPCB needs to work with its banks to get the necessary loans to ensure payment of organic farmers is done timely. This is possible if the loan amounts are based on the predictive value of seed cotton to be sold by organic farmers.

✓ Governance of the GPCB

For good GPCB governance: (i) ensure the renewal of board members is in line with internal GPCB rules and regulations, (ii) carry out trainings for the elected board members on group management and communication.

Financial resources need to be mobilized to ensure the operation of the GPCB board. Actors in the organic cotton sub-sector might consider taking a percentage of the Fairtrade premium to finance board activities.

2.4. Training on group management

Some GPCB boards or 33% of GPCBs interviewed said they were never trained in group management, in contrast to others (67%) who recognized that some of their board members were trained in management of organization and the responsibilities of the board and board member in office. In reality, UNPCB organized these trainings to benefit those board members elected to manage GPCBs. The above statements can be explained in that not all board members were trained and with the renewal of boards, that some newly elected board members were not trained.

2.5. Organic production and gender

✓ Role of women on the GPCB board

Many women are board members and some boards have a female president. GPCBs that have female presidents represent 11.11% in our sample. This is the case in Yanduanma in the Gourma zone, Lanaya and Bennafa-Kabo in Nayala zone, Laongo in the zone of Oubritenga and Niamalipan in the Comoé zone.

In 8.9% of GPCB in the sample, there are more women than men in office, as in the GPCBs of Lanaya, Bennafa kabo, Niamalipan and Paramanga in Gourma.

In some GPCBs, women are rarely on boards, as is the case in some of the GPCBs interviewed in the Boulgou zone and Silmajika/Tampe GPCB in the Ioba zone. This often causes problems for women. For example, in Boulgou, women were the first to start organic cotton production, but once men gained interest, many started organic production, making women minorities in organic cotton sub-sector and consequently disadvantaged with seed distribution especially when UNPCB is unable to satisfy all registered organic farmers' seed needs. This was the case with GPCBs in Nerwata, Talabinka and Loaba, where women's needs were not taken into account. In these GPCBs, women frequently change their plots from one year to another due to landowners removing their plots.

We note that about 20% of GPCB boards interviewed were dominated in number by women, of which 11% were run by a woman. The Boulgou example shows that the presence of women on GPCB boards is important for taking their specific needs into account.

✓ Participation of women in decision-making

Women participate in all meetings. They express their opinions liberally and if they are able to convince other group members on their position, GPCB will adopt it. No decision can be made without them. For representation of the GPCB in meetings outside the zone, the group conforms as much as possible to male/female parity. Lack of or poor representation of women on the board in the Boulgou zone, does not hinder them to be very active in GPCBs and in participating in decision-making to the same degree as men. As evidence, men say that the decision to adopt soy as rotational crop in organic cotton-based farms originated from a

woman who proposed it in a meeting in the Boulgou area. This statement was confirmed by the women. In the GPCBs, women are influential in selecting investment projects using the Fairtrade premium. In the Boulgou zone, women proposed ideas such as mills and maternity wards. Also in Boulgou, women's decision for the GPCBs to meet in the morning or at lunch rather than at night is respected. These examples show that women's voice is taken seriously in decision-making. The only factor that could negatively influence the role and the contribution of women in decision-making may be their poor level of organic cotton production, compared to men.

✓ **Constraints in accessing land for women**

The analysis of women's access to land shows that the land issue is the same in all zones: women are never land owners.

However, women's access to land depends on the pressure for land in each production zone. The focus groups showed that women have access to land, but the problem was more access to fertile land. In the zones of Nayala and Oubritenga, land is generally poor, so the land for women is even poorer. Access to land is easier for women in Ioba, Comoé and Ziro. In the other zones, women encounter additional difficulties: (i) she seldom has the option of enlarging her plot, and (ii) she seldom keeps the same plot because it is often taken by the land owner – to be either switched for a less fertile piece of land or simply taken from her.

2.6. Positioning organic cotton in the UNPCB

UNPCB's organic cotton program is still in the development phase; it is a niche production that strengthens smallholder farmers' livelihoods. Notable improvements have been made in the organic program, in the past couple years including: (i) UNPCB capitalizes on about 350,000 producers, of which 2.03% or 7,094 farmers produce organically; (ii) in the last 2013/2014 planning season 2,105 metric tons of seed cotton were produced organically, which represents 0.0003% of the total cotton production of Burkina; (iii) one organic cotton female producer has become a member of the UNPCB board, (iv) organic cotton technicians (CZ, ATB) are members of the UNPCB worker's union and participate in the various general assemblies organized by UNPCB with the seven delegates of the organic cotton production zones.

Notwithstanding this comfortable situation, difficulties persist in the organic cotton value chain and in the overall management of UNPCB.

According to organic cotton producers, UNPCB is well aware of the problems in organic cotton production, but for the moment they see no progress in resolving those. They think the problems of late supply of inputs, cotton seed marketing and payment are not well managed by UNPCB, because each year the same problems occur.

Organic cotton farmers encounter difficulties in getting their cotton revenue and their Fairtrade premium, resulting from delays in credit unions. The disbursement process was deemed long. In Nayala, 50% of GPCBs interviewed complained about the long period of time needed in resolving their problems and meeting their needs, compared to 50% who think that for now their problems are relatively well taken care of by UNPCB. In Ziro, 75% of GPCBs say that their needs are not well taken into account, compared to 25% who say they are satisfied with how their needs are met. In Oubritenga, all GPCBs interviewed say that responses to their needs always come late. In Comoé, 75% of the GPCBs interviewed say that the problems encountered are not taken into account, because these problems persist over and over. According to organic producers, the fact that they are represented in the UNPCB board did not significantly change GPCB operations. In Ioba, 60% of GPCBs interviewed affirmed that their problems were not really taken into account and that even with an organic cotton representative at the UNPCB, nothing has changed for the GPCBs. This was the case in 50% of GPCBs interviewed in Gourma, who are nevertheless confident that the presence of an organic farmer in the UNPCB board will lead to positive changes. In Boulgou, 75% of GPCBs interviewed affirmed that they encountered delays in resolving their needs and that was linked to poor representation of organic farmers within the UNPCB board. Already having a representative on the UNPCB board gives them confidence and hope for the future, even if there have been no significant changes yet.

UNPCB is engaged in resolving problems faced by producers to meet their organic cotton program objectives. But in a context of limited financial resources, efforts are hindered which is why the organic cotton program has not yet reached the desired financial autonomy. UNPCB's organic program is still dependent on external funding, which are often accompanied by conditions (area and mode of financing, etc.). In this context, an organization like UNPCB needs to prioritize its investments by focusing on main challenges on current gaps such as technical capacity building of producers for sustainable production and revenue. Producers, however, have as their first priority acquiring agricultural tools and equipment.

2.7. Access of producers to market information

Information on markets, mostly concerning food crops (corn, millet, sorghum, rice, etc.), is generally obtained through two sources. The first is communication with producers who go to village markets. The second source is the existing market information systems (SONAGESS, APEX, etc.). These market information systems follow the main food crops sold in markets nationwide. The information is diffused over the radio, but also accessible by text messages. This gives producers an idea about the price of products. Knowledge of market prices allow for better negotiation of prices with vendors. However, it is bundling sales which allows producers to negotiate with buyers for the maximum return.

III. ADHESION FACTORS, SOCIO-ECONOMICS, RESILIENCE CONSTRAINTS OF ORGANIC COTTON HOUSEHOLDS AND EXPECTATIONS VIS-A-VIS THE PROJECT

3.1. Main factors to adhere to organic production

Factors were categorized depending on the frequency they were cited in the seven zones covered by the study. Thus, the main adhesion factors to organic cotton are: (i) profitability of organic cotton compared to other crops in the zone and the resulting improved revenue of the producer, (ii) its contribution to food security, (iii) relative low cost of production and (iv) its contribution to community development thanks to the Fairtrade premium.

Revenues from organic cotton are sometimes significant, and contribute to children's education and health expenses of the family. Due to organic cotton, several producers have access to agricultural tools and equipment and means of transport. Women in the seven zones were unanimous that organic cotton improves their financial contribution to household expenses and allows them to be more financially independent. In zones like Comoe and Gourma, women have abandoned income generating activities such as small retail sales for organic cotton they find more profitable. In Nayala, chili, which is relatively difficult to cultivate, was often abandoned for organic cotton.

It is important to note that women participate in health and education expenses, which are traditionally paid by men. These results indicate the increased role of women in contribution to the well-being of the household.

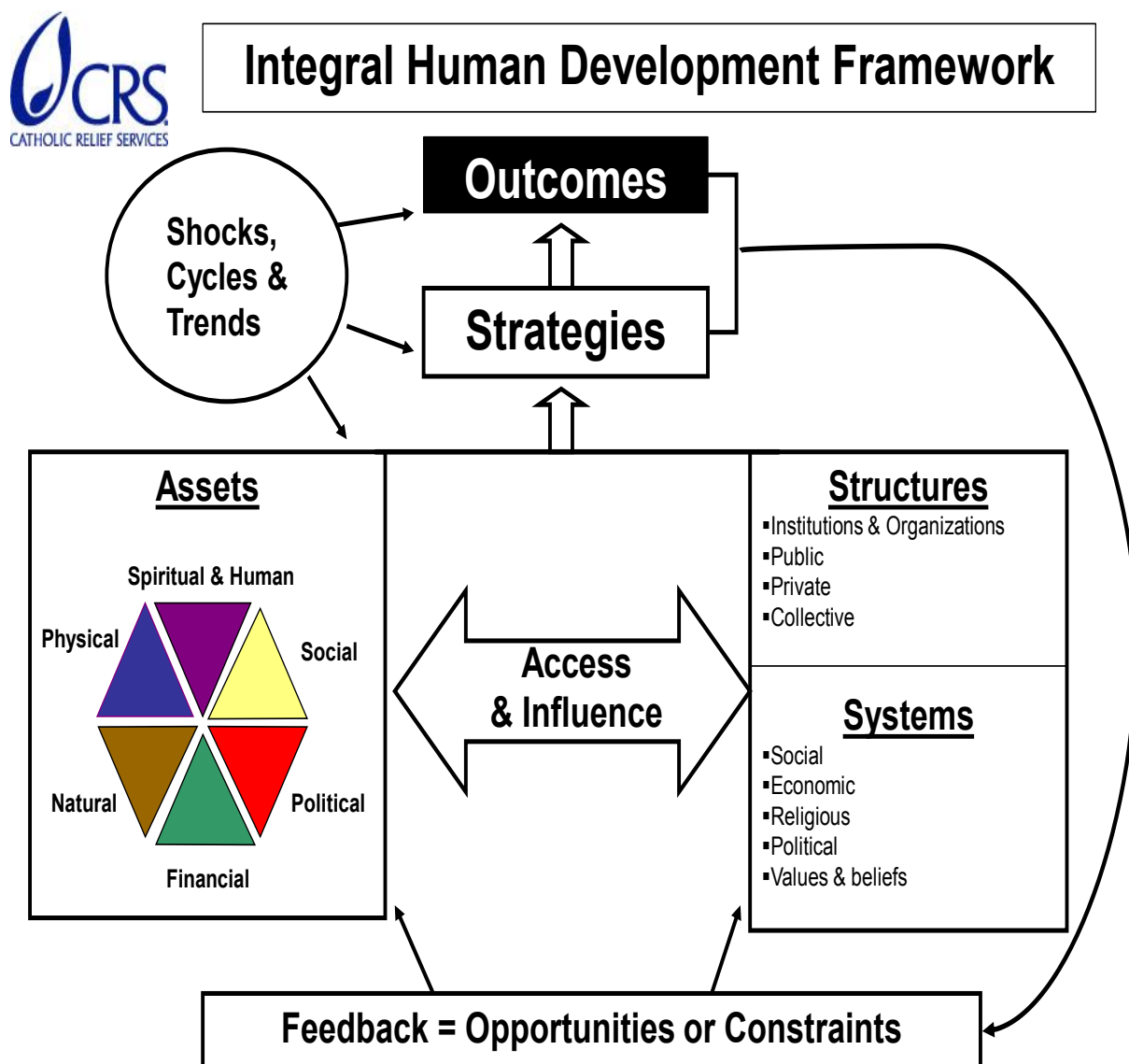
3.2. Socio-economic impact, vulnerability/resilience and activities in case of negative shocks

3.2.1. Analysis in terms of Integral Human Development (IHD)

The IHD conceptual framework helps us to reflect on a situation in a holistic manner as well as analyze and explain complex situations. It is a framework which permits to better understand and guide programs, manage risks and increase resilience of the most vulnerable communities.

Livelihood strategies were elaborated on the basis of available capital and we use these capitals in our local context (systems and structures). Finally, we take into account the main sources of risk in our lives and livelihoods when we design our strategies.

Figure 2: Conceptual Framework of CRS' Integral Human Development



Capital is the resources which people use to generate their livelihoods and face crises and shocks. There are six main categories of capital defined in the conceptual framework (graph 1): spiritual and human capital, social capital, political capital, physical capital, financial capital and natural capital.

✓ **Human capital**

Various trainings provided by UNPCB have enabled the majority of producers to adopt good organic production practices. Overall, producers acquired new production methods, which are more environmentally-friendly and which permit sustainable production on the same soils. These trainings and acquired knowledge reduces producers' vulnerability. In order to avoid or mitigate climate induced variability, producers adopted prevention strategies of climatic risks

which use water and soil conservation techniques (rock lining, mulching, etc.), use of improved seed varieties, and direct sowing in case of late planting. In addition, the communities also have indigenous and local indicators to predict the overall outcome of the season (good, poor, average); these predictions are based on observing natural phenomena (behavior of certain birds, phenology of certain plant species, direction of the wind, etc.). Producers use this information to predict rainy days and to plan their farming season accordingly.

✓ **Social capital**

Producers grouped in GPCBs have common interests, which creates strong internal bonds and group solidarity and also provide support network to the individual farmer. This reinforces their ability to react to shocks through already existing solidarity of members, to stand for one another as collateral for the group to access credit, and the existence of a community development fund (Fairtrade premium). This premium enabled multiple GPCBs to build storage units, water points and make other investments, which not only benefit organic cotton producers, but the whole community. In this sense, groups of organic cotton producers are a major element in strengthening social capital in the community.

✓ **Political capital**

UNPCB is a success model of producer organizations in Africa, which could prevail in the decision-making cotton bodies in Burkina Faso (member of cotton company boards, the chair of the Cotton Inter-professional Association-AICB, founding member of African Cotton Producers Association-APROCA). Its strategic position in the management of AICB allows it to influence the cotton policies in Burkina Faso. UNPCB had played an important role in the campaign against subsidies for developing countries for their cotton farmers. Organic cotton producers today represented by the UNPCB management team can advocate for prices of inputs, early supply of inputs and rapid payment of cotton, etc.

UNPCB is currently working on the issue of cohabitation of the various types of cotton. Good relations between cotton companies and UNPCB allow them to benefit from certain services (agreement on ginning of organic cotton in the cotton companies' factories, analysis and ranking of their organic cotton fiber, etc.).

✓ **Financial capital**

Organic cotton and rotational crops constitute an important source of revenue for households. The revenues generated are invested in nutrition, agricultural tools and equipment, construction of improved houses, means for transport and communication, health and education of children.

Many authors and observers have said that organic cotton improves households' livelihoods and building the capacity to produce and scale up agricultural production. Organic cotton producers diversify their activities in animal husbandry, artisanship and commerce. All

households own animals. The number of animals in the household is an indicator of wealth and their presence in the household is a means of mitigating risk (reducing risks and household vulnerability in case of a shock, cycle or long-term trend).

✓ **Natural capital**

Data analysis of land area shows that households cultivate less than their potential of available land (average land area available is 8.5 ha/household compared to an average land used of 4.7 ha). However, problems of land access came up in discussions in Nayala, Oubritenga, Gourma and Boulgou. Men do not have problems with land. Women also have access to land if they ask, but encounter several problems: (i) women generally have access to poor land, (ii) women cannot produce sustainably on the same plot, which could be taken from them by the land owner to exchange for another piece; to completely take it away from them is quite rare. However, cases have been reported, including three in Comoe and one in Ioba. It is important to note that Comoe and Ioba are zones where access to land is deemed easy, which signifies that it is not land pressure necessarily that leads to land being taken away from women and migrants.

In traditional society, women cannot own land and can only use land that their husband, a neighbor or family member loans them. Presently, there is no solution envisaged at the community level, but one can imagine that the profits generated from organic crops are great, that men and women on the same farm get along better in allocating plots. However, there is a fear expressed by the interviewees that profit prospects push men heads of households to refuse women land, so they themselves can produce more organic cotton.

The adoption of techniques of integrated management of soil fertility (GIFS) remains the only alternative to sustainably produce organic cotton. Facilitating farmers' access to small tools and training them will increase the capacity of producers and reduced the impact of soil poverty.

✓ **Physical capital**

According to producers, a rich person is someone who owns land, equipment, oxen and has hired help, who has an abundance of food. On this basis, producers in the zones of Comoe, Ioba and Bougou think they are moderately rich, although women think they are poor, compared to the zones of Gourma, Nayala and Oubritenga where both men and women consider themselves poor.

The two highest expenditures of revenue are housing and agricultural tools and equipment (see quantitative report), followed by satisfying food needs, motivating family members who provided labor, transport means, health and education.

Table 2: Analysis based on the Integral Human Development approach

Human capital	✓ Technical capacity building through UNPCB organic cotton trainings; ✓ Adoption of strategies to adapt to variability and climatic changes, like using water and soil conservation techniques, use of improved seed varieties, direct seeding in case it is late in the season and seasonal, daily forecasts; ✓ use of meteorological information; ✓ seasonal forecasts based on observation of natural phenomena such as the behavior of some birds, the phenology of some kinds of vegetables, direction of the wind, etc.;
Social capital	✓ all organic farmers are members of a group; ✓ solidarity between members of the same farmers' group; ✓ belonging to a farmers' group represents a collateral for credit; ✓ existence of a community development fund through organic and fair-trade premium; ✓ increased access to basic social sectors (education, health) and training;
Political capital	✓ membership and representation in UNPCB board, which has a strong influence on the cotton value chain (member of the boards of cotton companies, member of AICB and APROCA); ✓ UNPCB has political support as the biggest umbrella organization in Burkina Faso; ✓ ability to advocate with producers for a better buying price of seed cotton and of inputs; ✓ ability to advocate for the early supply of inputs and rapid payment of cotton after delivery to the producer;
Financial capital	✓ organic cotton improves household livelihoods and strengthens large-scale production of agricultural farms; ✓ diversification of activities, procurement of important sources of revenue: livestock, artisans, trade; ✓ importance of animals in households, their presence in the household is a risk mitigation technique (reduces risks and vulnerability of the household in case of shocks, cycles or long-term trends);
Natural capital	✓ households produce below their potential, given land available, so they have margins to maneuver; ✓ producers say they have access to land, but the problem is access to fertile land (land is generally poor); ✓ women have problems accessing their own land for organic production; ✓ the problem of owning land for organic production is particularly a

	problem in Oubritenga and Nayala; ✓ the zones of production often have irregular rains and variability in climate which negatively affects the crops;
Physical capital	✓ According to producers, a rich person owns land, equipment, oxen, hired help, who has an abundance of food; ✓ The two highest expenditures are housing and agricultural equipment, followed by satisfying food needs, motivating family members who provided labor, transport means, health and education; ✓ Male producers in Comoe, Ioba and Boulgou zones think they are moderately rich, while women think they are poor; alternatively men and women in the zones of Gourma, Nayala and Oubritegna think they are poor.
Market	✓ Producers receive a guaranteed market for cotton and manage to sell them easily so that MIS information is rarely used by producers (MIS information covers the main cash crops – vegetables and animals). ✓ Products are exported by UNPCB so producers do not know the Agency for Promotion of Exported Products (APEX).
Institutions	✓ At the institutional level, there are local assistance programs in case of natural disasters; these programs are supported by technical and financial partners (PTF) including CRS.

Source: Results of the qualitative study, June 2014

3.2.2. Analysis of the vulnerability, resilience and activities in case of shocks

According to organic farmers, characteristics of a vulnerable household include absence of agricultural tools and equipment, livestock, lack of access to financial services for the family's health, difficulties for education of children and challenges in satisfying food needs.

In the seven organic cotton production zones, the economy is based on agriculture and livestock, which are vulnerable sectors to droughts and flooding. In a context of climate variability and change, these zones are vulnerable and the livelihoods acquired are not able to effectively resist shocks. However, the zones of Comoe, Ioba and Boulgou are relatively less vulnerable due to their big agricultural potential and the diversification of their activities and crops (other food crops, trade with neighboring countries, Togo, Ghana, Ivory Coast).

The analysis showed that producers believe land and agricultural tools and equipment to be the essential factors that characterize the household's level of vulnerability or resilience. Owning these factors is an indicator of wealth among farmers, as this would increase production and revenue to ensure food security and access to basic social services.

Actions to react to shocks are diverse. The GPCBs interviewed in the seven zones react primarily by: (i) selling livestock, (ii) using savings; (iii) reverting to gardening, (iv) receiving support from close family, (v) receiving support from the community if there were families not affected by this shock, (vi) looking for work elsewhere to help the family. It was only in the Gourma zone that men said there were no solutions or actions taken to face shocks. Women from this zone spoke of nomadism or seeking assistance from other producers or development organizations.

Producers in Boulgou and Ziro cited most frequently the use of livestock sales and support from family members working in another location as their means of reacting. In Nayala, men resort to the union or a credit group, and women proceed to sell their jewelry and clothing, or carry out small self-help activities like wood cutting or collecting shea nuts to help their husbands. In Oubritenga and Ziro, men solicit solidarity in the group and with authorities. Women solicit help, cut wood, sell stones and conduct income-generating activities to support their husbands. In the Comoe and Ioba zones, producers market forest products.

3.3. Activities to increase capacity and new activities to take into account

According to the needs expressed by producers in all of the seven zones, the main activities to support or finance were: (i) supplying a sufficient quantity of inputs at an early date, (ii) training/ refresher training on cultivation techniques and on compost production, (iii) subsidized equipment and oxen to help a large number of producers access them, (iv) support of acquiring kits to produce organic fertilizer.

In addition to organic cotton production, farmers also expressed their wishes regarding new activities they would want to see implemented out of the current scope of RECOLTE project. Men proposed support in marketing sesame, while women wanted trainings on farm management, livestock (pork, beef, poultry), soap-making, making traditional cloths, sewing, and gardening in homes.

In Gourma, men hoped for training in livestock (cattle, sheep and poultry fattening), subsidized agricultural tools and equipment and sheeting to protect cotton harvests. For women, it is training in farm management, livestock (pork, beef, poultry), soap-making, weaving traditional clothes, sewing and gardening. In Nayala and Oubritenga, women and men hope for agricultural tools and equipment and support for small trade for women. They would like support in trainings on pest management, harvest techniques and post-harvest technologies. Technical trainings through functional literacy should be improved in Comoe and Ioba according to producers. In Ziro and Boulgou, new activities proposed pertain to facilitating access to credit to acquire oxen and biodigestors to enhance soil fertility. Women would like new activities to include setting up a project to support livestock, putting in place a system to provide credit to women, and promoting pest management techniques.

Overall, producers expect trainings in organic production to be improved. The RECOLTE project plans – for the most part – to improve the UNPCB organic cotton program. Trainings

on organic cotton production techniques, farm management, access to credit, inputs and production materials are the main activities proposed by the RECOLTE project. On the other hand, livestock training (pork, beef, poultry), soap-making, traditional weaving, sewing and gardening – desired by women – are out of the scope of the RECOLTE project which has a specific focus on the cultivation of organic cotton and its rotational crops.

3.4. Constraints in production

3.4.1. Constraints linked to production of organic fertilizer

The difficulties encountered in the production and use of organic fertilizer are as follows:

- ✓ Production of organic fertilizer in compost or manure pits requires digging materials (shovels, picks, forks), and materials to stabilize the pits (cement, bricks), which producers frequently do not have;
- ✓ Lack of raw materials in quantity and quality (animal manure, crop residue, water) often due to lack of transport means. Insufficient residue is because it is fed to animals, used for domestic work such as building and cooking or simply burned in the field;
- ✓ Lack of water makes watering difficult, which decreases the quality organic fertilizer by slowing down or stopping the decomposition of organic matter during composting;
- ✓ An insufficient number of animals in households or the mobility of animals makes it difficult to collect animal manure; theft of animals, especially in parks, leads some to entrust their animals with the Fulani herders who often do lead animals to suitable and secure grazing areas. It is clear from several studies in the Sahara that the animals are rarely kept in sheds; keeping animals in stalls would make it easier to collect manure;
- ✓ The low level of knowledge in production techniques for organic fertilizer using compost pits and lack of knowledge of alternative techniques for composting (example, producing manure or compost during rainy season, eliminating the constraint for water, stalks or transport);
- ✓ Land insecurity: migrants and certain women conceive land insecurity as an obstacle in their activities. Unfortunately, loaning land on a short-term basis is not worth an agricultural investment. In distrust, some migrants and women do not sufficiently fertilize their plots that always remain poor.

In light of these difficulties, finding solutions remains imperative for compost. This could be subsidies for small agricultural materials, training of producers in alternative organic fertilizer production techniques, such as production of fertilizer or compost during rainy season. Use of legumes associated with organic fertilizer in rotating cotton-cereal-legumes and introducing small livestock into households would benefit soil fertility.

3.4.2. Difficulties accessing inputs, credit for equipment and technical information

Concerning access to inputs, men and women mention (i) insufficient seed and late arrival almost every year, (ii) distance to seed storage location, (ii) late arrival of batik (organic pesticide) when cotton is infected.

Difficulties in accessing technical information are (i) distance to training site, (ii) illiteracy (iii) lack of time for women to attend certain trainings given household chores. Moreover, producers complain they receive decreasing support in the field given the increase in the number of organic cotton producers. The number of ATBs does not increase proportionally (there are some ATBs who support over 300 producers: 420 producers in Dissin, 366 producers in Gueguere.)

For better access to technical information, producers hope that trainings are organized in their village. For trainings organized outside the village, producers should receive money to organize for transportation. Producers advocate also for increased number of ATBs, and a better ATB per producer ratio to provide quality extension services.

In terms of agricultural tools and equipment, there is no longer a UNPCB-sponsored equipment program for organic producers to access them through long-term credits; this means they have to buy their own materials cash. The difficulty is mobilizing the necessary financial resources for the equipment, for which the price is high for small organic producers. The solution could be to exclusively use the RECOLTE project guaranteed-fund-led lending activities to purchase agricultural equipment.

3.4.3. Difficulties in storing and marketing cotton

Cotton harvests are stored most frequently in homes at the risk of getting burned or contaminated. It is up to each producer to improve storage conditions because the GPCB storage unit or silo is only used during marketing. Moreover, some GPCBs have neither storage units nor silos. Men propose building storage units and providing producers fencing and sacks to transport cotton from their field to their home.

Storage is a problem in all seven zones – both at the level of the GPCB and with producers. The old zones (Comoe, Ioba, Gourma, Ziro) with the construction of small warehouses using Fairtrade premium are in a better situation than the new zones (Nayala, Oubritegna). All GPCBs have warehouse or training room projects, but usually the annual Fairtrade premium is insufficient to cover the cost for construction.

The RECOLTE project could assist in reducing these constraints, using a combination of RECOLTE funding and Fairtrade premium.

At the marketing level, the challenge is marketing delays and transporting cotton to the factory, lack of tarpaulin to protect cotton when storing in the home and late payment of cotton revenue. The RECOLTE project plans to build the capacity of UNPCB and provide GPCBs with marketing materials (scales, canvas and tarpaulins); this support will also help UNPCB put in place more marketing teams in the field. This will lead to an earlier than usual start of cotton marketing, cover more zones at the same time and drive the overall cotton marketing operations faster. This support from the RECOLTE project will be beneficial if only UNPCB is able to negotiate with banks but also with SOFITEX to solve other problems of tardiness (payment and ginning). Consequences of marketing problems prolong the time

that cotton is stored. It would also be strategic to build silos as well as warehouses in the organic cotton zones to ensure better protection of cotton and preserve its quality.

3.4.4. Contamination of organic cotton

Contamination was reported in Comoe, Ioba and Gourma zones. On the other hand, the majority of producers in the new zones of Nayala and Oubritenga do not adequately understand the problems of contamination. It is therefore essential to plan trainings on this topic.

According to producers, contamination is linked to producers' noncompliance of rules and norms of organic production and the poor behavior of their neighbors that cultivate genetically modified cotton. Producers report other sources of contamination including transport of seed cotton to their homes, wind and water runoff.

The main source of contamination seems to be the cotton seeds; producers' practices which could cause contamination include: (i) transport of cotton by borrowed or poorly cleaned carts (ii) storage of cotton in a place frequented by other producers (especially when they produce two types of cotton). The problem of contamination is concerning in the last years with a steady increase of its rate although the threshold of 0.9% has not been reached yet. If adequate measures are not taken to halt and reverse this trend, these contaminations could compromise the organic certification and depreciate the Burkina organic cotton resulting in huge financial and livelihoods losses for the farmers and UNPCB. RECOLTE plans to create seed farms, which will be a way to reduce contamination of organic cotton by GMO. Some studies (Hofs JL. 2006, INERA. 2013) show that seed is the main source of contamination of organic cotton by GMO.

3.4.5. Producers credit needs

Given the technical requirements of organic cotton production and the challenges faced in production, use of more efficient agricultural materials and tools is necessary for improved production. Also, producers when talking about the use they will make of credit they could acquire put as priority the purchase of agricultural tools and equipment. The following results are based on the frequency that the tools or materials were cited by producers in the seven zones covered by the study. Three types of materials were identified as the most studied in the production zones: carts, plows and kits of small hand tools to produce organic fertilizer comprising wheelbarrows, shovels, etc. Draft animals were cited especially in the zones of Gourma, Nayala and Ziro. During the interviews, it was noted that mule plows were not used in Ioba and Comoe. The agricultural equipment needs expressed by GPCB members are summarized in the following table.

Table 3: Agricultural material needs in order of priority of organic cotton producers and their indicated selling price

Need	Price to acquire (FCFA)
Complete cattle plow	150 000 - 200 000
Complete donkey plow	125 000 - 150 000
Cart	200 000 - 210 000
Pair of oxen	300 000 - 400 000
Donkey	40 000 - 50 000
Wheelbarrow	25000 - 30 000
Small materials (fork, bucket, drums, shovels, gloves, watering cans, boots, rakes)	20 000 - 30 000
Materials to treat/spray	25 000 - 30 000

The logical conclusion is for the RECOLTE project to put in place direct loans from the guaranteed-fund-led lending activities to exclusively purchase agricultural materials and tools. In this case, one would need several types of loans, based on the amount loaned and the capacity of the producer to reimburse; the loans could be repaid in one year or a maximum of three years.

In addition, women seeking financial credit could fund small income generating activities, like small livestock in the home.

3.4. 6. The question of child labor and participation of women in farming

According to producers, the reason why their children are involved in organic agriculture is to teach them agricultural skills. It is the responsibility of the father, mother or big brother to prepare and teach children how to farm, which is particularly important if the child becomes a farmer in the future. However, to preserve the physical integrity and the child's health, this apprenticeship should be based on age. The age that children are trained in agricultural skills begins with 12 year olds up to the age group of 16-18 years. This trend is maintained across the zones. The apprenticeship of children involves only certain steps in the production process. They are therefore only partially involved. In addition, children are not paid, they gain knowledge about agricultural production and farm management.

Children in the youngest age bracket (under 12 years old) are devoted to herding cattle and fetching drinking water, while children in the next age group (12-15 years) help transport organic fertilizer, by guiding the animal powered carts to the field. Finally, the last age group (16-18 years old) is further involved in other cultivation activities, depending on their physical ability.

Concerning gender segregation of the work, men view their job as plowing, tilling, weeding, trimming and digging manure pits, whereas sowing, transporting organic fertilizer to the field and harvesting are women's jobs. Interviews with the women's focus groups show that women participate in more activities than mentioned by men, including thinning, weeding and weeding cotton after tilling. About 75% of women interviewed say they participate in the same agricultural activities as men, with the exception of spraying. In a female-headed farm, the woman carries out all farming activities, but is supported by relatives for pest control related sprayings and relatively difficult harvest.

Men and women seem to agree that the division of labor by gender in cotton production includes only two activities that are exclusively done by men or women; they are pest control sprayings done by men and cotton harvesting conducted by women.

3.5. Producers' expectations of the RECOLTE project

Producers' principle expectations are:

- ✓ Timely provision of quality seed;
- ✓ Funds for agricultural equipment (carts, wheelbarrow, cultivators, plows, shovels, wire for fencing);
- ✓ Construction of storage infrastructures (warehouse, silos);
- ✓ Training in production techniques, composting, maintenance of agricultural tools and equipment and group management;
- ✓ Training in livestock (fattening);
- ✓ Small grants to women to develop income-generating activities to cover costs related to health and education of children;
- ✓ Financial support to GPCB board members, because they make trips without fuel cost provisions.

Overall, the majority of expectations made by producers are already included in the RECOLTE project. They include:

- ✓ Putting in place a system of guaranteed-fund-led lending activities to facilitate access to credit for purchasing agricultural tools and materials;
- ✓ Improving storage facilities to benefit UNPCB and producers;
- ✓ Trainings on best farming practices, improved fertility management and integrated pest management;
- ✓ Training on improved farm management; and
- ✓ Facilitating access to quality seed by creating seed farms.

The expectations not included in the RECOLTE project are related to the income-generating activities.

3.5.1. Partnership

UNPCB - CRS

UNPCB is the main implementing partner of the RECOLTE project. According to its elected officials and the technical coordination, this is a project that was designed in a participatory manner between CRS and UNPCB, unlike some of the projects currently managed by UNPCB that have run into problems. The approach and strategy adopted by the project is aligned to UNPCB orientation for organic cotton development. RECOLTE is also perfectly articulated with the Government of Burkina's main agricultural policies (the macro-economic policy which favors rural development and promotion of rural zones, the natural resource management policy based on empowering users, the national policy on sustainable development, and the poverty alleviation initiative prioritizing vulnerable groups that are poor farmers, women and young).

UNPCB's satisfaction in participating in the RECOLTE project is seen at three levels:

- ✓ The project is supported by one of their trading partners (Limited Brands) because through this project and partnership markets will become more developed for Burkina while other countries are struggling to sell their organic products;
- ✓ The inclusion of significant activities such as (i) seed farms, (ii) marketing infrastructure and materials (warehouses, silos, tarpaulins, scales, etc.), (iii) institutional strengthening (administration of UNPCB), and (iv) provision of new transportation means (vehicles and motorcycles);
- ✓ Openness; transparency and flexibility of CRS: CRS agreed to revise the budget based on UNPCB's suggestions during project negotiation between CRS and USDA. CRS appears to be available for consultation on activities to implement; This spirit of openness of the two partners (CRS and UNPCB) means that the project will be executed in a mutually agreed upon approach and strategy.

INERA - CRS

The partnership with INERA has a two-fold objective, it aims on one hand to support producers to ensure production of sufficient and quality seeds and on the other hand will reinforce the cotton research laboratory and research activities. This support will help satisfy the need for quality seed at reduced prices. At the time of the interviews, INERA had already started preparing seed production with the goal of providing 1.3 metric tons of breeder seed for the seed farms to start seed multiplication. However, the late signing of the contract with INERA could impact on attaining this objective.

3.5.2. Composition of the project's technical team

The composition of the project's technical team needs to include resource people at the UNPCB level, especially at the Profit Center, to create synergy with the team at the CRS level. Based on the current tasks and mission of the staff at the Profit Center, the CRS team

should include a project Director, a Monitoring and Evaluation Manager and a Production and Marketing Manager. By getting rid of the other CRS positions, the project could further expand personnel for producers.

IV. ORGANIC COTTON TECHNICAL AGENTS (ATB): CONSTRAINTS AND OPPORTUNITIES TO IMPROVE ORGANIC PRODUCTION

The extension services team consists of Zone Managers (CZ) and the Organic Technical Agents (ATB). They are often assisted by a technical lead farmer chosen amongst the members of the GPCB to support the organic cotton producers. The main constraints this team faces are:

- ✓ **Work load:** Some ATBs have a high work load. In Dissin, for example, the ATBs have 420 producers, 366 producers in Gueguere, 289 in Bieha producers and 286 in Diebougou. According to FAO (2003), an effective producer to ATB ratio is 200 to 1. This ratio is usually not followed by development organizations. Even at SOFITEX (the biggest cotton company in Burkina), the ratio varies between 350 and 700 producers (SOFITEX, 2006). Such a high number of producers per agent does not enable the agents to adequately monitor plots and producers especially in a context of demanding organic and Fairtrade certifications standards to comply with;
- ✓ **Difficulties in piloting the agricultural season:** Agents say they always have a difficult start of the agricultural season and this is linked to the late supply of inputs. Because of that some producers withdraw and no longer produce organic cotton, or reduce the area they cultivate. This requires additional work for the agent, who needs to reevaluate the area and update headquarters. This also disrupts planning. Producers often attack agents, sometimes with verbal threats, when producers' seed needs were not reached, accusing them of working poorly;
- ✓ **Old means of transport:** Some ATBs refuse old motorcycles because they do not enable them to travel the necessary long distances to cover their intervention zone. However, the current renewal of motorcycles has already resolved this problem among several affected agents. The agents need to live in their intervention zone to avoid long distances;
- ✓ **Possible duplicates:** This refers to producers who cultivate both organic and conventional cotton at the same time on their fields but far from each other. These cases are rare, but can exist like the one in the Banfora zone, observed by the INERA team during a study on contamination of organic cotton by GMC (Vognan and Bourgou, 2014). Internal control conducted by UNPCB works to detect these cases and to remove them.

According to the ATB, the main constraints of producers for producing organically can be summarized as (i) difficulties in obtaining organic fertilizer, (ii) lack of materials for production and transport of compost (wheelbarrow), (iii) limited agricultural tools and equipment for producers that hinders their efforts, and (iv) low skillfulness in crop cultivation and management among new producers.

Capacity building of ATBs should include (i) training/ refresher training on cotton crop cultivation and management, (ii) in-depth knowledge on organic contamination, (iii) communication management in delivering extension services, and (iv) use of GPS.

Additionally, providing technicians with new motorcycles, better support in planning/coordination of activities as well as increasing their number will enable UNPCB's agricultural advisory system to work better and care for the expected RECOLTE project led increase of new farmers.

Interviews with agents show that to increase their own motivation, the following measures should be taken: (i) Develop a career plan allowing for promotion of internal agents, (ii) UNPCB to annually pay the production premium, (iii) install a motivation system for the best technicians and (iv) revise the duration of contracts because that could be a source of motivation and stabilization of agents in the program (several people have resigned since the beginning of the program). It is suggested that for recruiting new agents, the level of agricultural training and experience should be prioritized.

V. CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

The organic cotton sub-sector has gained much interest among small producers, often excluded from the conventional/GMO system. It distinguishes itself by taking into account an economic dimension (source of revenue), a social dimension (increase in status of a small producer and the woman in particular) and an environmental dimension (better respect of the environment). The RECOLTE project reinforces the existing UNPCB organic cotton program by mainly increasing agricultural productivity of small organic cotton farmers, and increasing trade of these products locally, regionally and internationally. The situation analysis shows the progress made in the organic cotton program, but also provides a number of constraints which the RECOLTE project needs to work on or reduce.

Upstream, there are late arrivals of supplies and the dissatisfaction of producers' needs. Downstream, the producer often waits long periods between harvest and marketing, and sometimes between marketing and payment of cotton. The current organization and its strong dependence on the conventional sector for ginning, makes it difficult to change the trend in the short or medium term. Setting up the Profit Center was set up to manage the organic cotton production (planning operations, supply inputs, certification, marketing and extension services as well as monitoring) and creating seed farms should help to uniquely influence the system of supplying inputs and planning activities better.

While current organic cotton production is low, the activities planned in this project, such as capacity building of producers, access to agricultural tools, equipment and small materials (wheelbarrows, shovels, rakes, etc.), potential construction of infrastructures (warehouses, silos) should increase productivity and revenue.

Capacity building of GPCBs in management of farmer organizations should reduce some of the problems related to operating GPCBs. These problems should not be overlooked because their persistence could be a source of discouragement to member producers and could be the source of some GPCBs breaking up (some cases already encountered in Comoe and Boulgou).

Constraints specific to field agents are also very concerning because they could impact their work and the implementation of the RECOLTE project activities. It is true that several trainings were conducted for different actors in the sector: producers, field agents as well as those responsible for organic cotton in the UNPCB headquarters. However, in looking at the limitations and constraints identified with each of the actors, and in order to set the stage for a successful RECOLTE project implementation and positively impact cotton production and revenue, recommendations have been made for the types of trainings to take place.

5.2 RECOMMENDATIONS

The following table summarizes the recommendations made for each of the key project actors (CRS and UNPCB):

PROBLEM	RECOMMENDATIONS	ORGANIZATION RESPONSIBLE
LATE PROVISION OF INPUTS	✓ Revise the possibility of accelerating or shortening the certification process of the cotton seed, to make them available to producers on time; ✓ Increase quantity and quality of seeds through seed multiplication contracts with experienced seed producers or private professionals.	UNPCB/CRS
LIMITATIONS IN MARKETING	✓ Organize fora to discuss with producers and involve them in the management of the organic cotton sub-sector (before the agricultural season, and before marketing); ✓ Encourage producers with premiums for early harvest and on this basis discuss with SOFITEX to reduce time between harvest and marketing/ginning of organic cotton; ✓ Reduce cost of the fiber by reducing the transport costs, by ginning the cotton in two zones (production in the Western zone in Banfora and those of the Center and Eastern at a factory in Fada, Ouagadougou or Koudougou); ✓ UNPC to get on time the funding for cotton purchases based on the provisional value of cotton production through its commercial partners and banks; ✓ Reinforce marketing materials (tarpaulins, scales, sacks) and storage capacity (by building warehouses and silos).	UNPCB/CRS
GOVERNANCE WITHIN THE GPCB	✓ Ensure compliance with rules to renew GPCB board members; ✓ Conduct trainings for elected board members on group management and communication;	UNPCB/CRS

CONSTRAINTS IN MONITORING PLOTS AND UNMOTIVATED AGENTS	✓ Build the capacity of agents', and provide them with means of transport and materials for their work (motorcycles, GPS, computers and other); ✓ Put all field agents on the UNPCB telephone plan to facilitate communication between agents and their supervisors, instead of one cellular phone per 2 to 3 agents in some production areas; ✓ Revise the career plan of agents, the type work contracts and motivate agents with the the payment on time of the productivity premiums, etc.; UNPCB/CRS
BUILDING THE CAPACITY OF THE OVERALL ACTORS IN THE VALUE CHAIN	✓ Continue trainings on technical themes; ✓ Strengthen the training of UNPCB extension agents (CZ, ATB) on cascade and adult training methods, improved communication as well as improved farm management; ✓ Strengthen the training curriculum of organic delegates on leadership, governance and role and responsibilities of cooperative boards and board members and advocacy and lobbying, etc.; ✓ Build the capacity of the Profit Center staff on (i) programming and planning tools, and (ii) the business, management and marketing plan. CRS/UNPCB

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