

# The Evolution and Expansion of Cacao Farming in South West Cameroon and its Effects on Local Livelihoods



**Amanda Jane Klarer**

SupAgro IRC, Montpellier  
Copenhagen University, Copenhagen

Thesis Submitted in Partial Fulfillment of the  
Requirements for the Degree of

Agris Mundus Master of Science, Sustainable Development in Agriculture

Option: Agricultural development for smallholder farmer systems  
Specialization: Resources, Agricultural Systems and Development (RESAD)

AFS4Food

**Supervisors**

Philippe PEDELAHORE  
Isabelle MICHEL  
Patrice LEVANG  
Stephanie CARRIERE

November 5, 2014

## The Evolution and Expansion of Cacao Farming in South West Cameroon and its Effects on Local Livelihoods



Members of the Jury

Stephanie CARRIERE, IRD UMR GRED  
Patrice LEVANG IRD UMR GRED / CIFOR  
Isabelle MICHEL, SupAgro IRC UMR Innovation  
Philippe PEDELAHORE, CIRAD UMR Innovation  
François RUF, CIRAD

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**ABSTRACT**

With the increase in world cacao prices in recent years, people in South West Cameroon have intensified their interest in cacao production. This has led to a continued expansion of cacao farming which has impacted forests all over the area. The actors involved in this growth vary in different areas from pioneer fronts to zones where a dynamic of saturation of cacao is occurring. The effects of this expansion have different impacts on the livelihoods of people within rural communities. The complex ownership and labour systems further contribute to the divide between the rich and the poor. Actors that have limited access to land and credit are the most vulnerable populations, women are especially affected. Changes within the cacao industry in the South West will help improve the livelihoods of those directly involved in cacao, in addition other options need to be promoted in order to decrease vulnerability on the long term.

**Key words: South West Cameroon, Livelihoods, Cacao, Vulnerability, Cacao Expansion**

## RÉSUMÉ

L'augmentation du prix mondial du cacao ces dernières années a renouvelé l'intérêt des agriculteurs du Sud-Ouest du Cameroun pour cette culture. Cela a entraîné une expansion continue des zones de production du cacao ce qui a des conséquences négatives sur les forêts. Cette expansion se fait à la fois dans des zones saturées par la production de cacao et sur des fronts pionniers. Les effets de cette expansion sur les moyens de subsistance des populations varient au sein des communautés rurales. La fracture entre les riches et les pauvres est exacerbée par un système d'accès à la propriété et un marché du travail complexes. Les agriculteurs qui ont un accès limité à la terre et au crédit sont les plus vulnérables, et les femmes sont particulièrement affectées. Des changements au sein de l'industrie cacao dans le Sud-Ouest contribueront à améliorer les moyens de subsistance des personnes directement impliquées. D'autres options doivent également être développées afin de diminuer la précarité sur le long terme.

**Mots Clés; Sud-Ouest du Cameroun, Moyen de subsistance, Cacao, Vulnérabilité, Expansion de Cacao**

## ACKNOWLEDGEMENTS

I would like to take this opportunity to express my gratitude to everyone who supported me throughout this thesis. I would like to thank my supervisors Stephanie Carriere, Patrice Levang, Isabelle Michel and Philippe Pedelahore for their guidance and encouragement. Thank you to the AFS4Food Program and CIRAD for giving me the opportunity to do explore this subject in Cameroon. Thank you also to the AgrisMundus Program, SupAgro and Copenhagen University for the training and education gained to allow me to carry out this research.

I am grateful for the moral support received from my family, friends and fellow students. I am particularly appreciative to my fiancé Carlos, my parents and my friend Nicolas for their guidance and insurmountable ability help me through the good the bad and the ugly. Thank you to Clelia, Marie, Julie, Aimeric, Aline and Laura for your joint motivation that carried me through the research and writing process.

I would like to express my warm thanks to all the incredibly hospitable people of Kwakwa for their kind welcome into the village. I would like to extend a special thanks to the chief of Kwakwa, the traditional council and the agricultural chief of post for hosting me in the village. I am also sincerely grateful to all the hard working men and woman who took time to share their life stories and answer my numerous questions throughout my stay in the village. I am thankful for all the help I received from the youth in the village who helped me translate my English "rap" and who helped me as research aids.

To all the wonderful people that treated me like family throughout my stay, I am forever grateful. To Mr. John and Madam Mary and the entire compound for welcoming me into their home and making me feel like part of the family; to Mr. Andrew and Madam Glory for also welcoming me into their family and gifting me with the honour of a namesake in the village. To Mr. James whose assistance and help with our research was appreciated beyond words.

To all the children in the village that brightened my day with their energy and joyful curiosity for life I wish you the best.

Finally I would like to thank my research partner Ebah for all the laughs and adventures as well as Nnane, Thelma and family for their kind welcome into their home. I am eternally grateful for the kindness that was given to me during this thesis.

In the delightful words of my Cameroonian friends,  
We are all together!



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## 1. INTRODUCTION

In ancient civilizations, money really did grow on trees, as wealth was measured in cocoa beans (Rosenblum, 2005). Much has changed, as today those who are rich in cocoa are amongst the poorest on earth. The cocoa industry is a very lucrative world; however the producers are not always the benefactors of the wealth. Cacao farmers in the South West of Cameroon are gifted with a very productive environment for cacao production. However, in spite of their high yields, they spend a large part of the year in poverty.

This report characterizes the livelihood strategies of cacao producers in the South West Region of Cameroon. This study was realized as part of the AFS4Food project, funded by the African Union and EuropeAid and partnered with CIRAD, SUPAGRO and IRAD. It aims to *enhance food security and well-being of rural African households through improved synergy between agroforestry systems and food-crops*. (AFS4Food, 2014). This project set out to demonstrate the dynamics of systems that integrate local food crops and cash crops. The project is focused on three unique systems in different African countries, which include: cacao-based agroforestry systems in Cameroon, coffee-based agroforestry systems in Kenya and clove-based agroforestry systems in Madagascar.

The present study's focus is specifically on agroforestry systems in the humid South West Cacao Basin of Cameroon. It contributes to the Work Project 2 (WP2) portion of the overall ASF4Food project. This portion involves the *Characterization of farming systems and identification of long term drivers at household and landscape levels*. It aims to *enhance food security and well-being of rural African households through improved synergy between agroforestry systems and food-crops* (ASF4Food, 2014).

## 2. AIM AND OBJECTIVES

Basin cacao in South West Cameroon expanded dramatically between the 1960s and the 1990s. This study aims to investigate where expansion continued after the 1990s and its dynamics. Research was conducted to examine the current status of the South West cacao basin as well as its projected evolution.

For a full analysis of the dynamics at play, the research took place at different levels of the system. An investigation and analysis was undertaken to understand the dynamics at the basin level. Then a more in-depth analysis at the village level was executed. At the village level, the livelihood of actors involved in growing cacao in the South West basin are illustrated through the examples of those who settled in a migrant village called Kwakwa as well as those expanding into a nearby government reserve. Furthermore the study examined the impact of the cacao expansion dynamics on the production of other agricultural products, notably food crops.

The results of this research project are intended to enrich the findings acquired on other sites, as well as additional aspects and disciplines of the project. The challenge beyond the scientific research process is to use the data to develop guidelines, in conjunction with the agricultural advisory services, local organizations and public policy makers that can improve synergies between cacao systems and food security for the people of Cameroon.

### 2.1 Research Questions

What are the zones of cacao expansion in the South West of Cameroon?

Who are the actors involved in this expansion and what drove them or enabled them to be part of this dynamic of expansion?

What is the impact on the agrarian systems, the cacao cropping systems and associated production systems (particularly with food crops)?

What are the roles of these systems in connection to livelihoods, food security and resilience?

#### 2.1.1 Expansion dynamics within four levels.

To investigate the dynamics of this expansion and their impacts, the study focused on four scales; the basin, the village, the household and the plot. To further explore the interests at the different scales, the following sub-questions were developed:

*The cacao Southwest basin level.* To clarify the spatial and temporal dynamics of different agroforestry systems with cacao from the West Cameroon basin, the following questions were posed:

What is the current weight of the South West basin in terms of cacao production in Cameroon?

What are the different geographical areas affected by the current expansion and are there new pioneer fronts?

What are the main types of operators who carry this expansion (e.g. small farmers or large plantation type employers or capitalists)?

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What are the main types of agroforestry systems that develop (full sun cacao, complex agroforestry system)?

The results of this basin level zoning along with guidance offered from key informants identified the village of Kwakwa as a base for the village level investigation.

*Village level: Kwakwa* The investigation done at this level translated the dynamics of the pioneer front by looking more in-depth into the following aspects:

What is the diversity of different types of farms involved and the systems they put in place?

Who operates these systems (a more in-depth look)?

How fast are the pioneer cacao systems put into place?

What are the particular impacts on food and food production areas of the village territory?

*At the household farm level* The questions posed were:

What is the evolutionary trajectory of the strategies and systems among producers?

What are the roles of the current and past cacao systems on these plantations?

What is the origin and means of access to different means of production (land, labour and financial capital) that allow operators to develop their cacao production systems?

What is the performance of the identified strategies (in terms of economic income)?

What is the resilience capacity of these strategies?

*At the cacao field plot level* The following was investigated:

What are the characteristics of the main types of systems that grow cacao in the pioneer zone?

What is the production of cacao and food produced by these systems?

What is the overall contribution to household food security and resilience?

## 2.2 Hypothesis

That the location of the expansion zones and types of cropping systems in place will be defined by people's access to capital; further.

The expansion zones are on the outskirts of the current developed zones and villages.

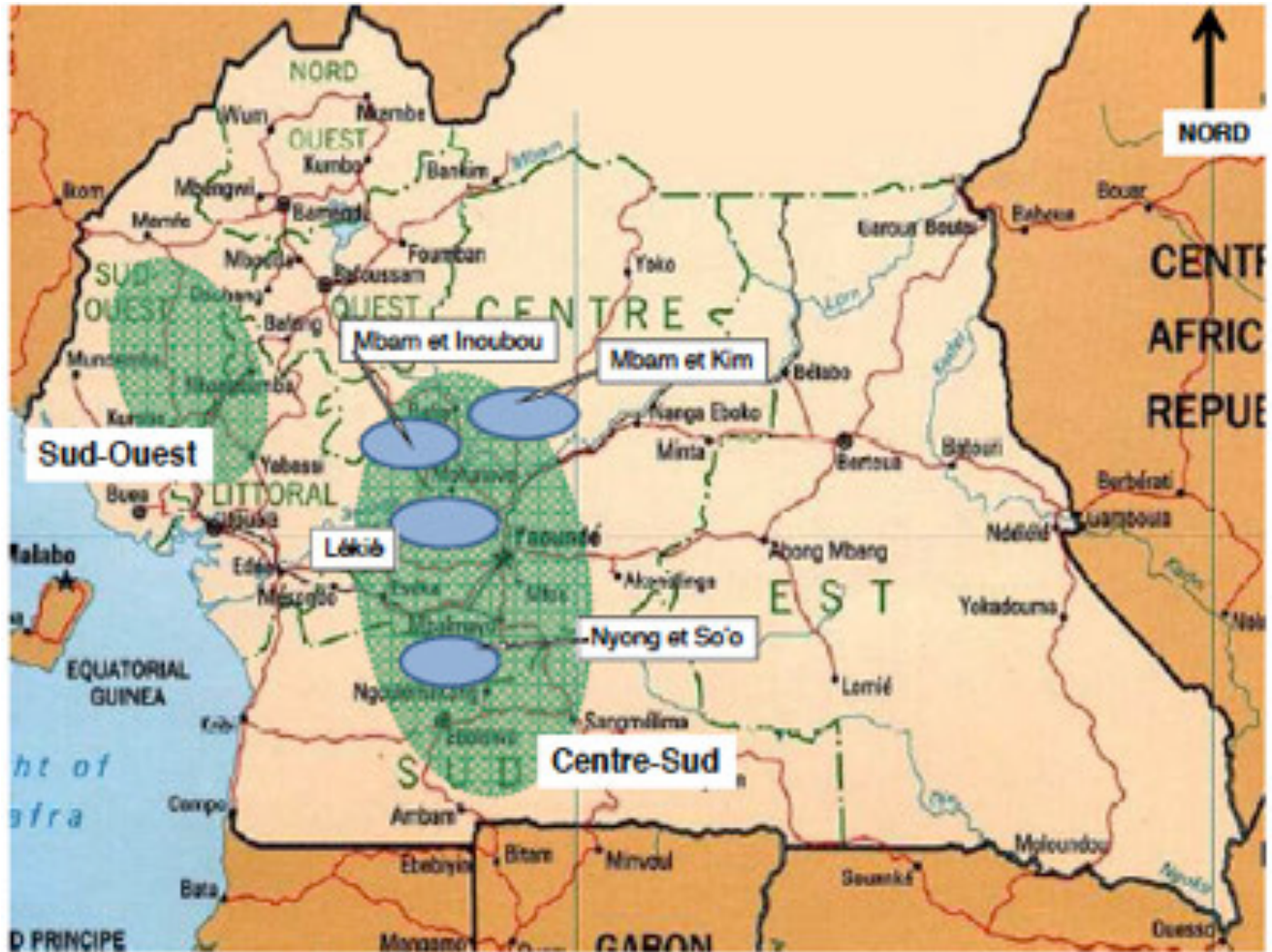
The expansion will be from smallholder farmers and will occur in areas that are less easily accessed due to the poor condition of the roads.

Those that are involved in this expansion are those that were able to find financial capital to invest in land.

The systems are more extensive than intensive because of time that it takes to get to these new parcels, meaning that for example food crops that require more consistent daily work or are harvested progressively according to need would not be ideal to plant far from the homestead.

### 3. BACKGROUND

Within 10° N of the Equator, Cameroon is amongst the few rare tropical countries in the world where cacao can be grown. Cameroon is currently the fifth largest producer of cacao in the world. As of 2011, the national income from cacao exports was the highest of all agricultural products (FAO, 2014). Over the past 20 years the national production has more than doubled as has the surface area planted in cacao (FAO, 2014). There are two main production basins; the South West basin and the Centre-South Basin (cf. *Figure 1*).



*Figure 1:* Main Cacao Producing Basins in Cameroon.  
The South Western basin (left green oval) and the Central South Basin (right green oval).  
Source: Jagoret, 2011.

Currently the South West produces over 150 000 tonnes of cacao (MINADER, 2012). The total production in 2012 as stated by the FAO for cacao bean production was 256000 tons (FAO, 2014), therefore that the South West produced over 58% of the cacao produced in Cameroon. This high production is largely due to its rich soils and humid climate.

### 3.1 The Fertile Soil and Humid Climate of the South West

Situated just above the equator and nestled along the Cameroon line of volcanos, the South West is covered in humid forests and is ecologically favourable for agriculture of various types (Chambon & Mokoko, 2013). The soils in the South West are dominated by metamorphic and volcanic soils. The soils here are known to be young and fertile and are particularly rich in potassium and other volcanic minerals (Iyabano, 2012). This area has historically been known for its intensive agriculture.

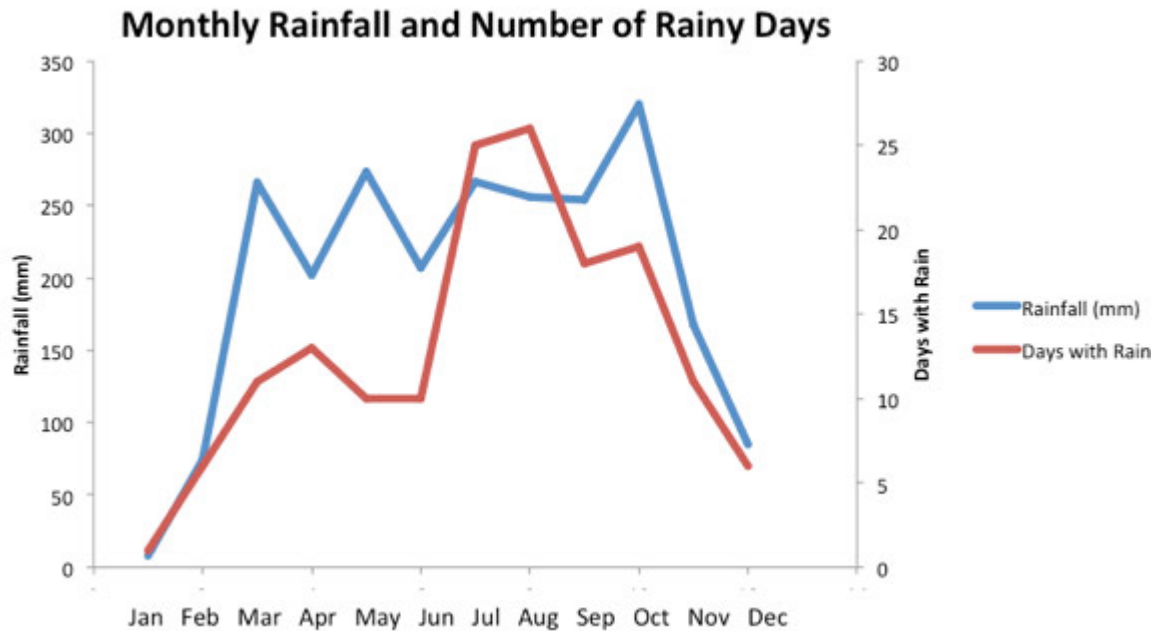


Figure 2: S.W. Cameroon Annual Rainfall 2013.

Monthly rainfall in comparison to the number of rainy days seen in 2013. (MINADER Meme, 2013)

Annual rainfall is quite high in the South West (rainfall averages vary from 2000mm to 3000mm depending on the location), and is spread over an average of 156 days (MINADER, 2013). Rain showers can be quite intense and large amounts of precipitation can be released in a very few days. This can be seen in *Figure 2* above. In March/April when the rainy season begins, there is close to the same amount of rain as is seen in the height of the rainy season in August but seen in half the number of days. The rainy season in the South West normally starts in March- April and finishes in October- November. Humidity rarely is below 60% and in the height of humidity surpasses 80%. With average temperatures between 23 and 28 degrees Celsius, the South West experiences temperatures between 15°C and 35 °C. Sunlight exposure in this area is quite limited at 3-6 hours per day (Bidault, 2000).

Monthly Temperature													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ave rage
Max (°C)	31	33	32	31	31	30	28	27	29	30	20	n/a	29
Min (°C)	23	23	21	22	22	22	21	21	22	21	14	n/a	21

Figure 3: Annual Monthly Temperature S.W. Cameroon, 2013

Average monthly minimum and maximum temperatures in the Meme division over the year 2013.  
(MINADER Meme, 2013)

### **3.2 Agricultural Diversity in the South West**

The South West is gifted with high yields of both cash crops and food crops. Over 38% of the total surface area in the South West is under cultivation (MINADER, 2013). Perennial crops include cacao, palms, bananas, tea, coffee, citrus and rubber. Commonly grown food and vegetable crops include cassava, maize, yams, cocoyams, groundnuts, pepper, plantains etc. Export crops such as oil palm and rubber are grown in plantations by companies such as Cameroon Development Corporation (CDC) and Palmol, however many export crops are also grown and gathered by individuals throughout the region. Cash crops such as cacao and oil palm are grown and sold by individuals along with several food crops. Food crops are used for personal consumption as well as for sale in local, national and international markets including Nigeria, Equatorial Guinea and Europe.

Cacao agroforestry systems in the South West tend to be grown on smallholdings of roughly around 3 ha according to Gockowski & Dury (1999), which is supported by Iyabano (2012) who found an average of 2-5 ha plantations around Konye. Over the last 80 years, the structure and function of these agroforests have been shaped by climate, road infrastructure, market institutions and demographic pressure (Gockowski & Dury, 1999).

### **3.3 Poor Road Infrastructure**

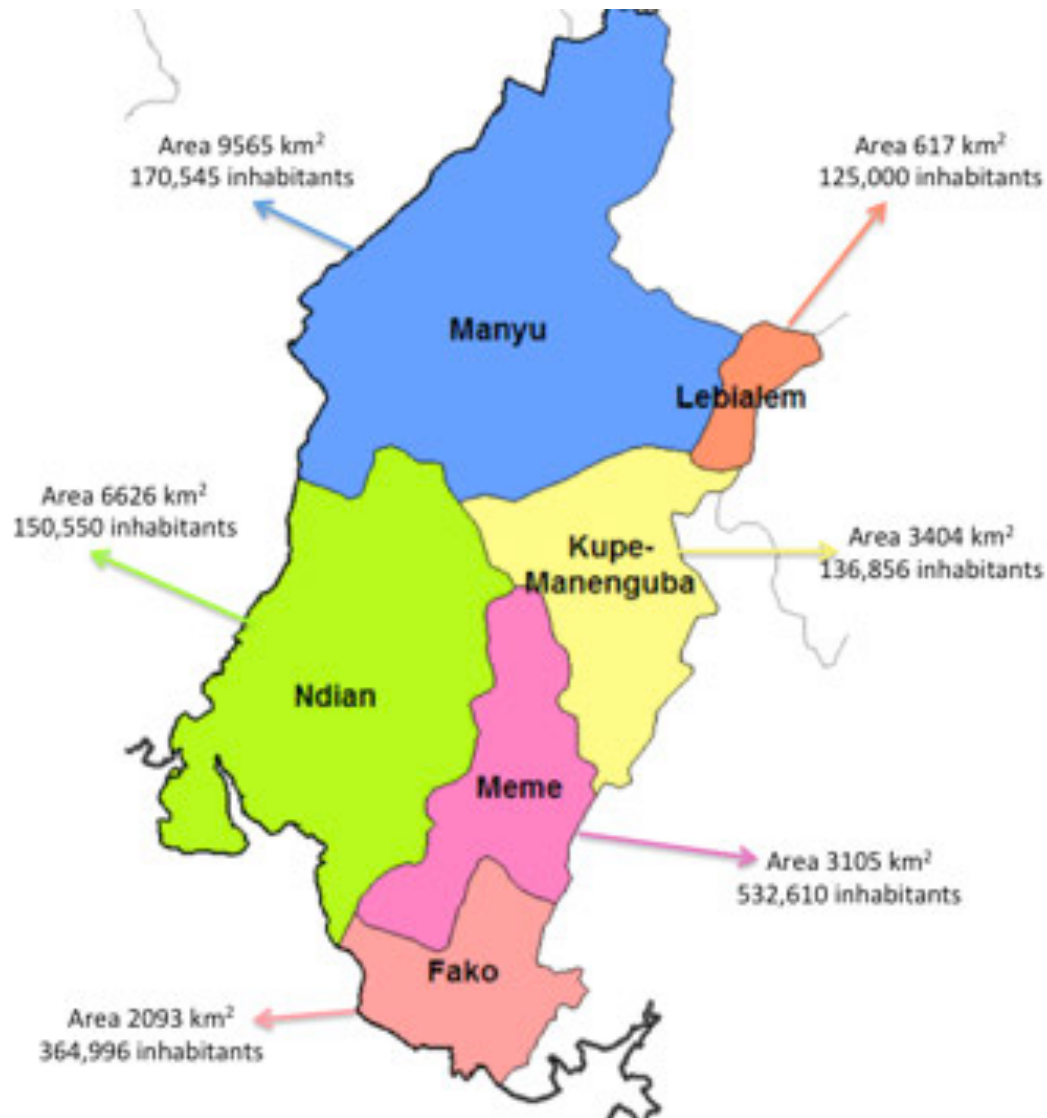
The rich soil and the high level of precipitation is splendid for the growth of crops, however it does pose large problems for farmers in other ways such as ease of transportation.. The infrastructure throughout the South West has resulted in bad and inaccessible roads, especially during the height of the rainy season. There is a paved highway linking Kumba to Buea and Limbe. All other main roads leaving from Kumba are not paved and become extremely hard to manoeuvre in the rain. The state of the roads from farms to markets is the source of many complaints throughout the South West and is blamed for post-harvest losses (MINADER, 2013).

### **3.4 Population Dynamics**

Over 70% of the inhabitants in the Region are living in rural areas and involved in agricultural activities according to the Ministry of Agriculture and Rural Development (MINADER, 2013).



## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON



*Figure 4: Population Numbers by Main Districts South West Cameroon.*

Information Source: Regional Service of Agricultural Development, MINADER, 2012

As seen from the map, Lebialem is situated on the border with the North West and the French side of Cameroon and is the most densely populated district in the South West. Meme and Fako districts are also heavily populated. Fako has two notably large cities and hubs of activity: Buea, the current regional capital and Limbe, the former capital. Kumba is found within the Meme district and is the main centre for cacao commerce in the region. Ndian, Manyu and Kupe-Manenguba are less densely populated but the populations are projected to increase as migrants are heading towards these districts in search of land.

The population in the South West has a diversity of ethnic groups which include: the Bakundu, Bafaw and Barombi in Meme, the Bakossi Mbo and Bassosi in Kupe- Muanenguba, the Bakweri and Mungo in Fako, the Ngolos, Batangaa, Baite and Balondo in Ndian, the Banyang, Ejagham and Akwaya in Manyu and the Nweh and Mundani in Lebialem. There is a strong presence of migrants

from the North West as well as Nigeria. According to a baseline survey in 1998, over a quarter of the South Western farming population are migrants. (MINADER, 2012)

### **3.5 The Movements of Migration**

The influx of migrants into the South West is connected to its history. In German colonial times, Germans brought workers from other parts of Cameroon, particularly from the North West and Nigeria to work plantations they erected in the South West. Migration continued during the British colonial times as plantations continued to grow. The rebellion of the Bamileke during the 1960s also drove migrants from the North West into the South West. Furthermore, the overpopulation and subsequent land pressure in the North drove more migrants southwards. Even by 1964, according to Losch et al. (1990), 85 % of the population in this area was of foreign origin. Losch et al (1990) explain that the migrant influence in the South West has greatly affected the production systems put in place as they are differentiated in this area from the other cacao basins and these migrants also play a large part in the success of cacao production in this area.

### **3.6 A Long History of Cacao in the South West**

In the South West, cacao was first introduced in 1886 by the then German colonial administration (Laird et al., 2007) on the lower slopes of Mount Cameroon. By 1913 the cacao sector had grown to 58 different plantations and began its long-standing history as the number one agricultural export for the country (Gockowski & Dury, 1999). After the end of the German colonial period, the production decreased in the South West whereas it blossomed in the Centre South. In the 1950s, the South West produced a mere 6000 tones, 11 times less than the Centre South (Champaud, 1966 as cited by Mathey and Pascaud, 2010). However, in the 1960s, the production in the South West basin started to exponentially expand. According to Jagoret (2011), between 1960 to 1989, the cacao production in the South West increased by 35 000 tons whereas the production in the Centre-South basin plateaued and only increased production by 20 000 tons. Over the past twenty years in the South Western basin of Cameroon the cacao production has continued to increase. The increase is partially due to the expansion of pioneer fronts in places such as Konye as is explained in a study by Mathey and Pascaud (2010). Other expansion fronts have also emerged recently in the north of the region; however other dynamics of expansion are at play in this zone. This will be further explored in this report.

### **3.7 Meme District: the Heart of the Cacao Basin**

The present study focused on the expansion dynamics within the Meme district in a migrant village called Kwakwa, situated close to Kumba, the epicentre of cacao activity for the South West. The South West cacao industry is based around Kumba, as it is the main base for many License Buying Agents (LBA), the National Cacao and Coffee Board (NCCB), the Institute of Agricultural Research for Development (IRAD), Barombi Kang-Kumba etc. Today the Meme region plays a large role in the cacao culture in the South West as it produces over 47 700 tons of cacao on 60 410 hectares by over 98 800 producers (MINADER, 2013). Kwakwa village itself is quite saturated with cacao, and still cacao production continues to grow.

The example of farmers in Kwakwa village provides a representative illustration of both the strategies and the dynamics of the farmers in the South West which, are further explored and detailed through this study.

## **4. METHOD**

Throughout this research various techniques were applied including a literature review, semi structured interviews with farmers and key informants, participatory rural appraisal methods (mapping, historical timelines, focus groups), technical and economic interviews with farmers, onsite visits, data collection of physical characteristics of systems, and participatory observations.

### **4.1 Data Collection**

This research compiled data collected at different scales; the South West cacao basin scale, the territorial/village scale, the household level as well as at the farm parcel level.

#### **4.1.1 The South West Cacao Basin Scale**

Several methods were used to explore and understand which different geographical areas are affected by the expansion, the type of expansion that is occurring and by whom. Firstly key informants working within the cacao sector were interviewed (cf. Appendix A. List of Key Informants). A landscape analysis was also undertaken to identify how the topography, soil, water systems and climate affect local dynamics (though due to logistics, a landscape analysis was not possible throughout the entire South West Region). Key informants were also asked to help create a visual map outlining the main South West cacao basins and the historical and current areas of expansion and where future expansion is expected. Since the landscape analysis was not possible for the entire South West, key informants were further asked to describe the general types of agroforestry systems that are put in place in different areas as well as how and why they might differ. The roles that historical, political and economic events and structures have played on the establishment of current cacao systems and their evolution was explored through information provided by locals, key informants and a review of important literature. Works from other researchers and government reports were used to compliment the understanding of the importance and evolution of the South West basin.

#### **4.1.2 The Territory/Villages Scale**

Based on information collected by key informants, Kwakwa, the village, was chosen to further explore dynamics in the South West. Within the village, the historical and present dynamics of farming systems and expansion movements were explored in focus groups through group participatory mapping and historical timelines (see Appendix B. Question Guides). Interviews with key informants and farmers in the village (and neighbouring villages) complemented the focus group information and aided in further understanding aspects such as migration, land access and access to finances etc. The goal of the information collected at the village scale was to develop a typology of actors involved in expansion. Furthermore, a local landscape analysis was performed to understand what differentiated Kwakwa from surrounding villages. The Meme River Forest Reserve and neighbouring villages were also visited to conduct interviews with key informants and farmers in order to understand the driving factors for those expanding in these zones.

#### **4.1.3 The Household Level**

A quick census of over 50 households dispersed throughout the village was performed to understand the distribution of the population within the village as well to have quantitative data to understand the importance between different typologies. Based on the village scale analysis and the village census, representative typologies were chosen and interviewees within these typologies were selected. A minimum of four to seven interviewees were chosen per typology (depending on the detail and inconsistency between interviewees of a certain type). Participants were asked to state the

age, occupation and their contribution to their farms. The interviewees were asked to describe their family history and either their arrival or their ancestors' into the area.

Each parcel worked was described in terms of their contents, structure, labour, ownership and inputs etc. (cf. Appendix C. Interview Guides). The dichotomous nature of the agriculture in the area meant that men were interviewed about cacao systems and women about food cropping. Detailed information about the cropping calendar and each task performed on their parcel, included specific details about the number of days and hours needed to complete each task as well as the number of workers used (divided into family and paid labour). A second series of questions were posed to illuminate choices made by farmers, their access to financial, land and social capital and their overall livelihood strategy.

#### **4.1.4 The Cacao Farm Scale**

Qualitative and quantitative data was collected to understand the types of cacao systems that are implemented by different actors. It should be noted that measurements at the parcel level were the focus of a study being carried out by Ebah Sube, a Cameroonian student also working on this project. Countless parcels were visited throughout the study, though data collected concerning the structure was primarily qualitative verses quantitative. Quantitative results based on structure of cacao plantations were based on information provided by interviewees, in focus groups and through participatory observations. However, the surface areas of key food crop and cacao parcels were measured with the use of GPS as a source on comparison between perceptions of interviewees and concrete measurements.

## **4.2 Results Analysis and Model Creation**

The information collected from the different typologies was compared and synthesized. Outlying cases were eliminated and averages were taken from representative cases to form models. The gross outputs, intermediate inputs and subsequent gross value added for each system was calculated. The land productivity, labour productivity and the gross remuneration of the family labour were further calculated in order to compare the typical food cropping systems to cacao systems. Formulas used were based on those outlined in *Assessing Smallholder Farming, Diagnostic analysis of family-based agricultural systems in a small region* by Barral et al. (2012). (Cf. Appendix D). For the modelling of cacao farms, the small family farmer model was the base and all other models were formed from that base in order to be comparable. It should be noted however that in reality there are slight differences between the typologies that were not able to be compared in the creation of these models for sake of comparison; these aspects are discussed in the model section below.

## 5. RESULTS

### 5.1 Dynamics of Past and Present Expansion in the South West

#### 5.1.1 The historical expansion of cacao farms throughout the South West.

Cacao was first introduced by the Germans and grown on large plantations around Mount Cameroon and extended up to the Mungo. During the German rule, the German colonialists brought contract and forced labourers from other parts of Cameroon and Nigeria to work the plantations. South Westerners were also brought in under contracts. Workers were forbidden to take any cacao seeds from the plantations but some would swallow seeds and then would excrete them once they returned home. During this time, cacao was slowly and secretly spread around the area. Once the German plantations were dissolved, workers from those plantations, especially the migrants, settled in the region and set up their own cacao farms capitalizing on their knowledge of the cacao production process (Ruf, 1999).

Today primarily smallholder farmers with very few exceptions grow cacao. The cacao plantations erected by the Germans are currently owned by the Cameroon Development Corporation (CDC), however it no longer works cacao because its labour requirements are too high. After the depression, the plantations were not as economically viable in plantation form, especially when forced labour was no longer used as had been previously. For these reasons, cacao production shifted from being grown in plantations to being in the hands of individual farms who farmed on a smaller scale. Some smaller estates still exist in the area but are mostly split up among their descendants or are worked by two party workers. The Mukete Estate on the border of Kumba used to have 400 ha of cacao but now only has a few hectares of cacao that are kept as part of their legacy and not for serious financial gain.

Currently the South West is the leading region in cacao production in Cameroon but this was not always the case. As was previously mentioned, at the end of the 1950s, cacao production in the English South West was only 6 000 tonnes versus 67 000 tonnes in the French part of the country (Champaud 1966 as cited by Mathey and Pascaud, 2010). Its slow development is attributed to poor infrastructure and road access as well as the intense humidity and problems with fungal diseases (Ruf, 1999). One local key informant also hypothesized that statistics from the past poorly registered whereby significant quantities produced in the South West were bought by buyers from Nigeria, Douala or were sold just over the border in the French part and were therefore counted officially as coming from the French side but may have been grown in the English South West (Mukete Estate, 2014).

In the 1960s new roads were developed between Limbe (Victoria at the time), Kumba and Mamfe, which gave the South West access to the North West and Nigeria. Migration boomed at an annual increased rate of 5.6 % between 1961 and 1987 (Ruf, 1999). Cacao production really took off because of a combination of factors: the influx of migrants, paired with the increased government interest in supporting the development of the cacao sector as well as the arrival of pesticides to counter the detrimental effects of pests such as black pod disease (Achard et al., 2004 and Ruf, 1999). During this time, the South West Marketing Board (created in 1961) supplied farmers with inputs, stabilized international price fluctuations and provided the organized sale of their production; as a consequence cacao production continued to expand in the South West. However by the late 1980s and early 1990s, producers felt the effects of the marketing board's ending as well as market liberalization. In addition, with the devaluation of local currency and the drop in international cacao

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prices, the creation of new cacao plantations slowed and planting food crops took precedence (Achard et al, 2004).

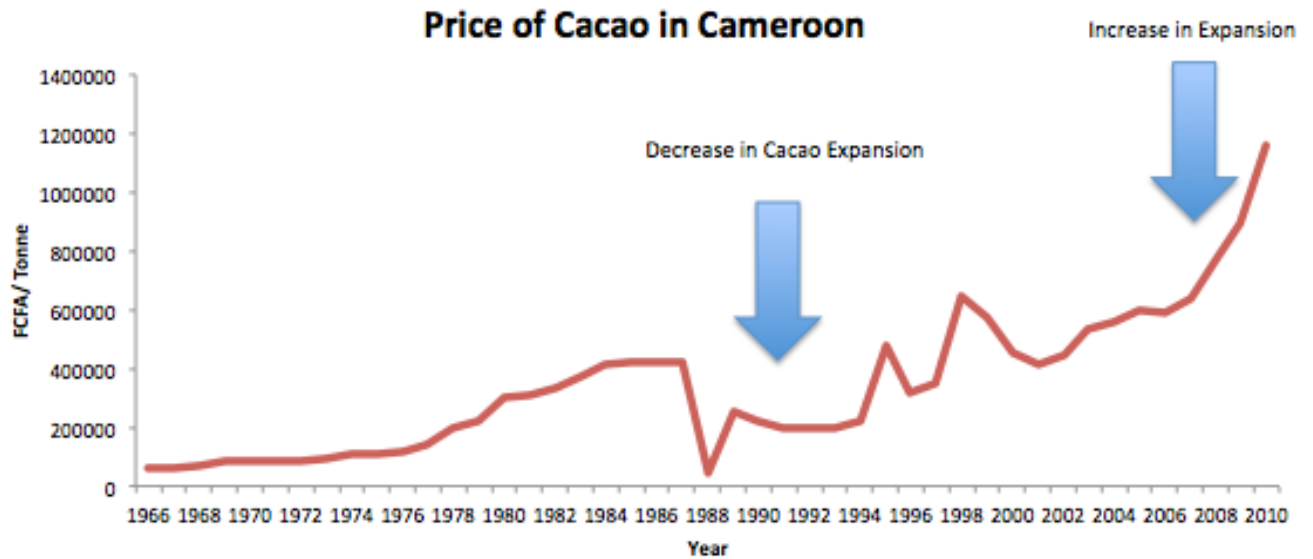


Figure 5: Price of Cacao in Cameroon, 1966 – 2010. Illustrates price fluctuations. (FAO stats, 2014)

### 5.1.2 The current cacao basins; the centres of cacao production in the South West.

More recently, cacao expansion has increased with an upturn in the international cacao price. Today there are four main cacao producing basins in the South West (see areas outlined in red in Figure 6).

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Figure 6: Map of current prominent cacao basins South West Cameroon.

.Basins numbered in order of production 1)Kumba, 2) Mount Cameroon 3) Konye 4) Mamfe

Currently the highest cacao producing basin in South West is the Kumba basin, followed by the Mount Cameroon basin, then the Konye basin and Mamfe basin. The Kumba basin is in the Meme Division. Kumba City is the base of all the cacao activity in the South West and most of the



production from the surrounding area will end up in Kumba. The Kumba basin/Meme division is relatively saturated with cacao but there are still a few areas with forest left that are experiencing expansion.

### **5.1.3 The current areas of expansion in the South West.**

Key informants describe the current cacao expansion as taking place 'everywhere there is forest'. At this time, the cacao price is very high as compared to 20 years ago; license buying agents and government officials attribute this to the surge in expansion. This expansion is located on pioneer fronts, meaning on lands with lower population density, and which are less developed and further from the hub of cacao activity in Kumba. Furthermore it is happening in areas with already high population densities where community forests and reserves are being exploited in order to establish cacao.

In more recent years an observed trend has been the growth in recognizing the importance of having a farm. The head of the director of the South West Farmer's Cooperative explained that this is in contrast to the 1980s when people wanted to find a job with a steady salary such as working for the government. Now even government officials are looking for land to grow cacao. People see having a farm as an investment for the future as well as something to pass on to future generations. Farms are seen as a good financial investment as they are something to fall back on, as once productive cacao farms are a form of security in a world where the economy is not stable and jobs can be lost. In addition, cacao farms can generate income without work when under a "two party contract" (to be further explained below). Moreover, profits made on a farm are not subject to taxation. As explained by several Licence Buying Agents in Kumba, the recent interest of cacao production is a result of the high cacao prices (in the last 6 years, the price for producers has jumped from 600FCFA/kg to 1300FCFA/kg) and the subsequent creation of cacao farms means that a surge in production is expected in the upcoming years once these new farms become productive.

### **5.1.4 Capital Investment: the influence of capital on the speed of expansion.**

There are two different types of players involved in cacao expansion in the South West. In the first category are those that have minimal capital available for investment (the majority). Recently, with the high cacao prices, a second category has begun to emerge more prominently – the cacao expander with substantial and accessible capital assets.

*Large Capital Investors* People from the cities with significant funds have invested in rural areas to erect cacao farms. Research findings indicate that the large capital investors will have an easier time buying land in their own villages, as village chiefs prefer to ensure investments that will benefit the community; however, this will depend on where the village is situated and its access during the rainy season. Many large investors have notably created farms towards Mamfe in Manyu Division though they exist in smaller numbers in other areas throughout the South West. Interviewees explained that these types of players more commonly search for forestlands in close proximity to roads in order to ensure they can export their production and more easily hire labour. These farmers will open several hectares of forest at once by using paid labour. Their objective is to establish a cacao farm that will be productive uniformly and rapidly in order to benefit from the current elevated cacao prices. Once established and productive, two party workers will be hired to work the cacao farms. The size of farm established will depend on the investment and amount of forest available. Though still rare, there is also a new type of work system that has been created out of this expansion, which is 'pre-production two party' (see section below 'The Complex Labour Force System').

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*Small Capital Investors* In contrast to the large investors, the farmers with minimal capital may be able to acquire large lands but will only be able to convert cacao one hectare at a time. While these farmers wait for the cacao to be productive, they can generate income growing plantains and food crops. The farmers with few investment resources will be more likely those occupying more remote areas with bad road access as these lands are cheaper to purchase.

### 5.1.5 The Current Actors Driving Expansion

#### *The cacao pioneer front driven by youth.*

According to key informants, in Manyu and Kupe Manenguba Division, the expansion front is being driven by youth. Main information sources in the cacao business attest that the villages experiencing expansion include Batchu Awagwe, Etoko Mile 27, Kendem, Tinto and Bakebe in the Manyu Division and Western Bakossi, Barubook, Epeng and Nyandong in Kupe Manenguba Division.



Figure 7: Map of Districts in South West Cameroon Experiencing Cacao Expansion Areas outlined in red mark the Manyu and Kupe-Manenguba Districts with considerable expansion

According to reports, those driving this expansion are the youth that return home to their villages because they cannot find work in the cities. Due to the remote conditions these areas require challenging manual labour at times and the locations also tend to be less populated. One could hypothesize that another reason youth are the prime movers in these areas could be because there is less labour available in these areas and therefore one has to be willing to do all the manual labour. Additionally, migrant youth without families can settle much easier in the very remote areas with less access to schools and healthcare than those with families. These hypotheses could not be further explored due to time and geographic limitations of this research.

*All types of players participate in the saturation of cacao farms around villages*

As stated earlier, people are establishing new cacao farms anywhere possible. Areas that are already quite populated are also locations for expansion but not towards any front but rather filling in gaps of forest that still remain. Areas around main route axis and that are easily accessed will have an available labour pool. Therefore, these areas will see expansion driven by men of diverse ages and also by women. This is also evident in areas such as the Meme River Forest Reserve and the Bakundu Forest Reserve.

*Encroaching into reserves in the name of cacao expansion.*

The land pressure in the South West has driven producers to exploit the reserves. The British Colonial Government created these reserves around the late 1930s and early 1940s. They were protected and had been kept relatively protected until recently. A farmer explained the belief that "reserves are preserved for future generations, but the future is here, we are the future generation and we need the forest." Today there are very few of these reserves left with forest intact. The Bakundu Forest Reserve is nestled along the main road axis between Muyuka and Kumba (one of the largest cacao production intersections). According to key informants, everyone has made their way into this reserve, from small investors to large investors, from subsistence cacao farmers to government officials.

The Meme River Forest Reserve has likewise been infiltrated though not by the same actors. Mainly the small capital investors are exploiting the Meme River Forest Reserve. It is hard to access as the few existing roads are in very poor condition and are generally impassable in the rainy season. A large portion of the farmers that tend to work in this area will access the reserve by crossing the Meme River. Costs of hired labour are elevated in the reserve in comparison to the village as it requires crossing through the river and is a fairly long distance walking from the village. Regardless of the challenges, this is the main land that is available in the area and therefore it is being exploited. Farmers in the reserve estimate that it will be completely occupied in about 5 more years.

*A look into the future of cacao filled reserves in the South West*

The government has decided in the last few years to try to stop people from encroaching on the reserves and to rehabilitate the forests. Last year a program was launched to plant timber trees within the cacao. The growth of these trees will be monitored but will be the responsibility of the farmers. As soon as the trees are fully grown, the farmers are supposed to leave the area. So far this project has only applied to a few hectares, however if this project is effective, it could eventually lead to a decline in production from the South West. Further details about the expansion dynamic that is occurring in Kwakwa will follow in next section.

## **5.2 Strategies and Dynamics of Cacao Production in South West, Illustrated by the Example of Kwakwa Village**

### **5.2.1 Kwakwa: the migrant village and hub of cacao activity**

Within the Mbonge Subdivision, in the Meme Division lies Kwakwa - a bustling migrant village. Kwakwa is a mere 18 km west of Kumba Town along the Kumba- Mbonge 'highway' towards Ekondo Titi, Mudemba and the most southern access to neighbouring Nigeria. The migrant villages in the area are mostly populated by people who are not from the Bakundu tribe and have migrated or are descendants of migrants from the North West, Nigeria and surrounding divisions in the South West. Migrants were generally welcomed into the area but were granted access to land outside the main native villages.

Until the 1900s, thick forest covered most of the land where Kwakwa lies at present. Many of the Bakundu people who are the natives of the area settled in this area in the 1920s (Mukete Kundu, 2002), notably from Bao Bakundu. Kwakwa was actually the original farming area for the Nake Bakundu people. Kwakwa was not officially recognized as its own village until 1968. The village was run by quarter heads and was not granted a chief until 1996; however he did not live in the village until 2011.

While the Bakundu natives that settled in the area were developing the lands, they bought migrants slaves to clear the forest and set up rice and then later banana plantations. These slaves were given land (which is now where Kwakwa stands) to live on. Once they had been freed from their slave contracts, some settled permanently in Kwakwa.

When the slave trade was finally eradicated in the area in the 1940s, it motivated North Westerners to come in numbers to the area in search of fertile land. Other migrants soon followed which included Rumpis, Nigerians, Orocos and neighbours from other Bakundu villages. Upon arrival, traditional royalties such as fish, rice, huts, cutlasses (machetes), drinks and tobacco were offered to the natives out of respect and for the right to use the land. Land that was given to settlers in the early years was not owned by the settlers and upon expansion and development of the village; portions of farmland were reclaimed (a factor that greatly affected land accessibility of the descendants of the first settlers).

A large public road connected Kumba and Mbonge in 1958 and cut straight through Kwakwa village (which destroyed several of the earliest cacao farms). The creation of this road also stimulated migration. Bakundu natives from bordering villages in the vicinity moved to Kwakwa and other villages along the road to have easier access to the cities. Additionally, many of these natives from areas such as Boa Bakundu settled in Kwakwa because their farmlands shared a border with Kwakwa and the road allowed products to be more easily transported to the city.

By the end of the 1960s, the villages were gazetted and Kwakwa was officially a village; the population of Kwakwa at that time was 1247 inhabitants with 249 houses. Although there has not been a complete census recently, population estimates are between 6000-7000 people with over 1000 houses (Notebook of the Agricultural Post, 2012). The town is referred to as a "cosmopolitan" town because of its cultural diversity. These days Kwakwa becomes a hub of activity especially around the cacao season when the population booms with seasonal workers.

Kwakwa has a diversity of amenities and livelihoods. Although the large majority of people in the village are farmers there are also several small stores, restaurants, bars, mechanics, tailors, fuel

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distributors, over seven churches, three primary schools and an agricultural post. There is also a secondary school, health care center and traditional court on the outskirts of the city towards Kombone. Kwakwa holds a very popular market on Mondays and Thursdays, which brings buyers and sellers from Kumba Town and neighbouring villages. Most women in the village derive their income from selling their products in the market.

Recent changes that have come to Kwakwa include good potable water which arrived in 2011 and last year work was done to compact the Kumba-Mbonge road. Villagers rant of the great improvement in comparison to previous years, though the road is not paved and turns as slippery as ice when the rains hit. Additionally, after a decade of waiting, electricity arrived in 2014. Within the first few months after livelihoods began to diversify as new small businesses arose such as selling DVDs and electronics. Subsequent years will most likely bring large changes, as local people are quite interested in the prospects and possibilities such as the internet, refrigerators and cold stores.

There is great debate around the future of Kwakwa linked to discussions about dividing the Mbonge Subdivision as it currently manages 98 villages and is too large. According to the chief, there is talk of splitting the subdivision into four subdivisions. If this does happen, Kwakwa could be the capital of one of the divisions. If this occurs, the village expects to develop quite quickly and significantly in the years to come. In anticipation of this possibility, architects have already started to advertise their services in the village and village natives that currently dwell in the cities have started coming back to the village to build personal houses.

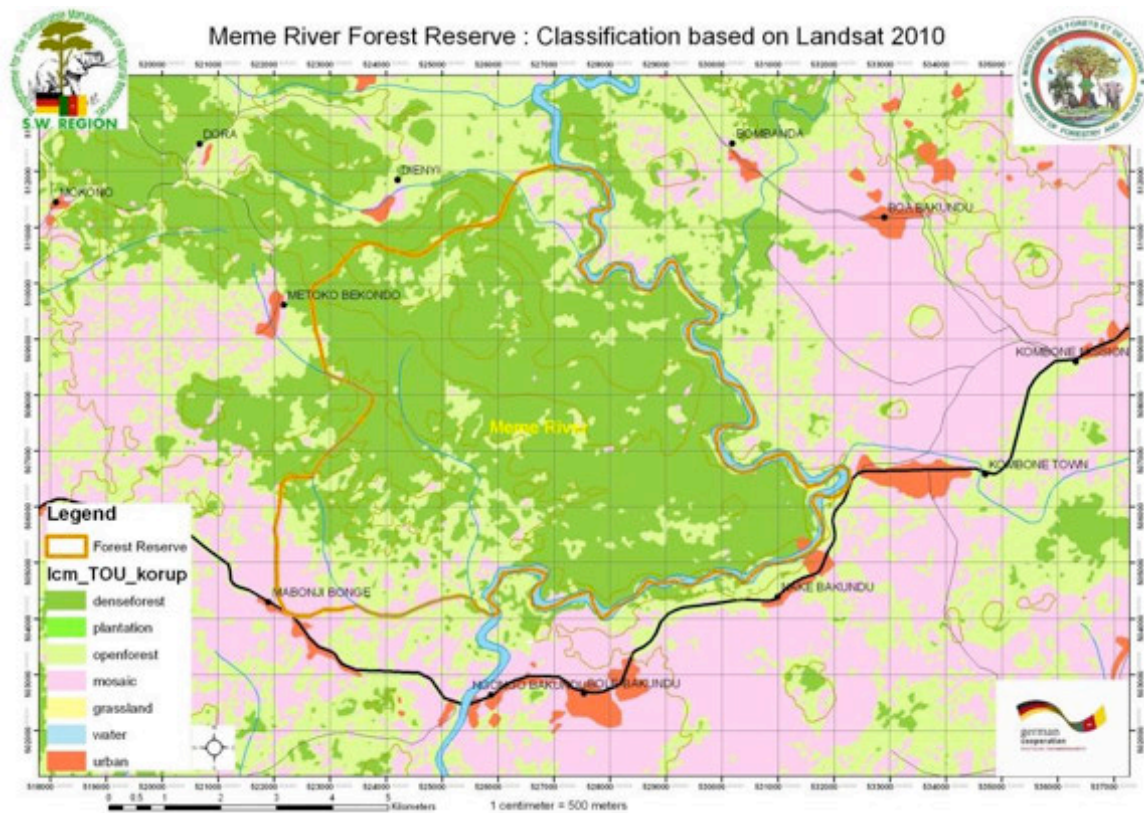


Figure 8: Map of the Meme River Forest Reserve (see orange boundary) Kumba-Mbonge Road and area surrounding Kwakwa and demarcated boundaries



### **5.2.2 The History and Evolution of Agriculture in Kwakwa**

According to focus group participants, Kwakwa has seen a diversity of changes in its agricultural production notably in their cash crops over the years. When people first settled in the area, they grew local crops such as local oil palm, which they would sell in tins for five shillings a tin. Around 80 years ago, rice was introduced by the Ngwinde people from the Diane division who imported it from Nigeria. At that time migrant slave labour was used to cut the forest to clear lands for rice. Rice was produced for local consumption and for export to other African countries. By the late 1950s and early 1960s, the demand for bananas increased to feed the European market and bananas took the place of rice as the most important cash crop. In 1957, one bunch of bananas would sell for 15 shillings. The bustling banana business was a good business at the time and allowed farmers to buy zinc roofs (a historic symbol from this time still seen today). Then in the early 1970s, the demand for bananas dropped and plantations were planted with coffee and cacao. Cacao trees have been sporadically found in the area since the 1930s and were found scattered between bananas but were not the main focus in the area until the banana market failed. In the late 1980s when the price for coffee and cacao plummeted, coffee was cut from most farms but the perennial cacao trees were mostly left. Modern oil palm was introduced recently in 2000. Bananas are still grown for home consumption in cacao farms and around houses; however rice and coffee have been eradicated. Certain varieties of crops have been introduced from other areas such as yams from Nigeria. Food crops such as cassava, yams and cocoyams have been traditionally grown since the area was originally settled. The North Westerners introduced maize and okra to the area when they migrated down after the Second World War. From the 1960s food crops were shipped to neighbouring countries including Chad, Gabon, Central African Republic and Nigeria.

### **5.2.3 Cacao consumes the land around Kwakwa**

Currently cacao is the most important cash crop in Kwakwa. At present throughout the area, the population is comprised of over 80% farmers, 65% of the farmers grow cacao (Notebook of the Agricultural Post, 2012). Most households also grow food crops within the village and in the cacao farms. The growing of crops is divided on strict gender lines in the village; cacao is almost exclusively worked by men (with only a few exceptions) and food crops are worked by women.

As previously discussed, cacao was almost entirely monopolized by the German plantations, however the Duala elite (Anti-Slavery International, 2004) and important Fons such as the Mukete Fon, were able to get cacao seeds from the Germans. According to the Mukete family, their involvement with trade and border customs granted them access to cacao seeds directly from the Germans and enabled them to open their plantation in Kumba in 1910. However cacao arrived towards Kwakwa illegally.

A local Kombone native explains the story of cacao introduction to villages in the area.

"It is believed that the first person that started the cultivation of cacao was Ekole wa Ndole. He obtained cacao seeds from Evangelist Nyame who brought cacao seeds from the German Company Hamburg West African Plantation Company in Victoria [Limbe]. Ekole wa Ndole was employed into this company where he swallowed cacao seeds. Ekole wa Ndole did this whenever he was to go to the village for a visit. When he emptied his bowels, he would carefully take the cacao seeds and wash them to plant. For anyone to have cacao seeds from Ekole wa Ndole, one had to supply labour in his farm just for ten cacao seeds" (Mukete Kundu, 2002, p.16)

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Neighbouring villagers took cacao from this individual and spread cacao in the area. Farms established in the area at the time were rarely over a tenth of a hectare. Since cacao took off in the 1970s, cacao expansion has consumed all the forest in and around the village. By the end of the 1980s, most of the land in Kwakwa had been occupied and expansion into the Meme River Forest Reserve began in 1989 according to one of the first pioneers.

### 5.2.4 The scramble for a livelihood through cacao expansion in the Meme River Forest reserve

The Meme River Forest Governmental Reserve is surrounded by and traditionally split up between five villages; Dienyi, Boa Bakundu, Metoko Bekondo, Mabonji Mbonge and Nake Bakundu. In the 1940s, the British government officially made it a governmental reserve. Until recently, locals abided by the rules set in place. Key informants say that this area was first encroached upon by the migrant population and is still mostly occupied by migrants. It was not until recently that village natives started to venture into the reserve. In Nake, youth who have little land to inherit started venturing across the river in order to make a living. Within the reserve an entire permanent community has been created in the BIA forest. To date there are about . farms 30 families that have settled and built houses in this area



*Photo 1: Cacao producers cross the Meme River to reach their farms in the Meme River Forest Reserve*

### 5.2.5 The Defining Boundaries of the Meme River Forest Reserve

Discussions with those occupying the land in the reserve remain a bit tense. Many of these farmers say they bought the land from local chiefs with the understanding that it is not reserve land but is community forest. In discussions with the chiefs, they claim not to know the defined boundaries of the reserve and that there are no official documents showing that they have sold the land. The documents that were made upon sale of land are never fully officialised as the process is too expensive for farmers and some farmers only have a photocopy of a signed contract.

The governmental project to restore the reserve mentioned above, has not as yet recorded GPS points to confirm the location of the reserve in comparison with the areas being settled. However through discussions with the divisional delegate of forestry as well as local farmers, it is quite likely that the area settled is indeed Reserve. This could potentially create some problems in the future if the rehabilitation project takes off. The project was launched last year and so far has planted 5000 trees in the Meme River Forest Reserve and plans on taking GPS points to demarcate where forest still exists to ensure the expansion is stopped. The government does not want a conflict so it believes that this project will help make farmers progressively leave and be able to find alternative livelihoods in time. The project plans to plant trees five metres by five metres (5m. x 5m.) apart tracked by GPS points. By the time the trees are fully grown, it will create too dense an environment

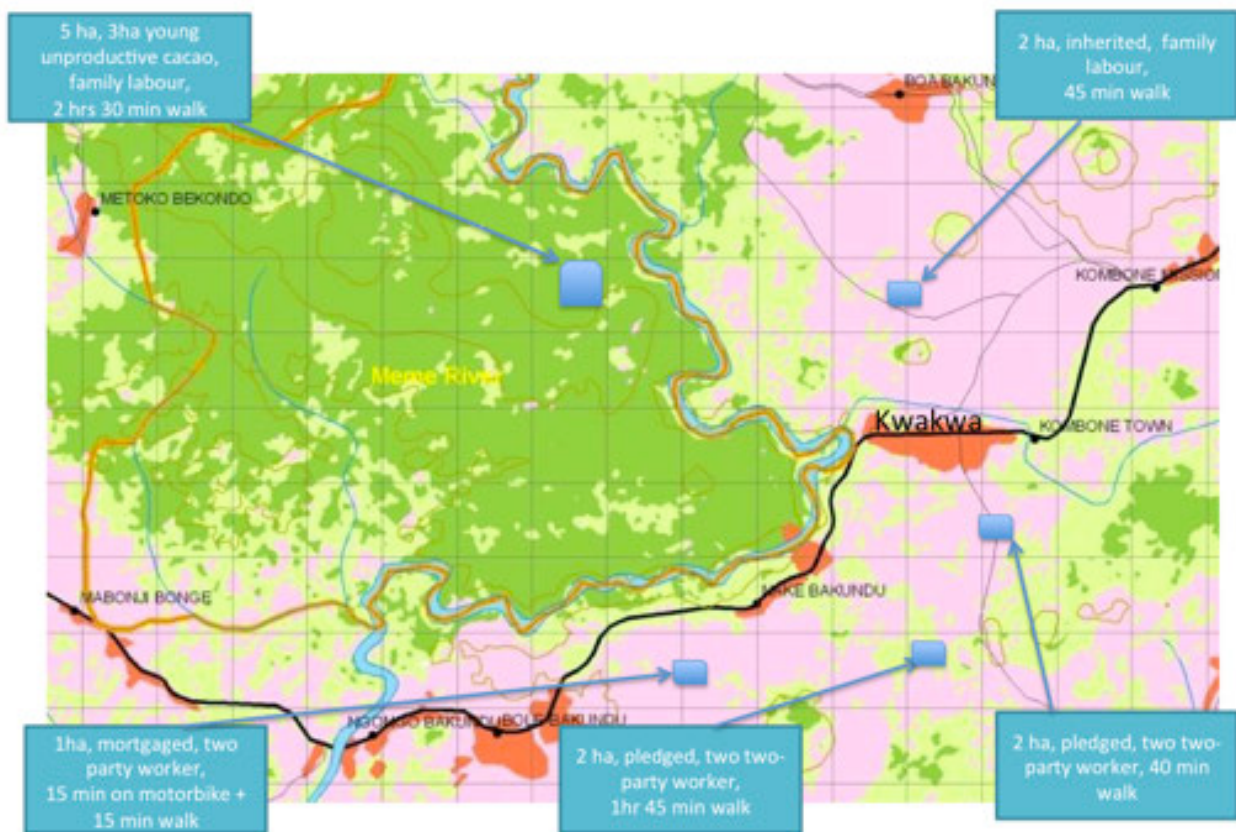


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for the cacao. Although there is still a bit of land left in the reserve, expansion will most likely not continue for too much longer.

### 5.2.6 The Issue of Limited Land Available in Kwakwa

Even though there is little land left for possible expansion and the lands around Kwakwa are intensely saturated, there is still a bit of mobility in land ownership. With the continued infiltration of migrants, people will search for lands in other villages and will walk hours to reach their plantations. This can prove to be very time costly when you work farms in several different villages.



*Figure 9:* Kwakwa Area Map with Example of a Farmer with dispersed farms

Illustrates farm lands throughout the area with different work arrangements and ownership agreements.

(Map source: Cameroon Ministry of Wildlife and Forestry)

As illustrated in Figure 9, a single farmer can have land in many different villages. Looking at the example displayed above, this farmer would have inherited 2 hectares (ha.) in Boa Bakundu, then would have had enough money saved up to pledge two farms just outside of Kwakwa and then also mortgaged a farm just beyond Nake. With all of the money he generated from his personally worked farms and his pledged and mortgaged farms, he would have been able to 'buy' land in the reserve. The reasons for the diversity of labour and ownership arrangements will be further clarified in the Typology Section.

There are very few landowners that own large estates or sums of lands that are over 20 ha. During their lives in Kwakwa, most people will continually accumulate farms, mostly between one to two hectares. Even those that have inherited lands search for territory that they can claim as their own

legacy. As indicated from interviews and focus groups, generally everyone would like to own more land than they currently have but find it financially hard to invest in land.

People who arrived in Kwakwa early got access to land on the outskirts of Kwakwa but some of this land has disappeared for development. Land within the village limits that was originally simply given for royalties when Kwakwa was first settled, was later taken by the chief and used to erect buildings and houses. Undeveloped land within the city limits is mostly owned by the Bakundu Cultural and Development Union (BACDU) and is rented by women to plant food crops. This land is slowly being sold to enable more development.

### 5.3 Strategies and Terms of Land Access

Currently there are several ways people can have access to land, though these systems differ between cacao and food crops. For attaining land with cacao, farmers can inherit, buy, rent ('pledge') for a set number of years or mortgage land from a landowner needing money (also known as 'balance and take'). Cacao can also be farmed by entering into a 'two party' system whereby the land is used for free but the production is then split between the owner and the worker (details of these arrangements are explained below).

Land for food growing food crops is owned or rented (the most common means of accessing food cropping land). Gaps in cacao plantations are also used for food cropping, which can be family owned or can be rented. Furthermore people can grow food that is being expanded with young cacao (mostly family lands).

With increasing population pressures, the lands available for purchase and price of the land have evolved over the years. In the past, it was much easier to purchase land. In the 1940s natives had a plethora of land and sold it for minimal sums. In early years, farmers were even known to have exchanged their land for a goat. (Mukete Kundu, 2002). In the 1970s the price of land around Kwakwa was around 30 000FCFA per hectare. In the 1990s it rose to 70 000FCFA and since the 2000s it costs 1-2 000 000FCFA per hectare (with cacao already planted on it). When forests were easier to come by (particularly in neighbouring villages), one hectare of forest could be bought for 200 000FCFA. When little land was found in the area, farmers started to 'purchase' undeveloped forest (known locally as black bush) in the Meme River Forest Reserve for 100 000 to 300 000 FCFA per hectare (price in 2000s). It should be noted that land 'purchased' in the reserve will not actually be owned and according to the divisional delegate of forestry, anyone developing that land, now that the forest rehabilitation project has been launched, could be prosecuted for forest destruction. This land is generally acquired through chiefs and villagers who traditionally "own" the land, however many who consider the land to be government property will bypass the traditional system. The reserve has not just been entered to grow cacao, women have also entered in search of land to cultivate food crops.

It has become rarer for people to sell their land in recent times. As explained in a report written about the development of Kombone village,

"The few who happened to have cultivated cacao farms later sold them to the strangers like the Igbo, Bangwang and people from the grass-field not knowing they were plunging themselves and their children into complete suffering and poverty. This habit of selling farms by both aged and the youths, has contributed very seriously to the under-development of the village [Kombone]" (Mukete Kundu, 2002, p. 17)

With the current land pressure and high demand for land to work, other options have been created that mean that farmers will not have to sell their lands in time of need. When in need of money quickly for a funeral, hospital bills or to meet up with traditional requirements to enter a Juju society, people will search for someone to rent or mortgage their land.

### **5.3.1 Land given up for pledge, mortgage or sale**

People will preferably rent (pledge) their land. Within this type of arrangement, the pledger will give a large sum of money to the landowner with the agreement that the pledger can use the land for a certain number of years. Pledge agreements can last anywhere from 2 to 50 years, depending on the amount of money given and the agreement made. As soon as the designated time has passed, the land is returned to the owner. Owners that need money before the agreed upon time has elapsed will commonly approach the pledger and ask to extend the contract for a few more years in exchange for another sum of money.

Mortgaging land is another option of how to acquire money in a time of need. Within a mortgage contract, a landowner will receive a large agreed upon sum of money and in return the mortgager will be able to use the land until the owner can repay all the money given. This type of contract is used as a last resort for landowners in an emergency situation when they cannot find someone to pledge their land.

Occasionally villagers decide to sell their land but according to interviews, the reasons for sales have changed. Young inheritors who wish to move to the city may sell their land or it could be sold if there is no one in the family to take over the land. When in serious financial need, farmers will look for all other options before selling.

Women that are able to purchase land to grow their food crops will pay around 500 000 FCFA for one hectare, though natives of the area can occasionally buy land from the Bakundu Cultural and Development Union for around 100 000 FCFA per hectare. Currently the majority of women rent the land they use to grow their food crops which currently costs between 30 000 to 60 000 FCFA per hectare for two years. Women will rarely rent an entire hectare of land, but will more likely a third of a hectare where they can grow 300 to 500 ridges. According to a focus group, 75% of the land currently cultivated by food crops is in and around the village. This land is progressively becoming scarcer because of development. Few women have bought their own lands, except those that have made high profits with food crops. Most of the women who own their own farms inherited them, or they plant within the gaps of their husband's cacao farms.

## **5.4 The Complex Labour Force System**

There are several different types of labour arrangements and farmers use a combination of many to fulfill their work needs. The trend that men in families tend to focus on cacao and women on food crops extends to the general realities of labour in the village. The labour force for cacao tends to be mostly men, except for broking (pod breaking), which is mostly done by women during the peak harvest periods. Even though food crops tend to be grown by women, men are frequently hired as part time labour for jobs such as clearing. For cacao, the two party system is the most common labour arrangement in this region. However, many people will also hire part time labourers (even the two party workers) for daily work whereas a few people have full time salaried workers. The Njangi system (a shared working system) is also a common practice. For food crops, most women will work

themselves with family members but will also hire part time workers or Njangi groups at peak work periods for certain tasks.

#### **5.4.1 Family workers**

*Cacao:* Most farmers will work a portion of the land they own, the exception exists among the large-scale landowners (those that have accumulated lands over 5 ha). Most of the large landowners will give their extra hectares to a two party worker. Other large farmers will hire full time salaried workers who will work and live with the owner's family. When people have numerous farms, landowners will tend to work on their personally owned farms and those that are closest to their home. Farmers will be more inclined to give out farms that they pledge or mortgage because they have less personally invested in the land. In other words, personal farms are where farmers will spend a larger portion of their time, where they will be more likely to plant fruit trees and will regenerate. Otherwise, most land owners that have undeveloped lands (most commonly primary forest), will work on developing these lands and give out their already developed lands (with cacao that is already productive) for two party arrangements.

*Food Crops:* Women will work all of their lands and will also have their young children help them during weekends and holidays when they are not in school.

#### **5.4.2 Two Party Workers**

*Cacao:* The two party system is the most common arrangement among the residents of Kwakwa who are working cacao. In order to become a two party worker, one needs to give money (between 35 000 and 50 000 FCFA for a one hectare farm) and royalties, also known as 'mimbo', in the form of, for example, a case of beer or a jug of palm wine to a landowner in order to work each farm. There is usually no contract regarding the number of years a two party worker will be kept. Some work the same land for one year and other 20 years. This investment is not very secure. As explained by a local farmer "sometimes you work one year and the next they take it away". Patrons can take back their land or change their two party workers from year to year.

Once you are a two party worker, you are responsible for working the land but the landlord (patron) is responsible for initially supplying the finances for the chemicals (though these costs are divided at harvest) and choosing to whom they sell the production. The two party worker generally has control over the way the land is worked. Most two- party workers work one or two farms (1-2 hectares), however others can work up to five or six hectares. Two party workers are only occasionally permitted to have access to other trees and plants on the land other than cacao. Some will also allow two party workers to grow food crops in the gaps of the cacao, although these terms depend on the relationship and agreements reached between the patron and worker.

The following chart illustrates tasks generally paid by workers and those split with their patron/ landowner although arrangements can differ. One can even work as a two party worker for your own family.

Worker	Split between the worker and land owner
Clearing*	Chemicals**
Spraying*	Pod breaking (broking)
Pruning*	Oven Fee
Harvesting*	
Felling wood for oven*	
Transport of cacao to the oven*	
Transport of cacao out of the farm to the village*	

*Figure 10:* Illustration of Division of Cacao Production Tasks by Two-party Worker and Landowner  
Costs paid by two party workers and those that are split between the worker and the landowner.

\* If the two party worker hires labour for these tasks, he is responsible for the additional costs incurred.

\*\* Costs for chemicals are covered upfront by the landowner and deducted later when production is sold

Some workers will take on the responsibility of numerous farms even up to five ha. Depending on the amount of land they are working, two party workers will commonly employ salaried workers for certain jobs especially spraying during the rainy season because they are fighting against time (they wish to spray as much as possible when the rains momentarily cease). Though rare, some two party workers will also hire full time salaried workers to help work their lands. It is commonly viewed that the amount of time each farm was worked would decrease as the number of farms increases. For this reason most patrons do not want workers who are working many other farms. The workers interviewed with five farms explained that they tended not to tell their patrons the number of farms they worked.

Social Capital is important in attaining a two party job as one needs to be somewhat known and have a good reputation because people want to be able to trust their two party workers. Several patrons who were not happy with their two party workers reported that their workers would give false measurements and would steal from the farms both cacao and food crops. Farmers also said some workers would claim they need more chemicals than they actually did and then either use them on their own farms or would sell them for a profit.

**Food Crops:** Fruit and Spice trees are occasionally shared between an interested harvester and the landowner (two party in the simplest of terms). Since there is little to no maintenance, the trees are harvested and the profits are split between the harvester and the owner.

### 5.4.3 Salaried workers

#### Daily Salaried Worker

**Cacao:** According to a focus group and through discussions, over 90% of the people controlling cacao farms will employ labour at some time during the year (even two party workers). Finding daily jobs depends on your social capital and the reputation you create for yourself. Those that work well will commonly be invited back and many can create a network of regular customers. Workers will also commonly create Work Njangi groups that will be hired to do large jobs such as clearing in one day (to be further detailed in Work Njangi section). Certain salaried workers will develop expertise in certain tasks such as pruning (which receives a higher hourly rate). For price and duration of daily

jobs please refer to Appendix E). Certain farmers do not like to hire daily salaried workers as they work too quickly and do not follow instructions given. In lieu of this, certain farmers will choose to do tasks themselves or will hire full time workers that they can train themselves.

**Food Crops:** Women will hire workers for certain tasks throughout the year. The peak period when women need salaried workers is during the dry season in January to March for clearing, ridge making and planting. There is very little work with cacao at these times.

#### Full Time Salaried Workers

**Cacao:** Full time salaried workers are lodged and fed; some will even have their medical expenses paid for by their patrons. They work from the beginning of March until just before Christmas (commonly the 20th of December) and will be paid one large sum at the end of their work season. The salary varies between patrons but it is generally 150 000 to 200 000 FCFA, an increase from 80 000 FCFA workers were paid in the 80 000FCFA. Some patrons with connections in the North West will go and find workers and will pay their transportation one-way to come to the village. Other full time workers find work in the village. Students who attend the local high school may also decide to enter into this type of contract as it is a form of security and will ensure that all of their school fees, food and housing will be paid for.

#### 5.4.4 Work Njangi Collective work

**Cacao:** Work Njangi groups are used commonly for cacao and for food cultivation. Those with no access to land or those with small cacao farms will choose to come together to work collectively. These groups can be comprised of up to 15 to 20 people. Different arrangements are made depending on the group. For large jobs such as clearing, the entire group might work throughout one day on a particular farmer's land. For smaller tasks, such as spraying, smaller groups of three people will be formed to work, for example, two days a week on each other's farm. There is no money exchanged within this group, solely work hours. These groups will also 'rent' out their services to non-Njangi group members for a large fee. For example to clear a 1 ha parcel, the group might charge a farmer 30 000 FCFA/ ha for the task. Benefits to the farmer include ensuring the task is finished very rapidly.

There is another form of Njangi group that appears in surrounding villages (but not in Kwakwa), this is the Community Njangi Group. For example in Kombone for example, they have created a community cacao farm. A Njangi group of community members works this land. The proceeds from this cacao farm will go towards developing the community.

**Food Crops:** Women form Work Njangi groups in order to properly manage and control uniform harvesting of their food crops. This system is particularly used for creating ridges. In one day, the group will work on one woman's farm, and keep track of the number of ridges each woman creates. In return, the woman who had her land worked will work the exact same number of ridges on each of the workers farms. In other words if someone worked 20 ridges, she will work 20 ridges on their farm, if another worked 50 ridges, she will work 50 ridges of that woman's farm.

## **5.5 The South Western Simplified Cacao System with High Yields Matched with High Chemical Inputs**

### **The Typical Cacao Farm Structure**

The production is higher in the South West than other regions in Cameroon; however the system of production is also more complex. The systems found in the South West are generally quite structurally simplified in comparison to other areas. In Kwakwa and the immediately surrounding areas, cacao farms have only about ten other types of trees in addition to cacao per hectare. The high humidity has driven farmers to continually simplify their system to increase air circulation in their farms. The use of wood for drying the cacao in the southwest has also contributed to its increasingly simplified structure. Farms in the reserve will typically be more complex but are in the process of being progressively simplified. Trees that are kept include. Mahogany, Boma, Njensenga, Kola, Bush Mango etc. (cf. Appendix F for a more complete list).

In terms of their physical structure, the cacao trees in the area may often have six or seven trunks. It was believed that more trunks would mean that more cacao would be produced. Most of the farms are around 50 years old, though some personal farms will be partially progressively regenerated. Newer farms tend to have trees with fewer trunks as knowledge and understanding of how cacao trees functions has grown.

### **5.5.1 Production from Cacao Farms around Kwakwa**

The production in the South West is estimated to be around 800 to 1000 kg of cacao per hectare for cacao in high of production. The cacao farms in recently planted areas such as the Meme River Forest Reserve will have these yields. However, on farms around Kwakwa where the trees are past their prime at a ripe age of 40- 50 years old, production is more around 500 to 600 kg per hectare. According to the information collected from farmers, those who integrate new cacao into their old farms will see yields around 700kg of cacao per hectare. Taking into account that the 'Amazing' variety takes 3-5 years to begin production and 'German' cacao takes seven years (though it has a long life span and is more resistant). The production is hard to predict and will vary greatly farm to farm as farmers tend to replant with a combination of varieties, replant progressively throughout their farms over a matter of years and techniques used by the farmer vary greatly. According to a researcher from IRAD Barombi Kang, a research center in Kumba, when the cacao price dropped in the 1990s, the production dropped because people were not working their farms as well as previously and yields were around 400 to 500 FCFA per kilogram. Cacao in the area was still in its prime production years at this time, thus showing the impact upkeep and management can have on cacao yields.

### **5.5.2 Technical Calendar for Cacao farms**

People choose to run their farms differently depending on the number of farms they work themselves and the amount of money they have to invest in labour. The cost and amount of time needed for most tasks is proportional to the amount of cacao produced. For example the quantity of chemicals used increases as the quantity of cacao increases. Since cacao is harvested from 3 to 7 times per year, the costs and labour vary greatly throughout the year. This complexity was taken into account when creating the typology models, which will follow in the next sections. The prices for labour mentioned are the averages for 2013, though as the price of cacao continues to increase, the costs of labour and use of equipment are projected to increase in the village.

Tasks also have varying windows for which they can be performed. The following calendar shows the tasks and their associated times for a typical farmer. It should be noted that the months chosen



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for certain tasks will change depended on farmers' choices, which will be discussed in the following sections.

Work Task	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total		
Farm Inspection	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	16		
Clearing	10							8.5					19		
Carrying water for sprayers	0.3	0.3	0.3	0.3	0.3	0.3							2		
Sprayers	0.2	0.7	0.7	0.8	1.2	1.7	2.2	5.0	2.0	1.3	0.7			16	
Pruning	11													11	
Harvest of Cacao						1.5	2			2.3	2.5	2.2	2	13	
Collection of Pods						0.5	0.7			1	1.2	0.8	0.7	4.8	
Broking						0.2	0.3			1.5	2	0.7	0.3	5	
Fermentation (prep)						0.05	0.05			0.05	0.05	0.05	0.05	0.3	
Wood Harvest and Transport										1.7	2.1	1.2			5
Drying Cacao						6	6			8	8	8	6	42	
Transport of Cacao to Oven						0.2	0.2			0.5	0.5	0.2	0.2	1.7	
Transport of Cacao from Oven to Buyer						0.2	0.2			0.5	0.5	0.2	0.2	1.7	
Nursery for Cacao and Planting	3.6	0.8	0.9	0.8	0.9	1.4							8.3		
Total Work Days per Month	26	3	3	3	4	13	13	15	19	19	15	11	145		

Figure 11: Typical Annual Work Calendar for 1 Hectare of Cacao

Shows range in months each task typically could take place.

Numbers displayed are calculated as 6-hour workdays.

**Farm Inspection** During the low season, when there is no specific task, many farmers will go to their farm on average two hours per week to monitor and do small pruning, remove mistletoe and offshoots and perhaps harvest a few ripe fruits. This is more common among those who work only a few hectares or their personal farms as they are more heavily invested in the condition of their farm. In contrast, for example large two party work groups will try to be as efficient with the time that they spend on their farms and will generally not go needlessly to their farms.

**Clearing** Farmers tend to clear their cacao plantations one to three times per year. On average most will clear twice per year, once in the dry season (December to March) and then again right before the big harvest (September to October). None of the interviewees used herbicides to clear, though it does exist among a few. Most rely upon manual clearing of cacao farms. Those with one farm and minimal money to invest in production will clear their farm over several months to capitalize with their manual labour. One hectare of cacao will take around 110 hours to clear with a machete. Others that work numerous farms who have limited time will pay to clear their farms. Workers can be hired as group (Work Njangi) or can be hired individually. Since very few people know the exact size of their farms, prices for the job are negotiated on the spot. Clearing generally will cost around 30 000 FCFA per hectare.

**Spraying** Spraying is viewed as one of the most important processes for cacao farmers in Kwakwa. Many exclaimed that 'if you do not spray, you will not harvest'. This is due to the high humidity in the area and frequents losses from capsids and especially black pod disease. As previously mentioned, the quantity of chemicals used depends on the production.

Photo 2. Packages from pesticides used to treat cacao farms



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Chemicals are sprayed directly on pods (and sometimes flowers) throughout most of the year and therefore the cost increases as the production increases.

Some farmers or workers will spend more time and work with more precision than others. Farmers spray on average five 15- litre sprayers within 4-5 hours, however others will spray 10 sprayers the same period of time. Some farmers will not pay for workers to spray (500FCFA/sprayer) because spraying properly is of extreme importance to them and they prefer to do it themselves in order to ensure they are able to have a successful yield. Spraying is done every three weeks to one a month during the dry season but in the rainy season, spraying increases to every 14 to 21 days. Many farmers will be very strict with this schedule, which means that particularly during the rainy season they may harvest directly after they spray as to not disrupt their schedule.

Insecticides to combat capsids as well as contact and systemic fungicides are used to combat black pod disease. Fungicides and insecticides are mixed together in the same sprayer to decrease the time used for spraying. Generally a certain quantity of insecticide is used throughout the year (approximately 6 litres per year). If one sachet of pesticide is used per sprayer then the number of sprayers will be proportional to the production that year and that month. Those with low capital investment will try to use chemicals sparingly and will split sachets between a few sprayers to save money. The spraying is done without the use of either protective glasses or masks. The danger of the chemicals used is relatively unknown to the farmers and workers spraying the cacao farms.

***Insecticides*** In the past, organized spraying for capsids with atomizers was provided by cooperatives. However since liberalization and the disappearance of most cooperatives, no one has the means to buy an atomizer and therefore all spraying is done with manual sprayers. In Kwakwa, most of the interviewees sprayed insecticides every month, though few followed the recommended governmental spraying suggestions and sprayed only spraying two times per year. There are several different types of insecticides used in the area, though the most common is Parastar. The cost of these chemicals can vary from between 5000 to 10 000FCFA per litre depending on the brand, where and from whom you buy them. (Cf. Appendix G for a detailed list). In the dry season, farmers will perform what they call "washing the stems" which is to spray on the entire stem with insecticides. It is also common practice to spray only on the cacao pods and flowers once they start using fungicides in the sprayers.















***Fungicides*** Fungicides are used throughout the rainy season from April until October or November. The rainy season used to start in March but has shifted to starting in April recently, most believe because of climate change. During the first months of the rainy season, contact fungicides such as Nordox 40 are used however when the heavy rains hit between July and September, systematic fungicides such as Ridomil are used (cf. Annex 3 for other commonly used pesticides). Much like the insecticides the cost of these chemicals can vary from 300 and 1000 FCFA per sachet depending on the brand, from who and where you purchase the product.

*Photo 3. Water barrel where water is collected for use during spraying and Motambi sprayer.*

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*Carrying water for sprayers* A large quantity of water is needed to use in the sprayers. This can be complicated depending on the proximity of the farm to a water source. Most will have water barrels to collect rainwater, which will fill automatically during the rainy season but in the dry season water often needs to be carried (or pushed in a push truck). The quantity of water needed each month depends on the amount of production. Below is a table with examples showing the use of chemicals throughout the year.

Month		Production Harvested (kilograms)	Number of Sprayers Used	Amount of Water Needed (litres)	Type of Pesticides Used
January		0	3	45	Insecticide
February		0	4	60	Insecticide
March		0	4	60	Insecticide
April		0	5	75	Insecticide +Contact Fungicide
May		0	7	105	Insecticide +Contact Fungicide
June		30	10	150	Insecticide +Systemic Fungicide
July		50	13	195	Insecticide +Systemic Fungicide
August		0	30	450	Insecticide +Systemic Fungicide
September		200	12	180	Insecticide +Systemic Fungicide
October		270	8	120	Insecticide +Contact Fungicide
November		100	4	60	Insecticide +Contact Fungicide
December		50	No spraying	0	N/a

*Figure 12.* Illustration of Typical Annual Spraying, includes number of sprayers, required water for the sprayers, type of pesticides in connection to the yield and monthly weather. Note that figures are based on a 1 ha family farm. Additionally in the month of August, two spraying sessions are carried out as between July and October, spraying is done every three weeks in this example.

*Pruning* Most of the farmers interviewed stated they did pruning between February and April. With the problems produced by humidity this practice has become increasingly common in Kwakwa as extension workers have promoted its importance. According to the farmers interviewed, the amount of pruning needed varies between tree varieties. Farmers say that the German variety needs to be pruned only every few years, whereas the Amazing variety needs to be pruned every year. Therefore

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the amount of pruning and time needed to prune a farm will depend on the varieties grown. As such farmers tend to prune once a year, where needed. This takes on average 67 hours per hectare with a machete. Some farmers will climb the trees to cut the branches whereas others will use a ladder to reach the branches.

Some farmers will hire people in the village that have been properly trained in correct pruning techniques however others do not trust hired help to prune and will do it themselves. Pruning takes approximately 67 hours per ha but this varies with age and varieties found in the farm. Hired labour costs 4000 for five hours of work.

**Sanitary Harvesting** Sanitary harvesting is meant to remove all diseased pods and branches from the trees to ensure a disease does not spread to the rest of the trees and pods. Advisors suggest removing the infected cacao pods and branches from the farm, burn or bury them. No interviewees said they specifically would take time to do this task, however a few said they would deal with problems as they arose as they would do their weekly monitoring checks of their farm (however not all interviewees would go to their farm if they did not have to). Through participatory observations, the management of infected cacao varied between workers but most mainly controlled the issue with the use of pesticides. Infected pods that had reached maturity would be mixed in with the rest of the harvest so that production was not lost.

**Harvest** Cacao is harvested several times throughout the year. The peak harvest is around September to November. Farmers that work only one farm for example will tend to harvest more often than those working many farms. This is because they have more time to concentrate on their one farm and want to have access to money as soon and as often as possible in the low harvest season. Men in the village depend on cacao and the income made during the peak harvest does not last until the months of March and April. Men with many farms choose to wait until the production is plentiful because the harvest per hour is more efficient. According to data collected, harvesting cacao in the 'small pick' (low production season in April to June) 4 kg are harvested per hectare per hour. Whereas in the 'large pick' (peak production season in September to November) when the trees are full of cacao pods, on average 16 kg are harvested per hour per hectare. Harvesting is ideally accomplished over one or two days. All available family members are used during the harvesting period and extra help is hired particularly during the peak harvest. In the peak harvest season, one group of people will progressively work through the farm harvesting the cacao with a harvesting spear. Then another group of people will gather all the pods to consolidate them in one



certain area for broking. An average of 35kg is collected per hour per hectare. During peak harvests, farmers will do this with an entire team but in low harvest seasons a farmer with no available family could take a few days to do everything himself. Throughout the peak harvest farmers worry about having their harvest stolen and therefore prefer to harvest as quickly as possible.

*Photo 4. Cacao harvest and collected in a pile ready for broking*



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**Broking** 'Broking' or 'pod breaking' is the process of opening the cacao pods with a machete, removing the cacao beans and loading them into a push truck. Women and sometimes men in the family will work to broke the cacao and usually extra women are hired during the peak harvest. Broking one level will take one person around one hour. Women are paid at a rate of 700FCFA/level (~24kg) of a 5 level push truck primarily to do this task. Once the trucks are packed they are pushed to the oven. Pushing requires two people to manoeuvre the truck. When there are not enough family members this task can be paid to other workers at a rate of between 1500 to 4000 FCFA depending on the distance between the farm and the oven.

**Fermentation** Fermentation is done in a variety of ways in the village. The length of time cacao is left to ferment varies between zero to 10 days depending on the month and farmer. Quality is generally not something that affects the price for the farmer because most farmers sell to local buyers who do not check fermentation levels. The recommended length of fermentation according to the Cameroonian Ministry of Agriculture is 6 to 7 days. Before the peak season, farmers commonly shorten the fermentation length so they can get sell their production and have money sooner. During this time many will choose to ferment for only 3 to 4 days. Additionally when cacao is being dried in the sun, many choose not to ferment at all. They believe that when the cacao is packed and brought inside during the evenings it is equal to fermentation. During the peak season, ovens are in high demand, which can mean cacao is fermented for 9 to 10 days while farmers wait for their turn to dry their cacao.

In order to ensure uniform fermentation it is suggested that the cacao be turned every few days (GIZ, n.d.), however none of those interviewed turned their cacao during fermentation. Fermentation is commonly done beside the ovens or at the homestead as to ensure its safety. To ferment, cacao is commonly wrapped in banana leaves or wrapped with traps made from sewn together with fertilizer bags. Though rare, some ovens are equipped with fermentation boxes, which are wooden containers with holes in the bottom that allow juices to run out. These boxes were recommended by the European Union and FAO (FAO, 1970). Some cacao seen was left in an uncovered pile on the floor around the oven as a form of fermentation. The quality of cacao from the South West will be further discussed in following sections.

### **Drying**

**Sun Drying** During the dry season (between December and May) cacao is dried in the sun around the homestead. Cacao is spread out on tarps that are bought or are made from sewn together fertilizer bags. A wooden cacao rake is used to turn the cacao every hour while it lies in the sun. Cacao is left in the sun all day long, which is approximately nine hours per day during the dry season and brought inside quickly if rain showers start. Farmers have to be present the entire day to



*Photo 5. Cacao fermenting with banana leaves and cacao left to ferment uncovered beside an oven.*

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monitor their cacao and make sure nobody steals. Sun drying takes around 3- 5 days depending on the weather and length of fermentation (properly fermented cacao takes less time to dry).

*Oven drying* During the rainy season farmers will dry their cacao in ovens; some with large quantities of cacao will use the oven year round because it will dry cacao within 48 hours. However most will only use the oven during the rainy season from June to November. The large majority of cacao is harvested during this period. For the majority that do not have ovens themselves, they can use ovens for a price of 1500FCFA/ 100kg bag. Some ovens in more remote areas have an oven charge of 2000 FCFA/ 100kg bag. Farmers will arrange with oven owners in advance so that they can time their harvesting according to when the ovens are available however the large quantity of cacao that is dried during the peak months inevitably means many people have to wait to use the oven. Farmers will have to stay with their cacao for the entire 48 hours of drying (12 hour rotations if two people) as there are high fears of robbery. Stories circulate in the village about men who rob farmers at gunpoint, so many choose to stay at the oven in groups of two or three through the night hours. On one oven approximately 6 to 8 bags can be dried at once. Therefore if the harvest is larger than this, farmers will have to do a second drying cycle or find someone that has numerous ovens together in the same place.

Large farmers with capital to invest will build their own ovens. The cost of building an oven will vary depending on the quality of the oven, who is doing the manual labour and from where the material is purchased. A typical oven would require approximately 6 days to dig the foundation, 30 days' worth of construction work and 2 225 000 FCFA worth of materials (which would drop to 425 000 if supported by the European oven project). This investment could be paid off quite quickly depending on where the oven is placed and the level of demand. If the oven was used as little as 10 times per month, the oven (without European support), could pay for itself in around three or four years, not including the savings made by the oven owner through drying his cacao.

*Condition of the Ovens* Ovens around the village and in the bush are not made of the highest quality. The European Union funded the creation of ovens around five years ago and the current state of those ovens is quite degraded. This year they have launched a project to refurbish the European ovens. This will be of great benefit to those who were able to profit from the European Oven project, however the majority of the ovens in the village and bush are self-made. These ovens are constructed locally by soldering together barrels. These degrade quite quickly and constantly need rebuilding. Additionally most of the chimneys to expel the smoke are either not being used or are designed to enter back into under the roof of the oven. The doors on the ovens are also not used or have broken off. Both these cause potential problems for the health of the farmers as well as risk producing smoky cacao.



*Photo 6. Broken oven tunnel of a locally built oven made of barrels*

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A Telcar representative suggested to local farmers that they should dry all of their cacao in the sun. He believes that there are enough hours without rain throughout the year to fully dry cacao whenever needed. Farmers were sceptical of this advice and to my knowledge this theory has not yet been fully tested with the amount of cacao typically produced.

**Wood** The wood that is used to fuel the ovens is either bought locally or harvested from a farmer's own farm. The amount of wood needed is proportional to the amount of cacao harvested. Wood is bought at 1000FCFA/ log. In order to harvest wood from a farm, a worker with a chainsaw is commonly hired and paid at 250FCFA/ log cut. The farmer will go and monitor the cutting process to indicate which trees to harvest and will pile and cut the wood for proper storage until it is moved to the oven. Wood is transported to the oven en masse once the farmer wants to start drying cacao. The most common form of transportation used is the push truck. A push truck can carry 4-5 pieces of wood, so the amount of time used for wood transportation will depend on the harvest and distance between the farm and oven. If the farmer does not have family or friends that can help he will hire a worker to help him push the cacao.



*Photo 7. Locally built oven found on a farm*

**Transportation** Transporting cacao and wood from the farm to the oven or from the oven to the buyer as well as transporting other production such as plantains wood can be quite time consuming and costly. Farmers' means of transportation depend on their financial income and the location of their farms. Some farmers will be able to purchase a motorcycle, a 4X4 truck or will use a push truck. Some cannot afford to buy a push truck or they have farms in so many different places that buying a push truck in each town is not possible and therefore they rent trucks when needed. With a push truck, pushing production from the farm the village for example can cost 1000 FCFA per truck if close and 5000 FCFA per truck if the distance is far. One push truck can hold one or two 100 kg bags of cacao and around four large logs of wood (depending on the size of each).

Some farms are not suitable for all types of transportation. For example, farms that are on the other side of the Meme River in the Meme River reserve are unable to be reached directly from Kwakwa any other way than on foot or in a boat (which runs seasonally). These farmers will carry much of their production on their heads. These farms in the reserve can be reached via an ancient logging road that is found between Kumukumu and Dienyi. However the road leading to Dienyi and the logging road are only passable seasonally and it takes hours to reach farms from that side. Many farmers that do not have access to roads or cannot afford mechanized means of transportation will use a push truck or will carry produce on their heads. Farmers working in remote area will tend to sell their production to buyers that come to the remote village with their own transport (which will always be at a lower price than they could get in more accessible areas).

Farmers with good relationships or family that have 4X4 trucks or motorcycles will often use their machines free of charge and only pay for the fuel they use. If producers have a large enough harvest and work directly with Licence Buying Agents, they can choose to pay to fuel their vehicles and



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export their production. A few farmers choose to do this for every harvest and the cost will be identical regardless of their production that month. Large local buyers will have vehicles sent all the way from Douala to sell their production if it is large enough.

***Practices suggested by government and normal farmer practices***

The techniques suggested by extension services and those practiced by farmers occasionally differ depending on training received and personal choices made by farmers based on the farms they work. The following figure shows the recommended techniques for farmers (green) and the actual techniques applied by the average farmer in Kwakwa (striped).

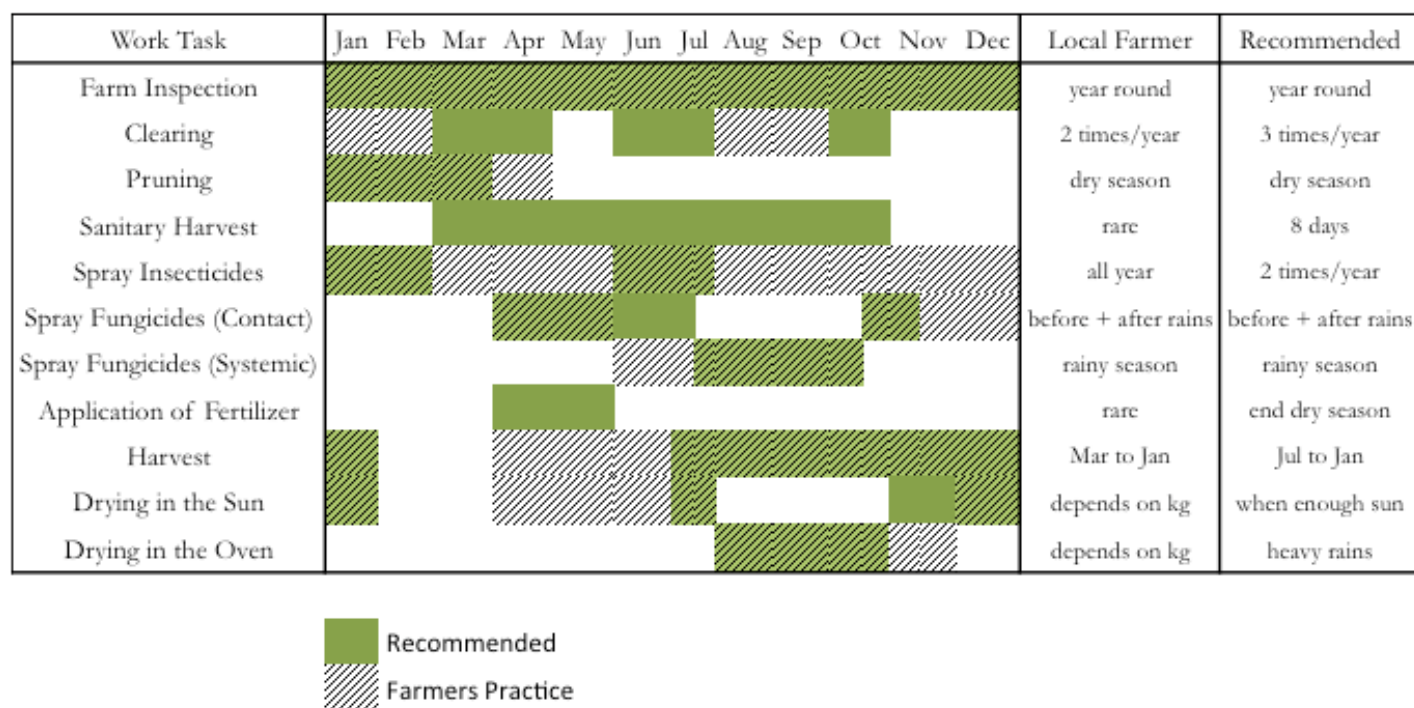


Figure 13: A Comparison Between Recommended Work Calendar & Actual Calendar of Most Farmers in Kwakwa.

Recommended calendar is based on the farm field school guide distributed by MINADER and information received from the regional divisional delegate's office.

***Sale of Cacao and prices received from different buyers***

The production from Kwakwa is most commonly sold to local buyers. Cacao is provided to buyers in large 100 kg new synthetic fertilizer bags, which cost 500FCFA each. The price per kilogram received by a producer depends on to whom and where the cacao is sold. In July this year, the buying prices were quite high at around 1300FCFA per kilogram. The price producers receive fluctuates depending on who buys the cacao as well as where it is sold. The price differences can change throughout the year if, for example, the roads to the remote village are hard to travel in the rainy season. Furthermore the price to a producer will change dependent on the humidity of the cacao delivered.

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Farmers in remote villages with bad road access will get a lower price in comparison to a village such as Kwakwa, which is along a large road axis. Local buyers will sometimes give lower prices to farmers if they have borrowed money from them as interest for the loan. Village LBA (Licence Buying Agent) stores around Kwakwa tend to have prices that are only around 10FCFA/kg difference that those in the cities. Cacao sold in Douala will also get a higher price than that sold in Kwakwa or Kumba (and as such large buyers will sometimes take their production all the way to Douala). One local buyer that takes his cacao from Kwakwa to Douala will sell his cacao for 70FCFA/kg more than he bought it for. Prices between different LBAs will be mostly equal to ensure competitiveness. Telcar offers a premium of 40 extra FCFA per kilogram to its farmers that join their program, follow their guidelines and produce certified cacao.

### 5.5.3 Replanting Cacao/ Regeneration

In order to increase production, farmers that own personal farms invest their time into replanting and regenerating their cacao farms. Since new cacao takes three to seven years to be productive, two party workers and those working pledged or mortgaged farms are less likely to invest their time and money into regeneration as it is not sure they will benefit from the work. Some patrons will however go themselves to lands they have given out for two party workers to plant new cacao.

The most common techniques used to regenerate is to either let offshoots of the trees grow and then to cut the mother trunk or to replant young cacao under the old cacao. New seedlings are raised in self-made nurseries around the homestead, or bought at 100 FCFA per plant or received from the CCSP (Coffee and Cacao Seedling Project) in Kumba. The technique of planting new seedlings has become more popular as it allows cacao farmers to introduce new varieties with higher production into their farms. Planting a nursery takes around three days to establish for 100 plants. The seedlings must be watered daily and nursed for around five to six months and will generally be planted in June after the rains have started.

#### *Varieties replanted and CCSP seedlings*

When making a nursery, farmers choose seeds from their farms or from neighbouring farms that are highly productive. The 'German' variety is the base of most farms as it was the first introduced in the area. However, since the 'Amazing' variety was introduced in 1954, the farms have been become a mixture of the two varieties. Free seedlings of the 'Amazing' variety are disseminated throughout the South West through the CCSP every year. Farmers have to apply for these seeds and do not know if they will be receiving the seedlings, nor the number of seedlings until around June. This creates a bit of a problem for farmers as they cannot plan ahead. The CCSP produces a quantity of seedlings far below the amount requested in the area. This year only seven farmers actually received seedlings in Kwakwa, whereas many others applied. If a farmer knew ahead of time if he would or would not be receiving seedlings he could plan the creation of his own nursery accordingly. Another limitation is that some farmers are unable to afford the cost of transporting the seedlings from the CCSP center in Kumba to their farms.

To plant the cacao seedlings it takes only a single work day in total, though many farmers plant progressively over a long period of time and will take a few seedlings every time they head to their farm to do other tasks. In total it takes the time equal to one workday to plant 100 cacao seedlings in a cacao farms. Furthermore, when cacao is planted it is common to plant a colourfully painted plant (Cordyline) beside it to mark its location.

#### 5.5.4 Establishing Cacao from a forest

Establishing a cacao farm from a forest around Kwakwa is a progressive process and can take years when finances and time are limited. Farmers normally establish cacao one hectare at a time. They first start by clearing the brush under the large trees. If paid this normally costs 60 000FCFA per hectare or if done by the landowner himself with a machete takes around 20 days. To fell the large trees farmers will hire someone with a chainsaw at 300FCFA per tree. Those that started their plantations in the 1980s or those that do not have money to pay for chainsaws cut the trees by themselves with a machete. Farmers are not always able to identify useful and non- useful plants, but they try to keep trees that can provide earnings in the future such as Njensenga, Bush Mango etc. They commonly let the felled stems remain in the farm to decompose, for later use or to sell as firewood (if they have the means to export it from their farm). Smaller trees are left and felled using traditional methods by burning the bottom of the trunks or cutting into the trunk and coating it with pesticides or local tree killing concoctions. Those with financial means clear their land properly of large logs. Those that are not rushed, wait for the small trees to die and fall, and start to decompose, but most start to plant on their land as soon as possible.



*Photo 8. Forest cleared of large trees with smaller trees which have been burnt at the base of the trunks to promote dying off*



*Photo 9. Cacao seedling beside a marker plant under a fallen log.*

Firstly plantains would ideally be planted that would provide shelter for the young cacao seedlings (though rarely are enough plantains planted to protect all the seedlings). As cacao is planted (as seedlings or directly planted as seeds), a small marking plant (cordyline) is planted to identify the location of the young cacao so it is not accidentally removed as a weed. Contrary to the advice from extension workers to layout the land, haphazard planting is still practiced in the area. Farmers explain that they try to plant their cacao around 3 metres by 3 metres apart as recommended by extension services but they find it difficult in a landscape covered with large fallen stems. As a result they plant progressively where there are open spaces. Progressive planting commonly continues for years depending on the size of land and success of the seeds or seedlings planted.

Weeding is done one to three times yearly to decrease competition of resources for the growing cacao seedling. Many see having women plant food crops around the cacao as a great benefit as the women control the weeds while they work their food crops. The practice of pruning does not commence until the cacao is a few years old. Spraying starts

once the cacao trees are productive. Depending on the maintenance, and the varieties planted, most cacao starts to be productive in anywhere from three to seven years. If the cacao was planted progressively, the production will also increase progressively.

#### **5.5.5 Other trees and plants grown with cacao**

Other plants such as cocoyams and pineapples are planted throughout the newly cleared land. If there is enough light, they might also plant egusi and maize. Root and tubers planted beside cacao has been said to be an issue on occasion because it is dangerous for the rooting system of the cacao and they also sometimes bring disease to the area. Those in the reserve usually have a large diversity of crops planted as a source of food for them and their workers. Many farmers have huts within the reserve and stay and work for days or weeks without leaving and therefore must grow food to sustain themselves.

Trees are also planted in cacao plantations. Trees commonly planted include oranges, plums, pear, coconuts etc. (cf. Appendix 2 for a list of commonly planted trees). A few farmers nurse tree seedlings at their homestead and plant some scattered around the farm, whereas others simply plant seeds here and there on their land. There is hardly any time spent on the maintenance of these trees. They are harvested once productive and transported back to the village. A lot of production in the reserve from these trees and other plants such as plantains and oranges often goes to waste as it does not make economic sense to transport them out of the reserve. For instance, plantains are only be transported out when the price in Kwakwa is above 3000 FCFA and the cost of paying people to carry the plantains is less costly than the sale price. Oil palm is a staple in the community and is commonly planted along the borders of a plantation to help demarcate its boundaries. Most families harvest oil palm each month (mainly during the dry season) as oil palm is a main ingredient in any Cameroonian dish. If farmers do not have their own mill they borrow or rent a mill from a family member or friend. It takes approximately 3 hours to collect and press 1.5 litres of oil per tree in Kwakwa (depending on the age of the palm tree). As mentioned above, there are usually very few other trees found in the cacao farms around Kwakwa, (Cf. Appendix F. for a list of possible trees one might encounter, their purpose and the sale price of their production and labour costs). Both men and women derive income from other plants and trees. Similarly, both sexes produce income from products harvested and collected from forests.

#### **5.5.6 Decrease in forest products**

Traditionally forests in the area were used for a variety of purposes. With the expansion of cacao and the subsequent decrease in forest, forest products are more and more rare. Though harder and harder to find, eru is still cultivated from the forests and sold in the market for 300FCFA/ bundle (unchopped) or 800FCFA/bundle (chopped) in the rainy season and 800-1000FCFA/ bundle (unchopped) or 1500FCFA (chopped) in the dry season. Eru along with many medicinal plants can be found in some cacao forests when selectively cleared (though this is a very rare practice as most farmers will not want to spend the time and money and also farmers commonly cannot identify such plants). Snails are also harvested from the forest and sold on the market for 5000FCFA/ bucket of around 350 snails and 7000FCFA/ bucket in the dry season when they become scarcer. Bush meat (wild animals) has been a large part of the traditional diet and is a rare sighting in the village.



### 5.6 Diverse Productive Food Crop Ridge Systems

Men are typically in charge of harvesting fruit trees, bananas, and plantains as women do not like to climb trees. Women work the large majority of the food crops grow in the villages, which are produced on ridges and mounds. Food crops are planted around houses in the village, on ridges on the border of the village, in gaps in the cacao plantations and also in newly cleared forests in the first few years before cacao is productive. According to a focus group of women, the large majority of the food is produced in the village whereas only 10% is produced in gaps in cacao farms and 15% is planted in newly cleared forest. Most of the land used by women for growing food crop ridges is rented regardless of the income of their husbands. A few women that sell most of their production have bought their own land with their earnings. A few women interviewed also inherited their own land, however the large majority of women only have access to land through renting.

Among the women, the composition varies slightly according to preferences; currently in the village crops planted do not differ between the native and the migrant populations. This ridge system is typical to all areas mentioned previously where there is enough light. In areas without light such as under cacao trees, some women plant cocoyams on mounds to maximize the use of scarce land, though production is low in comparison to those grown on ridges.

**Typical ridge system** Typical food cropping is done on a series of one-meter long and two meter wide ridges. The purpose of the ridges used is to make the soil 'soft' and easy to plant, to control the movement of the plants grown and to take advantage of the vertical space created for the root crops. When creating ridges, soil is moved with a hoe to the middle between the ridges to form a new ridge. This processing of turning the soil loosens compacted soil, allows for easier planting and gives room for the crops to grow. Additionally a portion of the weeds cleared just before the creation of ridges are integrated into the soil. The land is highly fertile in the area and the majority of the weeds are burned as they women say they are too plentiful to integrate all into the ridges.



*Photo 10. Typical ridge system in May of the first year of March rotation*

The construction and manner of planting the crops on each ridge is quite systematic. Egusi are planted one the sides of the ridges. Groundnuts are planted all over the ridge. Two to six holes are planted with maize along the top of the ridge. Two yams are at each end of the ridge (not all ridges in the farm are always planted with yams). The yam varieties used include yellow yam, sweet yam, calabah yams and some also have white yams and water yams. Two to four chilli peppers plants are grown at the corners of the ridge. Okra is grown at the head and base of the ridge along the sides much like the egusi. Between the maize cocoyam cuttings are placed. When the majority of the crops

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are harvested, three to six stems of cassava are stuck into the sides of the ridges at a downward angle. Depending on the personal preferences of the women, an eggplant may be grown on one of the edges along the sides with huckleberry plants. There are variations to this planting scheme but this example is a common arrangement to encounter.

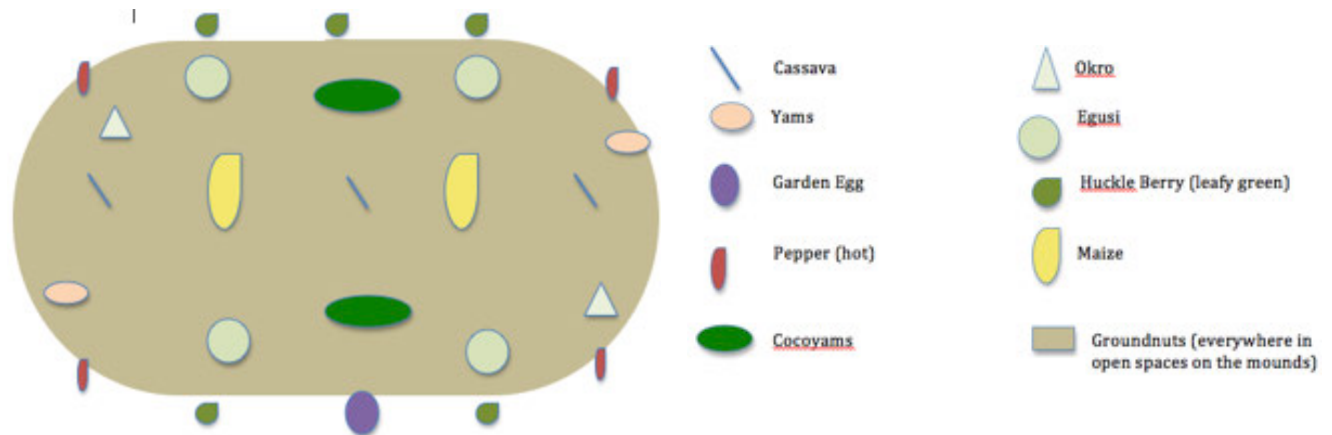


Figure 14: Illustration of a Single Ridge and the Placement of Crops

### 5.6.1 System and Rotation

Typical farms have 300- 500 ridges however many women may have many farms. The typical system works on a two-year cycle. Women alternate growing cycles on their land; half their land will be planted with crops in the first year of the cycle (mixed cropping of groundnuts and egusi etc.), whereas the other half will be in the second year (cassava). This system ensures they have all foods each year and allows for a division of labour among the two years.

#### *Variations to the typical rotation*

There are three typical rotation systems found in Kwakwa. The most common is the March Rotation, then there is the March and August Rotation and finally the August Rotation. (Figure 15)

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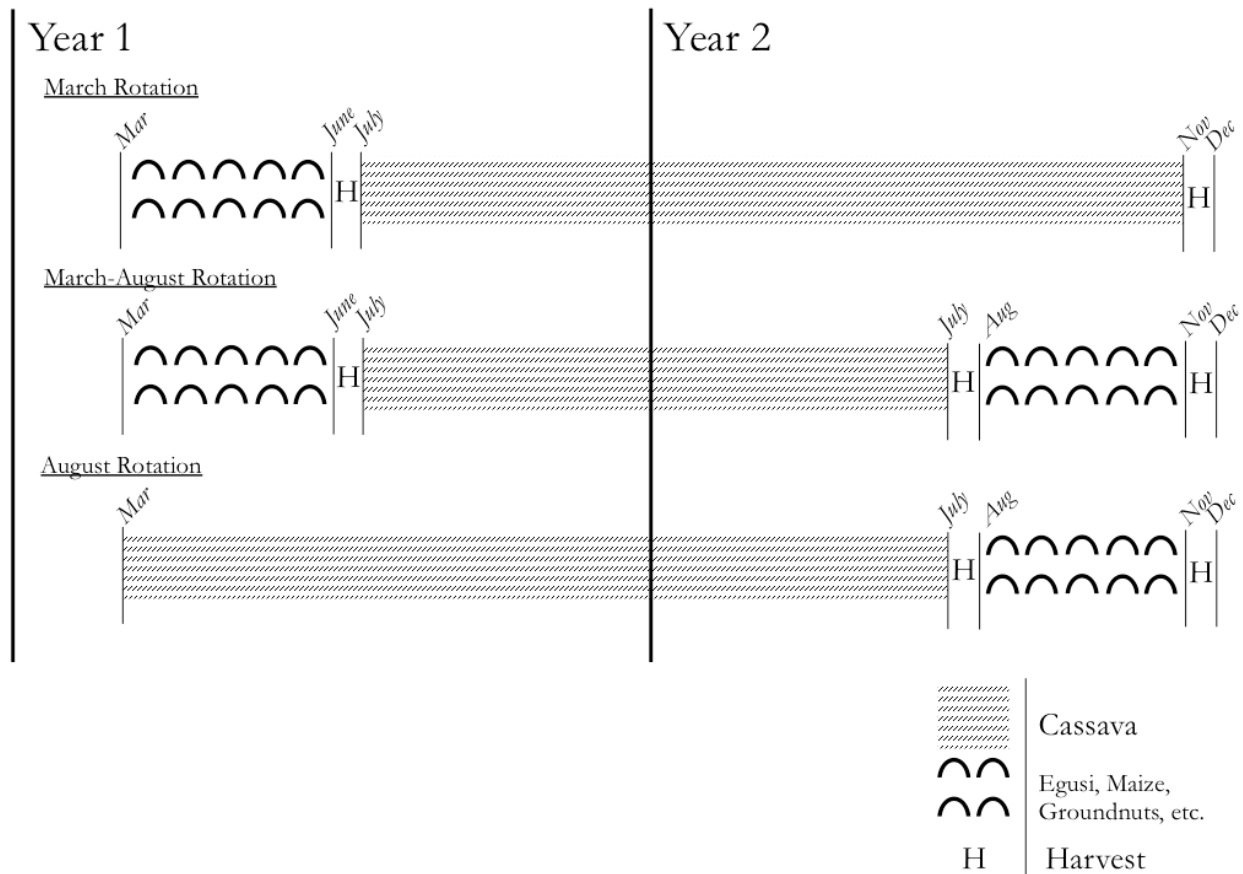


Figure 15 Typical Food Crop-Harvest Rotations – 2 year cycle

### ***March Rotation***

With the March Rotation, egusi, groundnuts, maize and chilli peppers are planted in March and are harvested in June or July. Calabah yams, yellow yams and cocoyams planted in March are harvested in August. The sweet yams planted in March are harvested in December of the first year. Finally cassava is planted in June of the first year and harvested the first year and harvested in October or November in the second year. The land is left to fallow for a few months until the land is reworked and planted again in March.

### ***March and August Rotation***

The March and August Rotation, have an identical first year as the March Rotation, however the cassava planted in March of the first year will be harvested in June or July of the second year. Then in August the land is reworked, new ridges are made and are planted with groundnuts and maize, many also include okra, and chilli pepper. These crops are harvested in November. The land is left to fallow until reworked and planted in March.

### ***August Rotation***

The August Rotation is first planted in August typically with groundnuts and maize and similar to above, many also include okra, and chilli peppers. These plants are harvested three months later in November. Cassava will be planted in March of the first year along with other crops but will be left



until June or July of the second year. The cycle will repeat with a new planting one month later in August of the second year.

### *Fallow*

Land for food crops is quite scarce in the village and therefore currently land is only left to fallow between the harvest of cassava until the replanting of crops. According to a focus group discussion, around the 1960s the land used to be left to fallow for 5-6 years but with increasing population and land pressure, the fallow lengths started to decrease in the 1980s. Women have noticed a slow decrease in yields but the fertility of the soil in the area is still seen as very fertile. The use of fertilizers on food crops is very uncommon.

### *Choice of crops*

Women tend to choose crops according to their food preferences, potential income, availability of seeds/ suckers, the security of their parcels and the ability remove the production from the farm. Preference of certain types of yams, leafy greens and okra will affect whether they grow these crops or not. Certain suckers and seeds are harder to find than others such as the colocasia (*Colocasia esculenta*) that was widely attacked by disease in 2003 and almost wiped it out completely from the area. Some choose not to grow plants such as pineapple and pepper close to the houses because people steal them at night. Women who are more interested in generating economically profitable crops focus on planting crops that grow within three months such as groundnuts, maize, okra and pepper.

According to focus group participants, women typically sell 40% of their production and consume 60% of their production on average (depending on the size of their family and the amount of land they work). There are, however women within the community that look at food cropping as a serious business and farm upward to five farms to generate a large cash income (these cases will be detailed in models in the subsequent sections).

### **5.6.2 Technical Work Calendar for Food Crops on Ridges**

For the purpose of description, all descriptions of time and cost of labour will be based on the example of a farm with 750 ridges on the March Rotation, which is equal to a half hectare. (Cf. Appendix H. for the August Rotation)

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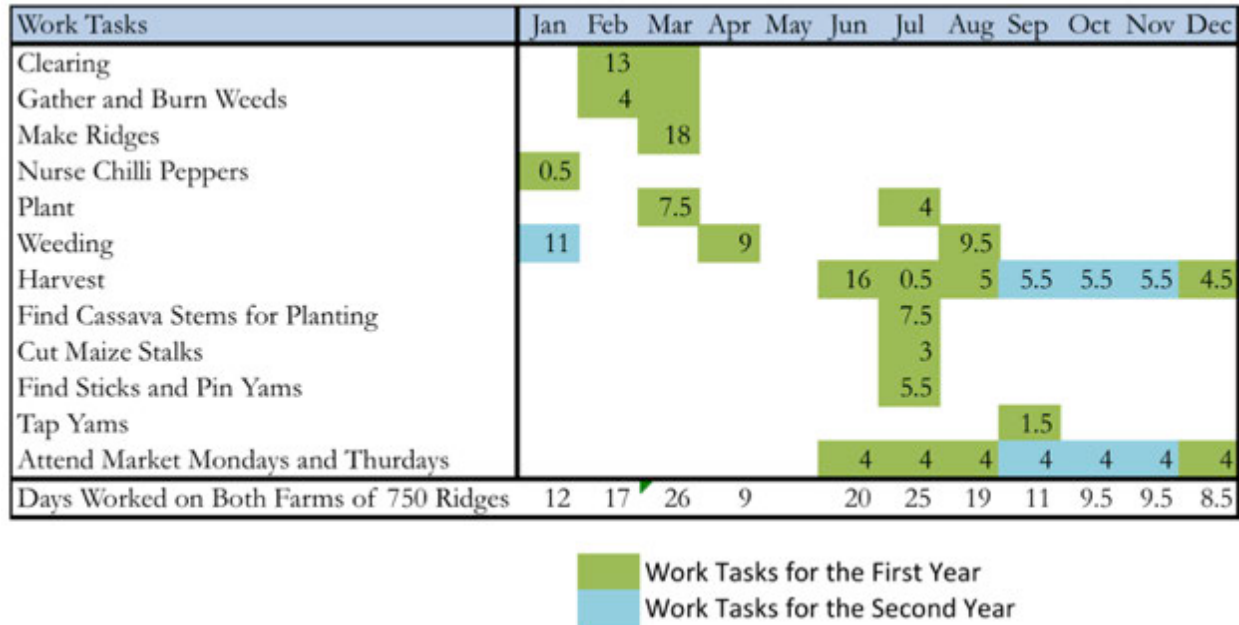


Figure 16: Food Crop Calendar over a Two-Year Rotation on a Typical Farm.

Note: day figures will be integrated into the calendar

### Land Preparation

Land preparation begins with clearing between January to March. If women decide to hire labour it will be completed in a few days in March (depending on the number of workers), however if they do it themselves, that starts in February and it will take 13 6- hour days. If the woman has several farms and works them all herself, she might start clearing as early as January. After clearing, weeds are collected and burned (a few are kept to integrate into the ridges) which takes about 4 days.

### Making Ridges



Photo 11. A woman making ridges with a hoe.

Women commonly work as part of a work Njangi group as was briefly described above. In order to have all products become ripe and ready to harvest at the same time, women prefer to have all their ridges made quickly within a day or two. This is the benefit of the work Njangi, as each work day, the entire group works on a single woman's farm ensuring a large number of ridges are prepared at once, ready to be planted. Paid ridge making is paid at 1000FCFA per 20 ridges built. It would take 18 days of family labour to make 750 ridges

### Planting

The planting season starts usually the first week of March by planting egusi which takes just over half a day. Four holes on each ridge are made and planted each with around 6 egusi seeds. One week

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later groundnuts are planted in 2 ½ days all over the ridge. Another week is left for the groundnuts to germinate before maize is planted which takes another half day. In just over a day cocoyams are carefully planted followed by yams in just under a day and a half. Finally little holes are made and okra and sometimes huckleberry are planted in a half day along with a few chilli pepper plants (another half day) on the sides of the ridges. The chilli pepper plants will normally be nursed for 6 to 10 weeks prior to be planted either on a ridge in the food crop farm. Cassava is planted over four days usually in July after most of the crops are harvested.

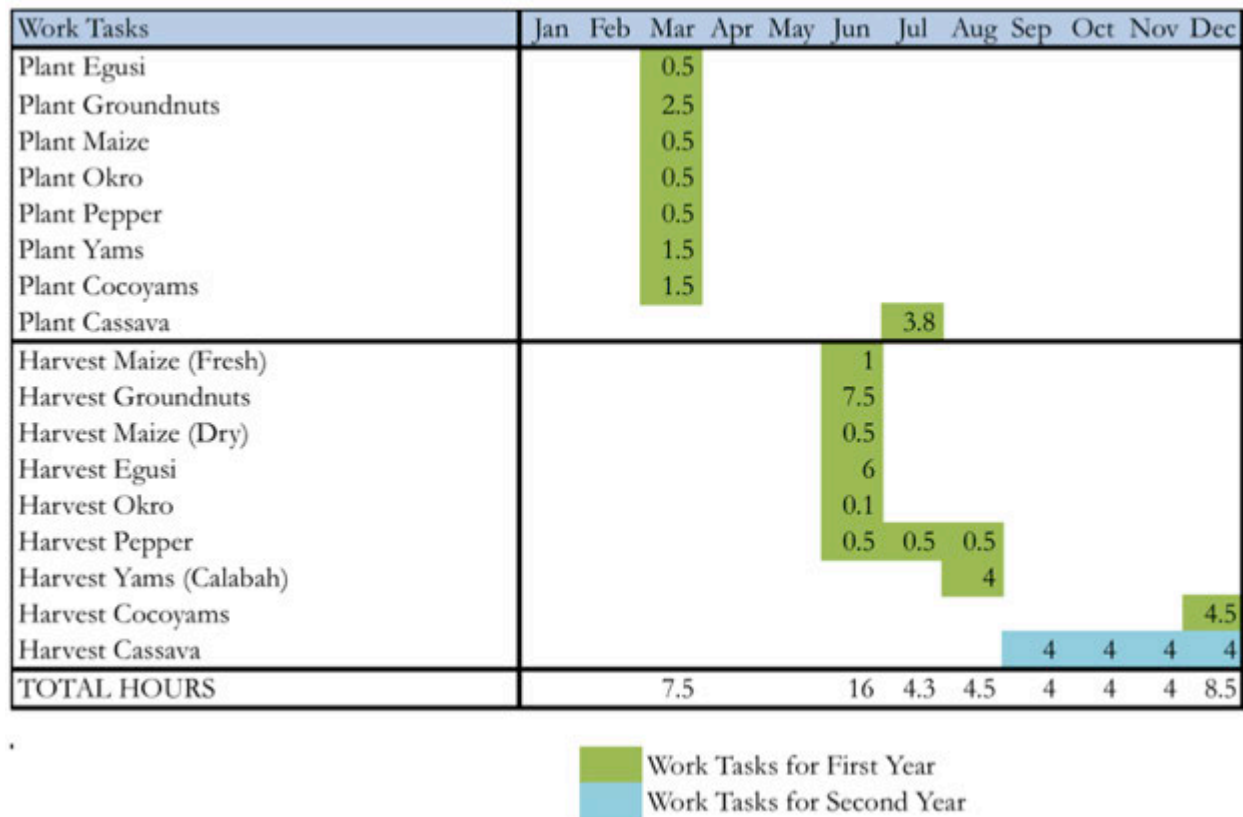


Figure 17: Food Crop Calendar: Planting & Harvesting Schedules of Most Common Crops.

Most women do not use pesticides although a few that plant in August complain of insect problems and use very small amounts of the same insecticides that are used for cacao on their maize, okra and chilli peppers especially (cf. Appendix G.)

### Weeding

Women tend to weed once in April after the crops have been planted which requires about 9 days. Some may do a small weeding in May. The ridges are cleared in June as most of the crops are harvested. Many weed in August of the first year which takes a 9.5 days which is a bit longer because of the quantity of weeds and then again in January of the second year. The January weeding will take just over 11 days because it is the dry season and is therefore much harder to remove the weeds. Some women leave their ridges with cassava and yams to fallow untouched until they harvest.

*Harvesting*

June is one of the busiest months for women in Kwakwa as this is when they harvest the majority of their crops. In June, egusi is harvested in 5 days and then cut open exposing the insides to the elements to promote the decomposition process. Egusi is grown only for its seeds. The rotting process helps access the seeds. After a week left in the sun, the egusi seeds are removed washed and dried over another 3 days. The dried seeds are covered with a coating, which is also a laborious process to remove. This process generally takes place at any downtime in the homestead. Maize is either harvested fresh or left for a few more weeks and harvested dry. Half a hectare of maize takes around 2 days to harvest. The maize is commonly removed from the cob when wanting to be stored over another 4 days. Okra and groundnuts also only take three months to grow and are therefore all ready for harvest in June. Okra only takes a few hours to harvest, whereas groundnuts will take up to 7 days to harvest. Chilli Peppers are harvested weekly between June and August usually taking a few hours the day prior to the market. Garden Eggs (eggplants) are harvested progressively as they ripen starting in June/July. Calabah and White yams are harvested in August in the first year of the cycle whereas sweet yams are harvested a bit later in December. To harvest yams on 750 ridges would take around 4 days. Cocoyams are also typically harvested in an additional 4 days in December. Cassava is most commonly harvested from one to one and a half years after it is planted. Many harvest cassava progressively according to their time and labour management. It does not have a specific time it has to be harvested. In total it would require just over 16 days to harvest cassava from a half hectare farm.

*Other maintenance tasks*

Other tasks that are important throughout the year include cutting maize stalks in July after the harvest. Yams require a fair bit of work throughout the year as well. They need to be pinned (tied to a stick) at some point between May to September. Finding sticks proves to be a tedious task on occasion and many choose to buy sticks at a rate of 20 sticks for 1000FCFA.

*Planting materials*

Most women save seeds and cuttings from the previous year's harvest to replant. For products such as maize, some women choose to buy the seeds, however certain crops are not possible to buy such as cassava and must be either taken from one's own farm or given by a neighbour or relative.

*Farm Tools*

Women will have at least one hoe. The Njangi work system not only makes sense in terms of timely creation of ridges for uniform planting but it also results in a system where women do not have to buy more than one hoe, as all women in the group bring their own hoes. Men who are hired as paid daily workers do not typically always have access to their own hoe. Other common farm tools used by women are machetes particularly for clearing (cf. Appendix H. for a list of farm tools and their use and cost). They typically also have access to a push truck to move large production such as cassava. Smaller women who are producing mainly for the subsistence of their family will typically share the push truck with their husband, whereas women with larger incomes will buy a truck themselves.

### **Market and Income**

Market days, every Monday and Thursday, are when Kwakwa comes to life. Women go to market when they have production to sell. During harvesting months, women will spend an average of 6 days per month at the market. Some women will also buy things in the city and sell rice, beans, tomatoes etc. in addition to their produce.

### ***Price of Food Crops***

Food crops vary in price throughout the year. Prices can almost double when the crop is scarce. With products that store well, some store their production until supply is low on the market and then they sell their production at an inflated price. Others plant their crops strategically so they know they will be able to have a longer harvesting season (plant incrementally and harvest incrementally) or will plant and harvest slightly earlier or later than the normal season in the village. (Cf. Appendix I for a list of crops and their prices)



*Photo 12. A woman in the Kwakwa market*

### ***Problems with crops***

A recent concern that affected women this year in Kwakwa was that there was an increase of incidences of violations against women within their farms. Women refused to return to their fields for a few weeks. This issue is particularly worrisome for women who work gaps that are deep within cacao plantations.

## **5.7 Typology Models**

Given the complexities of both the quantitative and qualitative data gathered, models have been created, based on developed typologies, in order to present findings and to enable comparisons and analysis. These typologies will be explained qualitatively and then will further be explored with a quantified economic analysis.

### **5.7.1 Evolving the Typologies**

The complexity of land ownership and labour agreements in the village of Kwakwa and surrounding areas as well as the frequency of each, gave rise to much discussion. Figures were collected from various sources: from local farmers, from the village council, from village meetings, Common Initiative Group (CIG) Union meeting, from cooperatives and villagers in neighbouring villages and from government officials working in the area. The majority concluded that the greatest number of actors working with cacao are those with access to small allotments of land between one to 2 hectares, most of whom do not own their own land (i.e. are two party workers and/ or salaried workers). Fewer than 40 % of farmers are believed to have between 3 to 7 hectares of land (though the majority of farmers work less than 5 hectares themselves and give the rest for two party work). Finally it is a very small portion of elite that have very large land allotments owning from 10 to 100 hectares.

In summary, the majority of actors in Kwakwa tend to be two party workers, followed by small farmers to medium farmers, whereas large farmers are a minority. Large farmers with full time employees are not present in very large numbers as it is estimated that there are only 100 contract

workers in the village (working for large two party workers and large farmers). Actors who are only daily salaried workers are also a small portion, though there is a seasonal influx of from 200 to 300 workers that come into the village each year, a large portion of whom only stay between June and December for the large harvest.

In terms of women with food crops, almost all women in the village regardless of other forms of livelihoods they may have grown food crops. The size of lands worked depends on the purpose of the food crops and size of ones' family. Today the majority still grow food crops in order to feed their families though most will try to grow 40 % more than what their family will consume in order to sell the excess production and earn a cash income. Meaning most women will have around two farms of about 300 to 500 ridges each (equalling a total surface are of a two thirds of a hectare). However since farms are generally rented, the number of farms worked by women will change year to year depending on the availability of land, their health and time availability. Women that grow between 2 hectares worth of food crops are not the majority.

Historically the proportions of each type have changed as the village has grown and the land has become scarcer. According to villagers, the two party systems have existed since as early as the 1970s, almost from the beginning of the arrival of cacao in the village. During the early years of cacao production around Kwakwa, as cacao is quite labour intensive, farmers would search for people to help work their farms and their payment would be to leave with part of the harvest. This system soon after developed into a system where workers would work their own portions as is seen today. The rules and agreements with prices for chemicals and who pays for what etc. have evolved over the years and are still evolving today. As farms grew in numbers so did the number of migrants and the number of two party workers. It was not long after the arrival of cacao that land pressure was a reality in Kwakwa (in the late 1980s) and the cost of land increased. Since the two party work system is a way for people to access land, the proportion of two party workers increased. Several villagers interviewed started to work as two party workers even during the time when the price plummeted in the early 1990s. Today with the cost of land and scarcity of land, working as a two party worker is the most accessible option for many with no land and little capital.

When land was plentiful, becoming a small farmer was very easy as it required minimal initial investment of capital and only required time. It was also much easier to pass between small landowner and large landowner as the cost of land was much lower than today. Today those that become large landowners will generally have to have another avenue from which they generated capital to invest in acquiring lands. Today it is quite hard to become a large landowner as lands are rarely sold, those who want to mortgage or pledge their lands will commonly approach the already large land holders in order to maximize the amount received for their land. Meaning that the rich get richer easier than the poor become rich.

### **5.7.2 Access to various forms of capital**

An actor's evolution through the different typologies presented in these findings depends on the access to capitals: social, financial and land as well as their family situation.

#### **Social Capital - origins**

The starting point of actors is specific to whether they were born in Kwakwa (Kwakwakian) or whether they migrated to Kwakwa (non-Kwakwakian). There are two main categories of actors working with cacao in Kwakwa, those without land and those with access to land. To compare, the following descriptions of types are based on certain consistent figures. The cost of living set for all



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models is 260 000 FCFA annually per individual which is based on estimations made by Charriau and Guillemet (2010) from a study around Bafoussam, Cameroon. The cost of living for the farmer/ worker himself is compared, though it should be noted that most farmers have additional expenses with other family members to support.

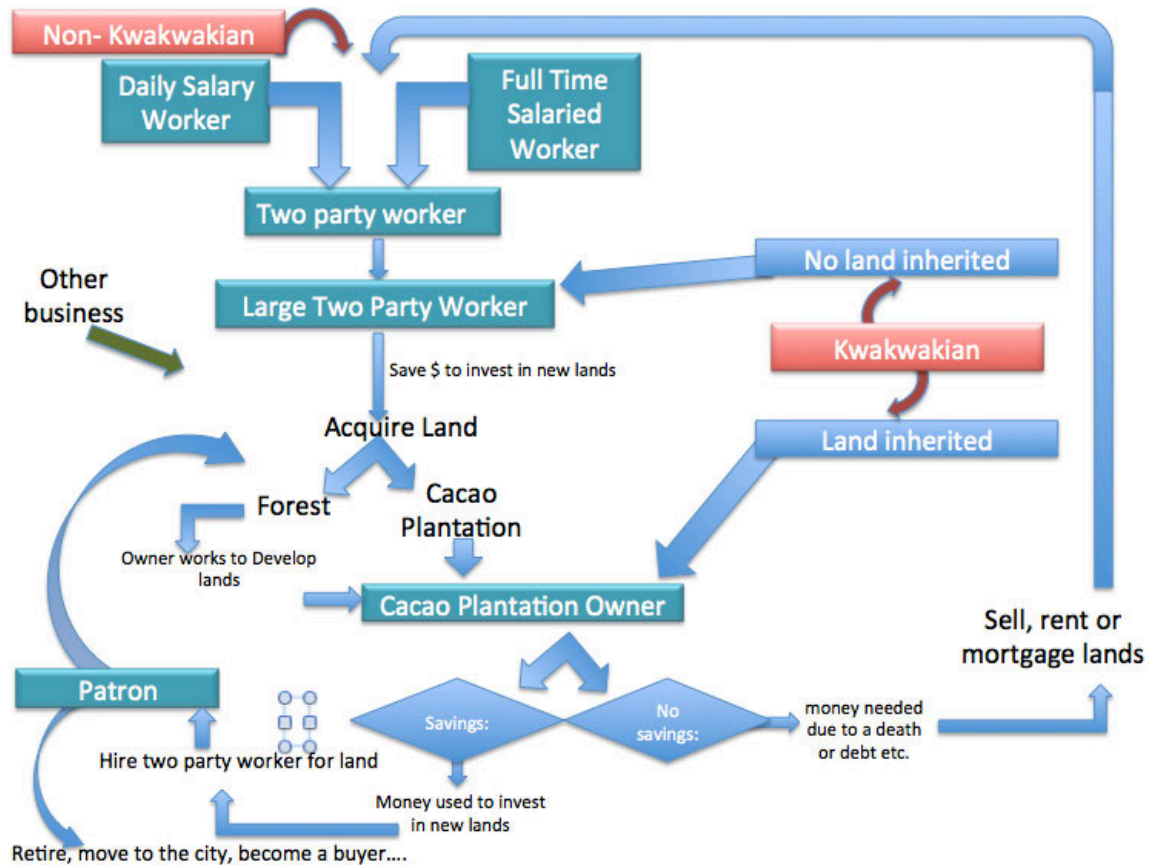


Figure 18: The Evolution of Different Types of Actors Working Cacao in Kwakwa Village.

### Non- Kwakwakian

Recent migrants come to the village in order to profit from the high wages and availability of work. Those that settle in the village tend to be constantly looking for a means to increase their income. Some of the biggest farmers in the village are migrants who came some years ago and worked their way through all the typologies shown in the schema above.

### Social Capital - labour patterns

Considering, most migrants come to the village in search of making money and rarely have money to invest in buying land. It is for this reason that they start at the top of the schema above as a salaried worker or a two party worker. However unless they have good connections in the village, it is hard to find someone who wants to hire you as a two party worker. Patrons search for people



with experience, strength and someone they can trust. Therefore new arrivals will tend to start as full time salaried workers or daily salaried workers.

*Full Time Salaried Worker* Since a large majority of the people in Kwakwa have roots in the North West, many will go back to the North West to find full time workers to bring back to the village for the season (March to December). These workers will have everything paid for by their patron while in the village but will not have the flexibility to work extra work to increase their income (except on Sundays). Only a small portion of these workers will stay on and find a two party job, most of them will return back to the North West. Two Party jobs are usually found with the help of their patrons, so good social connections are very important in advancing. In addition, the worker will have to be able to save the money he made working to invest in the all the associated fees of starting as a two party worker. If for example, the money earned in the year is already destined towards paying for family affairs back in the North West, becoming a two party worker can be a challenge.

*Daily Salaried Workers* Migrants that have families or arrive through their own means tend to work as daily salaried workers for the first year or two in Kwakwa. There is great potential to make a lot of money this first year, however, their income will depend on the number of jobs they are able to find and their energy to work. If they are able to save money to pay for the two party start up fees and forge good bonds they can become two party workers.

*Two Party Workers* Beside the first year of investment, there is relatively low investment the rest of the years as the patron is responsible for providing the financial capital to pay for chemicals and pay for broking. Some people will remain a two party worker for the same patron for over 10 years. Others who want to increase their income will find more farms to work. If they work 5 farms, they will often not tell their patrons as it is said that the more farms being worked the quality of work decreases and therefore the income for the patron.

Alternatively, some move from two party workers to land owners by having another form of income such as selling fuel or buying and selling cacao locally.

*Large Two Party Workers* Large Two Party Workers tend to be younger workers who want to maximize their income. If they are able to save enough money, they will try to invest their money in buying their own lands.

### **Acquiring New Land**

*Forests* With the current land pressure, land is scarce and it is progressively harder to find already established cacao plantations to buy. The land that is available for 'purchase' tends to be dense forest. Presently most of the land that is 'purchased' is in the Meme Reserve. Most landowners buy numerous hectares of forest and convert the land to cacao portion by portion. This is approximately one hectare at a time unless they are able to find substantial money to invest in rapid development; this is very rare in Kwakwa. Landowners have to develop a farm to the point of being fully productive before they can turn their lands over to a two party worker. As farmers get old, having their lands worked by two-party workers is a form of retirement security as they can produce income without doing any work.

*Cacao plantations* Few farmers are able to purchase already established cacao plantations. Some farmers were able to establish payment plans with their patrons or friends in the village who are planning on selling their lands. However, only the already large farmers will be able to afford

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established farms. Large farmers may also acquire cacao plantations through leasing or mortgaging from those with financial difficulties (to be revisited when discussing Small Kwakwakan farmers).

*Large Farmers* As mentioned previously, some of the largest farmers in Kwakwa started as daily salaried workers with no money. Because of limitations imposed on the majority of farmers in Kwakwa from lack of access to financial capital, it tends to be the large farmers who are able to grow easiest and fastest. When a large farmer acquires a farm, he may never actually work the farm himself, often he will directly give it to a two party worker (especially if it is leased or mortgaged land). A very large 'farmer' can accumulate more than 50 farms, though he might only work one. Some large 'farmers' or rather large landowners do not work any of their farms and will hire managers to deal with the two party workers.

From discussions with these migrants that became large landowners, it became apparent that their mission in Kwakwa was to maximize financial gain. Even those that arrived at a young age in the 20s, who built their entire lives in the village, plan on selling their lands and retiring back in their place of origin (most commonly the North West).



### Kwakwakan

#### **Inherited Land**

Many men born in Kwakwa (regardless of their roots being native or migrant) will inherit already established cacao farms.

*Small Farmers* Many farmers who have inherited one to two hectares will work and live off of those lands. Few of these farmers will expand their farms, as they find it hard to save money to invest in expansion. Often these farmers encounter financial problems or a death in their family and give up their land in order to attain money quickly. They may generally approach large farmers (as they know they have money) and propose leasing or mortgaging their lands in return for a large sum of cash. If they have only a small amount of land, this can be very problematic, as they have essentially given up their livelihood. This is especially challenging when land is mortgaged as they will have no way to make money to pay back the mortgage and recover their land. In this situation they may have to resort to working salaried work or to working as a two party worker (possibly even on their own land).

*Large Farmers* Those that have inherited a large amount of land will work a few hectares personally and will give the rest of their land to two party workers. Many people that have inherited large amounts of lands in Kwakwa have moved out of the village to live in the cities but come back only when harvest is ready to take to the buyer.

*No Land Inherited* Those born in Kwakwa will have the advantage of being familiar with how cacao functions and how it is worked and can therefore directly become a two party worker. In addition the social capital associated with being known in the village makes it easier to find work.

### 5.8 Financial Capital

One matter that affects actors' livelihood options is their access to financial capital. In Kwakwa there are several routes to attaining financial capital, though not everyone has access to all options, and some are preferable than others. The avenue chosen to attain finances depends also on the speed at which one needs money, the quantity of money and the time of year the money is needed.

**Banks and CAMCCUL** The closest banks are in Kumba, 18 kilometers from Kwakwa, generally only the large farmers will have accounts in banks and access to bank loans. The majority of small farmers and workers do not generate enough money, nor keep the money they earn long enough to rationalize depositing money into banks in Kumba. Within the village there is a small branch of CAMCCUL, the Cameroon Cooperative Credit Union League. This financial entity allows farmers to access loans when they open a savings account. The standard loan available is equal to three times the amount deposited into one's savings account with an interest rate of 2% monthly. A one hectare cacao farm close to the centre of Kwakwa could be collateral for 1- 1.5 million FCFA, depending on the productivity and age of the trees. Most of the men taking out loans use the funds to buy lands. The women that take out these loans tend to take out smaller loans of around 100 000- 150 000 FCFA and use the money to invest in small businesses such as Kwakwa market stands, wood purchasing to sell as firewood during the harvesting season for cacao. Others take loans to pay for children school fees.

Within Kwakwa and surrounding areas, fewer than 50 people have opened an account at CAMCCUL. One of the limiting factors according to local farmers is that in order to be eligible for a loan, one must have collateral to forward in case of failure to reimburse the money loaned in the form of land or properties. Access to ownership of collateral is not a reality for all. A staggering number of people in Kwakwa do not have access to their own land and those that do have access to their own land do not usually have official papers proving their access.

Furthermore land that is most difficult to access is land that is across the Meme River and it is not possible to use this as collateral because the representatives at CAMCCUL are not able to do an inspection of the lands to approve it as collateral. Furthermore, as a reserve, it is government owned land and therefore should not be able to be used as collateral (however the status as government reserved land is not known to all).

**10 born 10** The "10 born 10" system is one in which for example "*I give you 100 000 FCFA today and in December you give me 200 000FCFA.*" In other words it is a system for those to access cash fast but with a 100 % interest rate. This can be money borrowed from anyone with money to share in the village.

**Patrons** For two party workers, patrons are a source of loans for many. One farmer explained that "good patron give 100 000FCFA, and only ask for 50 000FCFA as interest". Debts are commonly deducted at the end of the peak harvest when cash is plentiful.

**Local Buyers** For those who do not have money for chemicals or need money to invest in broking, local buyers are quick and easy points of access. Chemicals are sold at an inflated price (commonly double the price), though the interest and costs are deducted when the cacao is sold. Buyers are interested in giving loans as it is a form of security to ensure they will sell their production to them. Since the choice of buyers is not decided by the two party worker, his options are sometimes limited. However some patrons will organise a loan for the two party worker from the buyers.

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The benefits of this type of local lending system are that it is fast and local. Local buyers are based in the village and a personal connection already exists. When a farmer needs money, he can literally knock on the local buyer's door in the middle of the night in the event of an emergency. The local buyer will already be familiar with the production that is possible from the farmer's land and will know how much he can forward as a loan. Many prefer this system even if the interest charged is higher than banks because it does not involve the lengthy process and pile of paper work.

**Mortgages or Leased land** As previously discussed, when land owners need money, they will approach people who have access to a large amount of financial capital, particularly large farmers and large patrons. Land owners will offer to give away their land in exchange for a large sum of money. The contract will either be a pledge (whereby the loaner has access to the land for a fixed number of years) or a mortgage, where the land is used until the farmer is able to pay back the money loaned.

**Financial Njangi** The Financial Njangi group is a way both women and men have communally come together to aid each other financially. In Kwakwa there are several financial Njangi groups which all have slightly different ways of operating but all have the same general function. A Njangi group between market vendors has a fixed weekly rate of 10 000 FCFA each participant has to contribute. Each week, the sum of money from all the members goes to one member, the next week another etc. until everyone has their turn. Other financial Njangi groups allow for different levels of contributions depending on their financial abilities and the money is given to a member the most in need. These groups are an indirect way of saving money, as it is as if you are putting side a sum of money each week but instead of it sitting in a bank or under a mattress, it is used by members of the community. This could be hard for example for a two party worker who might not generate enough money annually. Additionally many farmers have issues saving throughout the year and would find it hard to have money to contribute weekly.

### Who potentially has access to what type of financial capital?

As previously mentioned, not everyone can access all types of financial capital. The following figure shows who has access to which types of financing.

Type	Financial Njangi	10 Born 10	Patron	Local Buyers	CAMCCUL	Kumba Bank Loans	Pledge/ Mortgage Land
Daily Salaried Worker							
Full Time Salaried Worker							
Two Party Worker							
Small Family Farmer							
Large Land Owner					if land are accessible		
Woman with Food Crops						rare	

Figure 19. Access to Different Types of Financial Capital

Daily Salaried Workers have limited access and are dependent on becoming part of a Financial Njangi or borrowing from a community member (likely under the 10 born 10 system). A fulltime worker will most likely not be able participate in a Financial Njangi because his time in the village is limited and he does not have income he can contribute weekly as he receives all his income only at the end of the season. The fulltime salaried worker can get a loan from his patron or possibly find

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someone in the village (though it is hard as may not have the necessary social capital as he is temporary in the village). The two party worker could join a Njangi group, approach his patron or find a 10 born 10 deal. The farmers who own land would have access to all options (except a patron, unless they are also two party workers).

Women will mostly rely on Financial Njangi and 10 born 10 systems when in real need of money. Women usually rent food cropping land and therefore rarely have land they own themselves that they can lease or use as collateral. According to CAMCCUL officials, it is estimated that only about 30% of the people taking out loans in Kwakwa are women. They are viewed as a good investment as they are also the members that have an 80% return rate. However women tend to have less access to collateral than the men in the village, but occasionally can use the family homes or their husband's land to take out loans. Additionally the majority of women in the village use most of their harvests to feed their families which therefore means that women have a hard time accumulating savings.

### 5.9 Hypothetical Farm Illustrated with Various Models

For those with access to land, the management and size of the farms changes, however the structure of the hypothetical farm stays consistent.

#### The Hypothetical Cacao Farm

The model farm used to calculate the incomes for each typology is a cacao farm with a mixture of 15 other trees and 10 plantains (see Figure 23: Gross Annual Income of Hypothetical 1ha and 2ha farms below). The farm is hypothetically a typical personal farm found in Kwakwa, which is 50 years old and slowly being regenerated with 100 new seedlings planted per year. The seedlings used to regenerate the farm are grown from seeds selected from neighbouring farms and developed in a nursery beside the farmer's house. The farm is a half an hour walk from the homestead. This farm yields 700 kg of cacao per ha, 81 kg is dried in the oven using wood harvested from the farm, 19 percent is dried in the sun. Pesticides used include: 6 litres of Parastar, an insecticide used throughout the year from January to November; 24 sachets of Nordox, a contact fungicide sprayed in April, May, October and November and 65 sachets of Ridomil, a contact fungicide used from June to September. The sale prices of cacao used to calculate the income generated are based on fluctuating monthly prices as were seen in 2013 (based on data from the Meme Divisional Ministry of Agriculture and Rural Development (MINADER Meme, 2013). See Figure 20 below.

2013 Average Prices for the Meme division													
Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Price (FCFA/kg)	825	800	775	770	840	850	750	850	900	1000	1030	1050	
Yield (Kg)	0	0	0	0	0	30	50	0	200	270	100	50	700
Gross Income (FCFA)	0	0	0	0	0	25500	37500	0	180000	270000	103000	52500	668500

Figure 20: Sale Prices of Cacao- Monthly Fluctuations

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CACAO		Work Days (WD) -6hrs-	Gross Output FCFA	Intermediate Inputs FCFA	Gross Value Added (GVA) FCFA	GVA/ ha FCFA	GVA/ WD FCFA
Small Family Farmer	Up to harvest (before broking)	82	668500	81850	586650	586650	7198
	Processed and Dried	144	668500	104400	564100	564100	3917
Chemicals Bought on Credit	Up to harvest (before broking)	82	668500	144200	524300	524300	6394
	Processed and Dried	144	668500	166750	501750	501750	3484

Figure 21: Summary of Base Economic Calculations for 1 Hectare of a Cacao Farm.

Income from other trees and plants on the farm are based on average yields and prices that were given by interviewees (see Appendix I. for further information on the cost of other plants/trees prices and yields)

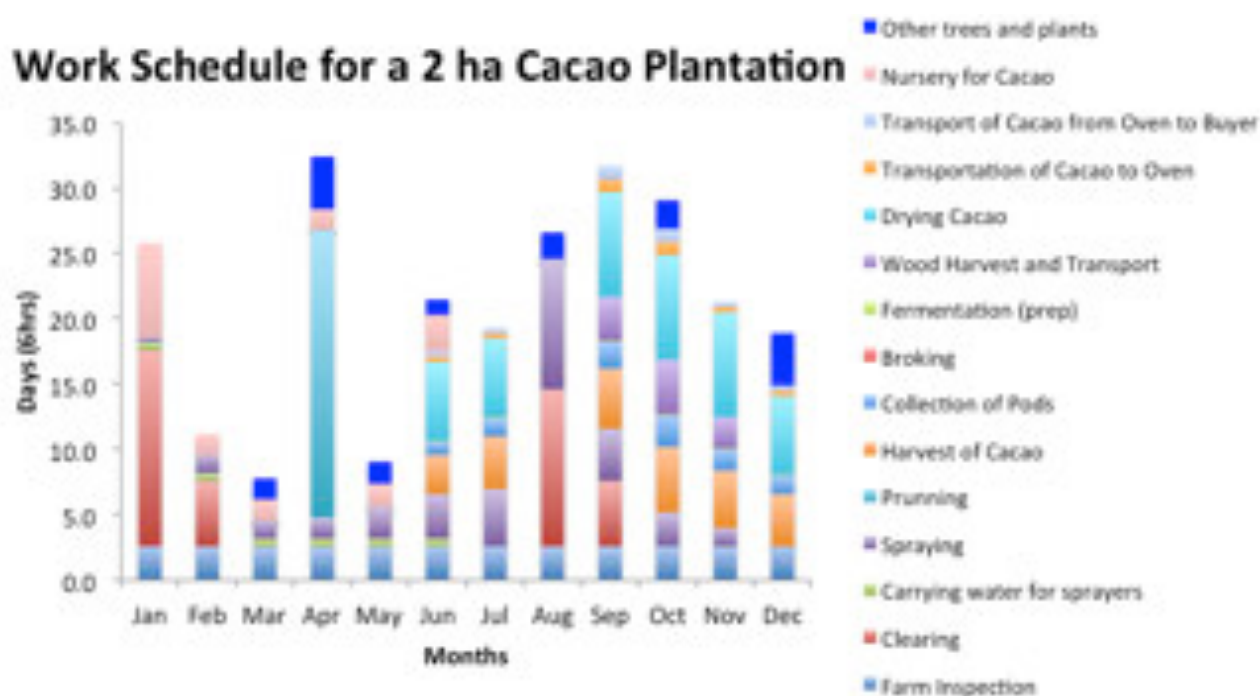


Figure 22: Typical Work Schedule for a 2 ha Cacao Farm. This is the base schedule used throughout unless otherwise explained.

For the purpose comparison, the following models represent a basic model and situation. In instance, these models will assume that all farms are 30 minutes walking. However in reality many farms are hours away by foot. Many farms are even inaccessible by foot. In addition, even small family farmers might have only 2 ha but could have those 2 ha spaced out across 3 farms which are all in different villages (increasing the complexity in terms of hours spent on the farms and the cost of activities).



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Additionally, the models formed also assume that all the types growing cacao would profit from the other plants and plants grown in the cacao farm. However in reality this is not always true. For example, two party workers are occasionally not allowed to harvest anything except cacao. Additionally, some large farmers choose to concentrate on cacao farming and will not be interested in harvesting other crops. Similarly, certain crops are commonly harvested by women, however this has not been considered income for women when discussing the food crops.

<b>Gross Income for a farm</b>		
	1 ha	2ha
Cacao	668500 FCFA	1337000 FCFA
10 Plantains	30000 FCFA	60000 FCFA
2 Plums	12000 FCFA	24000 FCFA
5 Oil Palms	7500 FCFA	15000 FCFA
1 Njansanga	40000 FCFA	80000 FCFA
1 Bush Mango	40000 FCFA	80000 FCFA
2 Orange	36000 FCFA	72000 FCFA
1 Bomma tree	not harvested	
3 Small leaf trees	wood consumed for drying cacao	
<b>TOTAL</b>	<b>834000 FCFA</b>	<b>1668000 FCFA</b>

Figure 23: Gross Annual Income of Hypothetical 1ha and 2ha farms

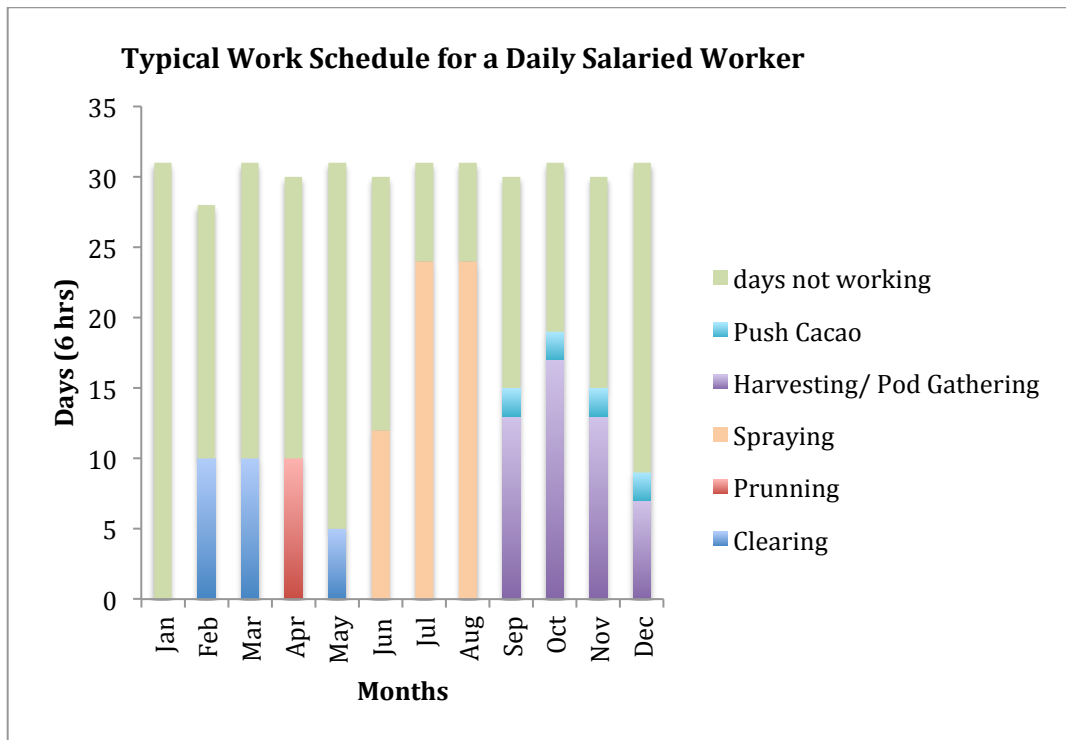
<b>1 Hectare Cacao Farm</b>	
<b>Yield:</b>	700 kg/ha
<b>Age of Trees:</b>	50 yrs old with slow progressive regeneration
<b>Inputs</b>	FCFA
Cost of Insecticides	30000
Cost of Fungicides	51850
<b>Total Cost of Chemicals (normal price)</b>	<b>81850</b>
<i>Total Cost of Chemicals (two party or on credit)</i>	<i>144200</i>
Cost of Cacao bags	4500
Cost of Oven Changes	8550
Cost of felling trees for wood to fuel ovens	9500
<b>Total Cost of Other inputs</b>	<b>22550</b>

Figure 24: Cost Inputs of 1 ha Hypothetical Farm



### 5.10 Actors with no access to land

*Daily Salaried Worker* There are several types of daily salaried workers in Kwakwa. Most salaried workers, (who only work salaried jobs) are *new arrivals* into Kwakwa, mostly from the North West. Generally the first or second year of being in Kwakwa these men will work in order to become familiar with cacao and make connections so they can work their own farm. There are also *seasonal workers* who only come to work during intensive cacao months (June- November). *Students* who live in Kwakwa and students from the cities who come to work during their holidays commonly work daily jobs to make a living. Moreover, two party workers and small family farmers that work less than two hectares of land themselves occasionally work as salaried workers to increase their income.



Activity	Salary	Salary/hr
Clearing	2000FCFA /3hrs	667
Pruning	4000FCFA/5hrs	800
Spraying	500FCFA/ sprayer	500*
Harvesting/ Pod Gathering	3500FCFA/5 hrs	700
Push Cacao	2000FCFA/3hrs	667
<b>Average Hourly Wage</b>		<b>621</b>

\*calculated at a rate of 1 sprayer per hour

Figure 25: Work Schedule, Activities & Wages for Daily Salaried Worker

## MODEL Details:

The number of hours worked by a daily salaried worker depends on the availability of jobs which is inconsistent from year to year. Typically the worker works as many days as s/he can, including Sundays. The type of job differs between the months. The busiest work period is usually during the peak harvest season from September to November. In 153 days, a worker can earn 570 000FCFA. However in order to find salaried jobs, one needs to initially invest 54 300 FCFA in farm tools and equipment (this depends on which jobs are wanted) (Cf. Appendix H. for the full list of equipment required for this case). If this worker does daily jobs another consecutive year, he will need to spend 24 550 FCFA on equipment yearly. With the annual depreciation of the equipment deducted, a daily salaried worker can make 545 450 FCFA. This worker also has living expenses which will be around 260 000 FCFA annually. However, it should be noted that if the worker is a single man in the village and does not cook, he would most likely buy all his meals in restaurants in the village for an average of 500FCFA/ day, which would increase his expected cost of living. After the cost of living is deducted this worker would be able to save 285 450 FCFA per year.

The typical daily worker would work and estimated 153 6-hour days in one year. However many jobs will only be for three to five hours and it is rare to have two jobs in one day. For instance, in January when he works clearing jobs, in reality he works for 20 3hr-days, however for the sake of comparison it is graphed at 10- 6hr days. As a result, it is not easy for a daily salaried worker to work full time everyday unless he finds jobs that have no set time limit (for example if was hired to clear 1 hectare for 30 000 FCFA).

Most new arrivals will work for one or two years as salaried workers picking up daily jobs when they can find them. Many who choose to settle in the area will soon look for a farm owner that will hire them as a two party worker

*Full Time Salaried Worker* Full time salaried workers are generally men, mostly from the North West. These full time workers are frequently younger boys in their twenties however there are also older men with families they leave behind in the North West. Students in Kwakwa also decided to work as full time salaried workers. They are typically youth with no family to support them find security in this type of arrangement as it allows them to ensure they can pay for school and have a place to live. Most try to work during hours that are outside school hours, but during peak harvest, school is sometimes missed (this also depends on the number of farms their patron has and the agreements made between the student and his patron).



*Figure 26: Annual Work Schedule of a Full-time Salaried Worker*

Many salaried workers come for a few years and then use the money to invest in other ventures, though some will look for a two-party job, frequently with the help of their patron.

#### MODEL Details:

The typical full time salaried worker works on command for his patron every day except Sundays. In this common example, the worker works from the beginning of March until the 20th of December. The patron provides accommodation, food and healthcare to the worker. One-way transportation from their hometown to Kwakwa is also commonly paid by the patron. These expenses can equal to 244 500 FCFA (the cost of a full time worker is calculated differently than the general cost of living as they are only in the village for 10.5 months). Added to the year-end salary of 200 000 FCFA, theoretically the worker makes 444 500 FCFA per year. Any equipment needed for work is paid for by the patron, meaning there is no investment needed to start in this type of employment.

### 5.11 Actors with Access to Land

The next typologies are based on a typical farm structure described above.

*Small Family Farmer* Typically a small farmer would have access to between one or two hectares. The base model for a family farmer is a man with two sons that help him part time (which would count as two active family members). The broking in this example is paid. The initial investment in equipment for a small family farm is 128 800 FCFA (less if previously was a salaried worker). If the farm was not inherited, an investment of around 2 000 000 FCFA per hectare would be required to have access to land. The gross value added per active is 710 145 FCFA annually. After the annual depreciation of equipment of 42 667 FCFA, the net value added for this actor is 667 478 FCFA. Once the yearly cost of living is deducted, the small family farmer should have a savings of net income of and living expenses are deducted income for a small family farmer is 407 478 FCFA per year per active family member.

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The following figure is a typical work schedule for a small family farm. 270 days are required to work these two hectares (135 days per active). As can be seen with the number of days not being worked, these two family members could work double the land if they could have access to it.

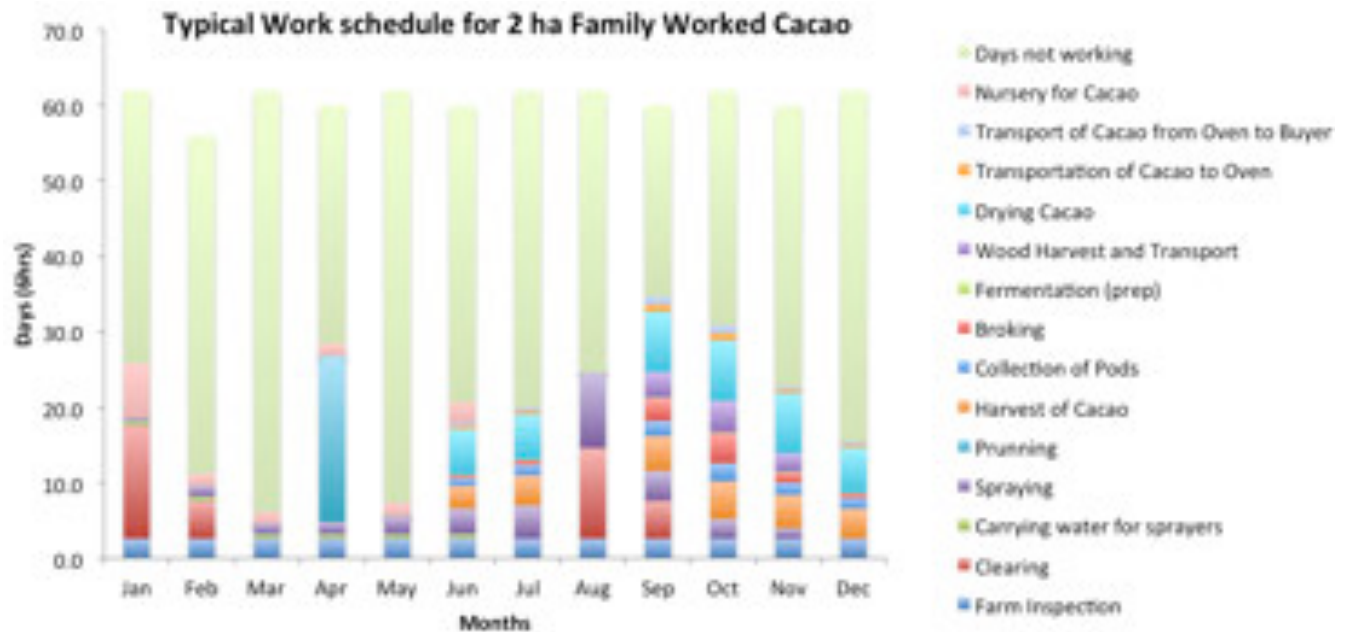


Figure 27: Two hectare farm worked by two family members

One person can work two hectares; however there are certain tasks throughout the year including push cacao and wood from the farm, which require a minimum of two workers. The benefit of having two family members available is that there is no need to pay for extra labour. If a small farmer with no family is to work these two hectares, the net income would be 596 383 FCFA per hectare (equalling 1 192 767 FCFA for two hectares), as he would have to hire help occasionally throughout the year for tasks such as pushing cacao, water for spraying and wood for drying.

**Two Party Worker** The small two party worker would have the same system and same work schedule as the small farmer as well as the same needed initial investment in equipment. However, the two party worker would have access to a hectare of land by paying a fee of around 50 000 FCFA to the patron the first year. The significant difference for the small two party worker is he only benefits from half the production and pays a higher price for chemicals. Certain costs are split between the two party worker and the patron including the oven fees and the chemicals, however the cost of the chemicals tend to be much higher. For example if a sachet of Ridimil is sold for 650 FCFA, then the patron would give the chemicals to the worker at 1000 FCFA and keep the profits. Therefore for 1 ha, a two party farm would spend 144 200 FCFA per hectare verses the normal 81 850 FCFA per hectare.

The gross added value for a two party worker with family would be 305120 FCFA which after equipment depreciation, their income would equal to 262 453 FCFA. If we assume the same cost of living at 260 000 FCFA per year, the annual savings for this farmer would be a mere 2453 FCFA for one active family member. Additionally, since the two party worker is in charge of all the labour, if the two party worker does not have family or a Njangi group member to help for task

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requiring two people, he would have to pay for labour, which would further decrease his income. For a family-less two party worker on 1 ha, he would see a gross value added of 232 025 FCFA, however after living expenses and equipment depreciation are removed he has negative savings at -70 642 FCFA. It should also be noted that this calculation was assuming the two party worker was able to work the other trees and plants on the farm in a two party system as well, however many patrons forbid their workers from working anything except cacao.

The model above shows that being a small two party worker can be less than profitable. During interviews, many explained that certain farmers make no profit at all but do not necessarily realise it. Many do not keep financial records and do not keep track of the money they spend. Additionally, all their income comes during one period of the year, whereas their spending comes at different times. The cost of living used for this model was a standard for the sake of comparison; however living expenses are not always realized fully by men. The cost of food produced by their wives is not calculated or deducted from their income. Moreover, many two party farmers compensate their income by working extra daily salaried jobs or work numerous two party farms. If a two party farmer worked two farms with this same work schedule, he would net 378 717 FCFA per year working 286 days.

### *Large Two Party Worker*

Those that have the energy will take several farms under the two party system. The initial investment in equipment is the same as for a small two party worker, however the large two party worker would have to pay for an extra 4 farms 50 000 FCFA per hectare worked. However, the way in which they work each farm can change in comparison to those that work only one hectare. In order to be more efficient in their work and the amount of money they spend, they harvest each farm only four times versus six times as do the small farmers.

This model is formed by assuming that there is only one active farmer. Most farm tasks are done using paid labour. To properly manage his time on the farm, the large two party worker does not spend extra time monitoring his farms as others do. He may work longer than 6 hours per day and hire labour to help complete tasks within one day whenever possible. He might prune the five farms himself but between January and April. He will fully pay for clearing each farm. He will hire labour to help spray when the production increases and he cannot complete alone in a single day. During the times that he harvests he will have workers harvesting, collecting and broking all on the same day to ensure that all the cacao is fermenting by nightfall. He pays for all transport of cacao out of the farm.



Figure 28: Work Schedule of a Two Party Worker on 5 ha  
 Note: hours spent drying cacao every month are 48 consecutive hour periods.

The main challenge during the peak harvest time is to balance the harvesting and drying times. Production from each farm needs to be dried separately from others in order to ensure it is properly split with the patron. The following figure shows how one worker can manage his time during peak harvest season.

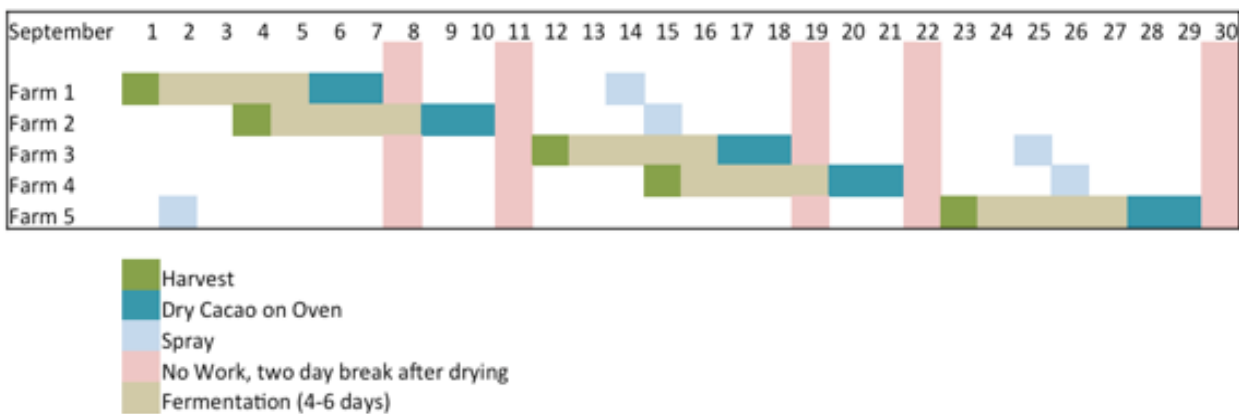


Figure 29: Single Worker's Ideal Time Management during Peak Cacao Harvest Season.

As can be seen from Figure 29 this worker will only ferment for 4 days in order to ensure he can manage all farms within the month. If he is the only active member then he will have to stay with the cacao while it is drying on the oven for the required 48 hours straight. As a result, he will take one day of break after each batch of cacao is dry.



A large two party worker that has 5 hectares of cacao can expect to work an equivalent of 350 6-hours days and generate an gross added value of 716 125 FCFA, 669 458 FCFA after yearly depreciation. Once living expenses are subtracted a large two party farmer can save 409 458 FCFA per year. If the farmer has the initial investment to support full time workers, he might decide to take full time workers to increase his final net income as well as potentially increase the surface he works (this system will be further explained when discussing the large farmer with full time workers).

### *Large Farmer*

All other types strive to be a large farmer, as the income of a large farmer can be quite substantial. There are two types of large farmers, those that choose to use full time salaried workers and those that supplement their labour with daily salaried workers. The large farmer with daily salaried workers will only have to invest in a small portion of equipment to better deal with the increased quantity of cacao such as extra trucks and tarpaulins. The large two party worker with full time salaried workers will have to further invest in all necessary equipment for the extra worker. For the sake of comparison, 5 hectares of cacao farm has been modelled in the next two examples. The large farmer will either work his land the same way as the large two party farmer or will choose to harvest all his cacao at the same time to ferment and dry it all together. In reality depending on the number of farms the 5 ha is split between and the distance between the farms, this can result in unequal fermentation times.

To further explain; if Farm A is harvest on one day and set aside for fermentation. On day 2, Farm B is harvested and added to the production fermenting from Farm A. Then day 3 is a Sunday and the farm takes a break. On day 4, Farm C is harvest and again added to the fermenting pile of cacao from Farm A and B. Once all the harvesting is finished, the cacao is dried all together to make time used efficient, meaning that some cacao will have fermented for maybe 3 days and others for 7 days. The management of farms in this manner can affect the quality of the cacao.

Additionally, large farmers will commonly invest in ovens as they have a large amount of production to dry annually and they usually have capital they can invest with. The purchase of an oven was not included in the models as it is a piece of equipment that will generally pay for itself after 3 to 4 years and eventually produce income. Farmers who use the ovens are charged 1500 FCFA per bag.

### *Large Farmer with Daily Salaried Workers*

Large farmers that choose to work their farms with salaried workers will generally have a work schedule identical to that of the large two party worker. Since they get to benefit from the entire production of the farm and will normally be able to buy their chemicals from the market at the normal price, the returns of their labour will be much higher. A large 5ha farmer can realize a gross value added of 2 462 000 FCFA, which will have a net price of 2 415 333 FCFA. If they only have their basic living expenses to cover of 260 000FCFA, they would have savings of 2 155 333 FCFA.

### *Large Farmer with Two Full Time Employees*

A large farmer that chooses to hire full time employees can increase his income even further as well as work more farms. The two hired full time salaried workers are essentially like hired family members in terms of the work availability however they have fixed wages, which means that all the net income from the farms goes directly to the landowner. These employees are available to work every day except Sundays throughout the 10.5 months they are working for the patron.

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Since one farmer can easily work 2 hectares, the farmer and two full time salaried workers can easily work over 5 ha. A large farmer will have a gross value added of 3 550 725. The farmer will have to have equipment for three people and will therefore has an annual depreciation for his equipment of 117 200 FCFA. After the equipment depreciation and the cost of his workers is deducted, he will have a net income of 2 544 524 FCFA. If we take away his living expenses the large farmer will theoretically have 2 284 525 FCFA available annually to invest (though in reality this is a bit inflated as these calculations do not include the costs of other dependent family members). Since this farmer only works 135 ha when working on 5 hectares, he could hire two more workers and theoretically work 5 more hectares. He would net 5 089 050 FCFA per year if he worked these 10 hectares with 4 full time workers.

***Two Party Patrons***

With the large annual capital available, large farmers are quite easily able to have money to invest in buying other lands. If the farmer invests in more lands, he may decide to give them away for two party worker. In this event, he could hypothetically make a profit from the chemicals given to his two party worker at 62 350 FCFA as well as a profit from half the harvest at 257 875 FCFA. If he also gives his other crops and plants with a two party agreement he could make an extra 82 750 FCFA. In total he could make 402 975 FCFA per hectare without having to do any work on the farm. Accumulating extra farms can prove to be quite profitable. There are a few actors in the vicinity that will have over 50 farms all on two party arrangements and will make profits over 20 000 000 FCFA annually.

This is also a more profitable way to generate income from a farm if you are for example too old and unable to do manual labour. If a land owner was to simply monitor the farm and pay daily salaried workers for all work except the drying of cacao (which is not usually ever paid), a net income of only 312 100 would be made and work equal to 64 days of work would still be required.

**5.12 Model Food Crops on Ridges and Women's Livelihoods**

The following models are based on two rotations, one which is the March Rotation and the other, the March August Rotation. The following figure is the typical work calendar for each of these rotations used as a base for the food crop models.

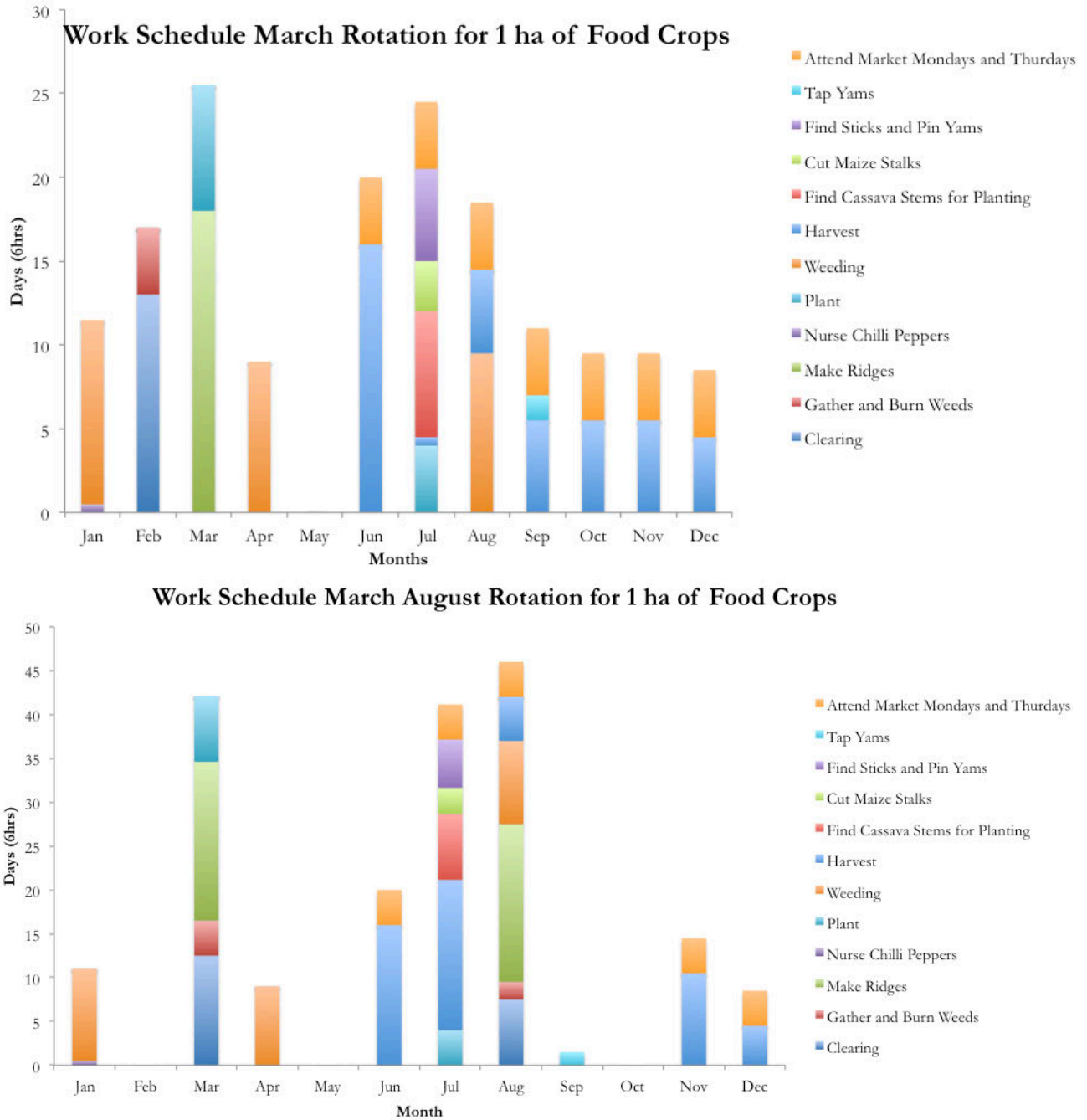


Figure 30: Food Crops Work schedule for 1 ha farm on March Rotation and March-August Rotation Half of the farm on first year of rotation and half on second year.

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Women will work between 300 and 3000 ridges depending on their access to land, access to financial capital, energy and personal preferences. The following models are based on 1 hectare of land, equal to 1500 ridges divided into two farms; one farm of 750 ridges in the first year of the rotation and the second farm of 750 ridges in the second year of rotation. It should be noted however that in reality farms very rarely would reach this size, though women will commonly have several small farms spread around the village that equal one hectare.

Gross Output from 1 ha of Food Crops	Rotation	
	March	March August
Maize (Fresh)	33750	67500
Groundnuts	78750	157500
Maize (Dry)	9375	18750
Egusi	30000	30000
Okro	4500	9000
Pepper	63750	127500
Yams (Calabah)	99900	99900
Cocoyams	36000	36000
Cassava	45000	35000
<b>TOTAL (FCFA)</b>	<b>401025</b>	<b>581150</b>

Figure 31: Gross Output from 1 ha of Food Crops, March and March-August Rotation

In reality the income per ridge ranges between 400 and 2400 FCFA, equalling an income per hectare between 300 000FCFA and 1 800 000 FCFA depending on the soil quality, crops choices and rotation system. An initial investment of 17 600 FCFA is needed to start growing food crops, which has an annual depreciation of 12850 FCFA.

FOOD CROPS	Calculated up to	Work Days (WD) 6hrs	Gross Output FCFA	Intermediate Inputs FCFA	Gross Value Added (GVA) FCFA	GVA/WD FCFA	GVA/ha FCFA
March Rotation	Harvest	136	401025	0	401025	2949	401025
March August Rotation	Harvest	174	581150	0	581150	3340	581150

Figure 32: Overview of the economic analysis of food crop systems grown on the typical ridge systems. The total workdays only include those worked on the farm and do not include market days nor days to transform production.

One hectare farms that are run using family labour using seeds saved from the previous harvest will generate a net income of 343 175 FCFA annually for farms planted following the March Rotation working 167 days and 581 150 FCFA for farms planted following the March August Rotation working equal to 195 hours.

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The following figure demonstrates the work schedule of working farms equal to one hectare for 1 year.

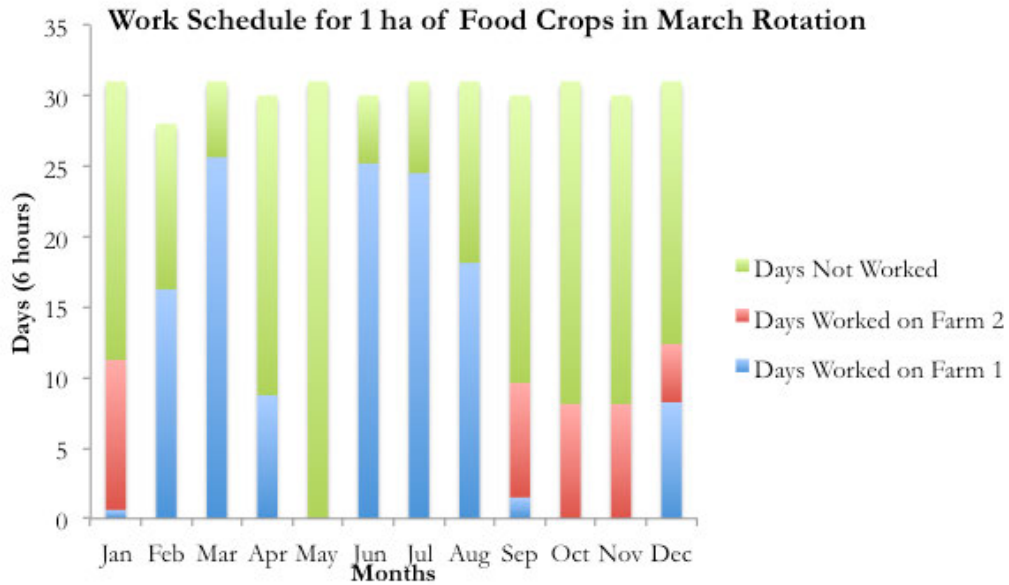


Figure 33: Work Schedule for 1 ha of Food Crops in March Rotation

Women who farm up to a hectare commonly work days closer to 12 hours long versus the standard 6 hour days modelled here. For work intensive months including March, June and July, children are also brought to the farm to supplement labour. The summer vacations start in June, which falls on the peak harvest season in the village. It is rare to find a woman that works 1 ha of food crops all on the March- August rotation alone, most will have many children to supplement the labour.

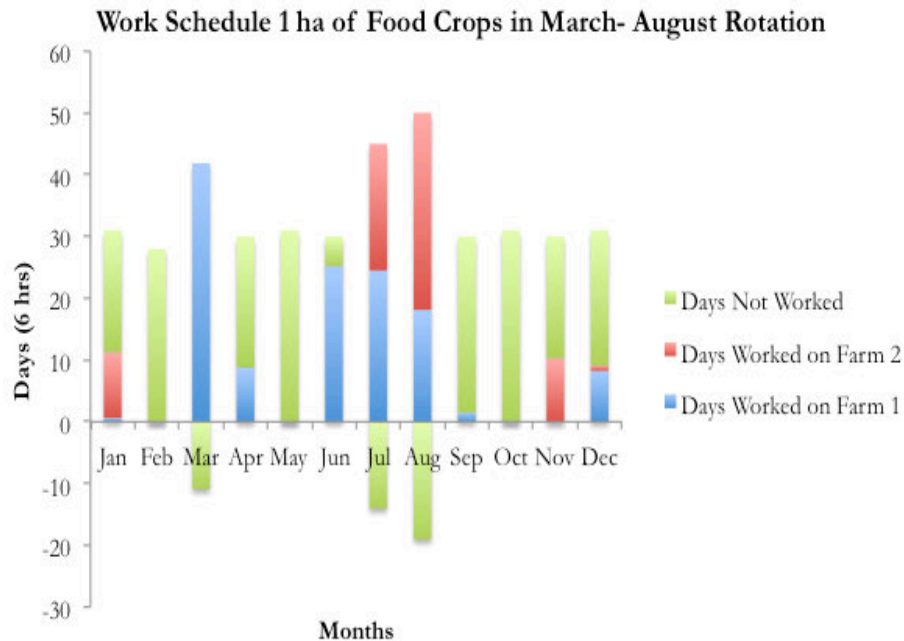
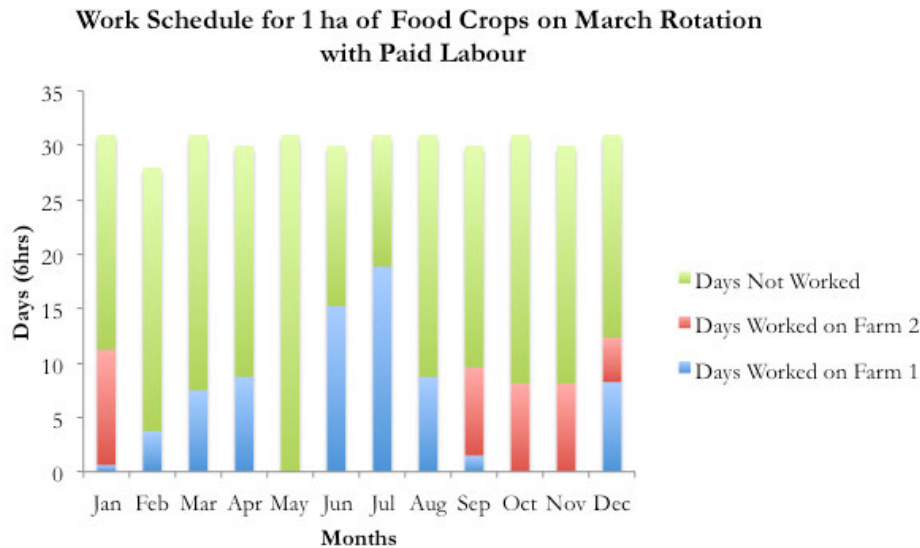


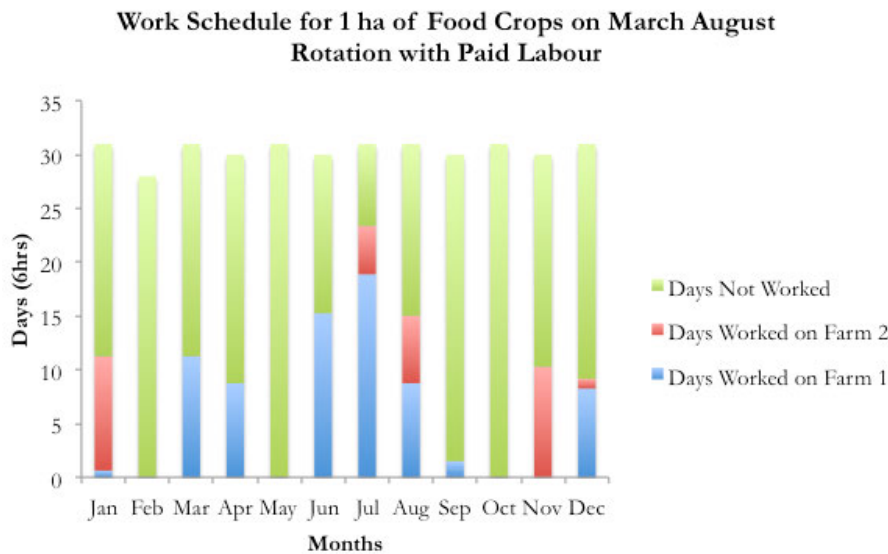
Figure 34 Work Schedule for 1 ha of Food Crops in March-August Rotation

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Some women will also choose to hire labour during peak work periods (which are conveniently off season for cacao). Many women who are able to access many farms, will use a lot of hired labour to maximize the surface they are able to work and to increase their income. In these models, women working the March Rotation will pay for clearing, ridge making and weeding (in August). They will also take daily labourers to help during harvesting days, they will purchase sticks versus finding them and also pay someone to pin their yams.



Women working the March August Rotation will hire labour for clearing in both February and June, ridge making in March as well as in June. Similar to the March Rotation, women will pay for April weeding and pinning yams with purchased sticks. These measures will free up their schedule and can take and they will be able to work more farms.



If women working March Rotations double the farms they work, working a total of 2 ha, they will be able to make a net profit of 1 206 750 FCFA and if those with March August Rotation hire labour and work 2ha, they can earn a net income of 1 514 250 FCFA.

Figure 35 Work Schedules for 1 ha of Food Crops in March and March-August Rotations with Paid Labour



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The following is an overview of the gross value added for 1 hectare of food crops on the March and March August Rotation.

FOOD CROPS	Gross Income	intermediate inputs	Gross Value Added	annual equipment depreciation	rent	Income
	March Rotation family labour 1ha	401025	0	401025	12850	45000
March August Rotation family labour 1ha	581150	0	581150	12850	45000	523300
March Rotation paid labour 1ha	401025	118625	282400	12850	45000	224550
March Rotation paid labour 2ha	802050	237250	564800	12800	45000	507000
March August Rotation paid labour 1ha	581150	190625	390525	12850	45000	332675
March August Rotation paid labour 2ha	1162300	381250	781050	12850	45000	723200

Figure 36: Overview of the gross value added for 1 hectare of food crops

### 5.13 Comparison between Types and Livelihoods

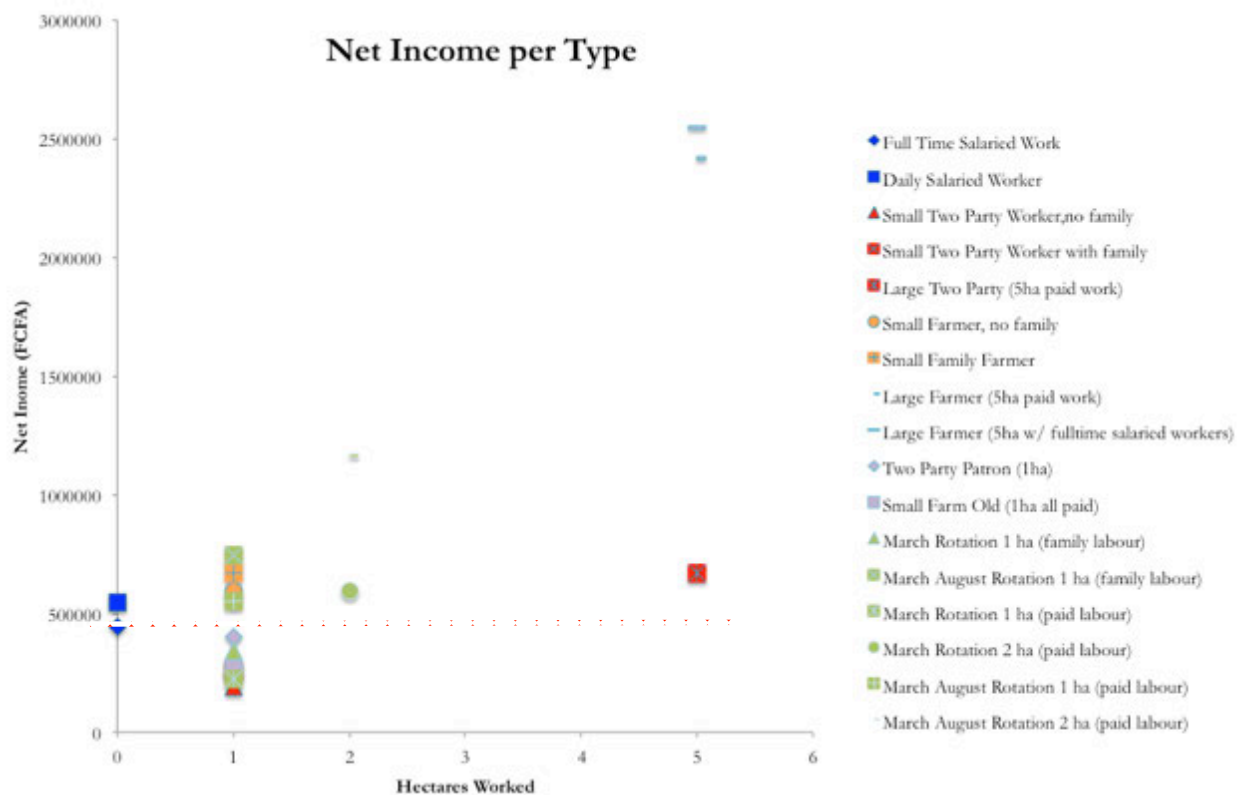


Figure 37: Comparison of Net Income of Different Types of Labour or Labour Arrangements

The more land that one can access, the more profits they can generate. As can be seen in the figure above, the most profitable type is the large farmer with full time workers. The least beneficial type is the two party worker working only 1 hectare. Food crops can generate a significant amount of income from a small surface area when compared to cacao. To further explore which types are most beneficial; it is pertinent to look at the returns to labour and the returns to land.

5.13.1 Return to Land

Gross Value Added	
Cacao	FCFA
<b>Whole Cacao Farm</b>	<b>710145</b>
Just Cacao	548645
Just Other Trees/ Plants	161500
Food Crops	
<b>March Rotation</b>	<b>401025</b>
<b>March August Rotation</b>	<b>581150</b>

Figure 38: Gross Value Added for 1 hectare of Cacao versus Food Crops.

The basic gross value added generated from a one hectare cacao farm is 710 145 FCFA, where 77% of the value is from cacao (548 645 FCFA) and the remaining 23% is produced from the other 15 trees and 10 plantains on the farm. The food cropping ridge system generates a possible 401025 FCFA per hectare if planted using the March system and 581 150 FCFA if following the March August Rotation. As a result, the March August Rotation is more productive than the cacao alone on 1 ha of land.

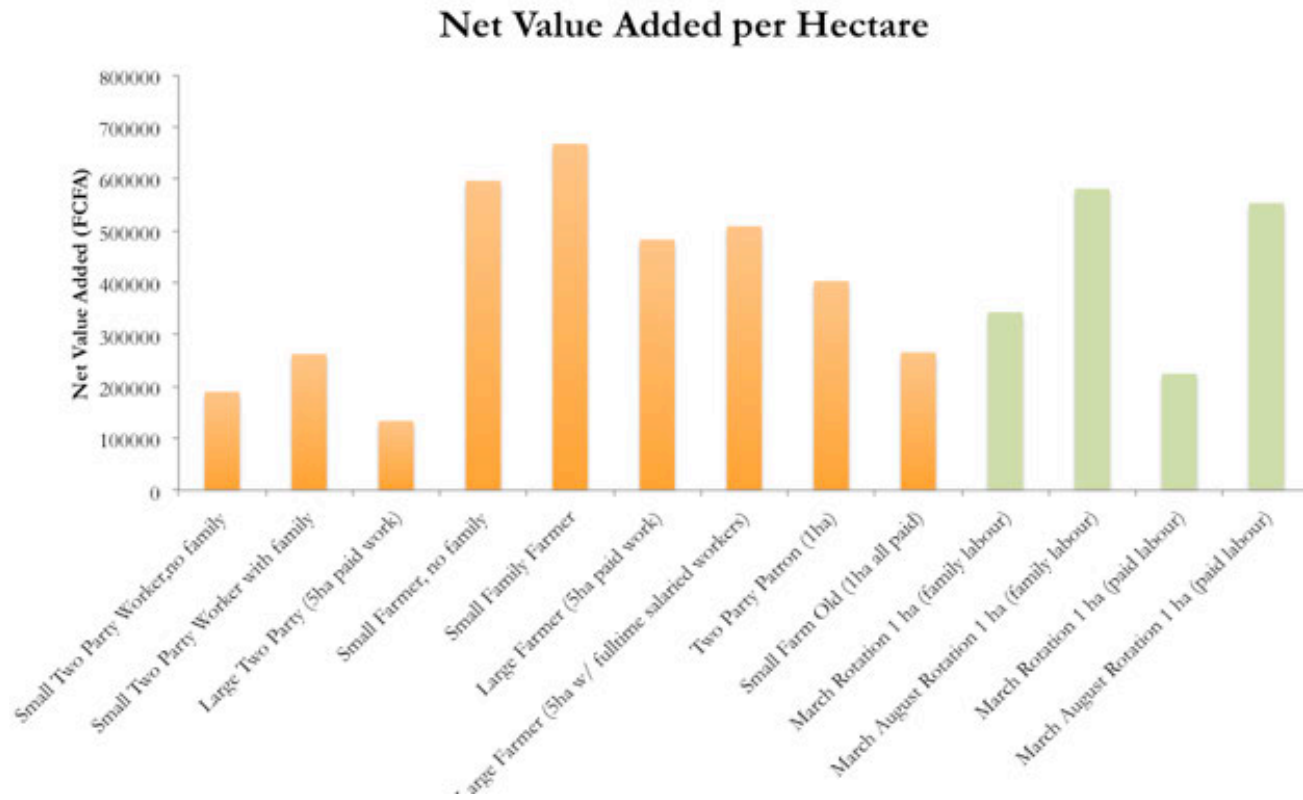


Figure 39: Net Value Added for 1 Hectare of Cacao Versus Food Crops

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Access to land increases income however the returns produced by each type per hectare varies greatly. A woman growing 1 ha of food crops in the March August Rotation using family labour generates the most benefit from the land she works, followed by a woman growing a hectare of the March Rotation using family labour. In terms of cacao farmers, it is the family farmer that is able to create the largest gains from his soil. The large two party farmer, followed by the small two party farmer receives the least amount of money from each hectare he works.

### 5.13.2 Return to Labour

Even though food crops are more productive per hectare, they are very labour intensive. According to these calculations, on one hectare of land, a family farmer working cacao will make 821 FCFA per hour whereas a woman growing food crops on one hectare using family labour will earn 369 FCFA (March Rotation) to 428 FCFA (March August Rotation).

The most lucrative type to be in terms of returns per hour worked is the two party patron as you make over 400 000 FCFA without working at all. The next most beneficial is the large family farmer who has full time employees who earns 3130 FCFA per hour worked. The least beneficial hourly income is that of the two party worker with no family who earns 221 FCFA per hour he works. Women do not have a large margin of options to increase their hourly income. Even by hiring labourers, increasing the amount of land they work and intensifying their rotation from the March to the March August Rotation, women can only increase their hourly income from 369 FCFA (1 ha with family labour, March Rotation) to 525 FCFA (2ha with paid labour, March August Rotation).

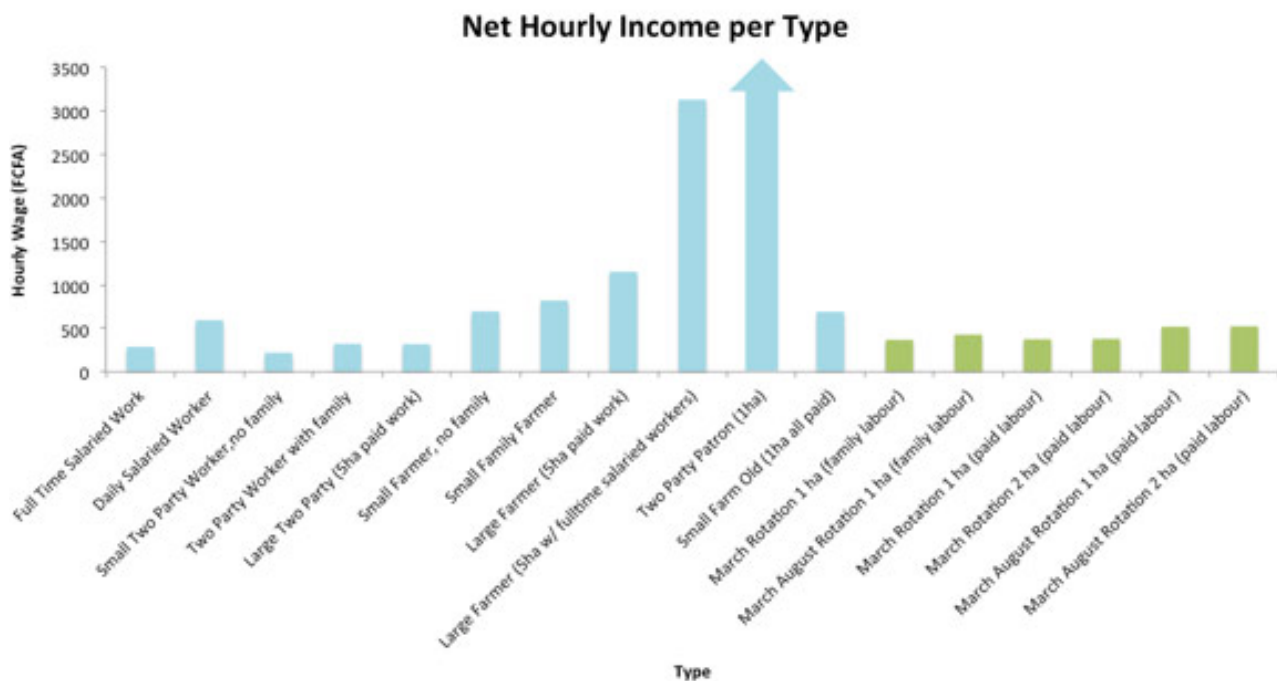


Figure 40: Net Hourly Income per Type of Labour, Labour Arrangement

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As a daily salaried worker one can earn around 600 FCFA per hour depending on the task being worked, which is around double that of the small two party worker. The nature of the daily salaried worker as previously discussed is that jobs are never consistently available, your income is dependent on other people and the number of hours that can be worked per day is limited. However as a two party worker even working 1 ha, you can work according to your own schedule and compensate your income with also working daily salaried work.

Types		Minimum Initial Capital	Potential Savings (if single)	Years to pay back initial investment
Cacao	Full Time Salaried Work	0	200000	0
	Daily Salaried Worker	54300	285450	0.19
	Small Two Party Worker, no family	178800	-70642	-2.53
	Two Party Worker with family	178800	2453	72.88
	Large Two Party (5ha paid work)	398800	409458	0.97
	Small Farmer, no family	2178800	336383	6.48
	Small Family Farmer	2178800	407478	5.35
	Large Farmer (5ha paid work)	10148800	2155333	4.71
	Large Farmer (5ha w/ fulltime salaried workers)	10386400	2284525	4.55
	Two Party Patron (1ha)	1950000	142975	13.64
Small Farm Old (1ha all paid)	1950000	5433	358.90	
Food Crops	March Rotation 1 ha (family labour)	17600	83175	0.21
	March August Rotation 1 ha (family labour)	17600	263300	0.07
	March Rotation 1 ha (paid labour)	17600	-35450	-0.50
	March Rotation 2 ha (paid labour)	17600	247000	0.07
	March August Rotation 1 ha (paid labour)	17600	72675	0.24
	March August Rotation 2 ha (paid labour)	17600	463200	0.04

Table 41: The number of years it takes to pay back the initial investment made to become each type

The minimum initial capital investment is calculated based on what would be needed if a man wanted to enter directly into each type. In terms of cacao farming, it is clear that if one were to have the capital to invest in becoming a large farmer it would be the idea start. With the low investment and quick returns of working as a daily salaried worker it is clear to see why those that have time to spare will pick up extra work when possible (especially if you are a two party worker). Women working food crops have a very low initial investment because most land used for food crops is rented biannually and does not have to be pledged, mortgaged or bought as does cacao. It also explains why, women from all economic classes are able to make food crops.

### 5.13.3 Needed Investment to Evolve Between Types

In order to progress from one type to the next, a certain amount of investment is needed. The following schema shows the number of years one would theoretically need to save in order to progress to become the next type.

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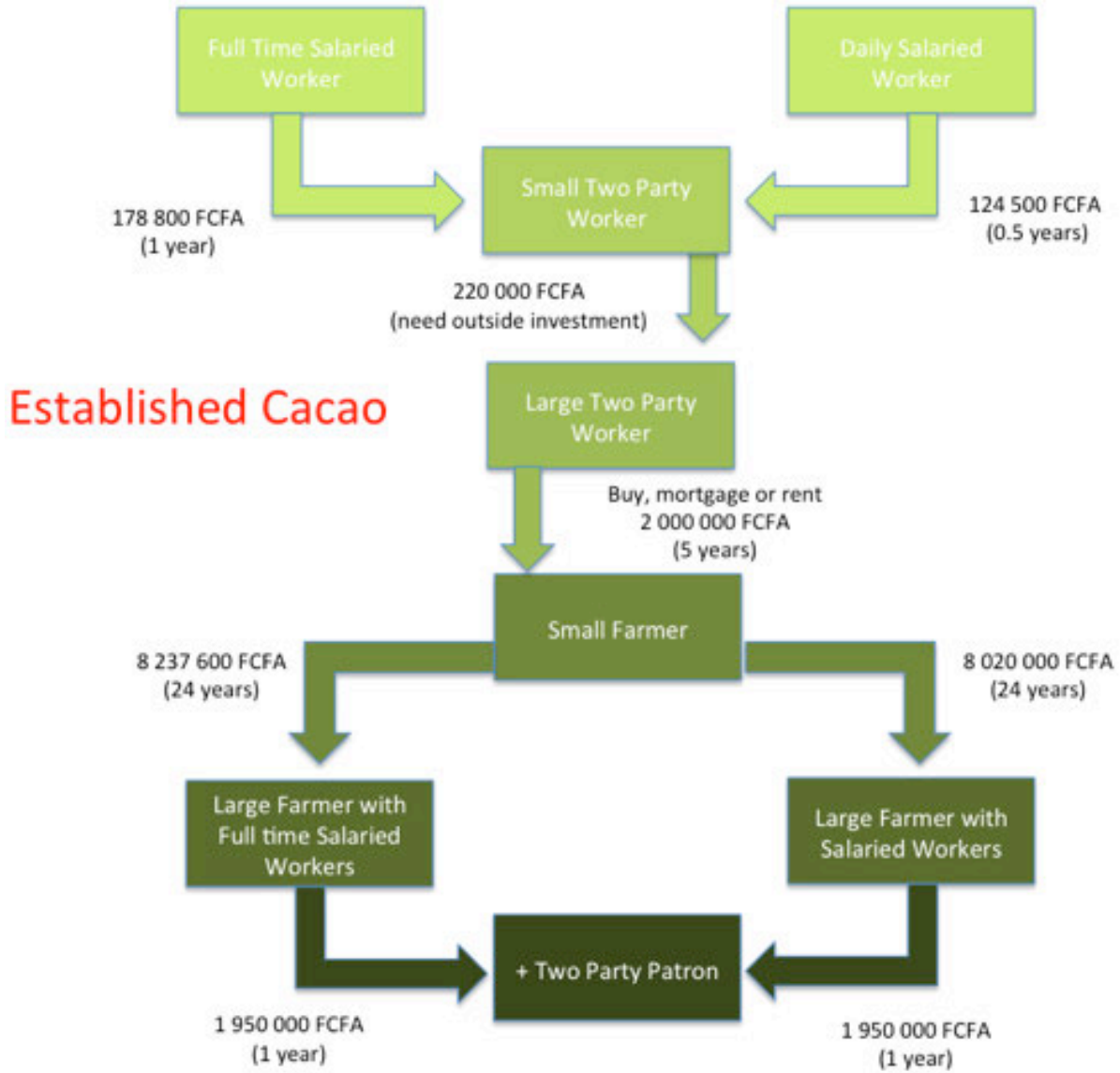


Figure 42: Established Cacao Farm

Economically, progressing to two party from salaried worker and full time worker will only take one year of savings. However once a two party worker, it is impossible to advance if working only one hectare. Many workers in Kwakwa will work for years as two party workers, others will choose to either take on more farms or pick up extra work as a daily salaried worker. For those who maximize their work by taking 5 hectares worth of two party farms, it will take 5 years to save and be able to afford working their own farm (already planted with cacao). Once a small farmer, if they were to only work their 1 ha, it would take 24 years to save up to become a large farmer with 5 hectares. However in reality it is sometimes possible to pledge land for a smaller amount of money than was used in this scenario. Once a large farmer, accessing more lands is much easier as there is a larger amount of financial capital available.

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The speed at which one can become a large farmer is much more rapid if one were to buy forest and develop their own cacao farm, as the production would be much higher when fully productive and growing plantains can provide income before the cacao produces.

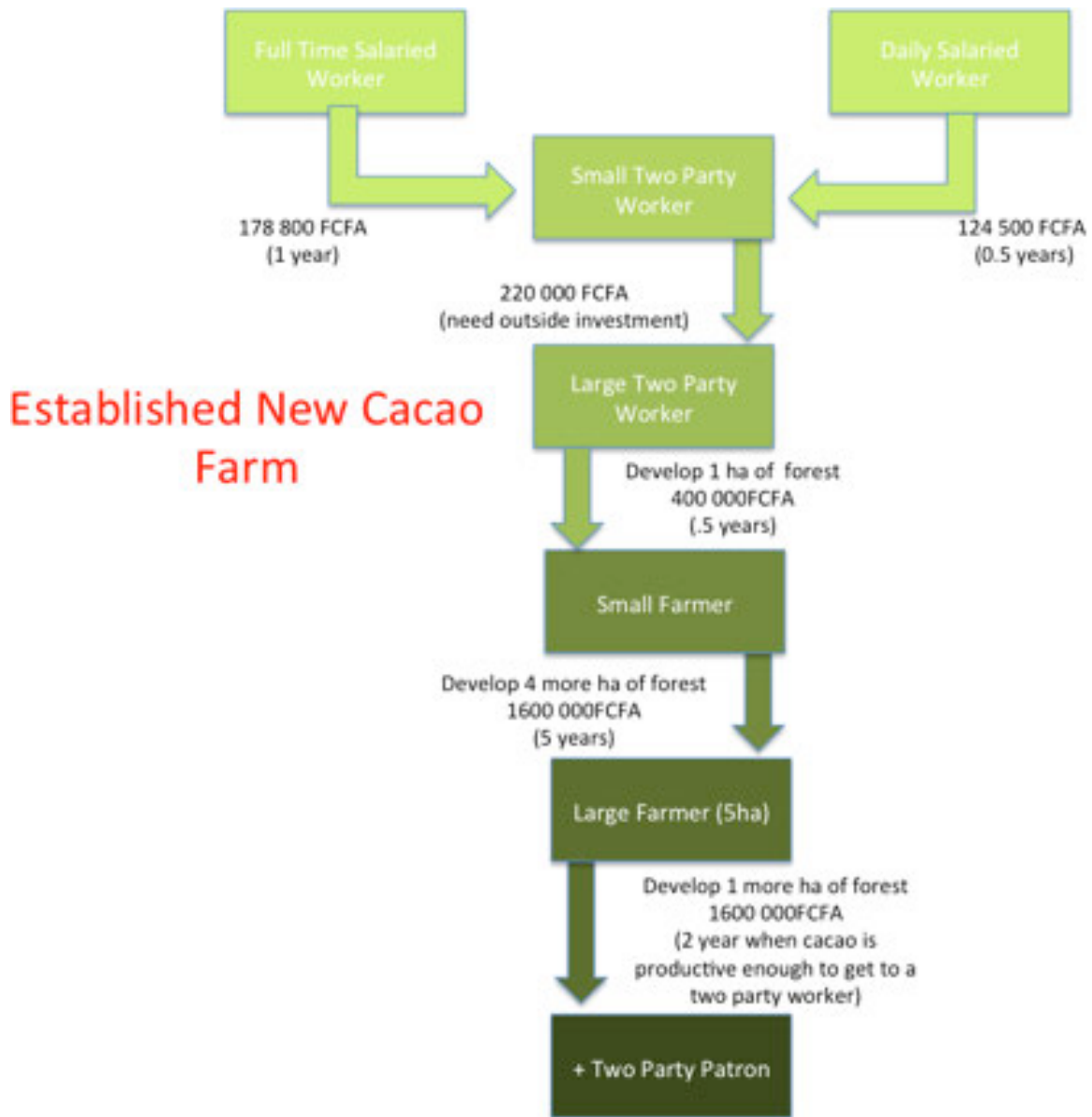


Figure 43: Established New Cacao Farm

If one was to invest in buying a new farm, the cost of land in the reserve for example is around 200 000 FCFA plus the cost of felling an upkeep is initially another 200 000 FCFA. The first year one would need to invest approximately 100 days to start clear, fell and set up the cacao. Every consecutive year around 50 days of work are needed to maintain and continue to progressively plant the cacao. If one were to plant plantains on the farm as shelter for the cacao, the farmer could start to generate income already in the second year. If the farmer planted 200 plantains on the land and was able to carry the plantains from the farm, he could make 600 000 FCFA at a cost of 3000 FCFA per bunch. Meaning the initial cost of installation (not including his personal labour)



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could theoretically be paid off within the three years. If the farmer were to invest his time in this manner, he could generate income over the first few years before cacao is productive. The rate of return is quite quick for new farms and in the long run, the income generated from the farm is higher once cacao is productive. If we take the average price of cacao last year at 870 FCFA per kilogram and took into account the progressive slow increase in production, the following is an example of possible income generated over the first 10 years until the entire farm is in full production and income generated is over 2 880 000FCFA per year for one hectare.

Year	1	2	3	4	5	6	7	8	9	10
Number of Plantain Bunches	0	200	200	150	150	100	100	50	50	25
Income (3000FCFA/ bunch)	0	600000	600000	450000	450000	300000	300000	150000	150000	75000
Yield (kg)	0	0	0	50	150	200	400	600	800	1000
Income (870 FCFA/kg)	0	0	0	43500	130500	174000	348000	522000	696000	870000
cost of chemicals (117 FCFA/kg)	0	0	0	5850	17550	23400	46800	70200	93600	117000
Net income Cacao (FCFA)	0	0	0	37650	112950	150600	301200	451800	602400	753000
<b>Total Net Income from the Farm (FCFA)</b>	<b>0</b>	<b>600000</b>	<b>600000</b>	<b>487650</b>	<b>562950</b>	<b>450600</b>	<b>601200</b>	<b>601800</b>	<b>752400</b>	<b>828000</b>
Cost of Living (FCFA)	260000	260000	260000	260000	260000	260000	260000	260000	260000	260000
Potential Savings (FCFA)	-260000	340000	340000	227650	302950	190600	341200	341800	492400	568000
Accumulated Savings (FCFA)	-260000	80000	420000	647650	950600	1141200	1482400	1824200	2316600	2884600

*Figure 44:* The income generated from a new 1 ha cacao farm over the first 10 years assuming all costs stay constant over the 10 years.

Theoretically if the initial cost of one hectare is paid off within the first 3 years, one could afford to invest in another hectare of forest by year 4, then by year 5 they could afford another 3 hectares. Meaning that after only 5 years, a small farmer can become a large (5ha) farmer when developing a new farm. The accumulation of income with new farms is slow at first and therefore many actors cannot afford to live an entire year without generating income from 100 hours of work. Additionally, most will buy large amounts of forest all at once, which will mean that in reality their initial investment will be in the millions versus only 400 000FCFA. The quick returns for new farms explain why so many have flocked to the Meme River Forest Reserve in order to make a living.

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As types evolve or in order to evolve, in reality people will tend to be a combination of types to increase their income.

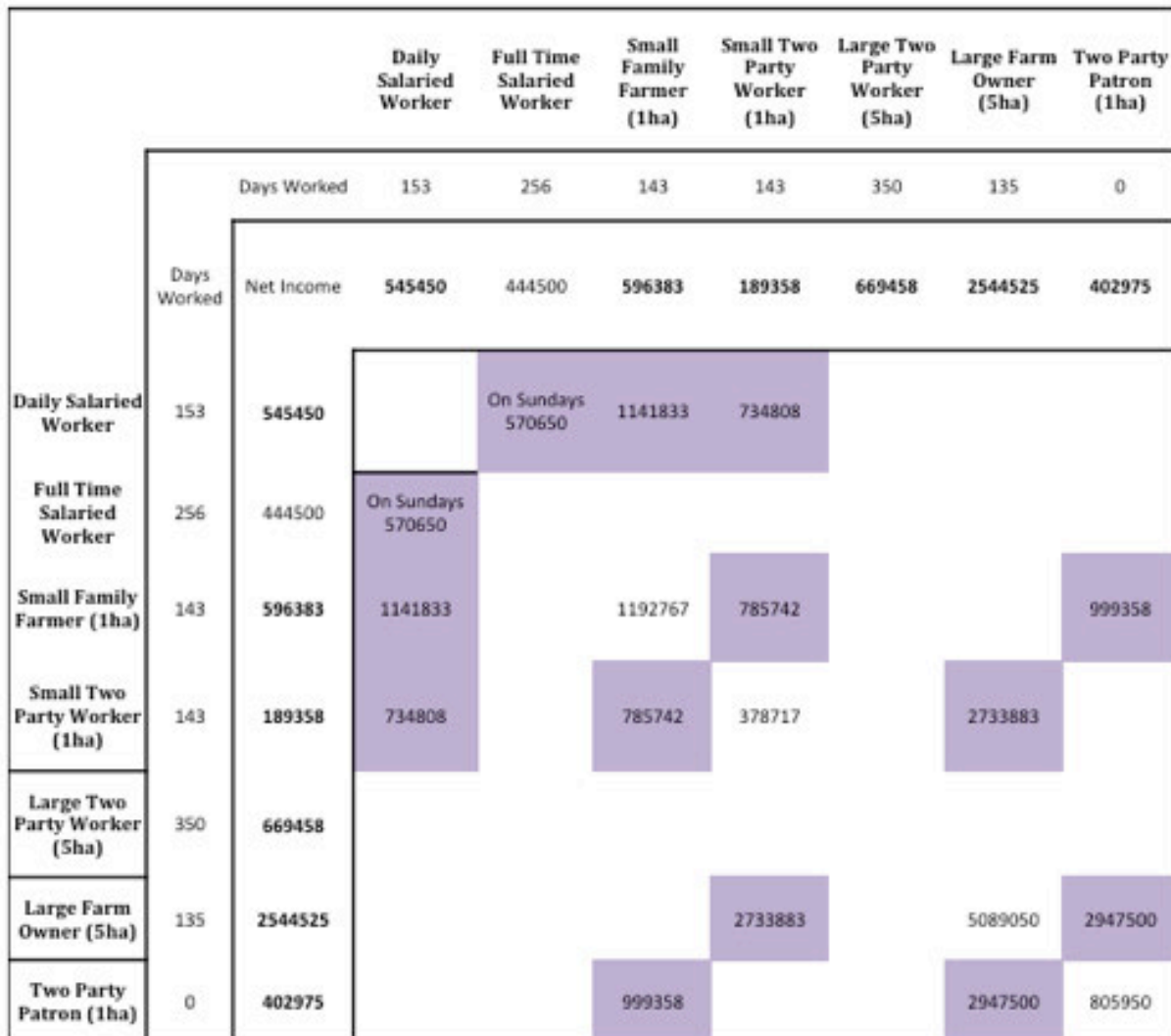


Figure 45: Combination of Typologies Required for One Person to Meet Economic Needs

The above diagram shows the combination of typologies one person might be in order to complete their economic needs. The choice of type combinations is directly related to the access and availability of land to each type of actor. A full time salaried worker might take up daily salaried jobs on Sundays to increase their income by 126 150 FCFA to a total of 570 650 FCFA. Small farmers might also take a two party farm because he has available time but no money to invest in buying another farm or might also work daily jobs to earn more annually. The large landowner with full time salaried workers would first try to find more farms to invest in but occasionally large farmers will also be two party workers (especially if they have a good relationship with the land owner).

**5.13.4 Issues affecting Cacao and Food Crop Production**

The largest problem described by both cacao and food crop producers are the poor conditions of the farm to market roads, In the words of an LBA manager, "where there is gold, it is not easy to get there". Some farmers with no road access to export their production will walk with their production on their heads for over 3km. Other major problems plaguing mainly cacao farmers were lack of access to finances, cost of chemicals and the inability to properly manage finances.

## 6. DISCUSSION

### 6.1 Livelihoods, Security and Future of Types.

#### 6.1.1 Problems with Production

Constraints experienced in Kwakwa and surrounding areas are problems affecting producers throughout the South West. Iyabano (2012) found similar results as pests and diseases and lack of access to financial capital to buy pesticides and herbicides and poor conditions of the roads that increase transportation costs where the most pressing issues for farmers in Konye. Improvements to road infrastructure could greatly decrease costs for farmers as well as decrease the loss of production from the inability to export the production from the farms. However these are not the only problems facing those in the cacao industry.

#### 6.1.2 Security of land access

The security for people's livelihoods reviewed throughout this study varies greatly. In general, all those working cacao in Kwakwa are subjected to the potential fluctuation of international markets. However those that earn the least are also in the most insecure positions and most vulnerable if the industry plummets. Daily salaried workers do not have fixed hours, therefore their income is completely dependent on others. Additionally, since many farmers have issues with the management of their money, salaried worker can find themselves without pay. Fulltime salaried workers will be employed by those working large lands, and are guaranteed to have their living expenses covered as well as have a sum of money at the end of the year, however they cannot finish the year with much over 200 000FCFA. When one does not have access to land, the benefits of being a two party worker is that income is dependent on one's work effort and the productivity of the land being worked. However security from year to year is inconsistent as there are no contracts defining the length of work as a two party worker. In theory, a person one year could work 5 farms and the next year have zero. Similarly large farmers who have mortgaged or leased their farms have technically limited access to the lands.

Few women have security over the lands that they cultivate as most access land through renting plots for a two year period. Ultimately this means they could be without land from one year to the next. In reality as the cacao industry flourishes, the livelihoods of local women growing food crops are increasingly more vulnerable.

Traditionally men have priority use of the lands in the area and since men derive their livelihoods from cacao, they give the priority of the lands to cacao. Lands around the villages cultivated for food crop are subject to disappear from either further development or as a result of cacao being planted. Food crops are grown in gaps in the cacao farms as well as in newly cleared forest areas, however the typical ridge system requires areas with good light and is therefore not always feasible in these areas.

In addition, forested areas are becoming more scarce so the options for women wanting to grow food are increasingly limited. As women are pushed increasingly to less accessible areas, their livelihoods are affected. Food crops require more labour than cacao, therefore having farmers at an increasing distance from the homestead affects the quantity women can produce as well as complicates harvesting of food crops. Food production then becomes more time consuming and potentially increases the costs. This year some women refused to go to their farms which were in

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more isolated areas as there was an increase in instances of rape on remote and isolated farms. Being pushed further into remote areas could pose an increased risk to physical safety for women farmers. Currently the women of Kwakwa produce food that is sold and exported nationally and internationally, however the disappearance of food crops puts into question the future of food security for the village.

When men and women were asked about the relative importance between food crops and cacao, most explained that both had their place in sustaining a household. In discussing the decrease in lands available for food crops, villagers expressed concern that there could be serious problems in the future and explained that some surrounding villages are already experiencing food shortages. Food shortages would force people to buy their food and if in short supply in the village would be sold at elevated prices, particularly posing problems for the rural poor.

### 6.1.3 Financial security in producing cacao

For a small farmer working with family labour, the following chart shows economic needs and gross outputs for his cacao

CASH AVAILABILITY: cash income-intermediate inputs month by month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL PRODUCTION
Total Gross Output sold	0	0	0	0	0	25500	37500	0	180000	270000	103000	52500	668500
TOTAL INTERMEDIATE INPUTS for cacao	2900	3200	3200	5500	6900	14700	19750	28500	37250	32300	20350	7400	181950
CASH OUTPUT- INTERMEIDATE INPUTS	-2900	-3200	-3200	-5500	-6900	10800	17750	-28500	142750	237700	82650	45100	486550

*Figure 46:* Annual Cash Flow of Small Cacao Farmer,  
Based on the model created, S.W. Cameroon

Through the months of January to May this farmer would have to borrow money if he was not able to save money from a big harvest. Commonly farmers turn to local buyers from whom they borrow money or take chemicals at an inflated price, further decreasing their net yearly income and decreasing their savings for the following year. For those that do not have family labour and/or have to pay labour, the gaps will be further exacerbated.

As one farmer explained "we are millionaires during half the year and poor men the rest". Interviewees explained that one of the main problems plaguing them and continuing to poverty in the village is the aspect of money mismanagement and the vicious cycle of debt that follows. Once they pass through the 'poor month' (January- April), and they start to harvest, they can start spending their money to buy the things they have lacked for so many months. They continue to spend as they receive money. The harvest season also becomes a very social period in the village where everyone spends and parties. December is the month when most have to pay their debts to buyers etc., and it is also Christmas time where they increase spending. By January small farmers tend to have very little money left over and have to borrow money again and continue the cycle.

### 6.1.4 Complementarities Between Systems

This problem of access to finances is aided however by those that diversify their income in other trees and crops, as they become productive at different times throughout the year. The following graph shows the income of cacao in comparison to other trees and crops.

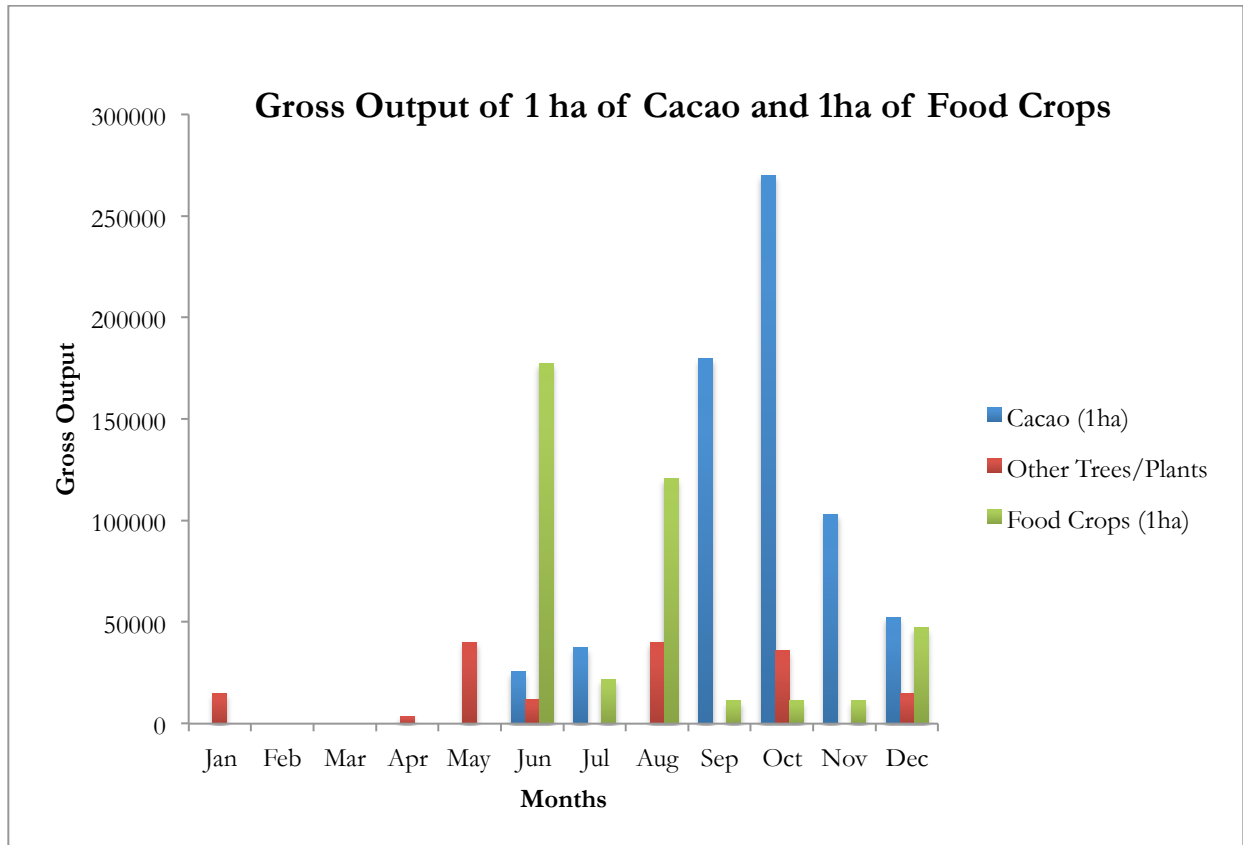


Figure 47: Gross Output of 1 ha Cacao and 1 ha Food Crops from the March Cycle

### *Food Crops*

As a household unit, food crops provide income before and after the cacao harvest is available. In addition, the schema assumes that all harvest is sold once removed from the field, however many women store food crops or adjust their planting season to have income throughout the first months of the year. The main harvest season for food crops is June whereas cacao harvest is in September to November. In addition, the work schedule for food crops (on March rotation) peaks during March and June whereas the work schedule for cacao peaks between August and November, a time when women will also increase their income by broking cacao.

#### **6.1.5. Diversity in the cacao farm**

To balance out a farmer's income throughout the year, other trees and plants can prove lucrative. The price for cacao is very high at the moment, which is promoting an increase in production. However, it is important to ensure that one does not forget the dangers of basing one's entire livelihood on a crop subject to the global market. As a large majority of the cacao farmers today lived through the global price drop of cacao in the early 1990s, they seem to understand the importance in diversity. As was found by Chambon & Mokoko, (2013) and Temple & Minkoua Nzié (2013), diversification of agricultural production is a widely sought after strategy for family farms to secure and improve income, however it is not a reality for all producers. According to participatory observations, new farms in remote areas such as in the Meme River Forest Reserve tend to have some diversity of plants being integrated amongst the cacao to support the farmers while they stay for weeks at a time in the remote area. Additionally, farms personally worked by the



landowners themselves, seem to be more diverse than those worked by two party workers on pledged lands (depending on the length of the pledge contract).

#### **6.1.6 Ownership and labour systems limit diversification**

The complex dimensions of ownership and labour agreements raises questions concerning the extent to which these arrangements impact the structures of cacao farms. Throughout interviews, actors with several farms eluded to differences in the structure in their farms. For example, those with personal farms chose to plant fruit trees and spent time regenerating these farms. However for the farms that they leased and gave to two party workers, they had little interest in investing their time and money in planting trees that they might not benefit from. Additionally one can hypothesize that a pledge agreement that lasts for twenty years might encourage those who pledge the farms to regenerate the farm as they would have more chance to benefit from the increase in harvest than those who have pledge agreements for only six years (the time it normally takes local cacao varieties to become productive).

#### **6.1.7 Security of quality cacao production in S.W. Cameroon**

Fermentation is one of the most important aspects in cacao production as this process greatly affects the taste of the cacao. This fact is not fully understood by the farmers in Kwakwa, as chocolate is not consumed by farmers and their main interest in cacao is to generate income. From those interviewed, many knew they needed to ferment however only one was able to explain why this was important or its benefits.

Currently there is no incentive in terms of price to the producer for proper fermentation. Producers sell their production to local buyers and many do not test its quality. Those that do test, look only for the levels of humidity. The system that involves buyers advancing both chemicals and money to producers results in the buyer taking the cacao. One manager of an LBA (Licence Buying Agents) based in Kumba explained that they have no choice but to buy the cacao regardless of its quality because of the competition amongst the LBAs in area. "If we don't buy it, the next one[LBA] will!".

According to government extension officers, the recommended length of fermentation is between 6 to 7 days. The length of fermentation varies greatly among producers depending on the time of year as well as the farmers' training. If money is needed fast, some farmers will choose to ferment their cacao for only 0-3 days in order to receive their money faster. Many said "why should I starve for a few more days when I don't make any more money?" This occurs particularly at the beginning of the cacao harvest season around April and May when farmers are near the end of the money they made from the previous harvest season. During the dry season, some farmers consider taking the cacao into the house at night in between drying sessions in the sun, a form of fermentation. Other times, the fermentation can extend beyond the recommended time (9-10 days) because of a high demand for the ovens.

Another aspect affecting cacao fermentation is when a large farmer has many farms, he might choose to harvest his farms day after day and add all the cacao harvested on different days to the same fermentation box. Therefore the length of fermentation for each layer of cacao can vary for example from 2 days to 10 days. This method is chosen if the farmer wants to dry a lot of cacao all at the same time (considering during the dry season it requires 48 hrs surveillance of cacao in the oven). However the two party system avoids this problem as the harvests must be kept separate from each other for proper accountability between each patron and worker. However, when two

party workers have many farms (e.g. 5 farms), the fermentation time is between 4-5 days because of time management issues.

There was a large problem with smoky cacao in Cameroon two years ago, which resulted in approximately 2000 tonnes of cacao being rejected. According to LBAs this problem has greatly decreased, however based upon participatory observations, the state of the ovens is quite poor. There is currently a move to rehabilitate old European ovens in the area but this will only affect a small portion of the ovens being used. Proper explanations are needed on how to construct an oven and how to ensure the smoke is evacuated from the oven roof. (This would provide work to local welders and inform them on how to properly create good smoke stacks.) Also needed is further explanations about the purpose of the oven doors and chimneys and how to ensure the smoke flows up through the chimney and not through an open door and back onto the cacao.

Furthermore, the quantity of pesticide used is over government recommended quantities and many farmers will spray their plantations just before harvesting, unnecessarily using chemicals and potentially further posing problems for those harvesting and broking. Information about proper handling of chemicals and the dangers of long term exposure, needs to be better disseminated.

### **6.1.8 Decreasing expansion opportunities - increasing vulnerabilities**

In areas such as Kwakwa given that land as are nearing their capacity and with diminishing expansion options other livelihood alternatives will need to be fostered. Even with the increasing prices of cacao, the costs of inputs such as pesticides and labour have also been increasing. As has been demonstrated, those that access only 1 ha of land through two party work cannot cover their cost of living, based on the cacao farm alone. Many diversify by other types of work such as daily salaried work; however this means that if there is another plummet in the international price for cacao, the current poor would be the hardest hit. Additionally it would be these people that would have a problem feeding themselves as they do not own land to use and diversify their cropping.

### **6.1.9 Livelihood diversification**

Looking at the example of Kwakwa, currently most people base a large part of their livelihood strategy on cacao production with very few exceptions. The vulnerability of this type of dependence is dangerous as was seen during the price plummeted in the 1990s and drove people to diversify their agricultural production. However with land pressure and the fact that farmers who are currently in the Meme River Reserve could completely lose their livelihoods once the government takes back the reserve, other forms of livelihoods need to be fostered in the village. Similar to the findings of Temple and Minkoua Nzié, (2013) who found that many farmers had converted from other types of employment in the non- agricultural sector, many interviewees in Kwakwa had alternative educational backgrounds and were for example trained mechanics or electricians, though they did not have the financial capital to invest in pursuing activities further; therefore they turned to cacao. In Kwakwa currently the options and chances of evolving to become large farmers are limited for those with access to small land allotments. New livelihood avenues are especially needed for these actors and for any new arrivals especially if the community continues to develop as is predicted.

New livelihood sources could be fostered and developed though the creation of, for example, small microcredits. These could even be created locally. With good organization, potentially a small amount contributed in Njangi groups could be set aside weekly to make a very small microcredit fund. Considering the social pressures they could act as a form of guarantee of payment, physical

collateral would not be needed as it is for bank loans, which would theoretically mean that all villagers could have access to this fund.

#### **6.1.10 Sustainability of the major systems**

Future avenues to explore include the questions of the sustainability of cacao farming as well as the food cropping systems. For cacao farms, one could question the longevity of the system if trees are constantly being cut in order to fuel drying ovens. Wood is supposedly only partly harvested from the forests as they are continually being used for expansion of cacao farms, but now that forests are close to being completely depleted, how will farmers manage access to wood? Will scarcity of wood cause the cost of production to increase further? The durability of food cropping systems is also another point of discussion. Women interviewed mentioned that production has decreased in recent years as fallows have become shorter. Considering most women rent the lands that they cultivate, they do not necessarily have invested interest in its longevity. Therefore those who are interested in generating a large income will choose to intensify their rotation by planting in March and August without any concern for the years to come. One might assume that in the past when soil fertility dropped, the women would simply move to another farm. However presently with the land pressure from not only the population growth but also from the continuing loss of farms, the limits of the ridge system is put into question. Can the current rotations used withstand continuous years without long fallow periods? Will techniques have to change? Will inputs need to be used and increase the cost of production?

#### **6.1.11 Support by government**

The government appears aware of the dependence of farmers on cacao in the South West; through the Farmer Business School Program, they are trying to encourage farmers to regenerate their cacao with hopes to increase national production in the years to come. According to interviewees, the systems they are encouraging are those with under 10 other types of trees in order to decrease humidity and maximize cacao production. In the less humid centre basin, farmers are recommended to have 40 associated trees per hectare according to Moisy (2013). Diversification within the cacao farm is not the way the government is promoting diversification of farmer's livelihoods.

According to government officials government programs such as the Farmer's Business School, which teaches farmers to manage their money better, are also encouraging farmers to look into the production of other production, specifically cassava. Cassava can be quite lucrative and can help generate income for cacao farmers during the "poor months". This idea has merit, as demonstrated through the models in this study, food crops can help complement cacao. However, one needs to question how this will affect the livelihoods of women. Currently in rural area, food crops are a means of generating income for women. If men start also growing cassava, one might wonder what this will do to women's access to lands as well as the effect it could have on their livelihoods. This further supports the need to nourish women to find alternative livelihood options.

## 7. CONCLUSION

The price increase for cacao that has been experienced over the past few years has motivated the expansion of cacao farms. In the South West expansion is occurring everywhere and done by everyone where possible; in forests and even the gaps used by food crops are continually being filled by cacao. Farmers of all sizes are doing the expansion from small to large, but large farmers with capital to invest will initially look for lands with good access whereas small farmers with little capital to invest will plant anywhere they can find land. Producers that have access to large amounts of land reap the most benefits from the increasing demand and subsequent increasing cacao prices, however the large majority of producers with minimal access to land do not benefit in the same manner.

For landowners, the transient nature of money in the village and the vicious cycle of debt drive people to mortgage or sell their lands. The people that are able to buy, rent or mortgage lands tend to be those that have accumulated large wealth and have savings; the large land owners. Thus the lack of access to loans and money and mismanagement of funds makes the richer get richer and keeps the poor poor. Due to the complex ownership and labour systems that have developed in certain areas such as Kwakwa village in the South West of Cameroon, the lives of the producers have not improved and some may be at risk of becoming more vulnerable.

Furthermore the livelihoods of women in these areas are also subsequently affected by the increase in cacao production and expansion. Food crops, which provide a source of income for most women in rural areas, are preferably planted close to the village. However food croplands are slowly decreasing in quantity not only from development of communities, but also because the women working food croplands do not have control over the lands they work. As a result women are being pushed further from the village into more remote areas, which are also continually being consumed by cacao farms. This puts to question the food security of households of especially the poor and the livelihood options for local women. Alternative livelihood options need to be fostered in these areas to decrease the vulnerability of those in cacao producing zones.

As a result of minimal returns to the producers, the quality of cacao has suffered along with the livelihoods and wellbeing of the producers. Moreover, the quality of cacao being produced in the South West needs to be improved through better support and returns to the farmers. Cacao is consumed throughout the world, not as a staple crop, but for the pleasure of its consumption. Those producing this product of pleasure should not presently be struggling to make a living but conversely should be prospering like those who are consuming the fruits of their labour.

## 8. RECOMMENDATIONS

**Based on the above findings and discussion, the following future measures are suggested:**

- Improve farm to market roads to decrease costs to the farmer and decrease current production losses. It should be noted that farmers who have expanded in the Meme River Reserve have repeatedly raised the wish to have a bridge constructed across the Meme River for easier access to their farms. However this seems quite unlikely to occur as the government is currently trying to stop the encroachment upon the reserve and therefore it is very unlikely to support such a project.
- Better options to access financial capital through systems such as Microcredit loans or cooperatives to both the rural poor who run into financial problems, giving them a way to keep their land, and to those who do not have access to land. Also consideration for finance programs specifically for women, as they tend to be at a disadvantage and also tends to have higher rates of returns according to local figures.
- Programs to support and promote alternative livelihood sources in rural communities.
- Support for women to access machines to help transform their production to higher value products to improve their incomes.
- Research alternative ways to dry and process cacao to improve the quality and simultaneously improve returns to the producers.
- Better dissemination of education and training concerning the health and safety of chemical use reaching a wider public than just Common Initiative Groups. Make better use of the physical existence of the agri posts stations by, for example, having laminated brochures with information available outside the posts.
- Research ways to decrease and make more efficient use of the quantity of chemicals sprayed on the cacao through possible integrated pest management techniques and pruning.
- Investigate possible certification programs such as that offered by TELCAR or partnerships between farmers and chocolate producing companies that could provide insurance to farmers and shorten the value chain.

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## Appendix

### A. List of Key Informants

- Ministry of Agriculture and Rural Development (MINADER)
  - Regional department for extension services (Buea)
  - Farmer Business School Regional Trainer (Buea)
  - Divisional Delegate (Kumba)
  - Chief of Service of divisional delegation (Kumba)
  - Agricultural Works Engineer (Meme)
  - Chief of Agricultural Post (Mundongo)
  - Chief of Agricultural Post for (Kwakwa)
- Divisional Delegate of the Ministry of Forestry
- ACEFA project coordinator
- Coordinator of the programme for the Sustainable Management of Natural Resources, South West Region
- Coordinators at the Institute of Agricultural Research for Development (IRAD) Barombi Kang
- GIZ product supervisor under the Farmer Business School
- Farmer Field School trainer through SOCADAVIE for the Mbonge subdivision
- President of the South West Farmer's Cooperative
- Spokesperson for the Mukete Estate
- Manager and Accountant at Peter Chi and Sons, Kumba (LBA)
- Manager at TELCAR, Kumba (LBA)
- Secretary to the Manager at Achany and Sons, Kumba(LBA)
- Manager at CAMACO, Kumba (LBA)
- National Cacao and Coffee Board Kumba headquarters, extension officer
- Cacao and Coffee Seedling Project Manager in Kumba
- Mbonge Subdivision Councilman
- Kumba III Councilman

#### Kwakwa key informants

- Chief of the village
- Village secretary
- Manager of CAMCCUL; farmers credit union in Kwakwa
- Coordinator of FEEDAR project
- Principal at the Kombone Government Highschool
- Chief of Kombone Health Centre
- Several local buyers

#### Groups

- BELLAFCOOP (Bellah Area Farmers Cooperative society)
- CIG Union Members
- Bia Farmer's CIGs
- Self help CIG
- Give to the Giver Financial Njangi Group
- Woman's focus group about food crops
- Men's focus group about cacao
- Mixed focus group about the history of kwakwa and crops

#### Farmers in Villages

- Kwakwa
- Dienyi
- Kumukumu

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

- Konye
- Bia Forest in the Meme River Forest Reserve
- Ekombe
- Kombone
- Nake
- Talba (Centre region)
- Bokito (Centre region)

## B. Question Guide for Focus Groups

### General

What is the population of Kwakwa?

What is the male to female ratio in Kwakwa?

What is the proportion of natives to migrants in Kwakwa? % of ethnic groups

Where are the migrants coming from? What prompted people to migrate to the Kwakwa?

What is causing growth in Kwakwa? Migration or birthrate?

Do people migrate here or elsewhere these days? Why would people move here these days?

What are the dynamics with youth in the village? Are youth going to cities, coming back to town?

Is there land still available in Kwakwa? Where do people get land? What do new migrants do for work?

What percentage of population are farmers? % cacao, % food crops?

Do people grow enough food to feed themselves?

### Map

*Draw a rough map of Kwakwa for the focus group*

What are the boundaries of the 8 quarters? (done)

What is the distribution of ethnic populations in the quarters? (most dense?)

Does everyone grow cacao and food crops? Why or why not?

Estimate the % of cacao versus food crops

Distribution of different types of crops in Kwakwa (where do people grow what?- outside of Kwakwa?)(on the map)

Has there been noticeable expansion? when did ppl start to expand on other side of meme river? has expansion increased in popularity? youths come back to town? economic crisis? what did ppl do?

Typologies Are you all the same in the village? What differentiates you?

(surface area, income, access to land, types of activities/ crops?..

Everyone have access to loans?

Is there a difference between what women have access to versus what men have access to (money, land...)?

Crops (ask someone to help write them down, then once written- ask them to rank them!)

Rank cultures/ activities in terms of importance (you choose definition of importance- what is importance?)

do some make more money?

who grows what and why? why men cacao and women food? Do both make money?

why cacao increases, does food crops decrease?

Have crops changed over the years? new crops come, some crops no longer grown?

Do certain crops have priority of land over other crops?

### Historical Timeline (go visit elders)

What are the major events that have affected Kwakwa?

(crisis, creation of chief, weather events, change in politics, creation of CIGs, introduction of hybrids, infrastructure...)

- big changes in technology that have influenced the progress and dynamics in Kwakwa
- programs that changed the way people did things here (intro hybrids, new technique?..
- new programs

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

- What will change when electricity comes? will people diversify and maybe stop farming
- Evolution of the development of Kwakwa (map)  
Evolution in terms of migration of groups into Kwakwa, acquisition of land, conversion of forest into urbanization and farmlands. (When first people came- lots of forest- migrants settled where- expanded where?)

**Focus groups MEN**

*Group criteria: Diversity of backgrounds - participants from North West, native, Nigeria and West.*

- Evolution of use of shade trees? what use them for?  
What drives the decisions to put in fruit trees or other useful trees?  
Access to seeds a problem, know-how, not able to sell??  
Does anyone farm or know farmers that cultivate in the reserve?  
Out of all crops grown in Kwakwa, what is the most profitable? why?  
(if food crop is more profitable, would you choose to focus on it? why or why not?)  
How does price of crop affect what is being grown?  
Percentage of crop harvests auto consumed verses sold?  
Has amount of cacao produced increased over the years? Why? was it due to a change in the system structure? use of pesticides?... Was this increase within the limits of Kwakwa or outside the limits of Kwakwa (where?)  
How has work availability evolved over the years? Have there always been available workers in the village?  
What is the percentage of women that grow cacao? Do they maintain the cacao or is it a two party system?  
What is the average age of plantations? What is the percentage of young, full production and old?  
What is the percentage of people regenerating verses expanding?  
Has the community felt the loss of forest? Is the forest important to the community? Why? (What does community use the forest for?) What would happen if there was no forest left?  
Is it more important to have enough food or to grow cacao for cash?  
How do people dry their cacao? Where and how? How does it work? Is the price of drying cacao a fair price if you rent an oven?  
Do men and women have the same access to land?  
Do women and men have the same access to finances?

**Focus groups WOMEN**

*Group Criteria: diversity of backgrounds - participants from North West, native, Nigeria and West.*

- What is the main type of cropping system people practice? (what is the whole system with rotations)?  
Are there different things that people grow connected to their traditions?  
What is the percentage of people that rent verses own? who owns (typology)? man or women? (% of women that own land?)  
Do men and women have the same access to land?  
Do women and men have the same access to finances?  
Who has control over the use of the land? if man wants to grow cacao on land used for food crops, do women have a say?  
Where do people get planting material/ seeds for the crops?  
What is the percentage of crops consumed verses sold? Grow enough or have to buy food?  
Out of all crops grown in Kwakwa, what is the most profitable? why?  
How does price of crop affect choice of crop?  
Does cacao or food crops get priorities in terms of work hours?  
How has work availability evolved? (historical)  
What is the percentage of women cacao farmers?  
How often do women let land fallow?  
Is the area occupied by food crops expanding or decreasing in size? (past 20 years, 50 years..?)  
Is it more important to have enough food or grow cacao for cash?  
What is the ideal life situation? Go to the city? Have more money? Grow more cacao? Grow more food crops?  
Hire more workers?...



### C. Interview Guides

#### Interview Guide for the Producers

Date:  
Interview #:

Type  
Name Interviewee:  
Head of Household:  
Sex:  
Age:  
Ethnicity:  
Quarter in Kwakwa:  
Telephone number:  
GPS coordinates

#### Information about the household

- ❖ **Matrimonial Statute:** single..... married ..... widow.....
- ❖ **If married:** monogamist..... polygamist.....# **wives**.....

- ❖ **HOUSEHOLD (all adults above 18 years of age)**

- ❖ **HOUSEHOLD (all adults above 18 years of age)**

Sex	Age	Ethnicity (and native/migrant, if migrant what year)	Occupation(s) (and do they work on family farm?)	Educational Level

# children under the age of 18.....

#### Family History:

Why and when did your family come to Kwakwa? From where?

#### Origin of Income

% cacao:

% small harvest (sun dried) verses % big harvest (oven dried):

% food crops (fruit trees, non-timber forest products, food crops...):

% Non- agricultural activities:

How much does a man make per year? How much does a woman make per year? (Ask the man and women separately for their perception)

#### How has your livelihood strategy evolved?

#### How has your land use evolved?

Before 1987	1987-2003	2014	Future 2024
		Land owned: Cacao surface: Yields: Food crop surface:	

(specify years and be sure to note % of increase or decrease between time periods as well as location of farms where they expanded)

#### Land

Sketch 1: location of the different lands, roads, distance to residence (label and number all the farms). Include cacao and food crops in the sketch!



## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

How many trunks do you generally have?

**Food crops within plantation:**

Types	Where grown?	Planted or existed already on the land	Distribution / number (50m x 50m)	Who works these crops

Why do you choose to plant or keep certain trees?

**Cacao Production:**Technical Calendar

Operation (hoeing, weeding, input application, harvest...)	Dates of operation	Workforce			Description and precision on the operation (pruning, spraying, amount of inputs... for inputs calculate the FCFA/ha)
		Family (indicate #of people and # of days)	Salaried (indicate the # of people, # of days and daily or yearly salary)	Other (indicate type, # of people and salary or arrangement eg. 2-party worker or shared communal work force)	

Do you travel to your farm everyday or do you sometimes spend the night in the farm?

**COSTS of production: (specify differences for different farms)****LABOUR**

Does the cost of the labour change between farms because of distances? (how)

**INPUTS**

Source of seeds? Hybrids or local? (why?)

Cost? (bought or free or nursed yourself -cost of bags..)

Where do you nurse trees?

Where do you nurse trees other than cacao? Seed source?

How do you transport seedlings

Do you use chemicals? (pesticides and fertilizers) types?

How much and when?

How much do they cost? Does the cost change?

Where do you get your chemicals?

Do you get them from an LBA or other as an advance? (what are requirements)

Do you have difficulty accessing inputs? What and why?

**PROCESSING**

How do you ferment your cacao?

How do you dry your cacao? (state of oven?) Where? How much does it cost?

What wood do you use? Where does it come from? How do you transport it to the oven?

Where do you store your cacao? (cost)

**TRANSPORT**

How do you transport your cacao? Cost?

To where do you have to transport the product to sell it?

Do you transport yourself to LBAs or do you sell to a coaxers...?

How do you get money to invest in your production costs (loan, savings, advances..??)

**Sale of Harvest**

How much do you sell your cacao for?

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

To whom do you sell?

**Evolution**

Has the way you manage your cacao changed over the years? How and why?

Has the structure (number of other trees..) changed over the years? How and why?

**If the plantation was previously primary forest:**

How did you acquire the land? From who and cost?

Is it in a reserve? If yes, do you worry about your use of the land in the long term?

**Where did you learn the farming techniques you currently apply to your farm (neighbours, formal training...)? Have your techniques changed over the years? How?**

*Look at the complementarity between natives and migrants in terms of agricultural technics or strategies acquired and employed in their farms as well as the conflicts encountered between them.*

Are you part of a collective (CIG or other) or group? What are the benefits? (training, group purchase and sale, government help...)

Have you changed your technics as a result of being part of a collective?

**What is the biggest problem you face in producing your production?****WHAT do you believe would be the biggest way to improve your livelihood?****Logic of the Chosen Livelihood Strategy**

1. What is the relative importance between cacao and food crops?

(% of surface used, workforce, contribution to consumption, income for the family....)

2. Is there a need to increase the food production (food crops and fruit trees)? If yes, what are the objectives (sale, household consumption) and how is it possible to accomplish this increase?

*(For producers that already have large surfaces of food crops (>2ha) which are based on salaried help and are destined for sale, ask how she managed to arrive at this point (savings, money from the husband, non agricultural activities...))*

*Try to bring out the evolution of competition, complementarity and synergies between the means of production (land, work and financial capital) and the income between men and wome*

**Food Crops (WOMEN)**

Date:  
Interview #:

Type:

Name Interviewee:

Head of Household:

Sex:

Age:

Ethnicity:

Quarter in Kwakwa:

Telephone number:

GPS coordinates

**Land**

Sketch 2: draw the farms, the limits of each parcel and the system that was grown on the land this year (number the parcels)

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Farm size (m2) or # cacao trees + spacing	# Other trees/ 50mx 50m	Location and time needed to travel from homestead	Age of trees (if regenerating, when started and how many trees)	What was the land before it was cacao	Salaried (number workers)	2 party		# Family members working	Owned		Rented or mortgaged (Cost, for how long and when started)	Yields and Sale Prices							
						owner	worker		inherited	bought		2011		2012		2013		Mean yield	
												sm	big	sm	big	sm	big	sm	big

Crop Successions

Describe the time the land is used for each crop, including the fallow time (specify the definition of fallow)

<b>Parcel (see sketch 2)</b>										
<b>For example:</b>	<b>Maize and Groundnuts</b>					<b>Maize and Groundnuts</b>				
<b>2nd cycle</b>	Cassava									
<b>1st cycle</b>										
<b>fallow</b>										
<b>years</b>	<b>2011</b> JFMAMJJASOND	<b>2012</b> JFMAMJJASOND	<b>2013</b> JFMAMJJASOND	<b>2014</b> JFMAMJJASOND	<b>2015</b> JFMAMJJASOND					

Do you have any land that is only in fallow?

Ask about renting for two years and when land is left to fallow (with no crops on it!).

How many consecutive years have you rented the same land?

What will happen if you stop renting?

Will someone else rent the land right away?

(If you stopped renting the land to let it fallow, would it be rented to someone else?)

Technical Calendar

Operation (hoeing, weeding, input application, harvest...)	Dates of operation	Workforce		Description and precision on the operation (size of ridges, amount of inputs... for inputs calculate the FCFA/ha)
		Family (indicate # of people and # of days)	Salaried (indicate the # of people, # of days and daily salary)	

Logic of the Chosen Livelihood Strategy

1. What is the relative importance between cacao and food crops?

(% of surface used, workforce, contribution to consumption, income for the family....)

EVOLUTION & EXPANSION OF CACAO FARMING IN S.W. CAMEROON

2. Is there a need to increase the food production (food crops and fruit trees)? If yes, what are the objectives (sale, household consumption) and how is it possible to accomplish this increase?

*(For producers that already have large surfaces of food crops (>2ha) which are based on salaried help and are destined for sale, ask how she managed to arrive at this point (savings, money from the husband, non agricultural activities...))*

*Try to bring out the evolution of competition, complementarity and synergies between the means of production (land, work and financial capital) and the income between men and women.*

3. What are the reasons for the relative importance between the different food crops (% surface, work force, contribution to household consumption, monetary income..)

4. What are the reasons for the choice of associations (or non associations) of the different crops grown?

5. What are the reasons for the choice of successions and fallow period?

*(from the information collected above, be sure to identify the principle system and discuss its importance with the producer*

**Parcel**

Date:

Name:

Farm #

Parcel #

Type of system:

**Size of parcel:**

Age of farm:

How many years you have been farming here:

Sketch: sketch the limits of the Land parcel and the contents -cacao and/or food crops (include proximity to the paths, roads, river...)

**Example:**

Land

Symbol/colour	Crop/ Tree	Distribution on parcel /spacing	Number of plants/trees in reference square	Strata	Density/ ha
	cocoyams				
	cacao				
	plantain tree				
B	Boma tree				

Note: Count food crops count in 10m x 10m square. In cacao plantations count cacao 25m x 25m and other trees 50m x 50m. (Be sure to choose representative samples of the entire parcel when counting!)

For cacao only (in the 25m x 25m reference parcel)



## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Number of stems	Number of trees
1	
2	
3	
4	
5	
6	
7	
8	

Age of cacao trees:

Regeneration:

Have you regenerated or planted trees in this farm? How many and when?

Measurements of yields of the reference parcels

Crop	weight	yield/ha

Comment on the state of the parcel and the crops (fungal attacks, hydration stress...)

Ask the producer if the yields this year are normal? Are the weights I measured low, normal or high in comparison to a normal year. (if there is a difference what is the difference- try to produce a quantity eg: 2 times bigger)

Information on the market prices

*Note: this information is collected for the products consumed by the household as well*

Crop	Name of usual local unity (cup, sack, basket...)	Prix of sale for local unit in FCFA	usual weight of unity in kg (measure or as declared by the actor)	price of sale in FCFA/kg

Interview on technical practices and market sales

(logic of livelihood strategy)

1. What are the principle difficulties that you encounter in your production and sale of your different crops? (duration of rains, pests, roads...)
2. What do you do now to deal with or resolve your problems?
3. What other actions of research or development could help you to resolve your problems?

## **D. Formulas used to develop economic models**

### **Economic Output Assessment**

Based on Calculation from Chapter 3, p71-86 (Barral et al. 2012)

#### **Gross Output (GO)**

$GO = \Sigma$  (annual quantity produced of each product x unit price of each product)

#### **Intermediate inputs (II)**

$II = \Sigma$  (quantity of each good used x unit price of each one) +  $\Sigma$  (each service used x price of each one)

#### **Gross Value Added (GVA)**

$GVA = GO - II$

#### **Land productivity**

Gross value added per land unit

$GVA \text{ per ha} = \text{total GVA produced by the Cropping System (CS)} / \text{surface area cultivated under this CS}$

#### **Labour productivity**

Gross value added per unit of labour

$GVA \text{ per working-day} = \text{annual GVA for a CS on a given area} / \text{number of working-days required per year for this CS on the given area}$

#### **Gross remuneration of family labour**

$\text{Gross remuneration of family labour} = (\text{GVA} - \text{wages paid to employees}) / \text{number of working-days contributed by family members}$

**E. Rates Paid to Daily Salaried Workers**

GENERAL LABOUR	FCFA	FCFA/hr
For all task not specifically defined the general rate for work is:		
CACAO	2000 /3hrs	667
FOOD CROPS	1500 /3hrs	500

	CACAO	FCFA	FCFA/hr
Initial	Buy Cacao Seedling	100 /seedling	n/a
	Land Clearing	30000 /ha	n/a
	Felling Trees	250 /log	n/a
	Clearing of Trees and Collection of Timber	2000 /3hrs	667
	Laying Out of Land	2000 /3hrs	667
	Planting Shade Trees	2000 /3hrs	667
	Planting Marker Trees	2000 /3hrs	667
	Transporting Seedlings	2000 /3hrs	667
	Planting Cacao	2000 /3hrs	667
	Production	Weeding/ Clearing	2000 /3hrs
Application of Insecticide		500 /sprayer	n/a
Application of Fungicide		500 /sprayer	n/a
Application of Nematicides		500 /sprayer	n/a
Pruning		4000 /5hrs	800
Harvest	Harvest of Cacao	3500 /5hrs	700
	Collection of Pods	3500 /5hrs	700
		/level of push truck/	
	Broking	700 ~24kg	n/a
	Transportation of Cacao to Oven	700-4000 /truck (split btw 2 ppl)	n/a
	Harvest of Wood	250 /log	n/a
	Transportation of Wood to Oven	700-4000 /truck (split btw 2 ppl))	n/a
Transport	Transport of Cacao to Buyer	700-4000 /truck (split btw 2 ppl)	n/a

	OTHER PLANTS/TREES	FCFA	FCFA/hr
Plantains	digging holes	50 /hole dug	n/a
	planting plantains	25 /plantain	n/a
	Transport of Plantains	500-1000 /bunch	n/a
Oil Palms	harvest	300 /tree	n/a
Orange	harvest	2000 /truck	n/a
	pushing	700-4000 /truck (split btw 2 ppl)	n/a

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

OTHER PLANTS/TREES		FCFA	FCFA/hr
Plantains	digging holes	50 /hole dug	n/a
	planting plantains	25 /plantain	n/a
	Transport of Plantains	500-1000 /bunch	n/a
5 Oil Palms	harvest	300 /tree	n/a
2 Orange	harvest	2000 /truck	n/a
	pushing	1500-4000 /truck (split between two people)	n/a

### F. Trees, Crops and the Gender Divisions

Food Crops							
Names			Location Found			Who works	
Local Name	Common Name	Scientific Name	Cleared Gaps in Forest	In the Cacao	In the Village	Women	Men
Egusi	Egusi Melon	Citrullus colocynthis		*			
Groundnuts		Arachis hypogaea		*			
Maize	Corn	Zea mays		*			
Pepper	Chilli Peppers	Capsicum frutescens					
Okro	Okra	Abelmoschus esculentus					
Garden Egg	Egg Plant	Solanum melongena		*			
Yams		Dioscorea sp.					
Cocoyams		Colocasia esculenta					
Cassava		Manihot esculenta					
Huckleberry		Solanum scabrum					
Bitter Leaf		Vernonia amygdalina					
Eru		Gnetum africanum	F			H	H
Water Leaf		Talinum triangulare					
Bananas		Musa sapientum					H
Plantains		Musa paradisiaca					H
Pineapples		Ananas comosus					

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Fruit Trees							
Names			Location Found			Who works	
Local Name	Common Name	Scientific Name	Cleared Gaps in Forest	Cacao	In the Village	Women	Men
Apple		<i>Eugenia malaccensis</i>					H
Guava		<i>Psidium guajava</i>					H
Orange		<i>Citrus sinensis</i>					H
Mango		<i>Mangifera indica</i>					H
Pawpaw	Papaya	<i>Carica papaya</i>					H
Coconuts		<i>Coco nucifera</i>					H
Plum	Safrou	<i>Dacryodes edulis</i>					H
Pear	Avocado	<i>Persea americana</i>					H

Cash Crops							
Names			Location Found			Who works	
Local Name	Common Name	Scientific Name	Cleared Gaps in Forest	Cacao	In the Village	Women	Men
Bush Mango		<i>Irvingia gabonensis</i> )	F			C	
Bitter Kola		<i>Garcinia cola</i>	F			C	
Kola		<i>Cola nitida</i>	F			C	
Njansanga		<i>Ricinodendron heudelotii</i>	F			C	
Oil Palm		<i>Elaeis guineensis</i>	F				H
Sugar Cane		<i>Saccharum</i>					H
Cashew Nuts		~	F				H
Monkey Kola		<i>Cola lepidota</i> and <i>C. ficifolia</i>	F				H
Bush Pepper		<i>Piper guineense</i>	F				H
Cacao		<i>Theobroma cacao</i>				5%	95%

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Timber Trees							
Names			Location Found			Who works	
Local Name	Common Name	Scientific Name	Cleared Forest	Gaps in Cacao	In the Village	Women	Men
Iroko		Milicia excelsa	F				
Mahogany		Entandrophragma cylindricum	F				
Camwood		Pterocarpus soyauxii	F				
Boma		Ceiba pentandra	F				
Small Leaf		Albizia zygia	F				
Milk Stick		Alstonia boonei	F				

**G. List of Pesticides and Costs from Different Buyers**

Type of Chemical	Name	Measurement unit	Cost in Kumba	Cost in Kwakwa	Advanced credit from local chemical store	Cost given by local buyer	Cost given by Patron to two-party worker
Fungicide	Nordox	Sachet 40g	350	400	500	800	800
	Ok mil	sachet 50g	600	650	800	1000	1000
	Golden blue	sachet 60g	350	400	500	800	800
	Callomil	sachet 50g	600	650	800	1000	1000
	Metalm	sachet 50g	550	600	700	900	900
	Ridomil	sachet 60g	600	650	800	1000	1000
	Nordox	sachet 75g	600	650	800	1000	1000
	Agro comet	sachet 75g	650	700	800	1000	1000
	Kucide		350	400	500	800	800
Insecticides	Parastar	1 litre	6000	6500	8000	10000	10000
	Gawa	1 litre	5500	6000	7000	9000	9000
	Kunfu 5% wp	sachet	250	300	400	700	700
	Iron	sachet 4g	250	300	400	700	700
	Iron	1 litre	4500	5000	7000	9000	9000
Herbicides	Roundup	1 litre	4500	5000	7000	9000	9000



## H. List of Equipment

Personal Equipment			
Tools	PURPOSE	Unit Price (FCFA)	# of years of use
Shoes (carayping)	foot protection	1200	1
Watch	monitor hours worked by paid workers	2000	5
Hat	sun and ant protection	1500	1
Strong trousers	protects against sticks in the bush	3000	2
Gloves	hand protection for clearing	500	0.5
Raincoat	protection against rain and mud in rainy season	5000	2
Rain boots	protection against rain in rainy season (many fall sick without)	4500	2
Mask	protection against chemicals while spraying	1000	0.5
Protective glasses	protection against chemicals while spraying	1500	1

Cacao Equipment			
Tools	PURPOSE	Unit Price (FCFA)	# of years of use
Knapsack Sprayer (Matabi 15 Litre)	spraying fungicides, pesticides and herbicides	35000	5
Atomizer (10 L Solo)	for pulverization of pesticides	350000	10
Atomizer (10 L Apropo)	for pulverization of pesticides	200000	10
Cutlass/ Machete (caiman or long)	cutting branches/clearing etc.	3500	0.5
File (Taper/Matinga)	sharpening the cutlass/ machete	600	0.5
Wheel barrow	carrying production, leaves, soil etc.	18000	5
Engine Saw (Stilth)	felling trees and slicing logs	250000	10
Push Truck (Maison cycle)	pushing production of cacao, wood, fruit trees etc.	80000	5

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Push Truck (Locally made)	pushing production of cacao, wood, fruit trees etc.	50000	4
Digger (tropic)	digging holes for planting trees	3500	3
Axe	chopping wood and felling small trees	3500	5
Farm Bag	carrying farm tools for the day etc.	1000	1
Ladder	climbing the trees without harming the branches	2000	1
Spear for Harvesting	harvesting cacao	1500	3

Nursury, Fermentation and Drying Equipment			
Tools	PURPOSE	Unit Price (FCFA)	# of years of use
Spade	digging and moving dirt	5000	4
Watering Can (Plastic 11L)	daily watering of seedlings in a nursery	4500	5
Fermentation Box	fermentation of cacao sewn together to make a tarp for fermentation and used to transport cacao and other materials	given by European Union	10
Fertilizer Bags	used to fermentation and sun drying	500	2
Tarpaulin	used to move cacao on oven or when drying in the sun	5000	5
Wooden cacao sweeper	To dry Cacao during the rainy season	3000	5
Cacao Drying Oven	To dry Cacao during the rainy season	2419930	15
Cacao Drying Oven (supported by European Government)	To dry Cacao during the rainy season	619930	15

## OVEN PAYOFF

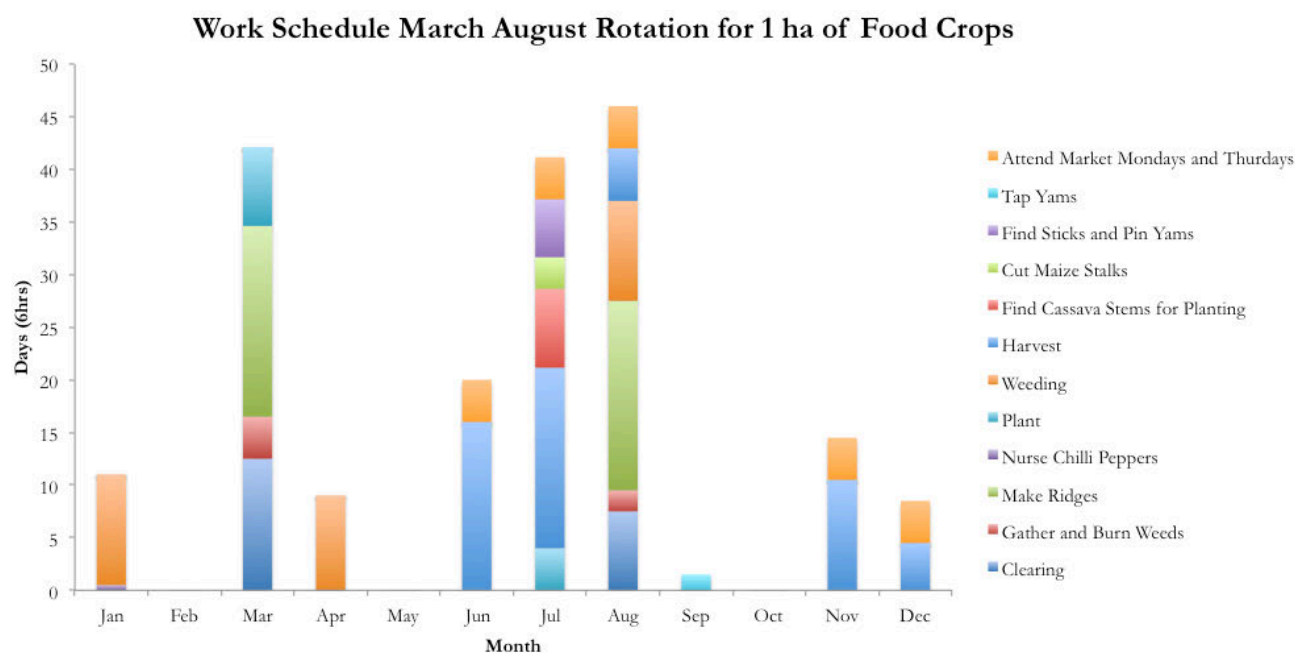
Assuming that for each session 6 bags are dried at a rate of 1500 FCFA/bag ( 9000 FCFA/ session) and that 10 farmers use the oven each month (90 000 FCFA/ month for 25 months) for each of the 7 main productive months of the year, it would take 3.5 years to pay off the cost of the oven.

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

Personal Transtation			
Tools	PURPOSE	Unit Price (FCFA)	# of years of use
4X4 Truck	Used to transport production and workers etc.	4500000 (used)	20
Motorcycle (new)	Used to transport production and workers etc.	450 000 (new)	10
Motorcycle (used)	Used to transport production and workers etc.	250 000 (second hand)	10
Bicycle	Used to transport production and workers etc.	59000	10

Food Crops			
Tools	PURPOSE	Unit Price (FCFA)	# of years of use
Spade	digging and moving dirt	5000	4
Watering Can (Plastic 11L)	daily watering of seedlings in a nursery	4500	5
Farm Bag	carrying farm tools for the day etc.	1000	1
Cutlass/ Machete (caiman or long)	cutting branches/clearing etc.	3500	0.5
File (Taper/Matinga)	sharpening the cutlass/ machete	600	0.5
Hoe (Tropic)	making mounds and ridges and turning soil	2500	2
Hoe (Banwa)	making mounds and ridges and turning soil	3500	2

## I. Work schedule for the March August Rotation and Labour Costs for the food crop models presented



### Labour Costs for 1 ha on the March August Rotation

March August Rotation	
PAID for 750 ridges	FCFA
Clearing (Feb and June)	10000
Making ridges (March, June)	37500
Weeding	28125
Buy sticks and Pin yams	35500
Harvesting (june and July)	79500
<b>Total</b>	<b>190625</b>

### Labour Costs for 1 ha on the March Rotation

March Rotation	
PAID for 750 ridges	FCFA
Clearing	6250
Making ridges	18750
Weeding (august)	28125
Buy sticks and Pin yams	35500
Harvesting	30000
<b>Total</b>	<b>118625</b>

Economic gain from food crops throughout the year

## J. Information collected through interviews used as a base for the formation of the economic models

### Economic Income Calendar for Food Crops

March August Rotation		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Farm 1	Harvest Maize (Fresh)						33750						
	Harvest Groundnuts						78750						
	Harvest Maize (Dry)						9375						
	Harvest Egusi						30000						
	Harvest Okro						4500						
	Harvest Pepper						21000	21750	21000				
	Harvest Yams (Calabah)								99900				
	Harvest Cocoyams												36000
	Harvest Cassava												
Farm 2	Harvest Maize (Fresh)											33750	
	Harvest Groundnuts											78750	
	Harvest Maize (Dry)											9375	
	Harvest Egusi												
	Harvest Okro											4500	
	Harvest Pepper											31875	31875
	Harvest Yams (Calabah)												
	Harvest Cocoyams												
	Harvest Cassava								35000				
MONTHLY income							177375	56750	120900			158250	67875
March Rotation		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Farm 1	Harvest Maize (Fresh)						33750						
	Harvest Groundnuts						78750						
	Harvest Maize (Dry)						9375						
	Harvest Egusi						30000						
	Harvest Okro						4500						
	Harvest Pepper						21000	21750	21000				
	Harvest Yams (Calabah)								99900				
	Harvest Cocoyams												36000
	Harvest Cassava												
Farm 2	Harvest Maize (Fresh)												
	Harvest Groundnuts												
	Harvest Maize (Dry)												
	Harvest Egusi												
	Harvest Okro												
	Harvest Pepper												
	Harvest Yams (Calabah)												
	Harvest Cocoyams												
	Harvest Cassava										11250	11250	11250
MONTHLY income							177375	21750	120900	11250	11250	11250	47250

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

**Breakdown of Economic Analysis for Models****FOOD CROPS**

TYPE		March		March		March	
		Rotation 1 ha (family labour)	Rotation 1 ha (family labour)	Rotation 1 ha (paid labour)	Rotation 2 ha (paid labour)	March August Rotation 1 ha (paid labour)	March August Rotation 2 ha (paid labour)
	Minimum Initial Capital	17600	17600	17600	17600	17600	17600
<b>Whole Farm</b>	<b>Gross Value Added/Active (FCFA)</b>	<b>343175</b>	<b>523300</b>	<b>224550</b>	<b>507000</b>	<b>332675</b>	<b>723200</b>
Cacao	Gross Value Added/Active (FCFA)						
Other Trees/ Plants	Gross Value Added/Active (FCFA)						
Whole Farm	Gross Value Added/ha (FCFA)	343175	523300	224550	253500	332675	361600
	Days Worked/Active (days)	336	406	225	450	212	423
	Daily Salary	1022	1289	999	1128	1572	1708
	Hourly Wage (FCFA)	170	215	167	188	262	285
Whole Farm	Equipment Depreciation	12850	12800	12850	12850	12850	12850
	Rent / full time workers wages	45000	45000	45000	45000	45000	45000
	Net Value Added	285325	465500	166700	449150	274825	665350
	Minimum Cost of living/active(FCFA/yr)	260000	260000	260000	260000	260000	260000
	Potential Savings (if single)	25325	205500	-93300	189150	14825	405350

**CACAO**

TYPE		Full Time Salaried Work	Daily Salaried Worker	Small Two Party Worker,no family	Two Party Worker with family	Large Two Party (Sha paid work)	Small Farmer,no family	Small Family Farmer	Large Farmer (Sha paid work)	Large Farmer (Sha w/ fulltime salaried workers)	Two Party Patron (1ha)	Small Farm Old (1ha all paid)
<b>Whole Farm</b>	<b>Gross Value Added/Active (FCFA)</b>	<b>444500</b>	<b>570000</b>	<b>232025</b>	<b>305120</b>	<b>716125</b>	<b>639050</b>	<b>710145</b>	<b>2462000</b>	<b>3550725</b>	<b>402975</b>	<b>312100</b>
Cacao	Gross Value Added/Active (FCFA)	n/a	n/a	162275	448740	367375	486550	548645	1699500	2743225	320225	218350
Other Trees/ Plants	Gross Value Added/Active (FCFA)	n/a	n/a	69750	161500	348750	152500	161500	762500	807500	82750	93750
Whole Farm	Gross Value Added/ha (FCFA)	n/a	n/a	232025	305120	143225	639050	710145	492400	710145	402975	312100
	Days Worked/Active (days)	256	153	143	271	350	143	135	350	135	0	64
	Daily Salary	1736	3725	1624	1126	2049	4474	5242	7043	26210		4877
	Hourly Wage (FCFA)	289	621	271	188	341	746	874	1174	874		813
Whole Farm	Equipment Depreciation	0	24550	42667	42667	46667	42667	42667	46667	117200	0	46667
	Rent / full time workers wages									889000		
	Net Value Added	444500	545450	189358	262453	669458	596383	667478	2415333	2544525	402975	265433
	Minimum Cost of living/active(FCFA/yr)	244500	260000	260000	260000	260000	260000	260000	260000	260000	260000	260000
	Potential Savings (if single)	200000	285450	-70642	2453	409458	336383	407478	2155333	2284525	142975	5433

**Installation of a New Cacao field**

Year	1	2	3	4	5	6	7	8	9	10
Number of Plantain Bunches	0	200	200	150	150	100	100	50	50	25
Income (3000FCFA/ bunch)	0	600000	600000	450000	450000	300000	300000	150000	150000	75000
Yield (kg)	0	0	0	50	150	200	400	600	800	1000
Income (870 FCFA/kg)	0	0	0	43500	130500	174000	348000	522000	696000	870000
cost of chemicals (117 FCFA/kg)	0	0	0	5850	17550	23400	46800	70200	93600	117000
Net income Cacao (FCFA)	0	0	0	37650	112950	150600	301200	451800	602400	753000
<b>Total Net Income from the Farm (FCFA)</b>	<b>0</b>	<b>600000</b>	<b>600000</b>	<b>487650</b>	<b>562950</b>	<b>450600</b>	<b>601200</b>	<b>601800</b>	<b>752400</b>	<b>828000</b>
Cost of Living (FCFA)	260000	260000	260000	260000	260000	260000	260000	260000	260000	260000
Potential Savings (FCFA)	-260000	340000	340000	227650	302950	190600	341200	341800	492400	568000
Accumulated Savings (FCFA)	-260000	80000	420000	647650	950600	1141200	1482400	1824200	2316600	2884600
Pay off first hectare (FCFA)			20000	667650						
Afford another hectare (FCFA)				267650	1218250					
Afford another three ha (FCFA)					18250					

## EVOLUTION &amp; EXPANSION OF CACAO FARMING IN S.W. CAMEROON

## Price Base for Models, Fluctuation in Cacao Prices in Meme South West Cameroon

Monthly average prizes for cocoa, coffee and rubber and comparative prices for 2010, 2011, and 2012

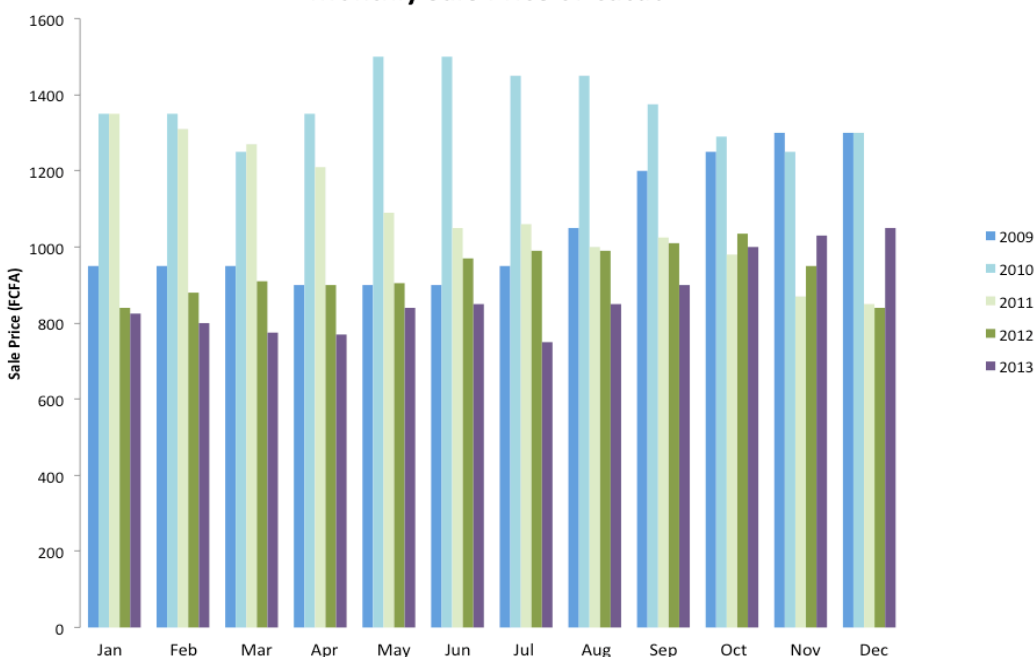
Crop	Months												Average	Comparative prices		
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec		2010	2011	2012
Cocoa	842	887	910	897	907	970	990	990	1010	1035	950	840	935	1368	1088.7	935
Coffee	-	680	680	680	687	-	-	-	-	-	-	-	681.7	312.5	760	681.7
Robusta																
Rubber (dried latex)	700	700	800	700	800	800	800	1000	1000	1200	1200	1200	908.3	-	1430.9	908.3

Source: MINADER, 2013

## Other Trees and Crops found on 1 ha (modelled scenario based on interviews)

Crop	Production	Sale Price (FCFA)	Sold	Consumed	Total
Cacao	700 kg	aries month by mont	668500		668500
10 Plantains	10 bunches	3000FCFA/bunch		30000	30000
2 Plums	6 buckets	2000FCFA/bucket	6000	6000	12000
5 Oil Palms	15 Litres	500FCFA/Litre		7500	7500
1 Njansanga	2 buckets	20000FCFA/bucket	40000		40000
1 Bush Mango	2 buckets	20000FCFA/bucket	40000		40000
2 Orange	4 trucks	9000FCFA/truck	36000		36000
1 Bomma tree	n/a	n/a			0
3 Small leaf trees	n/a	1000FCFA/log			0
<b>Total</b>			<b>790500</b>	<b>43500</b>	<b>834000</b>

## Monthly Sale Price of Cacao



Fluctuating Monthly Sale Price of Cacao over the last 5 years  
Meme District, S W Cameroon Source: MINADER Meme, ( 2013)