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Maximizing Opportunities for Cocoa Activity (MOCA)

Baseline Evaluation Report

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Baseline Evaluation Report

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I. OVERVIEW AND FINDINGS	4
MOCA EVALUATION METHODOLOGIES	5
PERFORMANCE EVALUATION (MID-TERM EVALUATION) METHODOLOGY	5
IMPACT EVALUATION (FINAL EVALUATION) METHODOLOGY:	7
DETERMINING MOCA PROJECT IMPACT ON COCOA FARMERS	12
2. FARMER AND COOPERATIVE SURVEY (KIT): BASELINE REPORT	14
BASELINE REPORT	14
3. ANNEXES	177
ANNEX 1: REFERENCE STUDY REPORT ON AGRO DEALERS	177
ANNEX 2: BASELINE INCEPTION REPORT	189

1. OVERVIEW AND FINDINGS

The objectives of the MOCA baseline study were to 1) establish quantitative values for the MOCA performance indicators before the start of project activities, and 2) establish baseline values for all measures (both quantitative and qualitative) needed to assess project outcomes through the mid-term performance evaluation and the final evaluation of impact.

The study aimed to establish the baseline situation of three target beneficiary populations: direct beneficiary cocoa producers, producer groups/cooperatives, and direct beneficiary micro and small enterprises (cocoa grinding and processing, other value addition, and pooled transportation), input supply agents, shops and input service providers, business development service providers.

An external contractor, KIT Royal Tropical Institute (KIT), was selected through a competitive process to conduct the baseline study. KIT developed the methodologies to collect data from direct beneficiary cocoa producers, Producer groups/cooperatives, and direct beneficiary micro and small enterprises. KIT supervised the baseline survey work and analysis for the survey of cooperatives and cocoa producers, including a household questionnaire (n=1300) to collect detailed information on farm-level indicators (e.g. cocoa production, trade volumes, household characteristics); a cooperative questionnaire (n=26) for interviews with cooperative management, to collect information on cooperative membership, services and trade; and Focus Group Discussion (FGD) guidelines to collect qualitative information from cooperative members on cocoa trade and services. The farmer and cooperative survey and results are presented in this report in **Section 2. Farmer and Cooperative Survey (KIT): Inception Report & Survey Report.**

Because the SMEs had not yet been identified by MOCA, the SME survey and analysis was later conducted by MOCA subcontractor SOCODEVI, utilizing the questionnaires developed by KIT. The results are presented in **Section 3. RAPPORT DE L'ETUDE DE REFERENCE SUR LES AGRO DEALERS.**

The data collected enabled establishment of the baseline values for the following Food for Progress standard indicators:

Value of sales by project beneficiaries is 13.3 million US\$

The revenues generated through the sales of cocoa by a household during the 2017-2018 season averages 1,304,980 FCFA or 2,330 US\$ per household. For the total 5,709 direct MOCA beneficiaries this equals 13.3 million US\$, which is the baseline value for the Value of sales by project beneficiaries' performance indicator

Volume of commodities (metric tons) sold by project beneficiaries

The average cacao production is 498 Kg per Ha. On average one producers cultivates cacao on 4,2 Ha of land which corresponds to yield of 2,091 Kg per producer per year. For the targeted 5,709

direct beneficiaries of MOCA this corresponds to 11,940 MT of cacao, which is the baseline value for the Volume of commodities (metric tons) sold by project beneficiaries performance indicator.

MOCA EVALUATION METHODOLOGIES

The baselines established in this Baseline Evaluation Report will facilitate the assessment of project outcomes through the mid-term performance evaluation and the final evaluation of impact. The methodologies of these two planned evaluations are summarized below.

PERFORMANCE EVALUATION (MID-TERM EVALUATION) METHODOLOGY

Purpose and scope: The purpose of the mid-term evaluation, carried out approximately halfway through the life of the MOCA project (18 months) will be to assess the performance of the project activities to date in the general areas of inquiry of relevance, progress, and sustainability. The evaluation will examine MOCA's progress towards achieving the stated goals and objectives, identify best practices and effective activities, and identify issues that are constraining success and potential corrections to be adopted to improve project performance. The evaluation will be led by an external and independent evaluation firm to ensure that results are objective and not influenced by MOCA staff.

Key evaluation questions:

- a) The evaluation questions will be finalized with the development of the Terms of Reference (TOR) for the mid-term evaluation. Illustrative questions include: Is the MOCA Results Framework and the causal linkages between the results at different levels still valid in the MOCA operating context? Are the critical assumptions underpinning these causal linkages still valid?
- b) To what extent have MOCA project activities achieved the expected results per the Results Framework (increased productivity of cocoa plantations, expanded trade of cocoa products, increased adoption of agricultural techniques including improved planting material and spray services, increased access to agricultural financing).
- c) What are the main agricultural and natural resource management elements hindering the progress of the project if any, and what new opportunities have been identified that could be addressed in the remaining part of the project?
- d) What systems or activities have been put in place to ensure sustainability, and how likely is that system to be sustainable beyond the life of the project?
- e) What capacity do cooperatives supported by the project have to sustain the business relationships with the private sector (producer, buyers, suppliers, retailers etc.)?

Methodology: The methodology will include a repetition of the baseline survey using the same methodology, a review of regular semi-annual monitoring of performance indicator data (see Section III.a. Semi-Annual Monitoring of Project Performance) and qualitative data collection from

project stakeholders, beneficiaries and partners to complement the quantitative data. The methodology proposed here will be finalized in the mid-term evaluation Terms of Reference, no sooner than 4 months after the implementation of key project activities and no later than Month 15, per the USDA Evaluation Policy.

USDA managers will be included as important key informant data sources, particularly for questions of relevance and assumptions (See Table 4 below).

Table 1: Mid-Term Evaluation Methodology Summary

Evaluation Area of Inquiry	Key Evaluation Question	Data Collection Approach
Relevance of MOCA Results Framework and Assumptions	Is the MOCA Results Framework and the causal linkages between the results at different levels still valid in the MOCA operating context? Are the critical assumptions underpinning these causal linkages still valid?	• Desk review of MOCA Results Framework and assumptions • Key Informant Interviews with MOCA managers • Key Informant Interviews with USDA managers
Effectiveness & Progress of MOCA activities towards achieving results	To what extent have MOCA project activities achieved the expected results?	Mid-term evaluation sample survey for key indicators; Review of MOCA performance indicator monitoring data against baseline data:
	• Increased productivity of cocoa plantations	• Yields (kg/ha) of cocoa • Volume (kg) of cocoa meeting buyer quality standards
	• Expanded trade of cocoa products	• Value of sales by project beneficiaries • Volume of commodities (MT) sold by project beneficiaries • Value of post-production cocoa products sold by project beneficiaries • Key informant interviews and focus groups with beneficiaries
	• Increased adoption of agricultural techniques including improved planting material and spray services,	• Number of hectares of land under improved techniques or technologies as a result of USDA assistance • Number of individuals who have applied new techniques or technologies as a result of USDA assistance.

		• Key informant interviews and focus groups with beneficiaries
	• Increased access to agricultural financing).	• Number of loans disbursed as a result of USDA assistance.
	What are the main agricultural and natural resource management elements hindering the progress of the project, and what new opportunities have been identified that could be addressed in the remaining part of the project?	• Review of MOCA progress reports • Key Informant Interviews: MOCA technical staff, cocoa producers, CCC/CRNA/ANANDA, other donors and managers of development and sustainability projects in cocoa sector.
Sustainability of MOCA interventions and results	Are the technologies and practices being promoted established and suitable to the local agro-ecological environments?	• Review of MOCA intervention design documents • Key Informant Interviews: MOCA technical staff, cocoa producers, cooperative managers, CCC.
	What systems or activities have been put in place to ensure sustainability, and how likely is that system to be sustainable beyond the life of the project?	• Review of MOCA intervention design documents and work plan • Key Informant Interviews: MOCA technical staff, cocoa producers, cooperative managers, CCC.
	What capacity do cooperatives supported by the project have to sustain the business relationships with the private sector (producer, buyers, suppliers, retailers etc.)?	• Review of MOCA project records: cooperative capacity assessments and progress reports. • Key Informant Interviews: MOCA technical staff, cooperative managers, cooperative members, banks/MFIs, buyers, suppliers.

IMPACT EVALUATION (FINAL EVALUATION) METHODOLOGY:

Purpose and scope: The final evaluation for the MOCA project will be conducted by an external and independent evaluation firm to assess different aspects of the project including the overall project design, effectiveness of implementation, the quality and structure of the project management, best practices learned from project implementation and their replicability on future projects both in Cote d'Ivoire and elsewhere. The final evaluation will also the impact of the MOCA

project on the intended beneficiaries, with a focus on direct beneficiary cocoa producers, in terms of success in increasing productivity and expanding trade of cocoa products.

Following the Monitoring and Evaluation Policy guidance for USDA programs, the project's final evaluation will assess:

“Relevance - The extent to which the project interventions met the needs of the project beneficiaries and is aligned with the country's agriculture and/or development investment strategy and with USDA and US Government's development goals, objectives, and strategies. Relevance should also address the extent to which the project was designed taking into account the economic, cultural and political context and existing relevant program activities.

Effectiveness - The extent to which the project has achieved its objectives. Effectiveness should also assess the extent to which the interventions contributed to the expected results or objectives.

Efficiency - The extent to which the project resources (inputs) have led to the achieved results. An assessment of efficiency should also consider whether the same results could have been achieved with fewer resources or whether alternative approaches could have been adopted to achieve the same results. Impact-Assessment of the medium and long-term effects, both intended and unintended, of a project intervention. Effects can be both direct or indirect and positive or negative. To the extent possible, the evaluation should assess the extent to which the effects are due to the project intervention and no other factors.

Sustainability - Assessment of the likelihood that the benefits of the project will endure over time after the completion of the project. Sustainability should also assess the extent to which the project has planned for the continuation of project activities, developed local ownership for the project, and developed sustainable partnerships.”¹

Key evaluation questions

Relevance

- To what extent has the project responded to the actual needs and interests of the target producers?
- To what extent does the project integrate or strengthen the national cacao strategy of Cote d'Ivoire?

Effectiveness

- To what extent have the expected results of the project been achieved? What factors have been critical to the achievement or non-achievement of project objectives?
- What were the unplanned outcomes that can be attributed to the project?

Efficiency

¹ United States Department of Agriculture, Foreign Agricultural Service, Food Assistance Division, Office of Capacity Building and Development. “Monitoring & Evaluation Policy,” 5/6/2013. Available at: <https://www.fas.usda.gov/programs/resources/monitoring-and-evaluation-policy>

- To what extent have the various units / levels of management and coordination (grants, program staff, M&E) supported the implementation of the project?

Impact

Did MOCA activities produce increases in cocoa farmer:

- Access to improved planting material? Access to spraying services? Access to loans?
- Access to improved storage?
- Productivity (kg/ha of cocoa produced)?
- Diversification of crops?
- Incomes?

Sustainability

- To what extent have local actors (cooperatives and farmers' organizations, government agencies, microfinance institutions) been involved in the management of the project? What is the probability that these actors will be able to provide succession?
- Are project outcomes likely to be sustained and/or scaled-up after the project closes?

Methodology: The final evaluation will address a range of questions in the areas of inquiry of Relevance, Effectiveness, Efficiency, Impact and Sustainability, and use a number of different methods as presented in Table 5 below. The methodology for determining the impact on cocoa farmers – in terms of increasing access to inputs and services, increasing productivity, diversifying crops, and increasing incomes – is discussed in more detail below the table.

Table 2: Final Evaluation Methodology Summary

Evaluation Area of Inquiry	Key Evaluation Question	Data Collection Approach
<u>Relevance</u>	To what extent has the project responded to the actual needs and interests of the target producers?	Desk review: MOCA design documents and work plans, progress reports and semi-annual reports. Focus groups: Direct beneficiary producers. Key Informant Interviews: Cooperative managers, MOCA managers, service/input suppliers, banks/MFIs.
	To what extent does the project integrate or strengthen the national cacao strategy of Cote d'Ivoire?	Desk Review: MOCA Results Framework & design documents, Cote d'Ivoire national cacao strategy. Key Informant Interviews: MOCA managers, Government of Cote d'Ivoire

		officials, local organizations working in the cacao sector, USDA managers
<u>Effectiveness</u>	To what extent have the expected results of the project been achieved? What factors have been critical to the achievement or non-achievement of project objectives?	Desk Review: MOCA Results Framework, performance indicator monitoring data against baseline data and targets (all indicators with endline (LOP) results – final data collection to be completed before final evaluation.
	What were the unplanned outcomes that can be attributed to the project?	Focus groups with project beneficiary groups (by group): Producers, processors, producer group/cooperative managers and members, input suppliers and service providers, bank/MFIs, government officials.
<u>Efficiency</u>	To what extent have the various units / levels of management and coordination (grants, program staff, M&E) supported the implementation of the project?	Key Informant Interviews: MOCA Managers & staff; USDA Managers; grantees.
<u>Impact</u>	Did MOCA activities produce increases in cocoa farmer: • Access to inputs and services: improved planting material, spraying, loans, improved storage? • Productivity (kg/ha of cocoa produced)? • Diversification of crops? • Incomes?	Cocoa Producer Survey
<u>Sustainability</u>	To what extent have local actors (cooperatives and farmers' organizations, government agencies, microfinance institutions) been involved in the management of the project? What is the probability that these actors will be able to provide succession?	Desk review of MOCA work plan and progress reports, other project reports. Key Informant Interviews: MOCA managers and staff, managers and members of farmer organizations/ cooperatives, government agencies, banks/MFIs.

	Are project outcomes likely to be sustained and/or scaled-up after the project closes?	Desk review of MOCA Results Framework & PMP and life of project results;
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DETERMINING MOCA PROJECT IMPACT ON COCOA FARMERS

The final evaluation will seek to determine the extent of the change experienced by beneficiary cocoa farmers after participation in MOCA activities and attribute these changes to MOCA interventions—i.e., establishing that increases in access to inputs and services, productivity, and sales occurred as a result of MOCA interventions rather than other external factors. Evaluating this cause and effect relationship between the project interventions and results, requires a comparison of the changes in the behaviors (e.g., agricultural practices used) and outcomes (e.g., increased productivity) of project producer direct beneficiaries over time to the behaviors and outcomes of a comparison group over the same time period, i.e., a group of producers that have similar characteristics to the direct beneficiary producers but did not participate in the project. This will enable analysis of the counterfactual, or the outcomes over the same time period of the project if the project had not been implemented and enables the evaluators to determine the extent to which changes effected occurred as a result of project activities.

Following the completion of the baseline study, KIT provided the following updated recommendations for the final evaluation (see also Section 2, Farmer and Cooperative Survey (KIT): Inception Report & Survey Report, Addendum to the Baseline Report MOCA Côte d'Ivoire: recommendations for the final evaluation):

“The final evaluation of MOCA will seek to determine the extent of the change experienced by beneficiary cocoa farmers after participation in MOCA activities and attribute these changes to MOCA interventions. In particular, the end-line impact evaluation is expected to provide answers to the following impact evaluation questions:

Did MOCA activities produce increases in cocoa farmer:

- Access to inputs and services: improved planting material, spraying, loans, improved storage?
- Productivity (kg/ha of cocoa produced)?
- Diversification of crops?
- Incomes?

The evaluation will seek to find evidence of a cause-effect relationship between the project interventions and results at farmer level based on a counterfactual evaluation design. The baseline survey can be used to collect a panel dataset, or at least apply a difference-in-difference design. In addition, it is recommended to apply Propensity Score Matching in order to correct for confounding factors and selection bias that are likely to influence the outcome indicators independent of exposure to the intervention. Indeed, the baseline study showed that significant differences exist between the beneficiaries and non-beneficiaries prior to the implementation of MOCA.

However, other issues will need to be considered at the final evaluation as well:

- Spillover effects: the control group may have been affected indirectly by MOCA in certain ways (e.g. improved access to inputs).

- Contamination: the treatment and/or control group has access to other interventions that also affect the outcomes.
- Impact heterogeneity: differences in impact among beneficiaries due to differences in beneficiary type and context.

It is recommended that the final evaluation first reviews the intervention landscape as well as the actual MOCA project activities to assess the likelihood of spillover effects and contamination so these can be taken into account when designing the survey tool.

We advise against a simple comparison of outcome indicators between the treatment and control group. The baseline study shows that there are significant differences in outcome indicators between regions and cooperatives at baseline. These factors are likely to cause impact heterogeneity. Furthermore, MOCA will carry out a multitude of activities to strengthen the cocoa value chain in general and the cooperative capacities in particular. The intervention activities will vary by cooperative, depending on their existing capacity and ambitions. As such, there will be multiple ‘treatment arms’ that are not predefined. It is thus important that the evaluation also captures the intervention activities received, and change in capacity achieved, at cooperative level as this will influence the outcome at farmer level. A survey at cooperative level will be necessary to collect the required data on the capacities of the cooperatives, the type of support received, and services provided to farmers.²

In order to correct for the expected heterogeneity in treatment and impact, it is recommended to use multivariate regression techniques³ to control for the variation in ‘treatment’ interventions as well as important confounding factors (e.g. cooperative capacity, region) to estimate the true effect of MOCA on cocoa farmers. Treating each intervention package at cooperative level as a separate treatment arm, to be compared against other treatment arms and controls, will be unpractical as the number of treatment arms are likely to require a very large sample size.

In addition to analyzing baseline and end line values of the outcome indicators, it would also be useful to compare changes in the correlates of productivity at baseline and at end line, as it is possible that the project has an effect on which factors affect productivity (for example, making the use of inputs more significantly correlated with productivity).

In case the decision is made to obtain a new sample of respondents for the final evaluation (rather than collecting a panel dataset), the sampling procedure should follow the two-stage sampling strategy applied at baseline: random sampling of cooperatives followed by random sampling of cooperative members. The procedure is described in the inception report of the baseline study

²²² King EM, Behrman JR. 2008. Timing and duration of exposure in evaluations of social programs. Policy Research Working Paper 4686. The World Bank

³ See for example: Elbers C, Gunning JW. 2012. Evaluation of development programs: using regression to assess the impact of complex interventions. *Tinbergen Institute Discussion Paper TI2012-081/2*. Faculty of Economics and Business Administration, VU University Amsterdam, AIID, and Tinbergen Institute

2. FARMER AND COOPERATIVE SURVEY (KIT): BASELINE REPORT



KIT Royal
Tropical
Institute

BASELINE REPORT

Baseline report MOCA Côte d'Ivoire

Commissioner CNFA

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ACRONYMS

ANADER	Agence National d'Appui au Développement Rural
BDS	Business Development Services
CCC	Conseil du Café et Cacao
CNFA	Cultivating New Frontiers in Agriculture
CNRA	Centre National de Recherche Agriculture
CSSV	Cocoa Swollen Shoot Virus
FAS	Foreign Agricultural Service
FCIA	Fine Chocolate Industry Association
FCS	Farmer Service Center
FI	Finance Institution
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
M&E	Monitoring and Evaluation
MOCA	Maximizing Opportunities for Cocoa Activity
NGO	Non-Governmental Organisation
PPP	Public-Private Partnership
PSM	Propensity Score Matching
R&D	Research and Development
SOCODEVI	Société de Coopération pour le Développement International
SOW	Statement of Work
SPU	Service Provision Unit
USDA	United States Department of Agriculture
WCF	World Cocoa Foundation

Table of contents

INTRODUCTION	5
METHODOLOGY	6
2.1 DATA COLLECTION METHODS	6
2.2 SAMPLING STRATEGY	6
2.3 FIELD REPORT ON DATA COLLECTION	7
2.3.1 FOCUS GROUP DISCUSSIONS	7
2.3.2 COOPERATIVE MANAGEMENT INTERVIEWS	7
2.3.3 BASELINE SURVEY	7
2.4 ANALYSIS OF SURVEY DATA	8
2.4.1 SAMPLING WEIGHTS USED FOR STATISTICAL TESTS	8
2.4.2 RESPONDENT INFORMATION	9
2.4.3 VALIDATING BASELINE RESULTS	9
3 BASELINE RESULTS FARMER SURVEY	11
3.1 INTRODUCTION	11
3.2 CHARACTERISTICS OF COCOA FARMERS	11
3.3 AGRICULTURAL PRODUCTIVITY AT FARM LEVEL (SO1)	14
3.3.1 COCOA YIELDS	14
3.3.2 PRODUCTIVITY QUANTILES	16
3.3.3 USE OF INPUTS AND SERVICES (FFPR 1.2.1)	18
3.3.4 POST-HARVEST PRACTICES AND INFRASTRUCTURE FOR POST-HARVEST PROCESSING (FFPR 1.2.2)	21
3.3.5 FINANCIAL SERVICES (FFPR 1.2.3)	22
3.3.6 GOOD AGRICULTURAL PRACTICES (GAP) IN COCOA (FFPR 1.2.4)	24
3.3.7 LAND & WATER RESOURCES (FFPR 1.1)	29
3.3.8 FARM MANAGEMENT: FARMER KNOWLEDGE ON FINANCE AND BUSINESS (FFPR 1.3)	29
3.3.9 INSTITUTIONAL SUPPORT (FFPR 1.4)	32
3.4 TRADE AT FARM LEVEL (SO2)	34
3.4.1 VALUE ADDITION (QUALITY, EFFICIENCY, MARKETING) (FFPR 2.1)	34
3.4.2 ACCESS TO MARKETS (MARKETING, BUYERS-SELLERS LINKAGES) (FFPR 2.2)	36
3.5 MULTI-VARIATE ANALYSIS: COMBINED EFFECTS ON PRODUCTIVITY	37
4 BASELINE RESULTS COOPERATIVE SURVEY	39
4.1 INTRODUCTION	39
4.2 AGRICULTURAL PRODUCTIVITY AT COOPERATIVE LEVEL (SO1)	40
4.2.1 PROVISION OF INPUTS AND SERVICES (FFPR 1.2.1)	40
4.2.2 INFRASTRUCTURE FOR PRODUCTION AND POST-HARVEST PROCESSING (FFPR 1.2.2)	42
4.2.3 FINANCIAL SERVICES (FFPR 1.2.3)	43
4.2.4 FARMER KNOWLEDGE ON GAP IN COCOA (FFPR 1.2.4)	43
4.3 TRADE AT COOPERATIVE LEVEL (SO2)	44
4.3.1 VALUE ADDITION (QUALITY, EFFICIENCY, MARKETING) (FFPR 2.1)	44
4.3.2 ACCESS TO MARKETS (MARKETING, BUYERS-SELLERS LINKAGES) (FFPR 2.2)	45
4.3.3 TRANSACTION EFFICIENCY (BUYERS-SELLERS MANAGEMENT	

	PRACTICES) (FFPR 2.3.2)	45
4.4	COOPERATIVE CAPACITIES	46
5	RECOMMENDATIONS	48
5.1	KEY INSIGHTS BASELINE INFORMATION	48
5.1.1	REGIONAL DIFFERENCES	48
5.1.2	GENDER DIFFERENCES	50
5.1.3	DIVERSITY AMONG COOPERATIVES	50
5.2	RECOMMENDATIONS FOR M&E	50
5.3	RECOMMENDATIONS FOR MOCA PROJECT IMPLEMENTATION	51

INTRODUCTION

The 'Maximizing Opportunities in Cocoa Activity' (MOCA) project is a three-year project funded by the United States Department of Agriculture (USDA) Food for Progress program and implemented by CNFA with subcontractor SOCODEVI in Côte d'Ivoire. MOCA focuses on increasing the efficiency and professionalism of actors in the cocoa value chain and improving the cocoa trade in order to boost farmers' income. The project started in October 2017 and is scheduled to end in September 2020. The project is implemented in the three largest micro-production zones in the Côte d'Ivoire's cocoa belt (Abengourou, Daloa and Soubré).

The MOCA project has the following objectives:

Strategic Objective 1: To increase productivity and efficiency of actors in the cocoa value chain through strengthening the capacities of cooperatives/producer groups, research institutions, input suppliers and processors of cocoa.

Strategic Objective 2: Improve and expand the trade of cocoa and cocoa products through improving the overall quality of the crop, the processing and post-harvest handling techniques, and strengthening market linkages and organization of groups to supply product to fulfil market demands.

Project activities are focused around improvements to cocoa production (Strategic Objective 1) and marketing of fermented and dried cocoa as well as production and marketing of transformed, value-added cocoa products (Strategic Objective 2). Direct beneficiaries include cocoa producers, cocoa cooperatives, processors that transform cocoa into value-added products, and CNRA, which produces approved cocoa planting materials. The target number of beneficiaries over the life of project is 5,709; this overall target includes a target of 5,625 beneficiary cocoa farmers. The target number cooperatives and farmer organizations directly assisted over the life of the project is 26.

CNFA has contracted KIT to provide technical expertise for the design of the baseline study methodology, development of study tools, quality control during field work, and analysis and reporting. The baseline study aims at 1) establishing quantitative values for the MOCA performance indicators before the start of project activities, and 2) establishing baseline values for all measures (both quantitative and qualitative) needed to assess project outcomes through the mid-term performance evaluation and the final evaluation of impact. The study establishes the baseline situation of two target beneficiary populations: cocoa producers and cooperatives.

METHODOLOGY

DATA COLLECTION METHODS

The baseline study included the following data collection methods (see the inception report for more detail):

- Household questionnaire (N=1300) for the baseline survey to collect detailed information on farm-level indicators (e.g. cocoa production, trade volumes, household characteristics);
- Cooperative questionnaire (N=26), used for interviews with cooperative management, to collect information on cooperative membership, services and trade;
- Focus Group Discussion (FGD) guidelines to collect qualitative information from cooperative members on cocoa trade and services.

The data collection tools were included as annexes in the inception report. The household questionnaire for the baseline survey was developed by MOCA, revised by KIT, then subsequently revised during enumerator training based on discussions with enumerators and MOCA team in order to improve the quality of the data collected. The questionnaire was converted to ODK and deployed on Android tablets. In addition, a semi-structured interview tool was developed for local SMEs (input providers and processors) but not yet applied for logistical reasons. The MOCA team will make use of the tool for its own monitoring purposes.

SAMPLING STRATEGY

The required sample size for the survey was set at 1100 farmers, which was calculated based on the following considerations (see the inception report):

- an effect size of 20% increase⁴ in average annual yields, currently estimated at 362 kg per ha (Bymolt et al. 2018)⁵;
- a compliance rate of 90 percent;
- high heterogeneity expected in the type of support provided to cooperatives and farmers;
- and expected use of propensity score matching for the estimation of program impact.

Given the known heterogeneity in cooperatives selected to be part of the project, it was decided to treat cooperatives as strata from which farmers were selected. All cooperatives are thus included in the sample.

A list of 1,354 farmers was randomly sampled from cooperative membership lists provided by the MOCA team, initially inflated to account for non-response. Three criteria were used to define the sample size in each cooperative:

- 1) equal number of farmers selected in each region regardless of their actual population size;

⁴ This conservative average was taken to ensure that the sample size is large enough to measure any possible effects of the program, both on productivity and on other performance indicators listed by MOCA

⁵ Bymolt, R., Laven, A., Tyszler, M. (2018) Demystifying the cocoa sector in Ghana and Côte d'Ivoire. KIT Royal Tropical Institute. Available at <https://www.kit.nl/project/demystifying-cocoa-sector/>

- 2) farmers from control cooperatives have been oversampled so that their share in the sample reaches 30 percent (instead of 17 percent, based on cooperative membership data provided by MOCA team);
- 3) cooperative sample size set at a minimum of 8 farmers and otherwise proportional to relative cooperative size within the region.

FIELD REPORT ON DATA COLLECTION

The MOCA team was responsible for the planning of the baseline survey in each region. The qualitative data collection was conducted by KIT, who developed a fieldwork planning in consultation with MOCA team. The planning was based on the time available to the KIT team, distances and travelling time and availability of the managers and farmers of cooperatives. Data collection by KIT comprised an interview with the management of each cooperative and a Focus Group Discussion with farmers of selected cooperatives. The KIT team ensured that an FGD took place for every control cooperative. The FGDs for the other (intervention) cooperatives were planned based on distance, available time and suggestions by MOCA team.

FOCUS GROUP DISCUSSIONS

FGDs usually took place in the cooperative headquarters (or warehouse) to minimize travelling time. Cooperatives were asked beforehand to select farmers for the FGDs based on criteria provided by the KIT team and were responsible for arranging the transport of the farmers to the location of the FGD.

Cooperatives reported facing difficulties in finding participants available for the FGDs as farmers were occupied with the main harvest of their cocoa. The data collected might therefore not always reflect the views of all cooperative members. A second short coming is the lack of representativeness of the sample. Women were often underrepresented and most FGDs consisted of members who were usually from the same section (or community). The data collected should not therefore be generalised to the cooperative as a whole but used as an indication of the current situation of cooperative members. A third shortcoming relates to the presence of members who also have a managing position within the cooperative during the FGDs. Their presence may affect answers of farmers whom might not feel completely free to express their opinions for fear of consequences. In most FGDs, delegates and managers were asked to leave when the discussion focused on cooperatives. In a few cooperatives (all in Daloa region) however, all FGD participants were at such positions, due to misunderstandings during communications between MOCA team and cooperatives regarding the type of respondents required for these exercises. KIT advisors noted these issues, which may lead to potential biases and are thus taken into account during analysis.

COOPERATIVE MANAGEMENT INTERVIEWS

Cooperative interviews took place in all cooperatives (treatment and control). In the large majority, interviews were conducted with a small group (3 to 7) of participants, including the cooperative director, the 'administrateur de groupe', and the president. For some cooperatives, the director was not available, therefore information is missing on some questions, especially regarding cooperative finances.

BASELINE SURVEY

The main issue during the baseline survey data collection related to finding farmers selected on the initial list. Due to a lack of time for fieldwork preparations, it was not possible to check beforehand with cooperatives whether farmers selected were available. Furthermore, data collection was conducted over a relatively short period of time, during which enumerators were required (by contract) to conduct four surveys per day whereas, in practice, very few surveys took place during the first day at a cooperative, given the need to first locate farmers with the help of the cooperative staff. A number of sampled farmers were said to be unavailable or could not be located. The MOCA team therefore requested for KIT to provide replacement lists to replace farmers who could not be surveyed and be able to obtain the required number of respondents for each cooperative.

It was decided to replace sampled farmers who could not be surveyed following the same random selection procedure as the one used for the initial list. Replacement lists were provided by the KIT team upon request from MOCA M&E advisors, who supervised the fieldwork. M&E advisors were requested to implement the replacement process par releasing additional names one by one to enumerators according to a ranking established randomly by KIT (instead of providing them with a list of replacement). This was to avoid convenience replacements which could affect the representativeness of the sample. M&E advisors were asked to document why respondents included in the sample were not surveyed and why replacement respondents with a higher rank were replaced with a respondent with a lower rank.

Overall, the data submitted by M&E advisors suggest that the replacement process roughly followed the requested process. Table 1 summarizes results from the implementation of the sampling process, based on data provided by M&E advisors. It shows that there are regional differences in the number of farmers from the initial lists that could not be surveyed.

Table 1. Overview of replacements of sampled farmers

	ABENGOUROU	DALOA	SOUBRE
Number of farmers on initial sampling list	450	449	455
Number of farmers from initial list not surveyed	86	39	87
Number of farmers not surveyed - not cooperative member	0	4	17
Number of farmers not surveyed - not found	30	24	5
Number of farmers not surveyed - temporarily away	38	9	22
Number of farmers not surveyed - permanent move	7	2	2
Number of farmers not surveyed - not accessible	11	0	2
Number of farmers not surveyed - other	0	0	39

Number of replacement names provided	233	75	113
Number of farmers from initial list replaced	77	26	61
Number of farmers surveyed	443	451	433
Number of farmers in final (cleaned) dataset	428	447	425

Note: data from this table is based on reports provided by MOCA M&E officers for each region, except for the number of farmers surveyed which is based on final data uploaded on the server.

ANALYSIS OF SURVEY DATA

SAMPLING WEIGHTS USED FOR STATISTICAL TESTS

If the sample in each cooperative had been selected with selection probabilities which are exactly proportional to the size of the cooperative, there would be no need for sampling weights to correct for the sample selection scheme. But the sample was selected in a way that gives more observations to certain areas compared to their actual population size, for example control cooperatives (as described in section 2.2. above). This may affect results, if for example farmers from control cooperatives have systematically lower values for variables of interest, such as production than farmers from treatment cooperatives. In this case, a correction is needed to adjust the values for the former and obtain overall results which are more in line with actual population values.⁶

Sampling weights are thus used to adjust the results from the survey to better reflect the actual composition of the underlying population. Sampling weights are calculated as the inverse of the probability of selection in the sample: N/n , where N is the total population of farmers in a cooperative and n is the number of farmers selected to be surveyed.

Given the way in which the sample size in each cooperative has been calculated (see section 2.2), these weights effectively lead to inflating the impact of those under-represented (treatment group, Soubré region), and deflating the impact of those who are over-represented (control group, Abengourou region).

Weights are adjusted to account for differences between sample size on the initial list and on actual sample size by replacing the number of farmers initially selected to be surveyed (n) by the number of farmers actually surveyed in the formula presented above. Although the final sample sizes per region, group and cooperative are overall very close to the expected sample sizes, some cooperatives have less respondents than initially calculated, while others have more. This is mainly due to differences in

⁶ This effectively means that values for farmers of control cooperatives will be given a lower weight, whereas values for farmers of treatment cooperatives will be given a higher weight. For example, average cocoa production over the 2017-2018 season is 1823.96 kg without weights and 1939.7 kg with weights.

fieldwork conditions which led to differences in success in finding originally selected and replacement households and other fieldwork conditions.

Further adjustments to weights could be done by comparing the characteristics of households surveyed based on initial lists and those of those surveyed based on replacement lists. However, such adjustments would require additional assumptions, while not generating much relevant additional information compared to weights adjusted solely based on realized sample size. Adjusted weights sum to the total population of farmers (i) overall, (ii) in each region, (iii) group and (iv) cooperative.

RESPONDENT INFORMATION

The questionnaires were conducted within households of cooperative members. Enumerators were instructed to administer the survey to any adult household members who is involved in the household cocoa production. Individual information was subsequently collected on all adult members of the household.

The respondents are clustered around certain departments/sub-préfectures, but balanced between Abengourou, Daloa, and Soubré regions. Almost all respondents are member of a cooperative or association and active in cocoa, but not all (also not within the MOCA sample group).

VALIDATING BASELINE RESULTS

Where relevant, the findings of the recent KIT Demystifying the cocoa sector study (2018) is being used as a benchmark. For this study data was collected in Côte d'Ivoire between February and March 2017, among in total 1,485 households. In the household survey, respondents were asked to recall information from the 2015-2016 cocoa season. Randomized sampling was done in two stages. First, a long list of cocoa growing regions was compiled. Computer-generated random numbers were assigned to each community in each district of each region. In Côte d'Ivoire, the community randomly assigned the highest number in each district was selected for the study. This ensured that we did not simply visit communities that were the most accessible or convenient. Second, at the community level, randomization was carried out by one of the research team members a few days in advance of each visit. The team member worked with local leaders in the communities to select a random sample of people in each community. This was done through a simple transect walk, north, east, south and west from the center of the village. Ten households from each direction were selected, skipping every Nth house, depending on the size of the community and the proportion of male vs female respondents (at least one third of the respondents should be female). This ensured that potential bias was removed to avoid the systematic selection of the best farmers, those who are well-connected members of groups, or those who frequently participate in projects. For the KIT study there was no requirement that the household had to include a cocoa farmer, or even any kind of farmer. We did not intentionally select respondents that were involved in a certain programme or affiliated with a certain buyer, as is often the case in evaluations of sustainability programmes.

BASELINE RESULTS FARMER SURVEY

INTRODUCTION

This chapter discusses the main findings of the baseline measurement among farmer households and cocoa cooperatives in three regions: Abengourou, Daloa and Soubré. Only the most relevant findings are presented and discussed in this chapter. In the presentation of the results we use, where relevant, the findings of the KIT Demystifying the cocoa sector study (Bymolt et al. 2018)⁷ as a benchmark.

The findings are presented and discussed according to the structure of the Results Framework (see the inception report). More detail on the baseline data is provided in the appendices. Appendix 1 contains an overview of all descriptive statistics of the baseline survey among farmer households. Appendix 2 presents the findings based on the cooperative interviews. The fieldwork report is presented in Appendix 3. Baseline data is disaggregated by cooperative in Appendix 4.

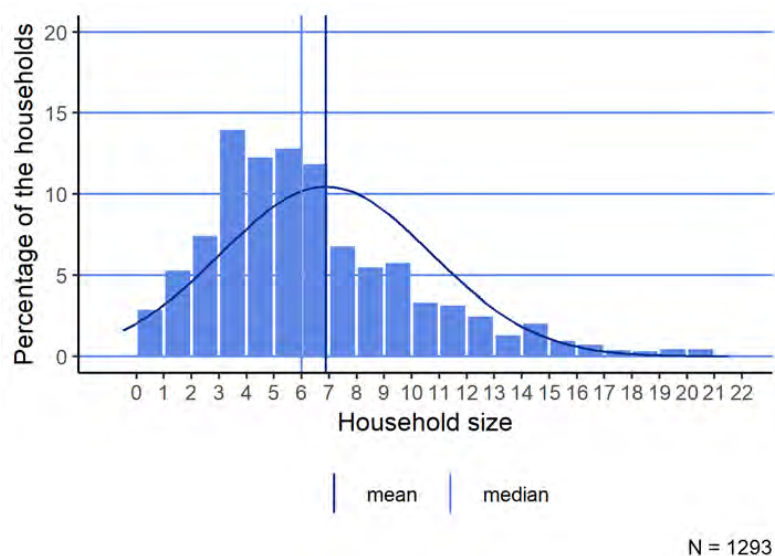
CHARACTERISTICS OF COCOA FARMERS

The respondents were sampled based on the precondition that they were a member of a cooperative (both treatment and control group).

Most of the respondents are male (90%) and head of household (88%). In case the respondent was not the head of household, s/he was the spouse, sibling or (adult) child of the head of household. The average age of respondents is 45 years. The average household size is seven household members (Figure 1), but households in Daloa are significantly larger (on average 7.9) than the households in Abengourou and Soubré (6.3 and 6.5 respectively; table 6, appendix 1).

⁷ Bymolt, R., Laven, A., Tyszler, M. (2018) Demystifying the cocoa sector in Ghana and Côte d'Ivoire. KIT Royal Tropical Institute. Available at <https://www.kit.nl/project/demystifying-cocoa-sector/>

Figure 1. Distribution of household size



Two-thirds (65%) of the respondents have no education or did not complete primary school. This percentage is significantly lower in Abengourou (57%) than Daloa (67%) and Soubré (68%). Few respondents (5%) have reached an education level beyond secondary school (Table 2).

About half (49%) of the respondents was born within their current district. However, in Soubré this percentage was only 34%, compared to 72% in Abengourou. Most migrants have moved from other regions within Côte d'Ivoire, but 15% of the respondents reported that their origin is from another country. Daloa has the highest percentage of foreign migrants (22%), compared to 14% and 10% in Soubré and Abengourou respectively (table 14, appendix 1).

Table 2. Respondent education level

Education level	Abengourou	Daloa	Soubré
No education/primary school not completed	7%	6%	8%
Completed elementary/primary school	9%	7%	8%
Completed secondary	2%	1%	1%
University (completed)	5%	1%	1%
Technical-vocational training	2%	1%	1%
University/professional studies	1%	1%	1%
French-Arabic school	1%	1%	1%
	0%	1%	1%
Total	27	16	24

Significance from a Rao-Scott second-order corrected Chi-squared statistical test. * indicate significance levels of 1%, 5% and 10% respectively

Cocoa is the major income source among the respondents, followed by sales of other agricultural products and livestock products (Table 3). In Daloa, it is more common to derive income from agricultural and livestock products than in the other two regions. In Abengourou, 14% of the respondents also derive an income from a small business compared to 8% in the other two regions.

Table 3. Respondents' income sources

Income sources	Abengourou	Daloa	Soubré
Cocoa	99%	99%	99%
Agricultural products	58%	58%	58%
Livestock / poultry or derived	8%	8%	8%
Fish	1%	1%	1%
Fish products	0%	0%	0%
Employment	0%	0%	0%
Self-employment	1%	1%	1%
Small business	14%	14%	14%
Employment in a company	1%	1%	1%
Employment as civil servant	1%	1%	1%
Use of owned land	0%	0%	0%
Gifts from friends/family members outside the household	1%	1%	1%
Other	3%	3%	3%
Total	428	428	428

Significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Only 3% of the respondents indicated not to work on the cocoa farm. There are regional differences whether respondents work fulltime or occasionally on the farm, with 97% of the respondents in Daloa working fulltime on the cocoa farm compared to 81% and 79% in Abengourou and Soubré respectively (Table 4).

Table 4. Respondents working on the cocoa farm

Working on farm	Abengourou	Daloa	Soubré
Fulltime	97%	97%	97%
Occasionally	3%	3%	3%
Not working	0%	0%	0%
Total	428	428	428

Significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

On average, farm households cultivate 6.3 ha of land (Table 5). There were no significant differences in farm size between MOCA farmers and the control group (see table 22, appendix 1). The average farm size is significantly lower in Daloa (5.8 ha) than in Abengourou and Soubré (6.3 ha and 6.7 ha respectively). On average, the cocoa farmers own more than they cultivate, and some of the remainder land is leased or

used for sharecropping.⁸ However, the low averages for these forms of land tenure suggests that this is only done by a minority of farmers. Indeed, only 5.6% of the farmers use land in a sharecropping arrangement (on average 2 ha) (based on table 31, appendix 1). More farmers (13.7%) lease their land, but only small pieces – on average 0.3 ha (based on table 30, appendix 1).

Table 5. Average farm sizes by region

	All	Abengourou	Daloa	Soubré
Land cultivated all crops (2018) (ha)	6.3 [3, 6.57]	6.3 [3.5, 6.69]	5.8 [2, 6.24]	6.7 [3.7, 7.14]
Land owned (2017-2018) (ha)	6.7 [3.2, 7.11]	7.0 [3, 7.69]	6.1 [1, 6.61]	6.0 [3, 7.74]
Land leased (2017-2018) (ha)	0.2 [0.1, 0.26]	0.1 [0.05, 0.16]	0.3 [0.12, 0.4]	0.2 [0.1, 0.28]
Land sharecropping (2018) (ha)	0.2 [0.1, 0.3]	0.2 [0.09, 0.39]	0.2 [0.1, 0.26]	0.2 [0.1, 0.41]
Land cocoa (2017-2018) (ha)	4.3 [2, 4.48]	4.6 [2.7, 4.87]	3.4 [6, 3.61]	4.8 [3, 5.17]
	1251	410	433	408

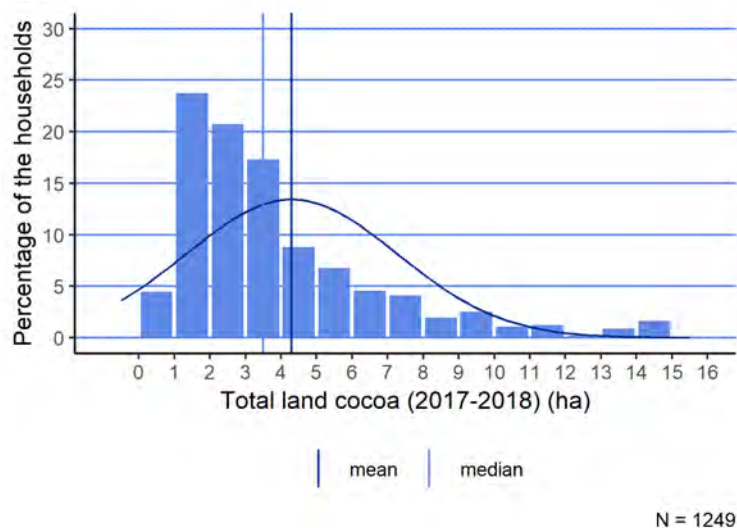
Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

The cocoa farmers dedicate most of their land (60-70%) to cocoa. The average size of the cocoa farm is 4.3 ha, but there is a skewed distribution of cocoa farm sizes and 50% of the sampled farmers cultivate cocoa on less than 3.5 ha (

Figure 2). Note that the average cocoa farm size is significantly lower in Daloa (3.4 ha) than in the other two regions (4.6 ha and 4.8 ha for Abengourou and Soubré respectively). This is proportional to the total average farm sizes in the three regions. Again, there were no significant differences between MOCA farmers and the control group in terms of the cocoa farm size (see table 27, appendix 1)

⁸ Original question : “Combien d’unités de terre votre ménage a-t-il utilisés sous MÉTAYAGE pour le cacao au cours de la campagne 2017-2018 ? Note : Planté-partagé. Le ménage donnait une portion de sa récolte au propriétaire des terres.”

Figure 2. Distribution of cocoa farm size

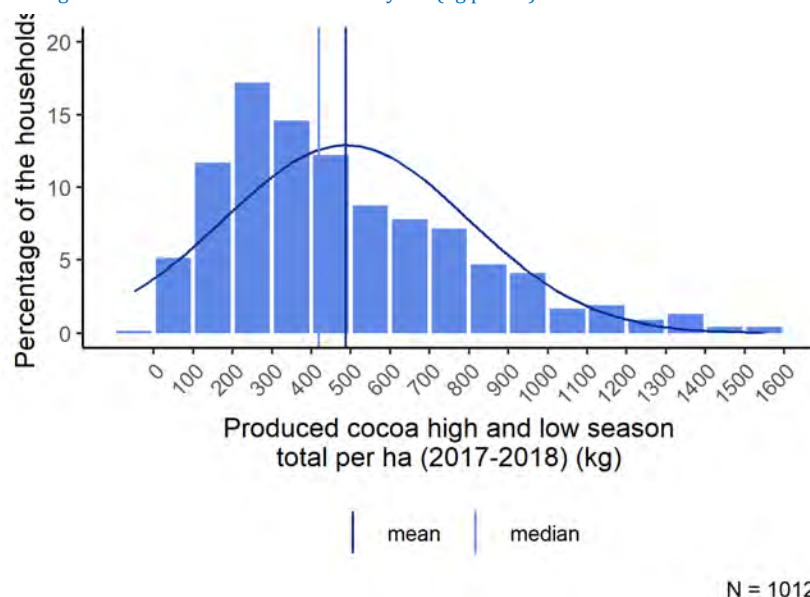


AGRICULTURAL PRODUCTIVITY AT FARM LEVEL (SO1)

COCOA YIELDS

The average annual cocoa yield is estimated at 488 kg per ha (table 58, appendix 1). The distribution (histogram) of the annual cocoa yield is presented in Figure 3.

Figure 3. Distribution of annual cocoa yield (kg per ha) 2017-2018



There are significant differences between reported cocoa yields (season 2017-2018) by MOCA farmers and the control farmers, as well as between regions:

- MOCA farmers reported significantly higher yields (498 kg per ha) than control farmers (435 kg per ha).
- The highest yields are obtained in Soubré (574 kg per ha), compared to 470 kg per ha in Abengourou and 402 kg per ha in Daloa (table 58, appendix 1; **Error! Not a valid bookmark self-reference.**).

Note that the cooperatives reported total yields (2017/2018) of 575 kg per ha (table 14, appendix 2), which is higher than the yields reported by farmers. This study cannot explain this difference in reported yields.

Figure 4. Cocoa productivity (season 2017-2018) per MOCA region

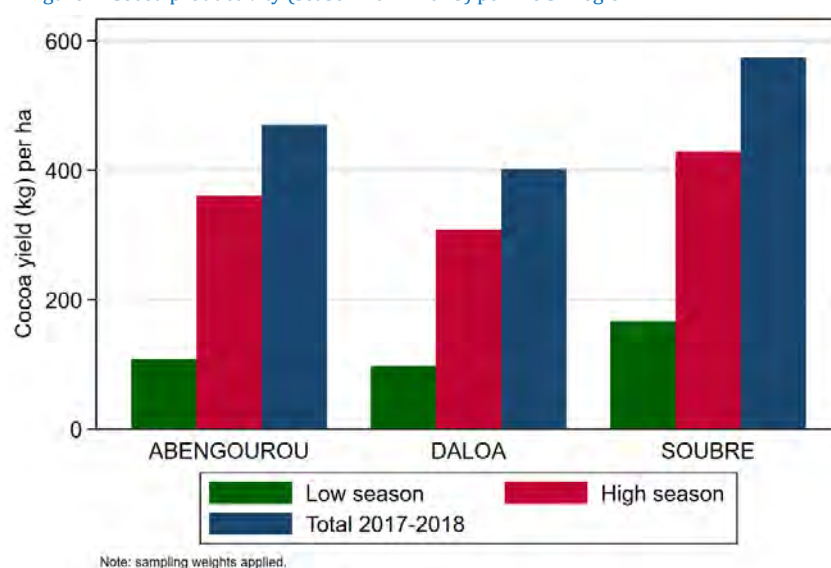


Table 6 disaggregates average cocoa yields by household characteristics. In Abengourou, male-headed households obtained significantly higher yields (487.5 kg per ha) than female-headed households (385.3 kg per ha); in the other two regions no significant differences were found, probably due to small number of female-headed households in the sample. In Abengourou, younger farmers also produce higher yields than older farmers, but this trend does not apply for the other regions. Statistical tests could not reveal any other associations between cocoa yields and other household characteristics.

Table 6. Average yield (kg per ha) over 2017-2018 by household characteristics

	Abengourou		Daloa		Soubré	
	Mean	N	Mean	N	Mean	N
Household head sex						
Female head	385.3	60	563.4	7	610.5	17
Male head	487.5	306	398.7	353	571.6	269
<i>Sig</i>	**		ns		ns	

	Abengourou		Daloa		Soubré	
	Mean	N	Mean	N	Mean	N
Household head age						
18-34	527.0	38	466.0	80	577.0	70
35-49	494.0	160	395.9	167	613.2	103
50+	433.7	168	363.7	113	541.9	110
Sig	*		ns		ns	
Household head work on cocoa farm						
Never	388.4	12	406.1	5	587.8	12
Full time	471.1	305	400.8	347	569.4	227
Occasionally	478.7	45	480.8	7	551.6	38
Only during harvest	484.8	4	80.0	1	765.6	9
Sig	ns		ns		ns	
Household largest income source is cocoa						
No	416.3	17	389.0	35	490.1	13
Yes	472.2	349	402.9	325	578.6	273
Sig	ns		ns		ns	
Years of experience in cocoa farming						
1 to 5	526.9	6	443.8	15	562.8	9
6 to 10	430.3	41	398.9	68	667.1	25
11 to 15	503.2	61	356.5	79	602.0	22
16 to 20	457.1	70	450.7	84	698.4	22
20 to 24	487.5	49	433.2	37	656.3	21
Over 25	465.5	139	368.7	77	537.6	187
Sig	ns		ns		ns	

Abengourou		Daloa		Soubré	
Mean	N	Mean	N	Mean	N

Note: there are 272 missing observations for productivity. Household head information is missing for 34 households; for those it is replaced by respondent information.

*Note: significance from an ANOVA test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively; ns means not significant*

Note that this baseline study reports higher yields than the reported means in Bymolt et al. (2018), of which the majority of respondents is not organized in a cooperative. Bymolt et al. (2018) reported for cocoa season 2015/2016 mean cocoa yields of 353 kg per ha. Table 7 summarizes the yield estimates of other studies in Côte d'Ivoire for comparison.

Table 7. Recent yield estimates for Côte d'Ivoire

Yield	Source
447 kg/ha	Tano (2012) ⁹
493 kg/ha	Ingram <i>et al.</i> (2013) ¹⁰
300-500 kg/ha	Ingram <i>et al.</i> (2014) ¹¹
500 kg/ha	Lambert <i>et al.</i> (2014) ¹²
500 kg/ha	Barry Callebaut (2014) ¹³
300-400 kg/ha	FLA (2015) ¹⁴

PRODUCTIVITY QUANTILES

In the remainder analysis, farmers are classified in four quartiles according to their overall productivity level (total cocoa yield in kg per ha) over the 2017-2018 campaign:

1. Quartile 1 comprises farmers whose productivity is lower than the 25th percentile of the productivity of their region – lowest 25 percent of farmers.

⁹ Tano, M.A. (2012). Crise cacaoyère et stratégies des producteurs de la sous-préfecture de Meadji au sud-ouest ivoirien (Doctoral dissertation, Université Toulouse le Mirail-Toulouse II).

¹⁰ Ingram V., Waarts Y., van Vugt S.M., Ge L., Wegner L., Puister-Jansen L. (2013). Towards sustainable cocoa: Assessment of Cargill and Solidaridad cocoa farmer support activities in Côte d'Ivoire 2008-2012. LEI, Wageningen UR.

¹¹ Ingram, V., Waarts, Y., Ge, L., van Vugt, S., Wegner, L., Puister-Jansen, L., Ruf, F., Tanoh, R. (2014). Impact of UTZ certification of cocoa in Ivory Coast; Assessment framework and baseline. Wageningen, LEI Wageningen UR, LEI Report 2014-010.

¹² Lambert, A., Gearhart, J. McGill, A. & Wrinkle, H. (2014). The Fairness Gap: Farmer incomes and root cause solutions to ending child labor in the cocoa industry. International Labour Rights Forum, Washington D.C.

¹³ Barry Callebaut (2014). Cocoa Sustainability Report 103/2014.

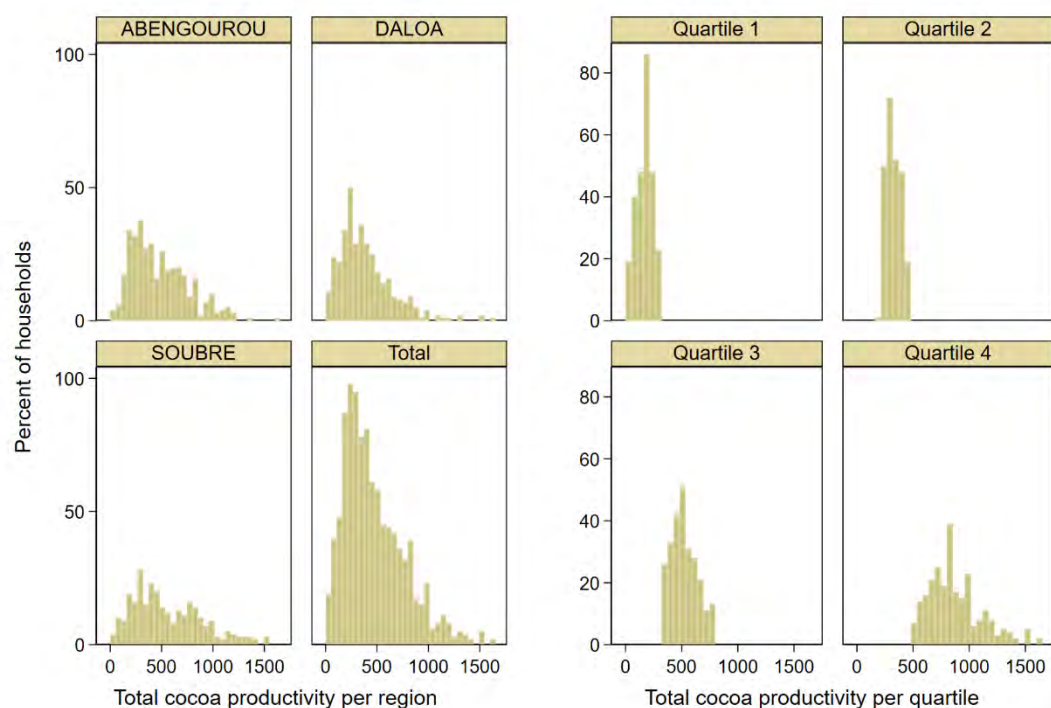
¹⁴ FLA (2015). Evaluer la situation actuelle des femmes et des jeunes agriculteurs et l'état nutritionnel de leurs familles dans deux communautés productrices de cacao en Côte d'Ivoire. Rapport prepare par Fair Labour Association, Juillet 2015.

2. Quartile 2 comprises farmers whose productivity is higher than the lowest 25th percentile but lower than the median of the productivity of their region – second lowest 25 percent of farmers.
3. Quartile 3 comprises farmers whose productivity is higher than the median but lower than the 75th percentile of the productivity of their region – second highest 25 percent of farmers.
4. Quartile 4 comprises farmers whose productivity is higher than the 75th percentile of the productivity of their region – highest 25 percent of farmers.

Dividing farmers into region-specific quartiles allows accounting for the specific distribution of each region. As can be seen in Figure 5 (left), in all three regions farmers produce mostly below 500 kg per ha. However, there are some differences in the regional distributions. For example, in Daloa, a larger share of sample values are clustered around the lowest productivity values. The median in this region (401.5 kg per ha) is significantly lower than in the other two regions (469.7 kg per ha in Abengourou and 574.0 kg per ha in Soubré). In Soubré, in the higher end of the distribution farmers are producing at a higher productivity than in Abengourou, as can be seen by the share of observations above 800 kg per ha. The 90th percentile (10 percent of observations with the highest values) in Soubré is 833.5 kg per ha whereas in Abengourou it is 754.2 kg per ha.

By dividing the sample into region-specific quartiles, we are able to explore whether differences in practices may explain these differences in yield.

Figure 5. Distribution of total cocoa productivity over 2017-2018 per region and per quartile



The average productivity is disaggregated by cocoa farm size in Figure 6 and

Table 8. The average productivity is significantly higher on smaller cocoa farms (less than 2 ha) than larger cocoa farms.

Figure 6. Productivity quartiles and size of cocoa farms

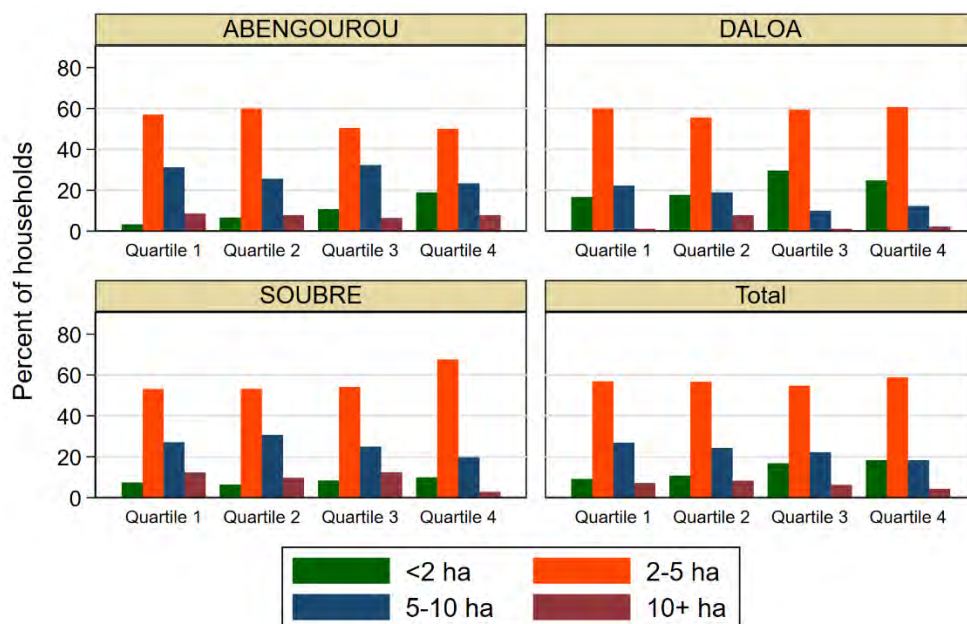


Table 8. Average productivity (kg per ha) by cocoa farm size

	Abengourou		Daloa		Soubré	
	Mean	N	Mean	N	Mean	N
Cocoa farm size						
Less than 2 Ha	630.6	36	7.4	80	634.1	23
2 to 5 Ha	458.4	199	7.2	212	625.9	163
5 to 10 Ha	441.4	103	4.7	57	504.7	73
More than 10 Ha	453.0	28	8.0	11	399.3	27
<i>Sig</i>	***		**		***	
Cocoa farm size in total cultivated land						
Less than 50% of cultivated land	588.1	39	5.9	96	538.8	28
50-75% of cultivated land	483.5	14	1.6	119	641.4	71
More than 75% of cultivated land	435.8	10	9.7	139	557.2	184
<i>Sig</i>	***		ns		ns	

Note: there are 272 missing observations for productivity. There are also 49 and 68 missing observations for cocoa land total cultivated land, respectively.

Note: significance from an ANOVA test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively; ns means not significant

USE OF INPUTS AND SERVICES (FFPR 1.2.1)

Regarding the use of inputs for cocoa, cocoa farmers were asked at baseline about application (yes/no), frequency, source, the conditions under which it was applied, and the average annual expenditure for the input or service. In the baseline we asked whether the input was: i) paid; ii) received for 'free'; iii) partly paid and partly received for 'free'. However, the notion 'for free' can be misleading, as it can be paid actually by the premium (which otherwise might be paid to the farmers directly). Unfortunately, the baseline questionnaire did not capture this distinction.

Herbicides

- A minority of farmers use herbicides: 16% of MOCA farmers vs 25% of control farmers. Bymolt et al (2018) reported that 32% of the cocoa households applied herbicides.
- 2017/2018 expenditure on herbicides: MOCA farmers (37,445 FCFA per year) vs control farmers (24,350 FCFA per year)

Insecticides

- A majority of farmers (88%) apply insecticides (similar findings for treatment and control group, and in each region). In Bymolt et al. (2018), 75% of the Ivorian cocoa households reported to apply insecticides.
- The majority of farmers (62%) receive 'free' insecticides (table 99, appendix 1); MOCA farmers (64%) more often than control farmers (52%). These 'free' insecticides are mostly obtained through the cooperatives (88% of cases) and/or the Conseil du Café-Cacao (CCC) (23%) (table 100, appendix 1).
- The majority (71%) of the farmers also purchase insecticides themselves (table 102, appendix 1). A significantly larger proportion of farmers in Soubré (87%) purchases insecticides than in Abengourou (63%) and Daloa (55%). For farmers who purchase insecticides, the average annual

expenditure (2017/2018) on insecticides is 29,623 FCFA (table 103, appendix 1). In Daloa, however, farmers spent significantly less (23,567 FCFA) on insecticides than farmers in Abengourou and Soubré (31,794 FCFA and 31,407 FCFA respectively).

- The majority of farmers (62%) reported that the insecticides are applied by the cooperative (as service provider), though some use private service providers (13%) (table 111, appendix 1). The average annual expenditure for this service was 1,789 FCFA.

Fungicides

- About a quarter of the farmers (23%) use fungicides. This percentage is higher than what the 15% reported in Bymolt et al. (2018). The majority (69%) of those applying fungicides reported that they received the fungicides for 'free', mostly from (and applied by) the cooperative.

Fertilizers

- Less than half (45%) of the farmers use granular fertilizer; its use is most common in Soubré (61%) and least common in Daloa (26%). In Bymolt et al (2018) the reported use of granular fertilizer was much lower, only 16%.
- The FGD confirms the lower use of granular fertilizer in Daloa. According to FGD participants the affordability of fertilizer is poor. In some cases, farmers said they saw no need for fertilizer (when trees are considered too old).
- Expenditure on granular fertilizer is significantly higher in Soubré (176,422 FCFA) than in Daloa (104,981 FCFA).
- Few farmers use liquid fertilizer (8%) or compost (9%) on cocoa. Bymolt et al (2018) also report low percentages; only 6% reported the use of liquid fertilizer and 4% for compost.
- The FGD-data suggests that, comparing with 5 years ago, for the majority of farmers access to fertilizer has improved. The improved access to fertiliser is attributed to cooperatives that provide fertiliser on credit, and training on how to make compost.

The FGD-data suggests that in the majority of cases, farmers' access to insecticides improved over time. The CCC and the cooperatives are the main providers of inputs (often for 'free' or on credit), but, according to the FGD participants, these providers do not hand-out inputs in sufficient quantities; additional inputs can be bought by farmers on the market.

When farmers indicated that they obtained the input 'for free', it was mostly provided by the cooperative or the CCC, and it is likely that the costs were discounted in the price or premium that the farmers received for their cocoa. In cases where farmers 'paid' for the input, they purchased the input from an input supplier or the cooperative with cash or obtained it on credit. In these cases, their expenditures on agro-chemical inputs could be estimated.

Table 9 provides an overview of number of farmers applying different agro-chemical inputs and the type of access (paid vs 'free'). The following can be observed:

- There are regional differences in how farmers access insecticides. In Abengourou, only 21% of farmers purchased insecticides, whereas in Daloa and Soubré, this share is 40% and 48% respectively. In Soubré, only 12% of farmers used 'free' insecticides only compared to 35% of farmers in Abengourou and 45% in Daloa.
- Herbicides are applied by a minority of farmers, but when this is the case it is mostly purchased (90%) by farmers.
- Fungicides are mostly accessed when 'for free'; 83% of farmers in Abengourou, compared to 63% of farmers in Daloa and 35% of farmers in Soubré. About half (51%) of Soubré farmers purchased fungicide themselves, compared to 32% of Daloa farmers and 8% of Abengourou farmers.
- Granular fertiliser is also in the large majority purchased (87%, 77%, 85% of farmers in Abengourou, Daloa and Soubré, respectively). Similar for liquid fertiliser.

Overall, farmers in Soubré thus seem to be more likely to purchase agro-chemical inputs themselves compared to the other two regions where farmers tend to access inputs if provided 'for free' by cooperatives or the CCC. Fungicide is mostly reported to be used in Abengourou, where it is also mostly provided 'for free'.

Table 9. Overview of use and access of agro-chemical inputs

	Abengourou (N=428)	Daloa (N=447)	Soubré (N=425)
Farmers using insecticides (n)	382	385	376
insecticide partly paid and partly for free	43%	15%	39%
insecticide only received for free	35%	45%	12%
insecticide only paid	21%	40%	48%
Farmers using herbicides (n)	64	73	91
herbicide partly paid and partly for free	5%	3%	7%
herbicide only received for free	2%	7%	3%
herbicide only paid	94%	90%	89%
Farmers using fungicides (n)	156	81	75
fungicide partly paid and partly for free	8%	2%	15%
fungicide only received for free	83%	63%	35%
fungicide only paid	8%	32%	51%
Farmers using granular fertilizers (n)	153	111	258
granular fertilizer partly paid and partly for free	1%	5%	3%
granular fertilizer only received for free	10%	18%	9%

granular fertilizer only paid	87%	77%	85%
Farmers using liquid fertilizers (n)	26	11	47
liquid fertilizer partly paid and partly for free	0%	0%	0%
liquid fertilizer only received for free	12%	6%	2%
liquid fertilizer only paid	88%	94%	96%

The use of inputs has a positive effect on the productivity except for herbicides (Table 10); although these effects are less obvious at regional level, there are significant differences in productivity between farmers who apply inputs and those who do not.

Table 10. Average productivity (kg per ha) by input use

	Yes	No	Sig
Herbicides	463.9 (N=178)	493.0 (N=834)	
Insecticides	499.5 (N=909)	384.4 (N=103)	***
Fungicides	527.8 (N=268)	474.7 (N=744)	**
Granular fertilizers	533.5 (N=404)	452.4 (N=608)	***
Liquid fertilizers	577.2 (N=69)	480.8 (N=943)	***

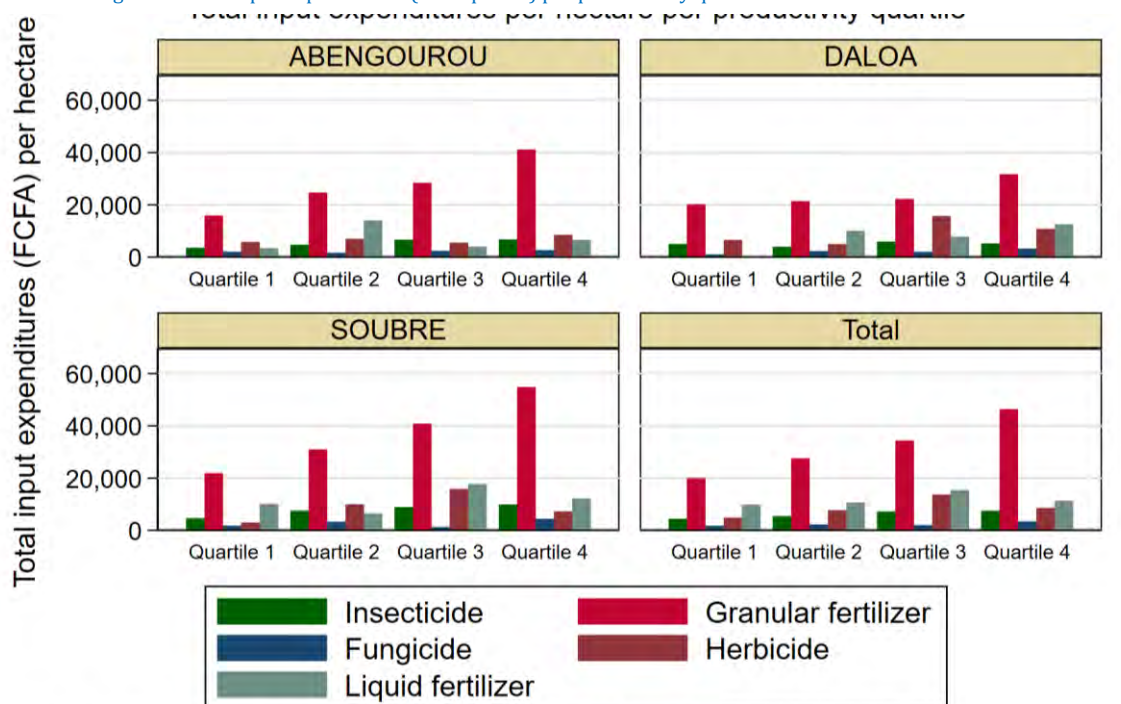
*Note: significance from an ANOVA test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively; sampling weights applied*

Total expenditures per hectare (shown in

Figure 7) comprise product purchase cost and labour cost for application.¹⁵ Insecticide is the most frequently used type of input, but expenditures do not vary much across productivity quartiles. Total costs for applying granular fertilizer are the most relevant correlation with productivity (as granular fertilizer is mostly purchased, and not offered for 'free'): they increase significantly with each productivity quartile, especially in Soubré and Abengourou. Fungicide costs are very low, but nevertheless higher for the highest productivity quartiles in Daloa and Soubré. Herbicide costs per hectare are highest in Daloa, and increase with productivity quartile for the first three quartiles in Daloa and Soubré. Liquid fertilizer expenditures are positively correlated with productivity in Soubré, but less in the other two regions, although in Daloa the lowest productivity quartile spent nothing on liquid fertilizer in 2017-2018.

¹⁵ Non-missing observations: 194 out of 227 that report applying herbicide; 844 out of 1,138 that report applying insecticide; 224 out of 308 that report applying fungicide; 445 out of 514 that report applying granular fertilizer; and 77 out of 88 that report applying liquid fertilizer

Figure 7. Total input expenditures (FCFA per ha) per productivity quartile



Note: sampling weights applied. Total expenditures comprise product purchase and application (labour) costs. Input gifts are given a purchase cost of zero; input application using household labour, labour exchange groups or permanent farm workers is given a labour cost of zero.

POST-HARVEST PRACTICES AND INFRASTRUCTURE FOR POST-HARVEST PROCESSING (FFPR 1.2.2)

Cocoa harvesting takes place in the main season (October – December/January) and the light season (April – May/June). In Soubré, 28% of the farmers harvest throughout the year (see table 216, appendix 1), which is a significantly larger proportion of farmers than in Abengourou (4%) and Daloa (1%). On average, harvesting is done 6.4 times a year (table 215, appendix 1), but significantly more frequently (7.7 times per year) in Soubré than in Abengourou and Daloa (5.2 and 5.5 respectively). Harvesting is mostly done by male household members (89% of cases), but also by farm workers (especially in Abengourou: 62%) and labour exchange groups (21%) (table 218, appendix 1). Very few farmers actually hire casual labourers (2%) or service providers (1%) for the harvesting of cocoa.

Pod breaking happens, on average, 2.7 days after the harvest (table 223, appendix 1). In Abengourou, farmers wait on average one day longer (3.5 days) than in the other two regions (2.5 days). A third (32%) of the farmers indicated that the waiting period depended on the availability of workers. Pod breaking is mostly done by male household member and labour exchange groups, and to a lesser extent farmer workers. Very few farmers (1%) hire casual labourers for pod breaking (table 225, appendix 1). Bymolt et al. (2018) confirm that pod breaking is primarily done by household labour and communal labour (i.e. labour exchange groups); 91% of the respondents using households for pod breaking and 80% using communal labour.

Post-harvest practices (fermentation and drying) determine the quality of the cocoa. Inadequate practices can result in a loss of cocoa sales, and with that cocoa income.

Inadequate storage can also lead to losses. Fresh cocoa beans are usually fermented between 5-7 days and dried immediately after fermentation.¹⁶

The majority of the farmers (93%) ferment the cocoa beans. Fermentation period varies between regions; 39% of farmers in Soubré indicated that they fermented cocoa beans for less than 6 days, compared to 52% in Abengourou and 58% in Daloa. The other farmers ferment the beans for 6-7 days; only 1% of farmers (0% in Abengourou, 1% in Daloa and 2% in Soubré) ferment beans between 7-10 days (table, appendix 1). Banana leaves are the most commonly used material for the fermentation process.

The majority of the farmers (93%) dry the cocoa beans. The average drying period is 6 days. In Abengourou, the drying is mostly done on racks or scaffolding (78% of farmers), but in Daloa and Soubré the majority of farmers (77% and 85% respectively) dry the cocoa on plastic sheets in the sun (table 236, appendix 1).

Half of the farmers (51%) reported that they store the dried beans at the cooperative but there are significant regional differences: 61% of farmers in Soubré store their cocoa at the cooperative, compared to 47% and 40% in Abengourou and Daloa respectively (table 236, appendix 1). Alternatively, farmers store the beans in their own house but only few farmers (15%) have a separate storage room. In Daloa and Soubré, the dried cocoa is mostly stored in jute bags (82% and 92% of farmers respectively) or alternatively in polyester bags. In Abengourou, however, 49% of the farmers store the cocoa in jute bags, 40% use polyester bags, and 11% use 'other' materials (table 237, appendix 1). In Soubré, 17% of the farmers reported storage losses, compared to only 2% and 1% in Abengourou and Daloa respectively. In most cases, this was categorized as 'a slight loss'.

During some FGDs (6 out of 22), farmers reported that sometimes smaller beans receive a lower price or are rejected by the cooperative (during the light season only), and that farmers need to search for another buyer, for example pisteurs/processors who process the beans within the country. No problems were reported related to quality production in the main season, only in the light season.

FINANCIAL SERVICES (FFPR 1.2.3)

Only 1% of the farmers reported that they received financial support from a bank (table 253, appendix 1). Support from microfinance institutions for the cocoa farm is equally rare (table 255, appendix 1).

Only 6% of the farmers reported that their household owns a current bank account (table 269, appendix 1) and 8% that their household has a savings account (table 270, appendix 1). However, 62% of the households have a mobile money account; in Daloa this is the case for 44% of the households compared to 65% and 73% in Abengourou and Soubré respectively (table 272, appendix 1). Individual ownership of these various types of accounts seems to be slightly higher than household ownership (table 273, appendix 1). Cocoa farmers in Abengourou are most likely to have a bank or

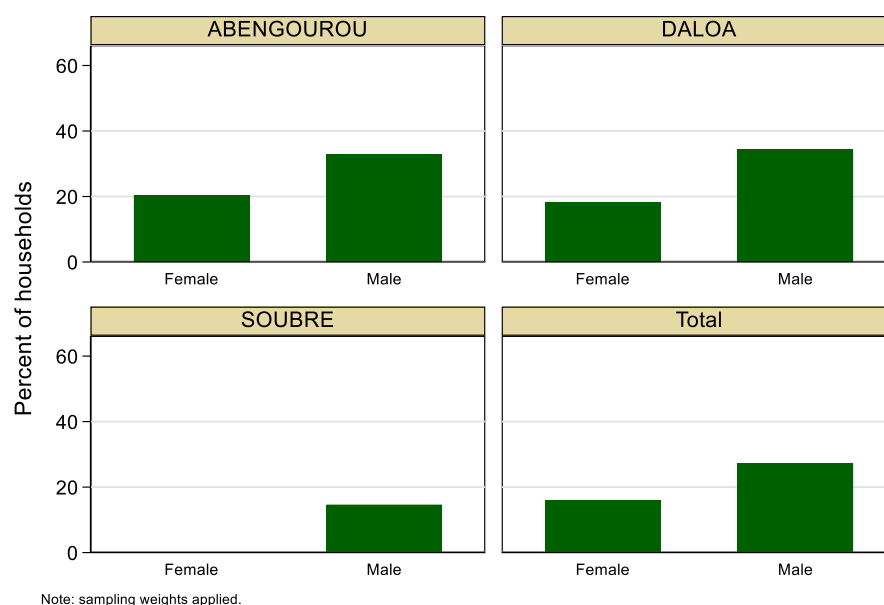
¹⁶ Guehi, T.S., Zahoulo, I.B., Ban-Koffi, L., Fae, M.A., Nemlin, J.G. (2010) Performance of different drying methods and their effects on the chemical quality attributes of raw cocoa material. International Journal of Food Science and Technology 2010, 45. 1564-1571.

microfinance account, while this is least likely in Daloa. Saving groups seem to be more popular: 17% of the cocoa farmers indicated to be a member of a VSLA, and 18% of a ROSCA (table 274, appendix 1).

A minority (23%) of farmers reported that had a debt or loan in the past three years; this is more common in Abengourou and Daloa (30% and 33% respectively) than in Soubré (13%) (table 275, appendix 1). Debts are mostly with friends or family, or the cooperative (the latter especially in Abengourou) (table 276, appendix 1). Debts or loans with a financial institution is rare. Note that female-headed households are less likely to have taken out a loan in the past three years than male-headed households ($p=0.012$) (

Figure 8).

Figure 8. Loan in past three years per household head sex



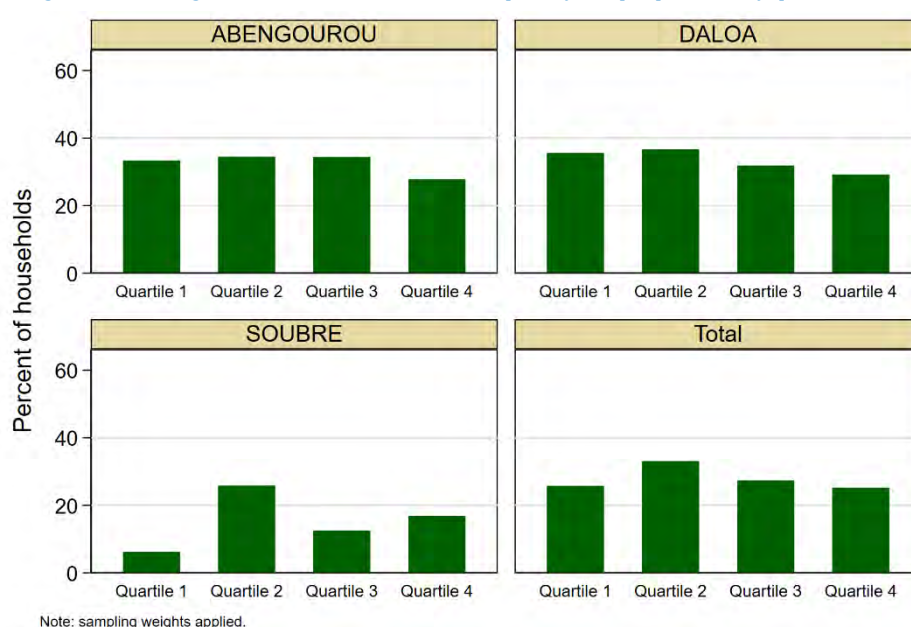
The average maximum loan amount was 191,790 FCFA, with farmers in Daloa reporting significantly lower amounts (116,599 FCFA) than in the other two regions (246,216 FCFA in Abengourou and 266,591 FCFA in Soubré) (table 277, appendix 1). Only 22% of farmers reported they had successfully repaid the loan, whereas 54% had not. The crop harvest is the most commonly used collateral, but in most cases, there was no collateral at all. Loans are mostly used to pay for school fees or health expenses.

Very few farmers (5%) have an insurance, either for a vehicle, a life insurance or a health insurance.

No correlations could be found between the use of loans and cocoa productivity (Figure 9). No correlations were found between the source of loan and productivity, or the size of the loan and productivity (data not shown).

The FGD-data confirm that the use of loans is mainly for payment of tuition fees/educational costs, health/emergency costs, and inputs (input on credit). The cooperative was considered an important channel to access small loans, but the cooperative often lack sufficient funds. It is common practice cooperative members pay the cooperative back in cocoa, in exchange for small loans. Family, friends, individual money lenders, saving groups, and to a lesser extent cooperative delegates, banks and pisteurs were mentioned as other channels through which farmers can access small loans. Buyers of cocoa (cooperatives and pisteurs) and friends/relatives normally do not charge interest (although in some cases friends/relatives charge 100% interest). Private moneylenders normally charge 100% interest. Individual lenders can ask the farm as guarantee for the loan. Although this is put forward as ‘a last resort’ option, in around one third of the FGDs it came up.

Figure 9. Percentage of households taken out loan in past 3 years per productivity quartile



Farmers reported that it is more difficult accessing a loan outside the main cocoa season, this while farmers are most in need of financial support when the schools start, which is just before the main season. High interest rates and ‘farm as guarantee’ are seen as unfavorable strategies, keeping the farmers poor. FGD-data indicates that repayment of loans was considered challenging by the farmers.

GOOD AGRICULTURAL PRACTICES (GAP) IN COCOA (FFPR 1.2.4)

Cocoa trees

The most common cocoa variety is Amazonia (reported by 61% of farmers) in particular in Soubré (72%). About half (46%) of the farmers also grow (local) unselected varieties that they cannot identify; a significantly larger proportion of MOCA farmers (49%) reported they grow unselected varieties than control farmers (33%).

The reported average age of cocoa trees is 23.4 years; the average age of the trees is significantly higher (29.4 years) in Soubré than in Abengourou and Dalao (19.6 and

17.4 years respectively). Bymolt et al. (2018) reported a mean age of 16.2 years for cocoa trees. The difference between the baseline and Bymolt et al. (2018) can be explained by the way the question was phrased, the latter asking for 'most cocoa trees.

Most farmers (78%) apply intercropping of cocoa with other crops/trees, for younger trees (91%). The majority of the farmers plant plantain as intercrop, in particular in Abengourou (86% compared to 53% and 50% in Daloa and Soubré respectively). Alternative crops regularly used for intercropping established cocoa are avocado (7%), coffee (10%), cassava (10%), and orange (9%) (see table 47 in Appendix 1 for more detail). The majority of the farmers (80%) have shade trees on the cocoa farms. Common varieties are: Kapok tree, Frake and Iroko. Bymolt et al. (2018) confirm that crop diversification is common practice, both as shade trees for the young cocoa and/or to provide an additional income more regularly.

Agronomic practices

The baseline data show that the vast majority of farmers practise good agricultural practices such as weeding (97%; table 180, appendix 1), removal of suckers or 'égourmandage' (96%; table 185, appendix 1), removal of mistletoe (93%; table 190, appendix 1) and pruning (85%; table 195, appendix 1), though often at irregular times ('when we see it is necessary'). In Bymolt et al. (2018) only 40% reported pruning as an activity. The proportion of MOCA farmers applying these practices are significantly lower for removal of suckers (96%), mistletoe (92%) and pruning (84%) compared to the control farmers (98%, 97%, and 90% respectively). There are also significant regional differences in the application of agronomic practices at cocoa farms (see Table 11).

Table 11. Application of agronomic practices in cocoa

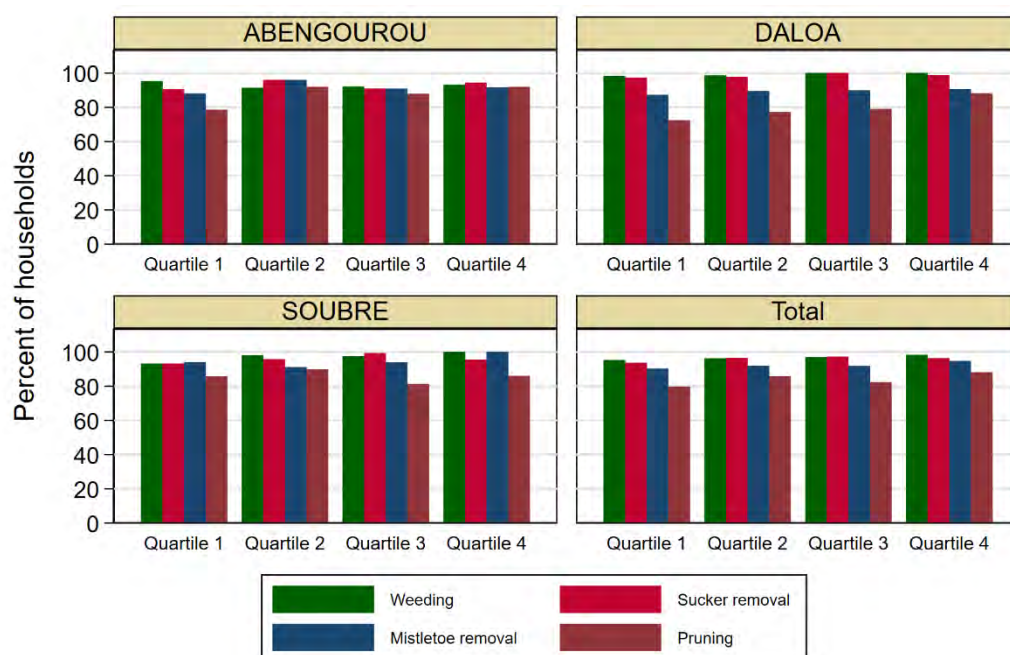
Agronomic practice	All	MOCA	control	sig	Abengourou	Daloa	Soubré	sig
Weeding of cocoa farm (2017-2018) (y/n)	97%	96%	98%		94%	99%	97%	***
Removal of suckers on cocoa farm (2017-2018) (y/n)	96%	96%	98%	***	93%	98%	96%	***
Mistletoe removal of cocoa farm (2017-2018) (y/n)	93%	92%	97%	***	91%	90%	96%	***
Pruning of cocoa farm (2017-2018) (y/n)	85%	84%	90%	***	86%	78%	89%	***

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

There seems to be no significant association between the agronomic practices (whether the farmer applied the practice or not) and the productivity quartiles (

Figure 10). Note that it was not considered whether the practice is executed in the correct way – the way in which farmers do the pruning or weeding can affect productivity.

Figure 10. Agronomic practices per productivity quartile



Note: sampling weights applied.

Cocoa household labour

Most agronomic practices on the cocoa farms are done by (male) household members, but also by permanent farm workers although this is more common in Abengourou than in the other two regions (Table 12). Labour exchange groups are most common in Daloa. Casual labourers are rarely hired, except for weeding.

Table 12. Agents of agronomic practices by region

	All	Abengourou	Daloa	Soubré	sig
Weeding					
Household members ≥ 15 years	80%	58%	86%	88%	***
Labour exchange group	15%	5%	28%	10%	***
Permanent farm workers	30%	62%	9%	29%	***
Casual labourers	9%	9%	12%	7%	*
Removal of suckers					
Household members ≥ 15 years	88%	69%	97%	91%	***
Labour exchange group	7%	2%	12%	5%	***
Permanent farm workers	28%	58%	8%	26%	***
Casual labourers	1%	2%	1%	1%	
Removal of mistletoe					
Household members ≥ 15 years	87%	69%	98%	90%	***
Labour exchange group	6%	2%	11%	4%	***
Permanent farm workers	30%	60%	8%	28%	***
Casual labourers	1%	0%	2%	1%	
Pruning					
Household members ≥ 15 years	87%	68%	98%	91%	***
Labour exchange group	5%	1%	12%	3%	***
Permanent farm workers	29%	59%	7%	28%	***
Casual labourers	1%	1%	2%	1%	
Harvesting					
Household members ≥ 15 years	89%	72%	98%	92%	***
Labour exchange group	21%	27%	25%	16%	***
Permanent farm workers	31%	62%	8%	30%	***

	All	Abengourou	Daloa	Soubré	sig
Casual labourers	2%	2%	2%	2%	

*Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively*

Pests and diseases

During the FGDs, farmers reported that the yields have been decreasing over the past five years, this despite the improved access to inputs, such as pesticides and fungicides. This decrease is mainly attributed to an increase in diseases, such as Cocoa Swollen Shoot Virus Disease (CSSVD) and black pod disease.

The majority of farmers (67%) indicated they had lost cocoa in the last season due to pests and diseases, though a significantly smaller percentage of farmers (49%) in Abengourou than in Daloa and Soubré (73% and 72% respectively). Most common pests and diseases are: black pod, CSSVD, mistletoe, mirids, stem borer, rodents and black ants (Table 13).

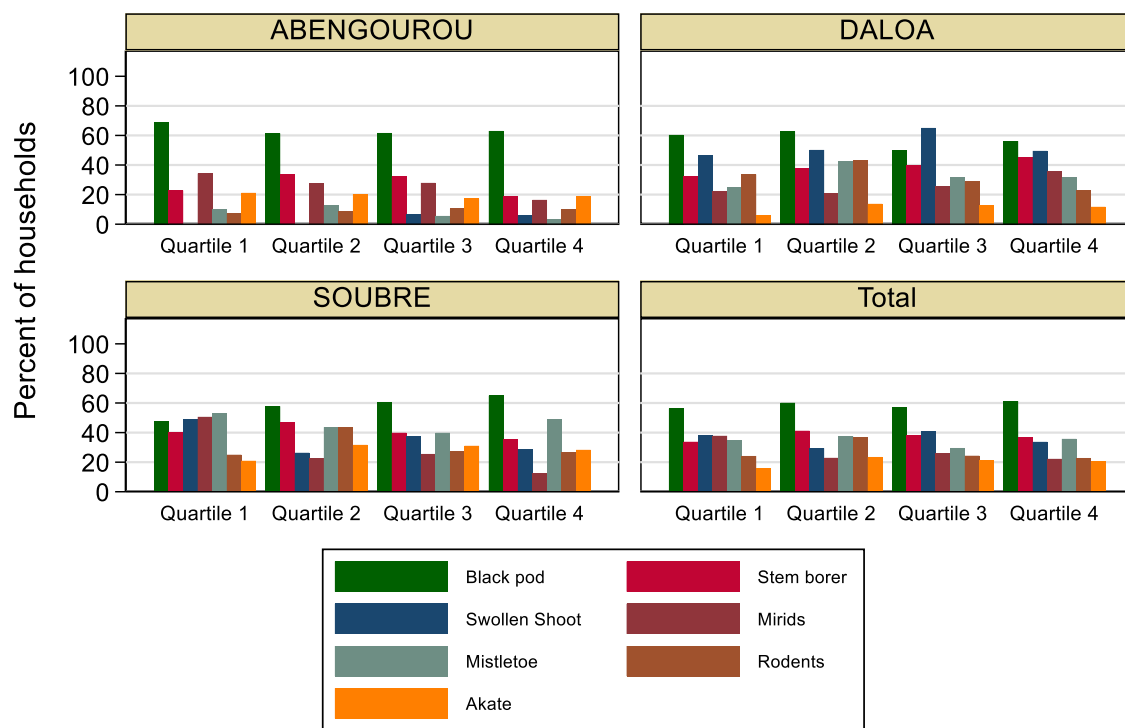
There are regional differences in the type of pests and diseases that affect cocoa productivity: farmers reported less disease prevalence (or at least that creates production losses), except for black pod, in Abengourou compared to the other two regions. In Soubré there is significantly more CSSVD among farmers with the lowest productivity quartile compared to other quartiles. In Daloa, CSSVD affects all quartiles equally (Figure 11). In Daloa, 48% of the farmers reported that the most severe pest or disease (CSSVD) resulted in significant losses, compared to 37% of farmers in Soubré (CSSVD and black pod) and 24% of farmers in Abengourou (black pod) reporting the same losses (table 204, appendix 1). In Daloa, the prevalence of pests and diseases thus seems most severe, and the least in Abengourou. A larger proportion of farmers in the lowest productivity quartile rate the crop losses due to diseases as 'significant' than in the higher productivity quartiles, especially in Daloa (Figure 12). Note that a smaller proportion (37%) of MOCA farmers reported a 'significant loss' due to diseases than the control group (45%) (see table 204, appendix 1).

Table 13. Types of pests and diseases affecting cocoa (2017-2018), by region

	All	MOCA	control	sig	Abengourou	Daloa	Soubré	sig
Diseases/pests (y/n)	67%	66%	70%		49%	73%	72%	***
... if yes: black pod	58%	59%	52%	*	68%	55%	57%	***
... if yes: root rot	8%	8%	10%		12%	11%	5%	***
... if yes: CSSVD	36%	36%	33%		3%	51%	36%	***
... if yes: mistletoe	31%	32%	27%		7%	29%	41%	***
... if yes: akate	19%	18%	24%		17%	10%	26%	***
... if yes: mirids	26%	23%	41%	***	24%	25%	27%	
... if yes: black ants	19%	20%	11%	***	10%	19%	22%	***
... if yes: termites	17%	18%	13%	**	15%	14%	21%	
... if yes: rodents	25%	26%	19%	**	10%	30%	27%	***
... if yes: stem borer	36%	34%	49%	***	26%	37%	39%	***
... if yes: green moss	8%	9%	4%	**	12%	7%	7%	

*Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively*

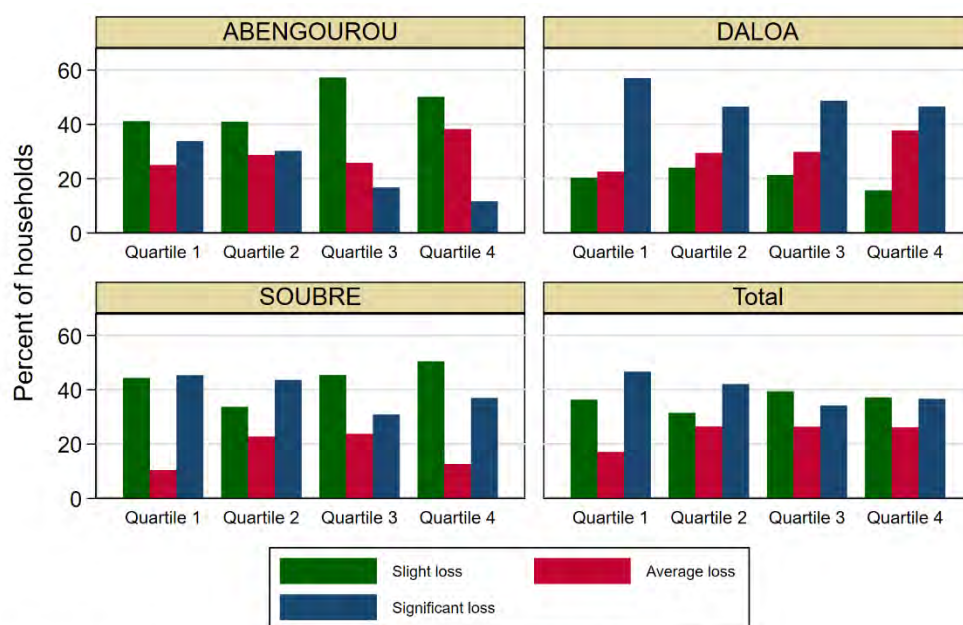
Figure 11. Most important pests and diseases by productivity quartile and region



Note: sampling weights applied.

During the FGDs, farmers reported that cocoa yields have been decreasing over the past five years; this despite the improved access to inputs, such as pesticides and fungicides. This decrease is mainly attributed to an increase in diseases, such as the CSSVD and black pod disease. Farmers also noted an increase in pests such as stemborers, mirids, black ants, mainly due to a loss of forests. Other reasons for an increase in pests, according to FGD participants are: aging plantations, climate change, and inefficient or insufficient spraying. The increase of black pod is attributed to intensive rainfall. The FGD-data confirm regional differences for the occurrence of diseases: CSSVD is perceived to be a major problem in Daloa and Soubré (west), while black pod causes severe losses mainly in Abengourou (east). In relation to CSSVD, farmers suggested that there is a lack of seedlings for rehabilitation of the farms, after the trees are uprooted.

Figure 12. Effects of most important disease per productivity quartile



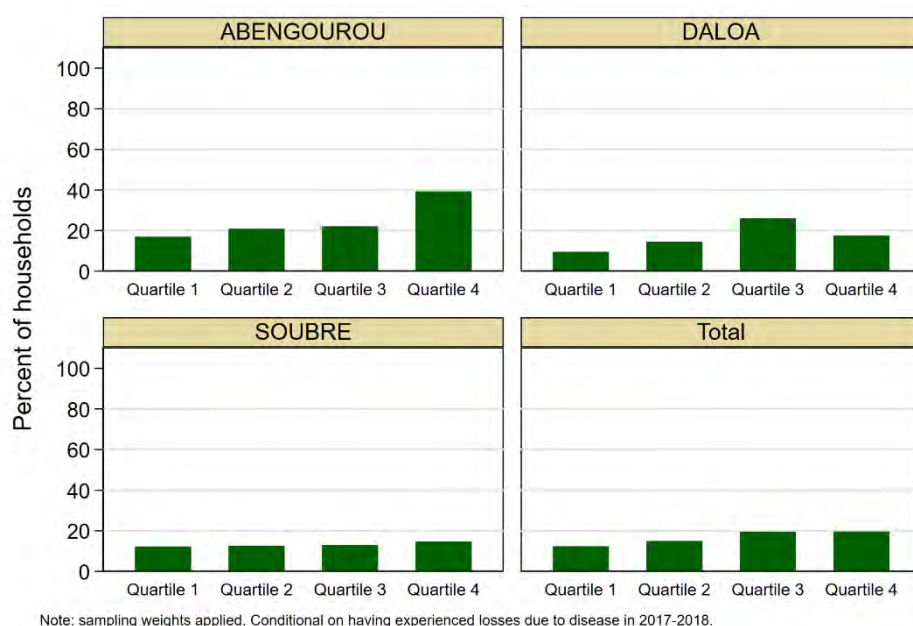
Note: sampling weights applied. Conditional on having experienced losses due to disease in 2017-2018.

To control diseases, 24% of farmers in Daloa and 32% in Soubré remove infected plants, compared to only 6% in Abengourou (table 205, appendix 1), which can be explained by the fact that there is a low prevalence of CSSVD in Abengourou. In Daloa, 42% of the farmers take no action against pests and diseases, in comparison to 27% and 17% in Abengourou and Soubré respectively. The lack of appropriate action could explain the high prevalence of pests and diseases in Daloa.

Only a minority (15%) of the farmers reported that they received support to address the most severe cocoa diseases; in Abengourou this percentage was significantly higher at 24%, compared to 16% and 12% in Daloa and Soubré respectively. The cooperative is the main source of support (followed by ANADER, in particular in Soubré) for farmers to deal with pests and diseases (table 207, appendix 1), but improvements in this service can still be made according to the satisfaction levels of the farmers (table 208, appendix 1). In particular in Abengourou, 68% of the farmers rated the support for disease management as insufficient compared to 34% in Daloa and 22% in Soubré. In Soubré, on the other hand, 52% of the farmers rated the support as satisfactory compared to 27% in both Abengourou and Daloa.

There was no significant correlation between the level (slight, average or significant) of reported losses due to the most severe disease and whether the farmer received support or not. However, these are subjective variables. Correlating support (yes or no) with the productivity quartiles seems to suggest that a larger proportion of farmers in the highest productivity quartile received support to treat the most severe diseases than farmers in the lower productivity quartiles (Figure 13).

Figure 13. Percentage of cocoa households receiving support for most severe diseases per productivity quartile



LAND & WATER RESOURCES (FFPR 1.1)

Nearly a third (29%) of household's report that they own unexploited land (of those, on average 2.3 ha fallow, 0.3 ha forest and 1.0 ha 'basfonds'). The size of unexploited land is the largest in Abengourou, and the smallest in Soubré (table 24, appendix 1).

Cocoa farmers mostly acquired land for cocoa production through inheritance or purchase (in particular in Daloa). A quarter (23%) of the respondents indicated that they had also cleared land themselves to grow cocoa (table 29, appendix 1); this was more commonly reported in Soubré (42%) than in Abengourou and Daloa (15% and 3% respectively). This suggests that cocoa farmers in Soubré mostly acquired land for cocoa production through clearing forest. This is however not necessarily a current practice, as the average age of the cocoa trees in Soubré is 29,4 years, significantly older than trees in Abengourou and Daloa, aged 19,6 and 17,4 years on average, respectively (table 34, appendix 1). Further, 21, 13 and 15% of farmers report having increased the amount of land under cocoa in the past five years in Abengourou, Daloa and Soubré, respectively (table 36, appendix 1). Around 15% of farmers who did increase their land did so by clearing forest, significantly more in control cooperatives, 29%, compared to 11% of farmers in MOCA cooperatives. In Abengourou and Daloa. The most common way to acquire additional land for cocoa in the past five years was through bush clearing (55% and 61%, respectively), whereas in Soubré, the majority of farmers (38%) who expanded their cocoa farms did so by purchasing land (table 37, appendix 1).

Bymolt et al. (2018) reported that, on average, cocoa households had 2.45 ha of unexploited (fallow) land. They also reported that 35% of the households had increased the amount of land under cocoa in the past five years; 66% of the respondents who increased their land under cocoa did so not by converting land under other crops, but by clearing bush or a natural area.

FARM MANAGEMENT: FARMER KNOWLEDGE ON FINANCE AND BUSINESS (FFPR 1.3)

A small majority (60%) of cocoa farmers keep records on their cocoa production; the percentage of MOCA farmers (61%) keeping records is significantly higher than control farmers (54%). In Daloa, only a minority of farmers (36%) keep records on cocoa production, compared to 62% in Abengourou and 76% in Soubré. Record keeping is predominantly on the volumes of cocoa produced, sold and prices received. A minority of cocoa farmers also keep records of expenditures on inputs (27% of farmers) and labour (13%) (table 71, appendix 1).

There is no clear correlation between record keeping and productivity (Figure 14), or the type of record keeping and productivity levels (Figure 15). There is no correlation between record keeping and input use either (Figure 16).

Figure 14. Record keeping per productivity quartile, by region

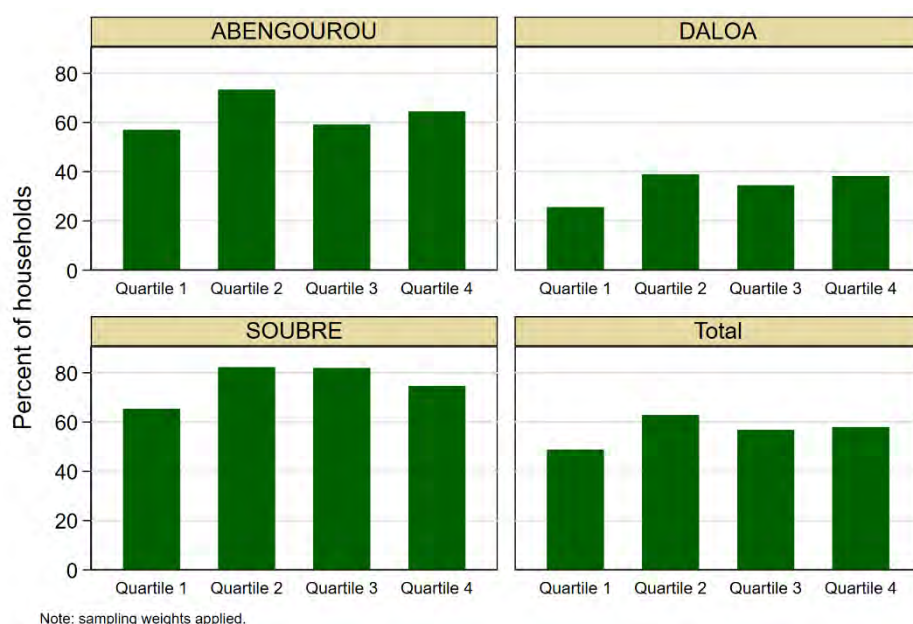
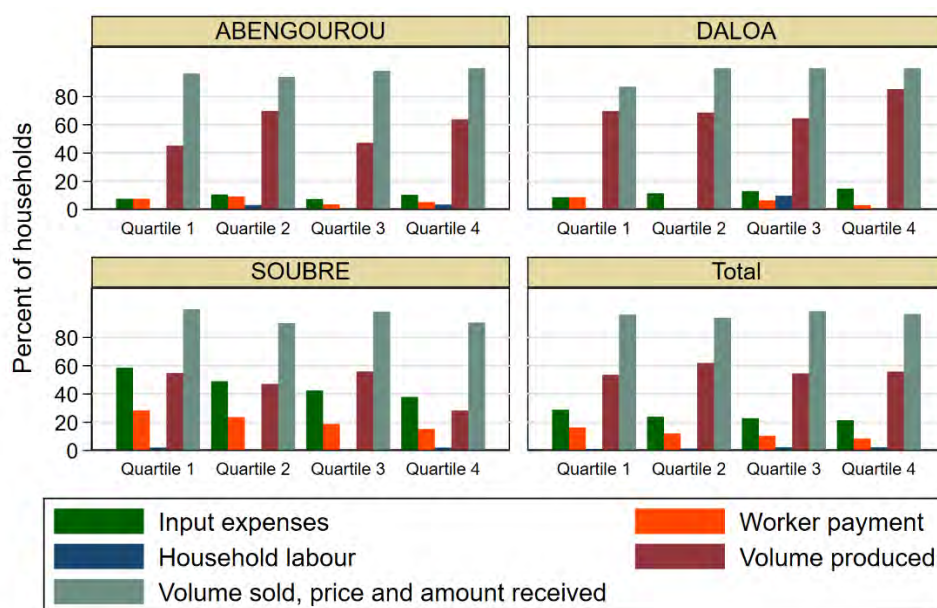
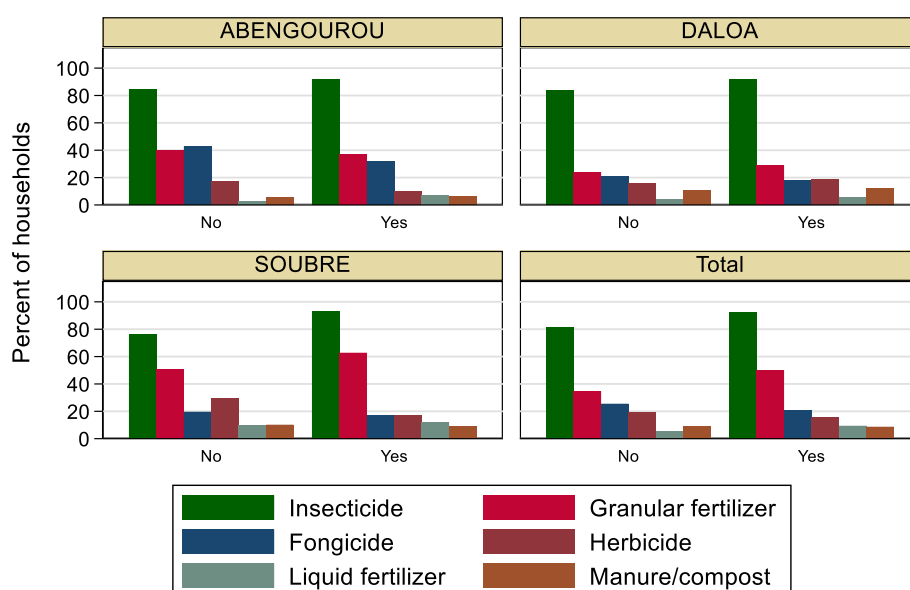


Figure 15. Type of record keeping per productivity quartile



Note: sampling weights applied. Conditional on keeping records.

Figure 16. Input use per record keeping status



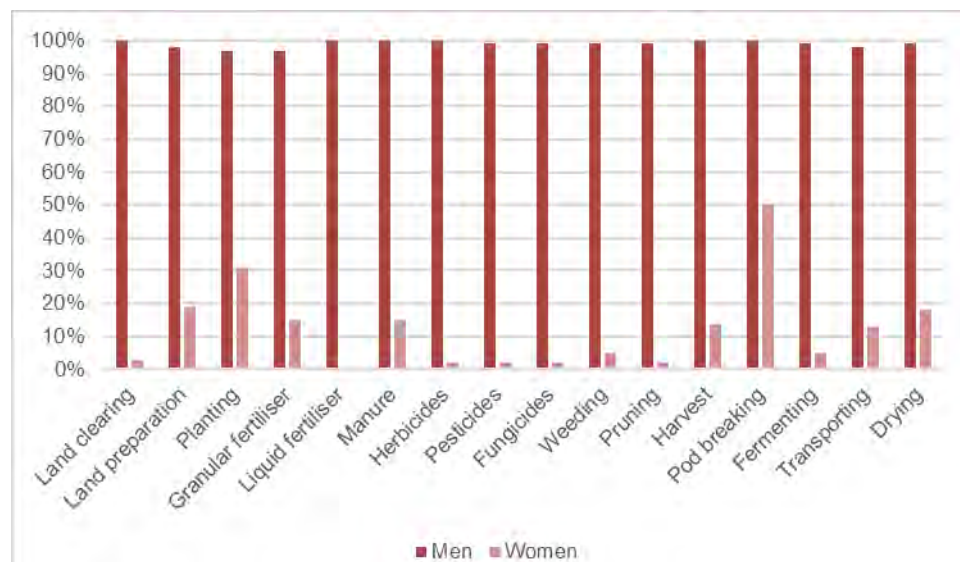
Note: sampling weights applied.

Gender division of tasks

From Bymolt et al. (2018), with 34% female respondents, we know that in Côte d'Ivoire, men were reported to have very high participation rates (97-100%) for virtually all cocoa production activities (Figure 17). Women engage in cocoa production activities much less, particularly according male heads of household. In Côte d'Ivoire, the main activity where women tend to be involved in is pod breaking (50% of all respondents reported women do pod breaking), and planting (31%) and land preparation (19%). Comparing the perception of male-head of households with female-head of households on involvement of women and men in cocoa production

activities, female-headed households report higher involvement of women in a number of activities, such as land preparation (36%), planting (76%), pruning (20%), fermentation (26%) and drying (35%).¹⁷

Figure 17. Division of tasks in cocoa farming among men and women



INSTITUTIONAL SUPPORT (FFPR 1.4)

Training

Most farmers (71%) received training in the past three years. Among these farmers. Most common training topics were good agricultural practices, good environmental practices, child labour and post-harvest cocoa processing. Most farmers received the training from the cooperative, or ANADER. Only a few farmers reported other training providers.

A significantly ($p=0.002$) larger percentage of male-headed household received training over the past years than female-headed households (

Figure 18). However, at regional level the number of female-headed households is too small to be confident about the difference in access to training. Other differences related to training between male-headed and female-headed households were not statistically significant, but this could be due to the small sample size of female-headed households.

¹⁷ We cannot draw firm conclusions on differences between the involvement of women in cocoa activities according to male and female heads, as the number of female heads of cocoa households that responded to this question was low. But it does give an interesting indication of differences in perceptions on roles.

Figure 18. Cocoa training over the past three years per household head sex

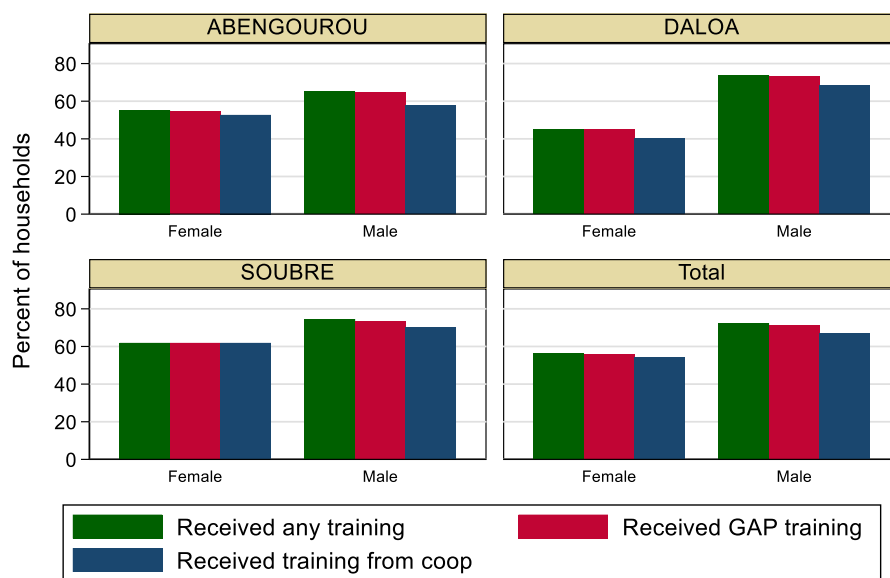
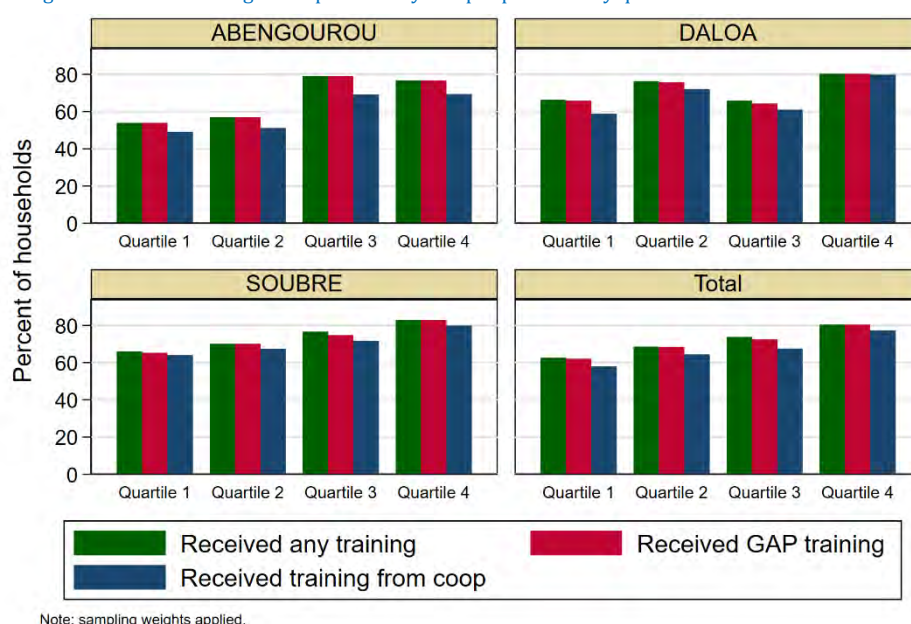


Figure 19 shows a positive correlation between having received cocoa training and productivity; in Abengourou about 50% of farmers in the lowest productivity quartile have received training, compared to nearly 80% of farmers in the two highest productivity quartiles. In Soubré, farmers in the highest productivity quartile stand out as being more likely to have received training compared to the other quartiles.

During the FGDs, farmers noted that access to training on GAP has improved over the last five years, mainly because they joined a cooperative. Training on GAP usually takes place at Farmer Field School (champs-école Paysan), and occasionally at the cooperative warehouse. All respondents who received training agree that applying GAPs leads to higher yields and better quality (good post-harvest practices). For some cooperatives access to training is a new development, or it has been only recently since the frequency of training went up. Most farmers want more training, including on different crops. However, in some groups farmers say they have been told the same, over and over again, and they do not learn anything new.

Figure 19. Cocoa training in the past three years per productivity quartile



Cooperatives

The majority of the cocoa farmers (97%) is member of a cooperative. The average distance between the home and cooperative is 19 km, but farmers in Abengourou live significantly closer to the cooperative (4.3 km) than farmers in the other two regions (23.6 km). Farmers reported multiple services provided by the cooperative; the most common services are training, input provision, certification cash premium, cocoa storage, and cocoa transport.

Around half of the participants is generally satisfied with their cooperative, around one third has mixed opinions, and a few just started. Only in 2 groups focus group participants said they were 'unhappy'. Respondents gave many different reasons for being satisfied. Access to loans, training, inputs and other services were most frequently mentioned. Other reasons had to do more with the organizational set-up and democratic functioning of the cooperative: 'having a say/being democratic', 'a well-structured cooperative', 'the cooperative being monitored', or with the access to premiums. The importance of coming together in a group, able to share knowledge and experiences were additional reasons. In some groups it was pointed out that they appreciated that support was given to community projects. The main reason for not being satisfied with the cooperative was (still) lacking (easy) access to loans. Another concern was cooperatives not being able to pay farmer on time. What farmers also

highlighted was the need for more training, inputs (e.g. fertilizer, seedlings, equipment). In a few groups, farmers complained that they still could not elect the delegates, instead these were appointed.

International NGOs

Only 3% of the farmers reported that they had received support for their cocoa farm from an international NGO. Only 17% reported they had received support from ANADER (mostly training, coaching or seedlings). Only 6% of the farmers reported that they had received from CNRA (mostly seedlings). 15% received support from Conseil Café Cacao (28% in Abengourou) in the form of agricultural equipment, seedlings or training. There are some regional differences in the organisations, and type of support provided. Support from the private sector to cocoa farmers is very limited.

During the FGDs, farmers were asked to recall previous interventions. In asking for all previous interventions that took place in the past five years, a total of 70 projects were identified. In 25 cases it occurred a project that started in 2017 or 2018. Of the 23 cooperatives, members of 10 cooperatives were exposed to 4-6 projects, the remaining groups were exposed to fewer projects. Among these projects, the majority was related to education (e.g. building new schools and housing for teachers, improving school infrastructure, school kits), water (e.g. building water pumps and water towers) and health (e.g. building health centres and kindergartens). The initiators of these projects were often cooperatives, but also involve (international) NGOs, the Ivorian government (the CCC or municipalities), Development Banks and exporters. The main impact of these projects is providing communities in their basic needs, mainly through improving access to schools, water and health care.

TRADE AT FARM LEVEL (S02)

VALUE ADDITION (QUALITY, EFFICIENCY, MARKETING) (FFPR 2.1)

Permanent workers¹⁸

There are strong regional differences in the use of permanent workers on cocoa farms; 67% of the cocoa households in Abengourou employ permanent workers on their cocoa farm, compared to only 19% in Daloa and 31% in Soubré (Table 14). The majority (84%) of farmers pay the permanent workers in kind, by giving them a third of the cocoa sales (share cropping); in Daloa, however, permanent workers are paid a salary by 61% of the farmers who employ permanent workers.

Table 14. Cocoa households with permanent workers on cocoa farm

	All	Abengourou	Daloa	Soubré	sig
Permanent workers on farm (2017-2018) (y/n)	36%	67%	19%	31%	***
Permanent workers paid a salary (y/n)	16%	4%	61%	11%	***

¹⁸ In the baseline questionnaire, permanent workers were defined as people who are hired for the entire cocoa season (regardless whether they were paid in kind or in cash).

All	Abengourou	Daloa	Soubré	sig
<i>Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively</i>				

There is no clear association between permanent farm workers and the productivity quartiles.

Figure 20). However, there is a clear positive correlation between the employment of permanent farm workers and the size of the cocoa farm, in particular in Abengourou and Soubré (

Figure 21). This is expected, as the farm size determines whether the use of household labour and/or exchange labour is sufficient to maintain the farm.

Note that female-headed households are more likely to employ permanent workers on their cocoa farms than male-headed households (Figure 22). This can be explained by the fact that female-headed households might have less (male) household labour, or because some farm tasks are perceived as male tasks.

Figure 20. Percentage of cocoa households employing permanent farm workers per productivity quartile (season 2017-2018)

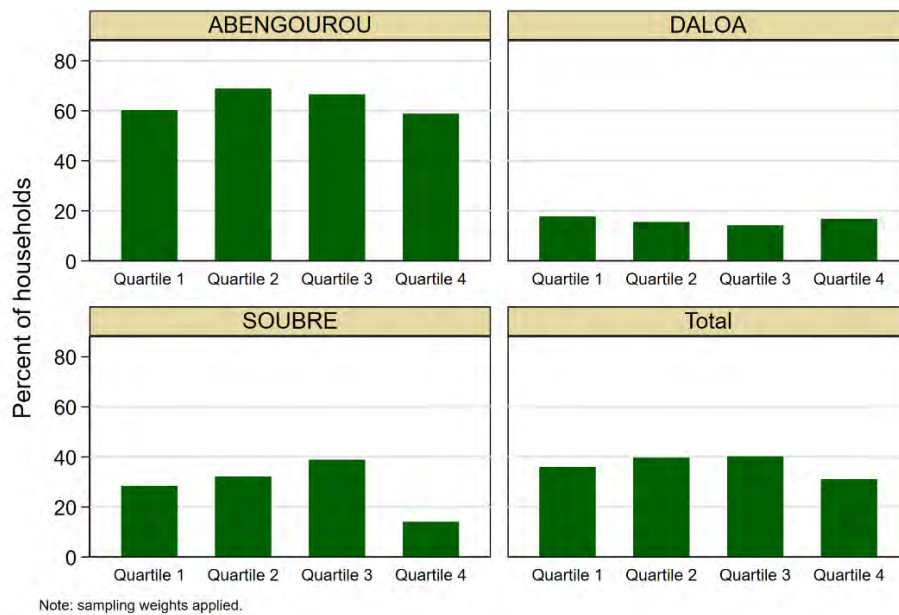


Figure 21. Percentage of cocoa households employing permanent farm workers per farm size (season 2017-2018)

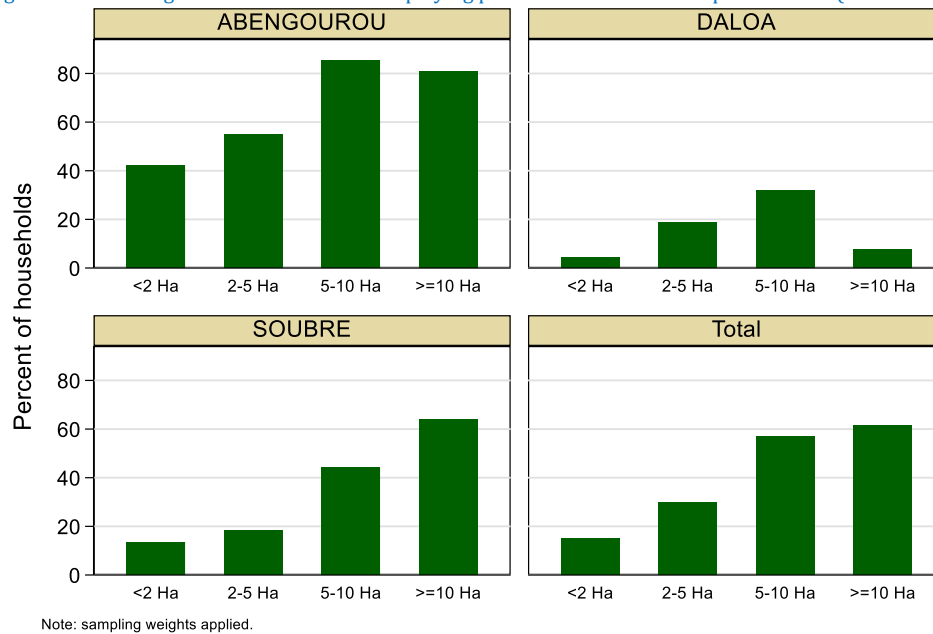
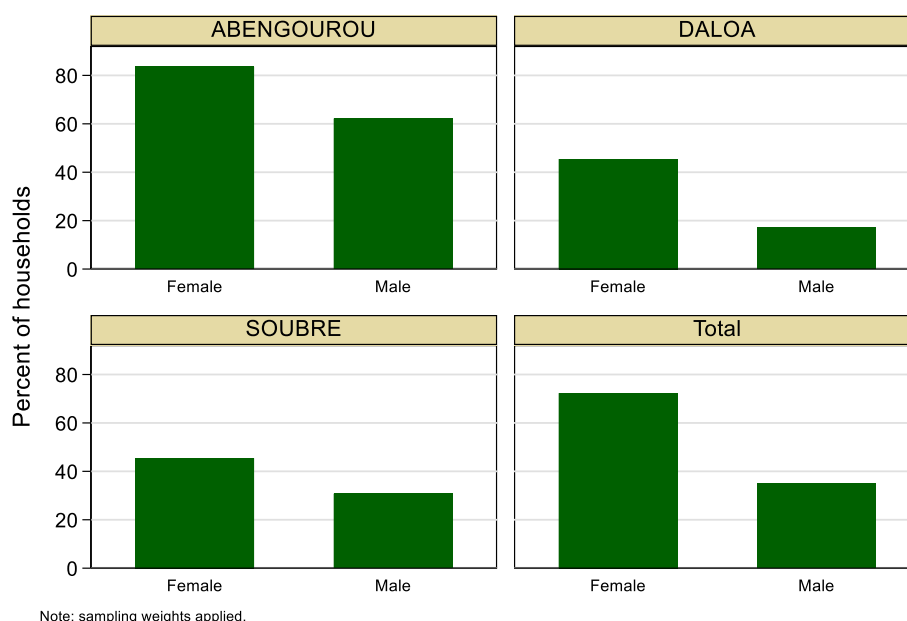


Figure 22. Employment of permanent workers on cocoa farms by household head sex



ACCESS TO MARKETS (MARKETING, BUYERS-SELLERS LINKAGES) (FFPR 2.2)

Cocoa is sold throughout the year, but mostly during October to January. Most cocoa is sold to the cooperatives, but about 20% of the farmers also sell to traders. Only 45% of farmers reported that they knew the income generated with the cocoa; in Abengourou this was 63%, compared to 48% in Daloa and only 33% in Soubré. The common price for cocoa was reported as 700 FCFA per kg (table 67, appendix 1).

Farmers in Daloa reported significantly larger quantities sold to cooperatives during the season 2017-2018 (on average 428 kg) than farmers in Abengourou (305 kg) and Soubré (141 kg). However, farmers in Daloa reported significantly lower revenues (917,974 FCFA) than in Abengourou (1,234,074 FCFA) and Soubré (1,710,307 FCFA) (

Table 15). MOCA farmers reported significantly higher revenues (1,304,980 FCFA) than control farmers (1,077,733 FCFA) (table 69, appendix 1). Note that these data may be unreliable as it is based on recall and the majority of farmers was not able to provide accurate estimates on revenues. Further, the revenues were estimated much higher than the mean quantities would suggest.

Table 15. Estimated quantities and revenues of cocoa sold to cooperatives, by region

	All	Abengourou	Daloa	Soubré	sig
Quantity of cocoa production sold to cooperative main season (2017-2018) (kg)					
mean	235.8	236.6	381.9	119.5	***
[Confidence Interval]	[205.44, 266.26]	[188.26, 284.97]	[320.2, 443.67]	[77.34, 161.66]	
Quantity of cocoa production sold to cooperative light season (2017-2018) (kg)					
mean	42.1	68.8	45.9	21.4	***
[Confidence Interval]	[35.18, 49.11]	[54.13, 83.45]	[33.35, 58.48]	[11.92, 30.81]	
Revenue generated cocoa (2017-2018) (FCFA, not including costs)					

	All	Abengourou	Daloa	Soubré	sig
Quantity of cocoa production sold to cooperative main season (2017-2018) (kg)					
mean	1274454	1234074	917974	1710307	
[Confidence Interval]	[1177687, 1371222]	[1106975, 1361174]	[811751, 1024197]	[1478256, 1942358]	***

*Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively*

Half (51%) of the farmers take phytosanitary measures to counteract diseases; however, in Daloa only 29% of the farmers only take phytosanitary measures compared to 61% and 62% of farmers in Abengourou and Soubré respectively (table 205, appendix 1).

The majority (93%) of farmers reported that they have some sort of cocoa certification (table 246, appendix 1); this is mostly UTZ (72%). A minority of farmers reported Fairtrade certification (33%) or Rainforest Alliance (33%). A significantly higher proportion of MOCA farmers reported the latter two certifications compared to control farmers. No organic certification was reported (table 247, appendix 1).

Regressing estimated cocoa revenues on production and certification (Table 16) shows that Fairtrade certification has a positive effect on the estimated cocoa revenues, in particular for farmers in Abengourou and Soubré. In Daloa, Rainforest Alliance has a positive effect on the estimated revenues.

Table 16. Regression results on the effect of certification on cocoa revenues by region

	All	Abengourou	Daloa	Soubré
Quantity cocoa (kg)	606.5***	605.4***	484.5***	669.4***
UTZ	80037*	10162	113310	173091
Rainforest Alliance	62323	80148	209206**	31141
Fairtrade	177875**	209482***	125622	353259**
Constant	-66563	-100647	24005	-248957
R-squared	0.7948	0.7579	0.7579	0.7845
p-value model	0.0000	0.0000	0.0000	0.0000
n	466	212	153	101

*Note: ***, **, * indicate significance levels of 1%, 5% and 10% respectively*

MULTI-VARIATE ANALYSIS: COMBINED EFFECTS ON PRODUCTIVITY

In order to understand how different factors, influence cocoa productivity, we estimated a multi-variate linear regression model with fixed effects for cooperatives. This means that we control for the factors that are fixed at cooperative level to understand what other factors determine cocoa productivity at farm level.

Table 17 shows the regional difference in determining factors of cocoa productivity:

- In Abengourou, inputs, household characteristics, or certification do not have any significant correlation with productivity. There is a negative correlation between farm size and cocoa productivity. Further, farmers with a larger share of cocoa relative to their total cultivated land seem to obtain lower yields than farmers with a smaller share. Intensive training is positively correlated with productivity.
- In Daloa, the use of inputs do not have a significant effect, but cocoa pests and diseases have a significant negative effect on productivity. Training and Fairtrade have a positive correlation with productivity.
- Only in Soubré significant positive correlations between the use of inputs (insecticide and fungicide) and productivity are found. Farmers also achieve higher yields on smaller cocoa farms, probably due to intensification. Higher yields are obtained when cocoa is the largest income source for the household. Female-headed households, however, achieve lower yields in Soubré. Training does not have any significant effect, but it could be due to correlation with other variables such as input use. Surprisingly, UTZ and Rainforest Alliance certification have a negative effect on productivity relative to no or other (e.g. Cocoa Life) certification; this result could also be caused by correlations with other variables in the model.

Table 17. Results linear regression model with cooperative fixed effects for productivity (kg per ha)

Variables	Abengourou	Daloa	Soubré
Total land cocoa (2017-2018) (ha)	-12.93** (6.54)	-4.83 (10.94)	-21.91*** (6.46)
Share cocoa land size in total cultivated (%)	-270.03*** (80.30)	-36.23 (65.02)	43.08 (100.85)
Application of herbicide (2017-2018) (y/n)	-65.12 (42.87)	-104.11*** (39.30)	45.27 (60.42)
Application of insecticide (2017-2018) (y/n)	85.43 (57.46)	96.29 (60.53)	241.21*** (63.65)
Application of fungicide (2017-2018) (y/n)	-11.33 (43.78)	16.74 (44.67)	114.77* (67.33)
Application of granular fertilizer (2017-2018) (y/n)	2.67 (38.87)	2.48 (38.62)	52.71 (41.38)
Permanent workers on farm (2017-2018) (y/n)	-12.08 (35.80)	-36.22 (46.74)	-26.11 (57.32)
Record keeping (2017-2018) (y/n)	47.64 (36.42)	37.94 (37.67)	-123.43 (75.94)
Household head sex	46.60 (48.42)	-232.17 (203.62)	-91.54 (88.38)
Household largest income source is cocoa	91.54 (70.50)	60.49 (51.77)	162.94* (87.68)
Work fulltime on cocoa farm	-28.22 (52.67)	-115.01 (71.73)	-16.91 (70.88)
Diseases/pests (2017-2018) (y/n)	-2.30 (37.42)	-33.11 (52.66)	-33.87 (59.55)
Training time in past 3 years: 1-2 days	90.43 (55.60)	-14.62 (51.91)	124.45 (82.27)

Training time in past 3 years: 3-5 days	7.41 (45.66)	134.60** (57.31)	103.78 (107.15)
Training time in past 3 years: 5-10 days	151.17*** (56.76)	62.90 (63.61)	69.08 (113.18)
Training time in past 3 years: 10+ days	103.02* (56.03)	-39.14 (49.39)	-12.44 (71.35)
Certification: UTZ	48.74 (62.64)	4.31 (63.66)	-147.51** (71.82)
Certification: Rainforest Alliance (RA)	-6.04 (64.11)	-113.60 (80.46)	-132.87** (63.13)
Certification: Fairtrade	-9.49 (51.28)	118.80* (68.18)	-80.08 (66.60)
Certification: Do not know	70.19 (103.71)	40.54 (96.22)	-166.61 (133.28)
Cooperative services: Provision of inputs (y/n)	1.87 (48.08)	-15.93 (51.99)	40.88 (66.44)
Cooperative services: Provision of agricultural equipment (y/n)	68.62 (44.59)	68.14 (45.62)	-75.71 (63.22)
Cooperative services: Organization of labour exchange groups (y/n)	-52.63 (48.75)	74.03 (55.67)	33.66 (77.09)
Cooperative services: Certification cash premium (y/n)	70.05 (44.97)	-24.44 (40.76)	-57.25 (92.25)
Loan in past 3 years (y/n)	-50.45 (36.22)	-53.96 (32.77)	85.51 (65.82)
Constant	522.93*** (145.35)	566.85** (231.67)	727.35*** (188.32)
Observations	202	182	166
R-squared	0.22	0.29	0.47

Robust standard errors in parentheses; significance: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

BASELINE RESULTS COOPERATIVE SURVEY

INTRODUCTION

This chapter discusses the main findings of the baseline measurement among the cocoa cooperatives in three regions: Abengourou, Daloa and Soubré. Among the 32 cooperatives of the study, three were not operating in the 2017-2018 season, having purchased no cocoa from their members. One inactive cooperative is located in Soubré region, SCOPAB. The other two (SCAASP and AHONDJO) are located in Abengourou region.

The findings of the cooperative survey (based on 29 active cooperatives) are presented and discussed according to the structure of the Results Framework (see the inception report). More detail on the baseline data is provided in the appendices. Appendix 2 presents the survey findings among cooperatives. Table 18 provides an overview of the sampled cooperatives.

Table 18. Sampled cooperatives for baseline survey

Region	MOCA	Control	Inactive
Abengourou	BOUKLABA	ADI	AHONDJO
	CAPA	CEEA	SCAASP
	CAPRESSA		
	COPPAZA		
	FAHO		
	N'MOH-BLA		
Daloa	CAPEDIG	COOP Hounou	

	Case du Planteur	SCOOPS SAHS	
	CPR-CANAAN		
	ECOJAD		
	ESPOIR		
	KAPATCHIVA		
	SCALALAVA		
	SCOPRANHS		
	SOCADMV		
Soubré	CAAM	CANOA	SCOPAB
	CAPCB	ECASO	
	ECAM		
	SCAES		
	SCAS		
	SOCAGNIPI		
	SOCOOABAS		
	SOCOOPACDI		

The average membership of the 29 cooperatives is 957 farmers per cooperative (table 1, appendix 2). The average share of female members is 13%; however, in Abengourou this share is significantly higher at 37% compared to 4% and 7% in Daloa and Soubré respectively. This difference in Abengourou is due to three cooperatives: BOUKABLA has female members only, N'MOH-BLA has predominantly female members (69%); and ADI also has large female membership (42%). For the other cooperatives, female farmers are a minority (less than 20%).

Table 19 summarizes the average cocoa production, sales and revenues as reported by the sampled farmers by cooperative.

Table 19. Average cocoa production and sales per household, by cooperative

Cooperative	N	Cocoa yield (kg per ha)	Total cocoa production (kg)	Quantity of cocoa sold to cooperative (kg)		Farmer selling to buyers other than coop (main season)	Farmer knows revenue generated from cocoa	Total cocoa revenue season 2017-2018 (FCFA)
				Main season	Light season			
ADI	40	500.4	2270.9	618.9	128.6	8%	60%	1,150,310
AHONDJO	32	518.3	1730.8	123.7	46.6	59%	69%	1,040,840
BOUKABLA	16	369.8	1946.7	205.4	56.9	0%	19%	2,474,444
CAPA	22	518.3	2331.1	371.6	103.1	5%	95%	1,663,148
CAPRESSA	114	481.9	1832.2	132.1	44.8	26%	56%	1,208,312
CEEA	78	549.2	2109.5	312.9	69.4	13%	78%	1,302,891
COPPAZA	59	432.3	1854.1	394.3	126.3	10%	86%	1,332,706
FAHO	43	476.6	2294.3	195.7	70.0	9%	28%	1,691,893
N'MOH-BLA	8	462.7	2336.0	90.0	28.1	13%	50%	1,598,625
SCAASP	16	223.7	930.3	145.7	28.6	69%	81%	594,615
CAPEDIG	31	446.6	1417.0	625.3	56.2	97%	45%	1,177,304
Case du Planteur	62	300.4	915.2	267.4	34.7	31%	40%	597,501
Coop Hounou	28	213.9	658.7	155.5	32.1	25%	39%	538,427
CPR- CANAAN	16	471.1	878.2	621.5	57.1	19%	56%	686,900
ECOJAD	53	474.3	1293.3	452.8	81.9	6%	45%	915,071
ESPOIR	20	539.8	1903.2	622.6	76.3	15%	40%	1,413,750
KAPATCHIVA	35	378.1	1468.8	512.26	15.6	20%	54%	894,286
SCACALAVA	29	596.2	1690.9	111.1	0.0	59%	52%	1,178,467
SCOOPS SAHS	109	354.9	866.7	270.8	34.5	33%	50%	621,589
SCOPRANHS	39	389.8	1907.0	379.8	80.3	8%	49%	963,395
SOCADMV	25	395.1	1604.2	310.3	20.6	28%	68%	1,176,156
CAAM	33	571.4	2985.0	61.4	14.4	12%	9%	2,133,333

Cooperative	N	Cocoa yield (kg per ha)	Total cocoa production (kg)	Quantity of cocoa sold to cooperative (kg)		Farmer selling to buyers other than coop (main season)	Farmer knows revenue generated from cocoa	Total cocoa revenue season 2017-2018 (FCFA)
				Main season	Light season			
CANOA	48	475.2	1943.6	50.8	28.8	10%	27%	1,506,769
CAPCB	23	692.2	2773.5	265.7	94.8	4%	39%	1,622,211
ECAM	50	446.2	2057.7	232.6	32.7	10%	16%	1,424,286
ECASO	73	440.7	2009.9	77.4	9.3	34%	15%	1,580,220
SCAES	68	727.1	2746.0	136.3	21.7	0%	54%	1,974,154
SCAS	23	641.9	2411.0	229.0	8.0	4%	13%	563,333
SCOPAB	8	307.9	2302.5	0.0	0.0	50%	25%	2,200,000
SOCAGNIPI	39	910.8	4069.6	3.1	1.5	13%	51%	3,084,722
SOCOOABAS	15	547.6	2208.6	213.1	65.8	13%	0%	N/A
SOCOOPACDI	45	406.8	1528.0	66.9	3.8	16%	60%	1,064,612
Note: cooperative averages from farmer survey.								

AGRICULTURAL PRODUCTIVITY AT COOPERATIVE LEVEL (SO1)

PROVISION OF INPUTS AND SERVICES (FFPR 1.2.1)

Input provision

Insecticides, chemical fertilizers and fungicides are provided by the majority of cooperatives (72%, 71% and 69% respectively) (table 55, appendix 2). A minority (22%) of the cooperatives also provide organic fertilizer and one cooperative (SOCOOABAS in Soubré) provides herbicides. Note that only a quarter (24%) of the cooperatives reported that all their members received inputs according to their needs (table 58, appendix 2).

The reported productivity (cocoa yield) amongst its members is higher for the cooperatives that provide organic and chemical fertilizers compared to those who do not (

Table 20). Note that these are reported yields, often based on rough estimates by the cooperatives. The farmer data (section 3.3.3) confirm the positive effect of inputs on productivity.

Table 20. Average productivity (kg per ha) reported by cooperatives, by input provision

	Productivity reported by cooperative	
	Provision	No provision
Organic fertilizer	641.3 (n=6)	556.8 (n=21)
Chemical fertilizer	596.6 (n=20)	513.5 (n=8)
Insecticides	591.2 (n=21)	534.3 (n=8)
Fungicide	573.3 (n=20)	580.4 (n=9)
Herbicide	420.0 (n=1)	581.1 (n=28)

Only a quarter (24%) of the cooperatives reported that they provide the inputs ‘for free’. Input provision is conditional; the majority of cooperatives only provide inputs to farmers if they are members (88% of cooperatives), if they sell all their cocoa to the cooperative (81% of the cooperatives) and/or if they have paid their social shares (65%). Remarkably, in the region where cooperatives reported most frequently to be providing input ‘for free’ (33% in Daloa), fewer cooperatives set conditions for inputs. The majority (78%) of cooperatives report that other organisations (predominantly the CCC, but in some cases also the exporter or chocolate manufacturer) are also involved in input provision.

Cocoa services

Only three cooperatives (ESPOIR in Daloa, SOCOOABAS in Soubré, and BOUKABLA in Abengourou) provide pruning services to their members; this service is ‘free’. The majority (90%) of the cooperatives provide spraying services, except for SOCADMV in Daloa, Case du Planteur in Daloa, and N'MOH-BLA in Abengourou. 42% of the cooperatives provide the spraying services ‘for free’.

Two-third (64%) of the MOCA cooperatives provided agricultural kits (incl. boots, machete, limes and gloves) to members, vs none of the control group (table 64, appendix 2). Only 26% of MOCA cooperatives provided these kits to all members.

Although 80% of the cooperatives provided cocoa seedlings to their members, only two cooperatives (SOCOOPACDI in Soubré and SCOPRANHS in Daloa) confirmed that they have provided seedlings to all their members. 76% of the cooperatives also provided shade trees to their members

There is no strong positive effect of service provision on productivity, though the three cooperatives providing pruning services actually reported lower yields among their members than the other cooperatives (Table 21). Cooperatives who provided agricultural kits reported significantly higher productivity among their members than the cooperatives who did not provide these kits. However, the reported productivity by farmers did not confirm this. The same results were found for cooperatives who provided seedlings or shade trees.

Table 21. Average productivity (kg per ha) reported by cooperatives, by service

	Productivity reported by cooperative	
	Provision	No provision
Pruning	456.7 (n=3)	589.2 (n=26)
Spraying	575.1 (n=26)	579.3 (n=8)
Agricultural kit	608.6 (n=14)	537.1 (n=14)
Seedlings	599.1 (n=20)	511.6 (n=5)
Shade trees	607.4 (n=19)	500.0 (n=6)

During the FGDs, farmers reported that their access to pesticides and fungicides has improved in the majority of cases. The CCC and the cooperatives are the main providers of inputs (often for free or on credit), but, according to the FGD participants do not provide inputs in sufficient quantities; additional inputs can be bought by farmers on the market. Access to fertilizer has also improved for the majority of farmers. The improved access to fertiliser is attributed to cooperatives that provide fertiliser on credit, and training on how to make compost. In Daloa, however, access to fertiliser did not increase; this is mainly due to the poor affordability of fertiliser. In some cases, farmers said they saw no need for fertiliser.

Farmers also appreciate the access to spraying services (FGD data). This cooperative service is usually cheaper than hiring a private spraying team, as farmers usually only pay fuel, costs involved in maintenance and an optional 'tip' to the sprayer. The cooperative service is also perceived to be more effective and safer, comparing to untrained farmers doing the spraying themselves.

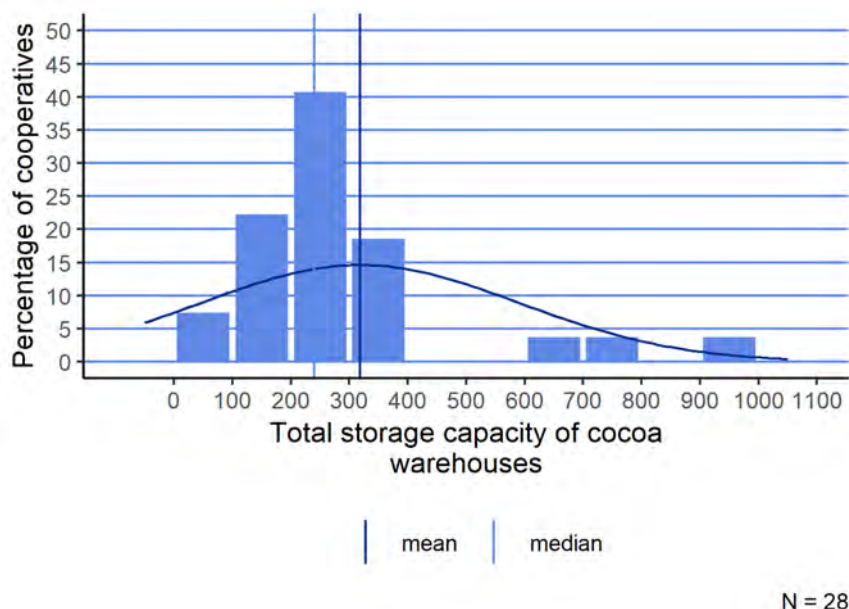
The FGD-data suggests that for around half of the farmers access to seedlings has not improved over the last five years. This usually means that farmers cannot access seedlings through the cooperatives, and use their own seedlings. In relation to CSSVD, FGD-data suggests that there is a lack of seedlings for rehabilitation of the farms, after the trees are uprooted. On the other hand, around half of the FGD participants did observe an improvement in access to seedlings. Despite the improvement farmers stressed a number of challenges:

- The quantities of seedlings delivered by the cooperatives are not sufficient.
- Farmers face problems after seedlings are planted, mainly due to a lack of rain (plants die).

INFRASTRUCTURE FOR PRODUCTION AND POST-HARVEST PROCESSING (FFPR 1.2.2)

The cooperatives use 6.9 warehouses on average, which are either owned or rented. The average storage capacity per cooperative is 318 MT (table 36, appendix), but some cooperatives (CAPRESSA in Abengourou, ESPOIR in Daloa, SCAES and ECAM in Soubré) reported storage capacities above 600 MT (Figure 23).

Figure 23. Total storage capacity per cooperative



Only one cooperative (SOCOOPACDI) in Soubré reports having access to a fermentation and a drying centre. The cooperative ESPOIR in Daloa also owns a drying centre. The other cooperatives do not have these facilities.

Two-third (69%) of the cooperatives reported that they received in-kind grants, in particular from government institutions. These in-kind grants are often inputs, but can also include equipment, vehicles and machinery (table 25, appendix 2).

FINANCIAL SERVICES (FFPR 1.2.3)

All but one cooperative (SOCADMV in Daloa) offer financial services to their members. Financial services to members primarily exist of small loans (only SCACALAVA in Daloa does not offer this). Half of the cooperatives provide inputs on credit as a financial service, in addition to small loans. Note that the cooperatives who provide inputs for free (CEEA, CPR-CANAAN, ECOJAD, ESPOIR, KAPATCHIVA, SOCOOABAS, SOCOOPACDI), do not offer the service of input on credit.

In the farmer survey, a quarter of the respondents who had taken out a loan in past three years indicated that this was with the cooperative (39% in Abengourou compared to 21% and 16% in Daloa and Soubré respectively). Family and friends are a more commonly used source to access small loans than cooperatives, in particular in Daloa and Soubré (52% and 55% respectively) compared to Abengourou (27%).

The cooperative is an importance channel to access small loans, but the cooperative often lack sufficient funds. It is common practice cooperative members pay the cooperative back in cocoa, in exchange for small loans. Buyers of cocoa (cooperatives and pisteurs) and friends/relatives normally do not charge interest (although in

some cases friends/relatives charge 100% interest). It is more difficult accessing a loan outside the main cocoa season, however, while farmers are most in need of financial support when the schools start, which is just before the main harvesting season. Other sources of loans often have unfavourable conditions.

FARMER KNOWLEDGE ON GAP IN COCOA (FFPR 1.2.4)

Extension services

On average, cooperatives employ 10 extension workers to assist farmers. However, there are huge differences between cooperatives. The cooperatives BOUKABLA (Abengourou), N'MOH-BLA (Abengourou), CAPEDIG (Daloa), Case du Planteur (Daloa), CPR-CANAAN (Daloa), SOCADMV (Daloa), and SOCOOABAS (Soubré) do not employ any extension workers. ECOJAD (Daloa) reported 111 extension workers, but these are composed of five trainers and 106 'formateurs relais' (lead farmers). Note that CAPEDIG, CPR-CANAAN and ECOJAD are part of the cooperative union ECOOKIM, which provides part contributionsto extension workers.

Training

Most cooperatives (93%) provided GAP training to their members during the season 2017-2018; the cooperative BOUKABLA and N'MOH-BLA in Abengourou did not provide any trainings to its members.

The GAP trainings are free of charge. 68% of the cooperatives reported that all members had attended the GAP training. The frequency of the GAP trainings varies between weekly, monthly and bi-monthly. Only three cooperatives mentioned that they provided GAP trainings only once a year. The majority (65%) of the cooperatives reported that they had no conditions to farmers' attendance. One-third (35%) of the cooperatives require farmers to be a cooperative member. A minority (20%) of the cooperatives also apply additional conditions: participants should have paid their social shares or sold all their cocoa to the cooperative.

The majority of cooperatives (65%) also provided training on financial management; half of these cooperatives reported that all their members had attended this training. Only 33% of the cooperatives provide this training without conditions; 44% of the cooperatives require participants to be a member. In Abengourou, three out of four cooperatives require participants to be a member, having paid their social shares and sell all their cocoa to the cooperative. The cooperatives in the other regions have less conditions for attendants of the training on financial management (table 52, appendix 2).

All but one cooperative (SOCADMV in Daloa) reported that other actors also provide trainings to cooperative members. ANADER is providing trainings to half of the cooperatives. Other providers of trainings include (in declining order of frequency): NGOs, certification organizations, exporters (in particular in Abengourou), the cooperative union, chocolate manufacturers and traders (table 54, appendix 2). During the FGDs, farmers confirmed that the cooperatives and ANADER are the main providers of training. Occasionally other trainers are mentioned: traders, GIZ, CCC, CNRA, input providers, umbrella cooperative ECOOKIM.

TRADE AT COOPERATIVE LEVEL (SO2)

VALUE ADDITION (QUALITY, EFFICIENCY, MARKETING) (FFPR 2.1)

Quality of cocoa

Half (52%) of the cooperatives rejected (part) of their members cocoa for quality reasons. There are regional differences: only one (out of nine) cooperative in Soubré rejected cocoa in 2017-2018 compared to six (out of eight) cooperatives in Abengourou and eight (out of 12) cooperatives in Daloa. Cooperatives estimated that in these cases about 20% of the cocoa was rejected (based on the estimates of nine cooperatives).

During the FGDs, farmers indicated (6 out of 22) that smaller beans receive a lower price or are rejected by the cooperative during the light season, and that farmers are then required to search for another buyer (for example pisteurs/processors who process the beans within the country). Farmers argued that the size of the beans is small due to a lack of rain (or prolonged dry season). Smaller beans are not export grade and difficult to sell. This forces farmers to sell at lower prices than the fixed price by the CCC.

Value addition

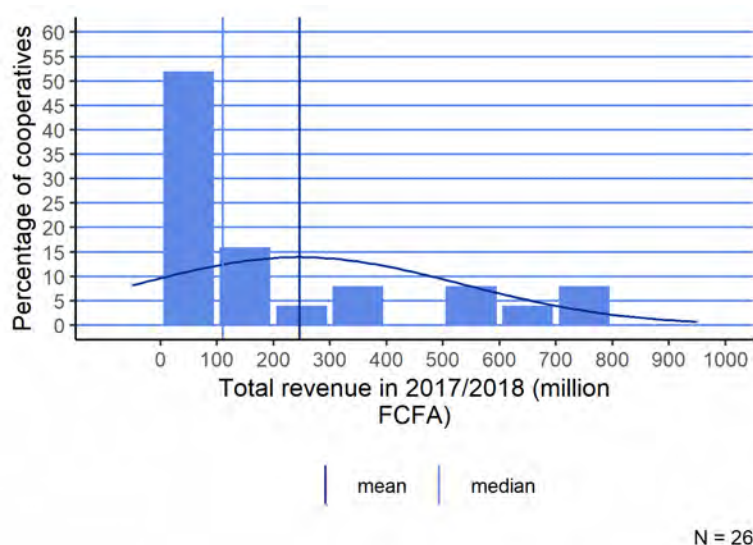
All but two (N'MOH-BLA and COOP Hounou) cooperatives are certified. Most common certification is UTZ (70%), followed by Fairtrade (56%) and Rainforest Alliance (33%). Half of the cooperatives have multiple certifications. The cooperatives estimated that on average 79% of the cocoa is sold as certified (Table 9, appendix 2). About two-third (62%) of the cooperatives pay a cash premium to all their members.

None of the cooperatives are involved in processing, although some cooperatives (CAPRESSA and CEEA in Abengourou, and SCAES in Soubré) mentioned that they are interested in getting involved in processing.

Cooperative revenues

The cooperatives obtain their income from cocoa margins (100% of the cooperatives) combined with the premium (for 83% of the cooperatives). Membership fees and services were mentioned as sources of income by only 10% of the cooperatives (table 23, appendix). The average total revenue (2017/2018) of the cooperatives was estimated at FCFA 246 million (table 21, appendix 2), of which the premium revenue was estimated at FCFA 180 million (table 22, appendix 2). Note that nearly half of the cooperatives estimated their total revenue to be less than FCFA 100 million (Figure 24).

Figure 24. Total revenue of cooperatives (season 2017-2018)



The majority (79%) of the cooperatives prepare an annual financial planning (table 30, appendix 2). Half of the cooperatives indicated that they have savings (table 29, appendix 2). Two-third (62%) of the cooperatives, on the other hand, indicate that they have outstanding debts or loans. Three cooperatives (CPR-CANAAN, SCOOPS SAHS and SOCADMV, all in Daloa) reported that they have defaulted on loan repayments in the past three years.

Two-third (66%) of the cooperatives confirmed that they invest in community projects, in particular in education, water women and income generation projects. (table 75, appendix 2).

ACCESS TO MARKETS (MARKETING, BUYERS-SELLERS LINKAGES) (FFPR 2.2)

On average, the cooperatives sold 2075 MT cocoa per cooperative. SCAES (Soubré) sold most cocoa (7,199 MT), and N'MOH-BLA (Abengourou) sold the least (223 MT). Most (24 out of 29) cooperatives sell to an exporter (table 16, appendix 2).

Trade of other crops

Nearly half (45%) of the cooperatives also trade other crops (cashew, coffee and rubber) for their members. We observe some regional differences; in Soubré only one (out of nine) cooperative (SOCAGNIPI) trades in other crops, compared to five (out of eight) cooperatives in Abengourou and seven (out of 12) in Daloa. There are also regional differences for the types of other crops traded by the cooperative. In Abengourou, cooperatives traded coffee, cashew or rubber in addition to cocoa. In Daloa, cooperatives traded cashew and coffee. In Soubré, the additional crop was coffee only.

TRANSACTION EFFICIENCY (BUYERS-SELLERS MANAGEMENT PRACTICES) (FFPR 2.3.2)

Contracts

The majority (83%) of the cooperatives have contracts with exporters. In Daloa and Soubré, some cooperatives also have contracts with chocolate manufacturers, local traitants or the cooperative union (table 16, appendix 2).

Most contracts are fixed contracts for one season only:

- 66% of the cooperatives use fixed contracts with buyers in terms of tonnage.
- 21% of the cooperatives uses fixed contracts with buyers in terms of price.

Half of the cooperatives reported that they had difficulties complying with the contracts for various reasons. Cooperatives in Daloa and Soubré mentioned that the production was low or the beans too small due to unfavourable weather. Two cooperatives in Abengourou mentioned that cocoa was smuggled to Ghana. One cooperative was broken in so they did not have sufficient working capital to buy the beans from the farmers.

Transport

All but one cooperative (N'MOHBLA in Abengourou) pay for transport and storage services to cocoa farmers out of their own revenue (table 27, appendix 2). Half of the cooperatives indicated that this was their main expenditure as a cooperative (table 28, appendix 2). Cooperatives mentioned that transport was in particular expensive due to bad roads, vehicle maintenance and fuel price. Transport vehicles include: motorcycles (90% of cooperatives), trucks (83% of cooperatives), tricycles (41% of cooperatives) and cars (34% of cooperatives) (table 39, appendix 2).

COOPERATIVE CAPACITIES

There is high diversity among the cooperatives in terms of their capacities and service delivery to members. A tentative capacity index was made based on ten indicators (Table 22). If a cooperative complies with the ten indicators, it is assigned the maximum score of 10.

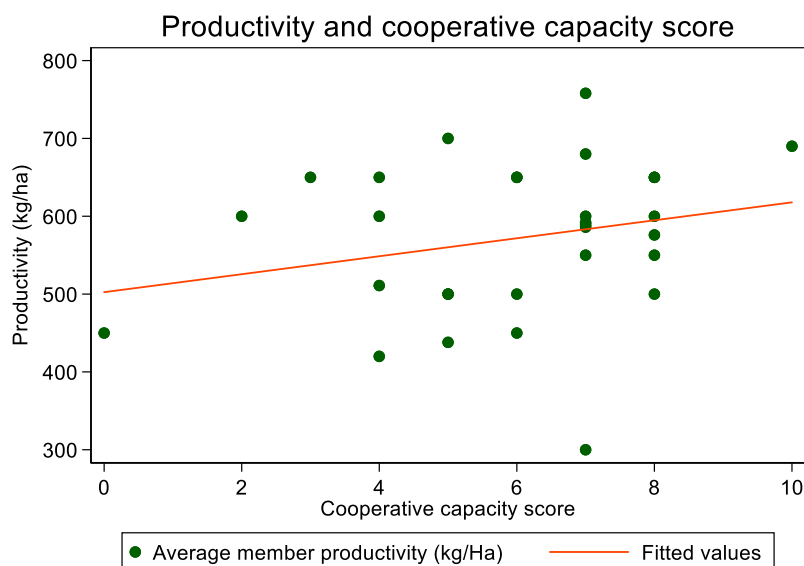
Table 22. Cooperative capacity score

Capacity score indicator	% coops meeting indicator (N=32)
Active coop: coop has bought cocoa from members in 2017/2018	91%
Management: both age and sex distributions of members are known	16%
Recruitment: having own extension workers	75%
Production & quality: training on GAP provided to members	81%
Production & quality: measuring members' land size with GPS	69%
Planning & strategy: insufficient quality as main reason for not purchasing cocoa	16%
Planning & strategy: annual financial planning	75%
Planning & strategy: having savings	50%
Market linkage: coop has (at least 1) fixed contract in terms of tonnage	66%
Market linkage: coop trades other crops for its members	41%

Plotting the average productivity of members against the cooperative capacity score (

Figure 25) suggests that a cooperative with more capacities has a positive correlation with the cocoa productivity of its members, but there is also a high variance in productivity between cooperatives. Strengthening the capacities of cooperatives is likely to have some effect on agricultural productivity, but other factors come into play as well that should be understood.

Figure 25. Average productivity against cooperative capacity scores



RECOMMENDATIONS

KEY INSIGHTS BASELINE INFORMATION

The baseline study shows that there are significant differences in productivity, practices and knowledge between regions, but in some cases also between MOCA farmers and the control group. The regional differences are more pronounced and relevant for the MOCA work plan, but the difference in productivity between MOCA farmers and the control group at baseline needs to be taken into account when measuring impact at endline.

Comparing MOCA farmers with the control group we observe no significant differences in total farm size, or cocoa farm size. Overall, we observe that MOCA farmers perform better than control farmers in terms of yields (498 kg/ha for MOCA farmers, vs 435g/ha for control farmers), and better than the farmers that participated in the benchmark study. Bymolt et al. (2018) reported for cocoa season mean cocoa yields of 353 kg/ha (2015/2016). It seems plausible that these lower yields can be (at least partly) explained by the low level of organisation among the sampled farmers in Bymolt et al. (2018), limiting their access to cooperative services, such as access to inputs and training.

Despite the relatively high yields found in this baseline study, the qualitative data that was collected during FGDs suggests that yields have been decreasing over the past five years, this despite the improved access to inputs and training. This productivity declines is mainly attributed to an increase in diseases, such as CSSVD and black pod disease. Reference was also made to the negative impact of climate change.

REGIONAL DIFFERENCES

Looking at regional differences, we observe three main patterns:

- Farmers in Abengourou perform relatively well, seem to benefit most from access to cooperative services, and make reasonable on-farm investments. The average yield for farmers in Abengourou is 470 kg per ha.
- Farmers in Daloa perform relatively poor, seem to benefit less from available services and make least on-farm investments. The average yield for farmers in Daloa is 402 kg per ha.
- Farmers in Soubré perform relatively best, have less access to services, but are pro-active in making on-farm investments. In Soubré, farmers produce highest yields, on average 574 kg per ha.

If we consider regional variations in access to inputs and use of inputs we observe clear differences in:

- **The use of insecticides:** In Soubré the use of insecticides was highest, despite the fact that in this region relatively less farmers had (partly) 'free' access to insecticides (only 12%).
- **The use of granular fertilizer:** In Soubré, the use of granular fertilizer among farmers is highest (61%), comparing to Abengourou (36%). In Daloa only 25% of the farmers uses granular fertilizer. There is a positive correlation between the use of fertilizer and productivity. Most farmers purchase fertilizer themselves. In Daloa, during FGDs, farmers argued that they use little fertilizer because of the high costs. Some farmers argued that they do not need fertilizer, as their trees are too old.
- **The average age of trees:** In Soubré the average age of trees is higher than in the other two regions, which explains the lower percentage of farmers doing intercropping with plantain (as intercropping with plantain takes place on young cocoa farms). The data does not indicate find that the relatively high age of the trees affected productivity levels negatively.
- **Pests & diseases:** In Abengourou, it is estimated that 49% of the farmers experience cocoa losses mainly due to Black Pod, Stem borer and Mirids. In Daloa, 73% of the farmers loose cocoa due to Black Pod, CSSVD and Rodents. In Soubré, 72% of the farmers experience cocoa losses due to Black Pod, Stem borer and CSSVD. According to FGD participants CSSVD is perceived to be more severe in Daloa and Soubré, while Black Pod caused severe losses mainly in Abengourou.
- **Taking action against pests & diseases:** In Abengourou, 27% of the farmers responded *not* to take any action against the pests and diseases. In Daloa, this passive behavior was counted among 42% of the farmers. In Soubré, in line with the previous findings, farmers were more actively combatting pests and diseases, only 17% responded *not* taking any action. This while support to address pests and diseases was reported lowest in Soubré (12% received some type of support), comparing to 16% in Daloa, and 24% in Abengourou.
- **Quality:** Half (52%) of the cooperatives rejected (part) of their members cocoa for quality reasons (during the light season). There are regional differences: only one (out of nine) cooperative in Soubré rejected cocoa in 2017-2018 compared to six (out of eight) cooperatives in Abengourou and eight (out of twelve) cooperatives in Daloa. Cooperatives estimated that in these cases about 20% of the cocoa was rejected. If beans are rejected by the cooperative farmers need to search for another buyer.

In terms of record keeping and training we observe the following regional differences:

- **Record keeping:** In Soubré 76% of the farmers keeps records on cocoa production, comparing to 62% in Abengourou and only 36% in Daloa.
- **Training:** Access to training is positively related to productivity levels. In all regions the majority of farmers received training on GAP, in Soubré slightly more farmers received training than in Daloa. In Abengourou the percentage of farmers that received training was lowest. We have not collected data on the quality and frequency of the training.

The baseline data suggests that in addition, regional differences in productivity can be (partly) explained by differences in demographics:

- **Household size and household labour:** In Soubré, average household size is 7.9 members, while in Abengourou this is 6.3, and in Daloa 6.5. Household labour is the most important source of labour; the baseline data suggests that in Soubré more household labour is available. This is confirmed by our findings that in Soubré relatively more use is made of household labour, comparing to the other regions.
- **Population of migrants:** 66% of farmers in Soubré is not born in the region where he/she currently farms. The high population of migrants (the majority born in Côte d'Ivoire) corresponds with our finding that in Soubré it was relatively more common that farmers cleared land themselves to grow cocoa (42%). In contrast to the other regions, we observe that farmers in Soubré seem to concentrate more on cocoa than on other crops.

Other explanatory factors for differences in yields and behaviour are

- **Size of cocoa land, as part of total land:** Although we have learned that smaller cocoa farms produce on average higher yields, this is not the case for Daloa. This might be explained by looking at the size of the land allocated to cocoa, and the total average land size. For Daloa, on average 59% of total land is allocated to cocoa, while in Abengourou this is 73% and in Soubré this is 72%. In addition, we found that the size of unexploited land is the smallest in Soubré, suggesting that farmers in this region strive towards optimal use of the available land.
- **Other income sources:** Related to the above we observe that in Daloa, 76% of the farmers mention the sales of other agricultural products (after cocoa) as another income source (and to a lesser extent also livestock), comparing to 58% in Abengourou, and only 28% in Soubré. This suggests for Daloa that farmers attention is divided among different crops, while for Soubré on-farm investments focus more on cocoa.
- **Number or permanent workers:** Particularly in Abengourou the use of permanent workers is high, followed by Soubré. The use of permanent workers in Daloa is by far lowest. In Daloa, farmers make relatively more use of labour exchange groups.

GENDER DIFFERENCES

The sample does not really lend itself to a gender analysis as the composition of the sample is skewed towards male respondents. When disaggregating into categories, the number of observations for female respondents becomes too small for statistical analysis, producing unreliable results.

We make the following observations on gender:

- **Female membership in cooperatives:** The average share of female members is 13%; however, in Abengourou this share is significantly higher at 37% compared to 4% and 7% in Daloa and Soubré respectively. This difference in Abengourou is due to three cooperatives: BOUKABLA has female members only, N'MOH-BLA has predominantly female members (69%); and ADI also has large female membership (42%). For the other cooperatives, female farmers are a minority (less than 20%).
- **Labour division:** Male and female respondents agree that mainly male farmers are involved in GAP. What we should take into account is that the activities listed did not include tasks that tend to be more 'invisible', such as taking care of the young cocoa farms, providing food for the labourers, fetching water for spraying. The 'supportive' role of women in cocoa production, and joint strategies within the household, have not been captured in the baseline.
- **Access to labour:** Female-headed households involve permanent workers more often, which involves higher costs. The explanation for more permanent workers can be threefold: either they have less access to labour (household labour or labour exchange groups), and/or women prefer not to be involved in production activities that are perceived as being 'male-tasks' or are considered too heavy, and/or female heads are the somewhat older farmers (divorced/widowed) lacking the necessary strength to do heavy work.
- **Yields:** In Abengourou, male-headed households obtained significantly higher yields (487.5 kg per ha) than female-headed households (385.3 kg per ha); in the other two regions no significant differences were found, probably due to small number of female-headed households in the sample. In Abengourou, younger farmers also produce higher yields than older farmers, but this trend does not apply for the other regions.

DIVERSITY AMONG COOPERATIVES

We observed a huge diversity among cooperatives, both in terms of inputs and services delivered as well as average cocoa productivity. There is no obvious correlation between cooperative performance and productivity due to the array of influencing factors affecting both issues. Cooperatives should be dealt with on a case by case basis (see recommendations).

RECOMMENDATIONS FOR M&E

Additional gender analysis is needed to further explore gender differences and better capture the role of women in cocoa farming. This baseline did explicitly *not* include a gender analysis.

There are several small but significant observable differences in farming practices between MOCA and control farmers at baseline. It is therefore recommended that the end evaluation applies Propensity Score Matching (PSM).

There is a significant yield difference between MOCA farmers and control farmers; the end evaluation thus needs to apply a difference-in-difference design to take this into account. Yield impacts also need to be corrected for each region, because of the regional differences in cocoa varieties and yields.

The baseline sample is large enough to conduct panel survey at the next steps, i.e. to survey the same farmers again at endline (a part of the baseline could suffice for midline). There might be an issue with respondent names not matching names on membership lists, as cooperative membership lists were not updated, including not on names. One would need to generate unique identifiers based on actual data in order to be able to track precisely which farmers are surveyed again and which are not. Furthermore, if a panel survey is the chosen option for the endline, it is also very important to document precisely the reasons for not surveying.

For the end line, in addition to comparing baseline and endline values for treatment and control farmers, it would also be useful to compare changes in the correlates of productivity at baseline and at endline, as it is possible that the project has an effect on which factors affect productivity (for example, making the use of inputs more significantly correlated with productivity).

For next fieldwork exercises, it is recommended to allocate more time for the planning to avoid some of the shortcomings of the baseline fieldwork. In particular, it is important to spend some time to locate respondents before going to the field, especially if fieldwork is conducted over a short period of time as it was the case now. It is also recommended to avoid as much as possible conducting the fieldwork in the midst of the harvest season, given that it is the busiest time for farmers and cooperatives.

RECOMMENDATIONS FOR MOCA PROJECT IMPLEMENTATION

We recommend the following entry-points for MOCA:

- **Adopt a regional approach in developing interventions.** For example, for Soubré, where farmers seem more entrepreneurial or active in the cocoa, this could involve improved access to services (including seedlings for rehabilitation of farms affected by CSSVD). It could also be identified as a priority region to test out new strategies or activities that have a clear economic incentive. For Daloa, where crop diversification is more important, it can be worthwhile to look into service provision for other crops in addition to cocoa, and to look into interventions that facilitate changes in behaviour.
- **Adopt a tailored approach for strengthening the capacities of cooperatives, based on their cooperative needs.** We observed a huge diversity among cooperatives, which is multi-dimensional. Therefore, we recommend a tailored approach based on a needs assessment at cooperative level, prioritization of actions, and learning from successes of other cooperatives.
- **Better data management and record keeping is key.** It is recommended that strengthening the capacities of cooperatives involves support in their management and their capacity to make better decisions to support farmers. For example, membership lists provided to select the farmer sample were outdated, and in some cases, some entire sections had left the cooperative. This would have implications in terms of who is allowed to sell cocoa to the cooperative, who can receive a premium, etc.

- **Explore interventions to provide more direct support to farmers.** For example, during many FGDs, participants expressed the need to have more information on support about what to do regarding the increase in diseases they are experiencing currently. Even large cooperatives which provide many services do not seem to meet this need of farmers.
- **Support farmers in accessing markets that reward smaller sized beans.** Quality problems occur mainly in the light season, and seem to be related to weather conditions, rather than adequate post-harvest practices. Farmers argued that the size of the beans is small due to a lack of rain (or prolonged dry season). Smaller beans are often bought at a discount or rejected by the cooperatives. Rather than focusing on improving the infrastructure and facilities for post-harvest practices, we recommend providing support for local processing of these smaller beans.
- **Invest in relationship building between cooperatives and farmers.** The share of cocoa that farmers sell to cooperative can be increased in the main season. Some of the reasons for not selling to the cooperative that came up during FGDs were: lack of resources to pay farmers in time (on one occasion linked to robbery), lack of funding to provide farmers with loans. Working capital is an important asset for cooperatives.
- **Build on good experiences in service provision.** Farmers indicated that they benefit from access to cooperative spraying services, which is usually cheaper and more effective than hiring a private spraying team. Farmers have also benefited from training. All respondents who received training agree that applying GAPs leads to higher yields and better quality (good post-harvest practices). For some cooperatives providing access to training is a new or growing service.
- **Improve the quality of service provision.** In our baseline we did not address the quality of cooperative services and whether or not services were being provided on time and in the right quantity. The FGD gave the following insights: i) Provide inputs in sufficient quantities. For example, the quantities of seedlings delivered by the cooperatives are not sufficient; ii) Avoid repetition of similar trainings; iii) Provide additional trainings on other crops than cocoa, particularly for members of cooperatives that trade already in other crops; iv) Timeliness of the loans (outside the cocoa season); v) Conditions for providing loans to farmers (avoid high interest rates or land as collateral). Farmers are usually not using loans to make on-farm investments that have a return on investment; vi) Need for more working capital for cooperatives. During FGDs farmers argued that a lack of working capital and funding opportunities affects the relationship between farmers and cooperatives.
- **Gender strategy.** In developing a gender strategy note that differences between male and female headed households is not the same as differences between women and men. Female headed households comprise men, and male headed households comprise women.
- **More in-depth gender analysis is needed.** Understanding gender differences, including entry points for future interventions should be based on more in-depth gender analyses. The cooperatives with relatively higher share of female members provide an easier entry-point to developing a gender strategy with the cooperative and their members.



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APPENDIX 1. FARMER SURVEY RESULTS

MOCA Baseline

Contents

1	ADMINISTRATIVE DATA	3
2	HOUSEHOLD	5
3	RESPONDENT	6
4	LAND	10
5	COCOA PRODUCTION.....	13
6	EMPLOYMENT	27
7	PLANT HEALTH PRODUCTS	28
8	AGRICULTURAL PRACTICES.....	52
9	POST-HARVEST PRACTICES	61
10	TRAINING AND OTHER SUPPORT	67

1. ADMINISTRATIVE DATA

Table 23: Administrative region

Administrative region	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Bas-Sassandra	0%	0%	0%	***	0%	0%	0%	***
Haut-Sassandra	27%	26%	28%		0%	84%	0%	
Indenié-Djuablin	23%	23%	26%		95%	0%	0%	
Loh-Djiboua	6%	8%	0%		0%	0%	15%	
Marahoué	2%	3%	0%		0%	7%	0%	
Moronou	1%	1%	0%		5%	0%	0%	
Nawa	38%	36%	46%		0%	0%	85%	
Bélier	0%	0%	0%		0%	0%	0%	
Cavally	0%	0%	0%		0%	0%	0%	
Gbôkle	0%	0%	0%		0%	0%	0%	
Gôh	0%	0%	0%		0%	0%	0%	
Grand-Ponts	0%	0%	0%		0%	0%	0%	
Guémon	3%	3%	0%		0%	9%	0%	
Iffou	0%	0%	0%		0%	0%	0%	
Mé	0%	0%	0%		0%	0%	0%	
N'Zi	0%	0%	0%		0%	0%	0%	
San-Pédro	0%	0%	0%		0%	0%	0%	
Sud-Comoé	0%	0%	0%		0%	0%	0%	
Autre	0%	0%	0%		0%	0%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: Région administrative

Table 24: Departement

Departement	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Sassandra	0%	0%	0%	***	0%	0%	0%	***
Daloa	21%	20%	28%		0%	67%	0%	
Vavoua	7%	8%	0%		0%	21%	0%	
Zoukougbeu	2%	2%	0%		0%	5%	0%	
Abengourou	22%	22%	26%		92%	0%	0%	
Agnibilékro	1%	1%	0%		3%	0%	0%	
Divo	6%	8%	0%		0%	0%	15%	
Bouaflé	2%	3%	0%		0%	7%	0%	
Bongouanou	1%	1%	0%		5%	0%	0%	
Soubré	9%	2%	46%		0%	0%	19%	
Méagui	29%	34%	0%		0%	0%	66%	

Departement	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Autre	0%	0%	0%		0%	0%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: Département

Table 25: Subprefecture

Subprefecture	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Sassandra	0%	0%	0%		0%	0%	0%	
Daloa	18%	17%	28%		0%	58%	0%	
Bediala	3%	3%	0%		0%	9%	0%	
Vavoua	7%	8%	0%		0%	21%	0%	
Guessabo	2%	2%	0%		0%	5%	0%	
Abengourou	4%	2%	15%		17%	0%	0%	
Amélékia	0%	1%	0%		2%	0%	0%	
Anuasué	1%	1%	0%		3%	0%	0%	
Ebilassokro	7%	8%	0%		29%	0%	0%	
Niablé	5%	4%	11%	***	21%	0%	0%	***
Yakasse-Feyasse	1%	1%	0%		3%	0%	0%	
Zaranou	4%	5%	0%		18%	0%	0%	
Agnibilékro	1%	1%	0%		3%	0%	0%	
Divo	6%	8%	0%		0%	0%	15%	
Bonon	2%	3%	0%		0%	7%	0%	
Andé	1%	1%	0%		5%	0%	0%	
Soubré	9%	2%	46%		0%	0%	19%	
Méagui	29%	34%	0%		0%	0%	66%	
Autre	0%	0%	0%		0%	0%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: Sous-préfecture

Table 26: Cocoa cooperative member

Household member membership of cocoa cooperative or association (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	97%	97%	97%		100%	91%	99%	
[Confidence Interval]	[95.7%, 97.7%]	[95.5%, 97.8%]	[94.9%, 98.3%]		[99.2%, 100.2%]	[87.7%, 93.5%]	[98.5%, 100.1%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: L'un des membres de ce ménage est-il membre d'une coopérative ou association de producteurs de cacao?

Table 27: Respondent active in cocoa

Respondent active in cocoa (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	99%	99%	100%		97%	100%	99%	
[Confidence Interval]	[98.3%, 99.5%]	[98.1%, 99.4%]	[98.8%, 100.4%]		[95.2%, 98.7%]	[99.1%, 100.3%]	[98.5%, 100.1%]	**
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: Êtes-vous impliqué(e) dans l'exploitation de cacao de ce ménage?

2. HOUSEHOLD

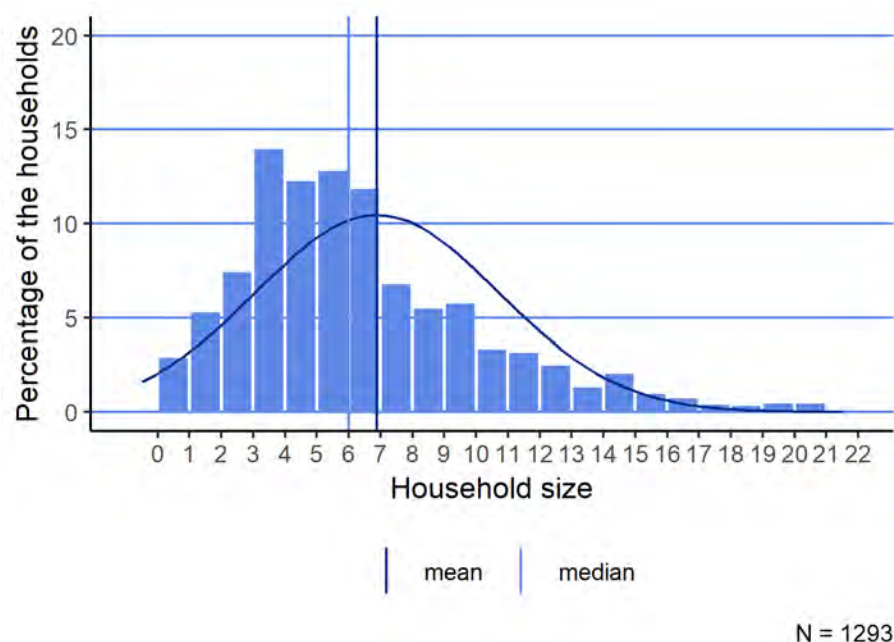


Figure 26: Household size

Table 28: Household size

Household size	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	6.9	6.9	7.1		6.3	7.9	6.5	***
[Confidence Interval]	[6.66, 7.12]	[6.6, 7.12]	[6.66, 7.47]		[5.92, 6.6]	[7.53, 8.29]	[6.13, 6.9]	
median	6.0	6.0	6.0		6.0	7.0	6.0	
n	1293	917	376		428	441	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q2. Parmi celles-ci, combien d'entre elles vivent-elles actuellement (dorment au sein de votre habitation) ?

Table 29: Household composition

Categories	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Number of male adults over 65 years	0.1 [0.12, 0.17]	0.1 [0.12, 0.17]	0.1 [0.08, 0.14]	*	0.1 [0.1, 0.16]	0.1 [0.09, 0.15]	0.2 [0.13, 0.21]	
Number of female adults over 65 years	0.1 [0.1, 0.14]	0.1 [0.09, 0.14]	0.1 [0.08, 0.16]		0.2 [0.15, 0.24]	0.1 [0.08, 0.16]	0.1 [0.04, 0.11]	***
Number of male adults between 15 and 65 years	1.8 [1.75, 1.91]	1.8 [1.73, 1.91]	1.9 [1.73, 2.02]		1.6 [1.51, 1.76]	1.9 [1.8, 2.07]	1.9 [1.72, 1.99]	***
Number of female adults between 15 and 65 years	1.7 [1.67, 1.82]	1.7 [1.66, 1.82]	1.8 [1.65, 1.92]		1.7 [1.58, 1.82]	1.9 [1.81, 2.05]	1.6 [1.52, 1.76]	***
Number of boys between 5 and 14 years	1.2 [1.16, 1.33]	1.3 [1.15, 1.35]	1.2 [1.07, 1.34]		1 [0.88, 1.1]	1.6 [1.42, 1.72]	1.1 [1, 1.29]	***
Number of girls between 5 and 14 years	1.1 [0.99, 1.14]	1.1 [0.98, 1.15]	1.1 [0.93, 1.2]		0.9 [0.76, 0.97]	1.4 [1.22, 1.51]	1 [0.83, 1.07]	***
Number of boys between 0 and 4 years	0.4 [0.4, 0.49]	0.4 [0.39, 0.5]	0.5 [0.39, 0.55]		0.4 [0.31, 0.45]	0.6 [0.5, 0.68]	0.4 [0.32, 0.46]	***
Number of girls between 0 and 4 years	0.4 [0.39, 0.48]	0.4 [0.38, 0.48]	0.4 [0.36, 0.52]		0.4 [0.3, 0.44]	0.6 [0.49, 0.67]	0.4 [0.29, 0.43]	***
n	1300	924	376		428	447	425	

Categories	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
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*Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively*
Original question: S1.Q3. Parmi les membres de votre ménage vivant actuellement dans votre ménage/maison, combien d'entre eux (y compris l'enquêté(e)) sont...

3. RESPONDENT

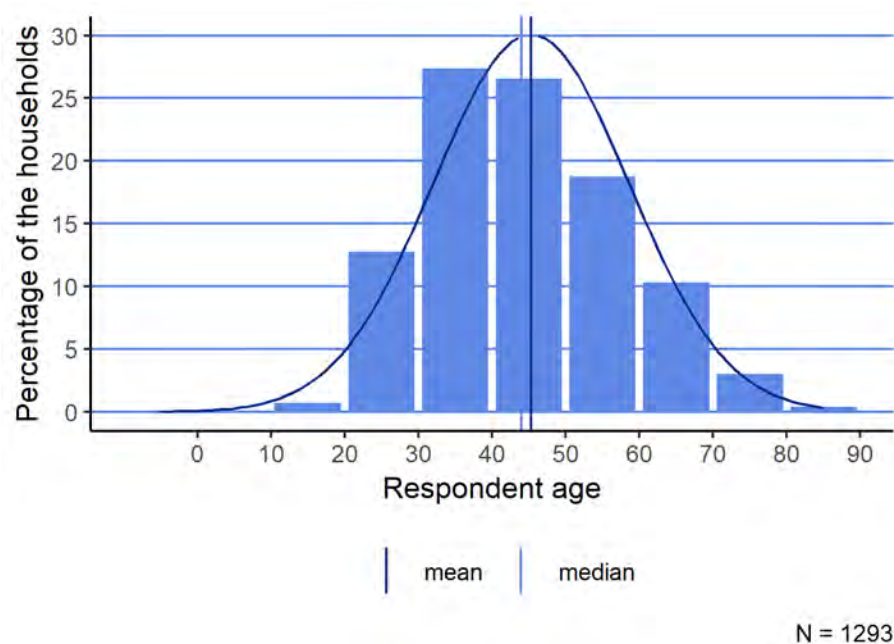


Figure 27: Respondent age

Table 30: Respondent age

Respondent age	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	45.3	45.1	46.5	*	48.5	44	44.5	***
[Confidence Interval]	[44.49, 46.08]	[44.17, 45.97]	[45.13, 47.95]		[47.17, 49.75]	[42.85, 45.16]	[43.03, 45.89]	
median	44.0	43.0	45.7		47.0	43.0	42.0	
n	1293	921	372		426	447	420	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q12. Âge

Table 31: Respondent sex

Respondent sex	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Male	89%	89%	91%		75%	94%	93%	***
Female	11%	11%	9%		25%	6%	7%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q13. Sexe

Table 32: Head of household

Head of household	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	88%	88%	90%		89%	92%	85%	**
[Confidence Interval]	[86.2%, 90.1%]	[85.6%, 90.1%]	[86.7%, 93.3%]		[85.8%, 92.0%]	[89.1%, 94.6%]	[81.5%, 88.7%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q14. Êtes-vous le chef du ménage ? (l'enquête(e) lui ou elle-même)

Table 33: Respondent's relationship to household head

Respondent's relationship to household head	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Wife/husband	29%	29%	30%		56%	38%	14%	***
Father/mother	4%	4%	4%		7%	3%	3%	
Brother/sister	24%	26%	16%		13%	33%	26%	
Son/daughter	30%	29%	30%		13%	25%	38%	
Uncle/aunt	4%	4%	4%		0%	0%	7%	
Stepfather/stepmother	1%	1%	0%		0%	0%	2%	
Stepson/stepdaughter	0%	0%	4%		0%	0%	1%	
Stepbrother/sister	0%	0%	0%		0%	0%	0%	
Other parent	4%	4%	2%		3%	1%	6%	
Unrelated	1%	1%	7%		3%	0%	2%	
Other	3%	3%	4%		5%	0%	3%	
n	143	108	35		47	34	62	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q15. Quelle est votre relation au chef de ménage?

Table 34: Respondent born in current district

Respondent born in current district	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	49%	50%	48%		72%	54%	34%	***
[Confidence Interval]	[46.5%, 52.4%]	[46.4%, 53.1%]	[42.7%, 53.2%]		[67.3%, 76.2%]	[48.8%, 58.7%]	[29.3%, 38.9%]	
n	1298	922	376		428	447	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q15.1. Etes-vous né(e) dans ce département?

Table 35: Respondent born in current region

Respondent born in current region	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	52%	53%	49%		75%	56%	36%	***
[Confidence Interval]	[49.1%, 55.0%]	[49.2%, 55.9%]	[43.9%, 54.4%]		[70.9%, 79.4%]	[51.2%, 61.1%]	[31.6%, 41.3%]	
n	1298	922	376		428	447	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q15.2. Etes-vous né(e) dans cette région?

Table 36: Respondent born in current country

Respondent born in current country	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	85%	84%	85%		90%	78%	86%	***
[Confidence Interval]	[82.4%, 86.7%]	[81.9%, 86.8%]	[81.6%, 89.1%]		[86.9%, 92.6%]	[74.1%, 82.5%]	[82.7%, 89.6%]	
n	1297	921	376		428	447	422	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q15.3. Etes-vous né(e) en Cote d'Ivoire?

Table 37: Respondent education

Respondent education	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No education/primary school not completed	65%	64%	72%	*	57%	67%	68%	***
Completed elementary/primary school	16%	16%	15%		19%	17%	13%	
Completed secondary	10%	10%	8%		12%	10%	8%	
University (completed)	3%	3%	2%		6%	1%	4%	
Technical-vocational training	1%	1%	0%		2%	1%	1%	
Technical/professional studies	1%	1%	0%		1%	1%	1%	

Respondent education	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Islamic/French-Arabic school	5%	5%	2%		4%	4%	5%	
Other	0%	0%	0%		0%	1%	0%	
Do not know	0%	0%	0%		0%	0%	0%	
n	1297	922	375		427	446	424	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q16. Quel est le plus haut niveau d'études (dernier diplôme) que vous ayez terminé ?

Table 38: Respondent literate in French

Respondent literate in French	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	52%	53%	49%		57%	49%	52%	*
[Confidence Interval]	[49.4%, 55.3%]	[49.6%, 56.3%]	[43.6%, 54.1%]		[52.3%, 62.0%]	[44.0%, 53.9%]	[47.1%, 57.1%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q17. Êtes-vous capable de lire une phrase en français?

Table 39: Respondent marital status

Respondent marital status	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Single, never married	11%	12%	7%	**	8%	3%	18%	***
Married, civil marriage	3%	4%	2%		5%	4%	2%	
Married, customary-religious	67%	66%	76%		68%	78%	59%	
Divorced	0%	0%	0%		1%	0%	0%	
Widowed	4%	4%	4%		9%	2%	2%	
Cohabiting	14%	14%	12%		8%	13%	18%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q18. Quel est votre statut matrimonial ?

Table 40: Respondent working on farm

Respondent working on farm	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No, never	3%	3%	3%	**	4%	1%	3%	***
Yes, full time	85%	84%	91%		81%	97%	79%	
Yes, occasionally	11%	12%	6%		13%	2%	16%	
Yes, only during harvest	1%	2%	0%		2%	0%	2%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S1.Q19. Travaillez-vous dans la plantation de cacao?

Table 41: Respondent income sources (multiple choices possible)

Respondent income sources	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
None	1% [0.1%, 0.9%]	1% [0.0%, 1.0%]	1% [-0.3%, 1.5%]		1% [0.0%, 1.8%]	0% [0.0%, 0.0%]	1% [-0.1%, 1.5%]	**
Sales of cocoa	98% [97.7%, 99.1%]	98% [97.5%, 99.2%]	99% [97.6%, 99.9%]		99% [97.4%, 99.7%]	98% [96.3%, 99.2%]	99% [97.6%, 99.9%]	
Sales of agricultural harvesting products	51% [47.6%, 53.6%]	51% [47.8%, 54.5%]	47% [42.1%, 52.6%]		58% [53.0%, 62.7%]	76% [72.2%, 80.6%]	28% [23.6%, 32.7%]	
Sales of livestock / poultry or derived products	12% [10.4%, 14.2%]	12% [10.0%, 14.4%]	13% [9.6%, 16.3%]		8% [5.2%, 9.9%]	20% [16.0%, 24.0%]	9% [6.4%, 12.4%]	
Sales of fish	0% [0.1%, 0.7%]	0% [0.0%, 0.8%]	0% [-0.2%, 1.1%]		1% [0.1%, 2.4%]	0% [-0.2%, 0.9%]	0% [0.0%, 0.0%]	
Sales of bush products	1% [0.1%, 1.0%]	1% [0.1%, 1.1%]	0% [-0.3%, 0.8%]		0% [-0.2%, 0.5%]	1% [0.0%, 2.3%]	0% [-0.3%, 0.8%]	

Respondent income sources	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Farm employment	2% [1.2%, 3.0%]	2% [1.2%, 3.4%]	1% [0.0%, 1.7%]	**	0% [0.0%, 0.0%]	3% [1.0%, 4.2%]	3% [1.1%, 4.6%]	***
Non farm employment	2% [1.3%, 3.0%]	2% [1.2%, 3.2%]	2% [0.5%, 3.1%]		1% [0.4%, 2.5%]	2% [0.6%, 3.2%]	3% [1.0%, 4.4%]	
Owner of small business	9% [7.7%, 11.0%]	9% [7.3%, 11.0%]	10% [7.4%, 13.6%]		14% [11.1%, 17.8%]	8% [4.9%, 10.2%]	8% [5.1%, 10.5%]	***
Formal employment in a company	1% [0.4%, 1.5%]	1% [0.3%, 1.6%]	1% [-0.2%, 1.8%]		1% [-0.1%, 1.7%]	1% [0.1%, 2.0%]	1% [-0.0%, 1.9%]	
Formal employment as civil servant	0% [0.1%, 0.8%]	0% [0.0%, 0.7%]	1% [-0.3%, 1.6%]		1% [0.0%, 2.0%]	0% [-0.3%, 0.9%]	0% [-0.1%, 0.5%]	
Sale or lease of owned land	0% [-0.0%, 0.4%]	0% [-0.1%, 0.3%]	1% [-0.3%, 1.5%]		0% [0.0%, 0.0%]	0% [-0.2%, 0.9%]	0% [-0.1%, 0.4%]	
Remittances from friends/family members living outside the household	2% [1.4%, 3.2%]	3% [1.5%, 3.7%]	1% [-0.2%, 1.8%]	**	1% [-0.2%, 1.3%]	5% [2.5%, 6.8%]	2% [0.3%, 3.0%]	***
Other	2% [1.2%, 3.0%]	2% [1.2%, 3.1%]	2% [0.5%, 3.0%]		3% [1.2%, 4.4%]	2% [0.4%, 2.9%]	2% [0.5%, 3.5%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S1.Q20. L'an dernier (2017), quelles ont été toutes vos sources de revenu? Avez-vous VOUS-MÊME personnellement perçu un revenu provenant de...

4. LAND

Table 42: Number of years growing cocoa

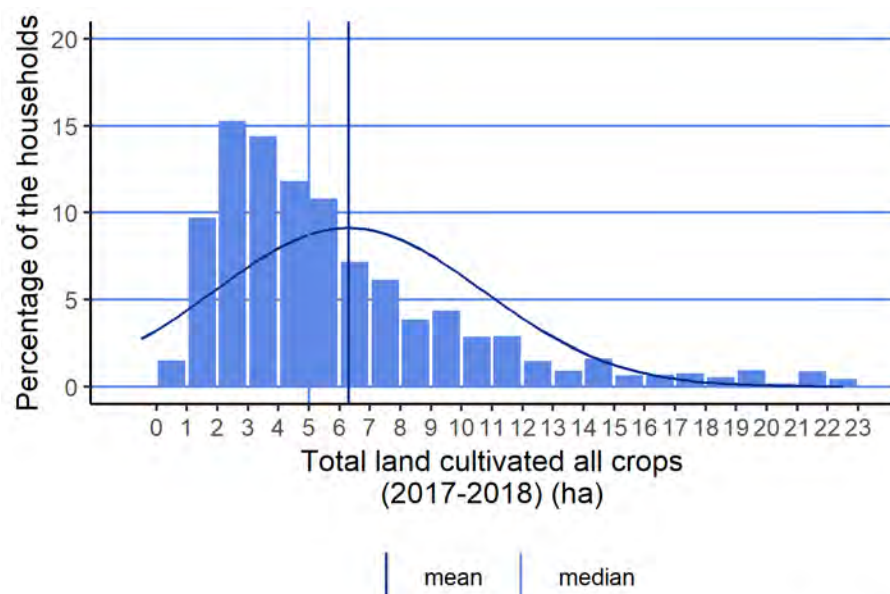
Number of years growing cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
1 to 5 years	3%	3%	4%		2%	4%	2%	
6 to 10 years	12%	13%	10%		12%	18%	9%	
11 to 15 years	14%	15%	12%		16%	20%	9%	
16 to 20 years	17%	17%	15%		19%	25%	10%	***
20 to 24 years	10%	10%	12%		14%	11%	8%	
Over 25 years	44%	43%	48%		37%	22%	63%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q1. Depuis combien d'années votre ménage cultive-t-il le cacao ?

Table 43: Total land used for cultivation known (2017-2018)

Total land used for cultivation known (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	99%	99%	99%		99%	100%	99%	
[Confidence Interval]	[98.5%, 99.7%]	[98.5%, 99.8%]	[97.7%, 100.0%]		[97.8%, 99.9%]	[99.0%, 100.2%]	[97.8%, 99.9%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q3. Savez-vous combien de votre ménage a-t-il consacré à TOUTES les cultures au cours de la campagne 2017-2018 ?



N = 1251

Figure 28: Total land cultivated all crops (2017-2018) (ha) (conditional on total land known by respondent)

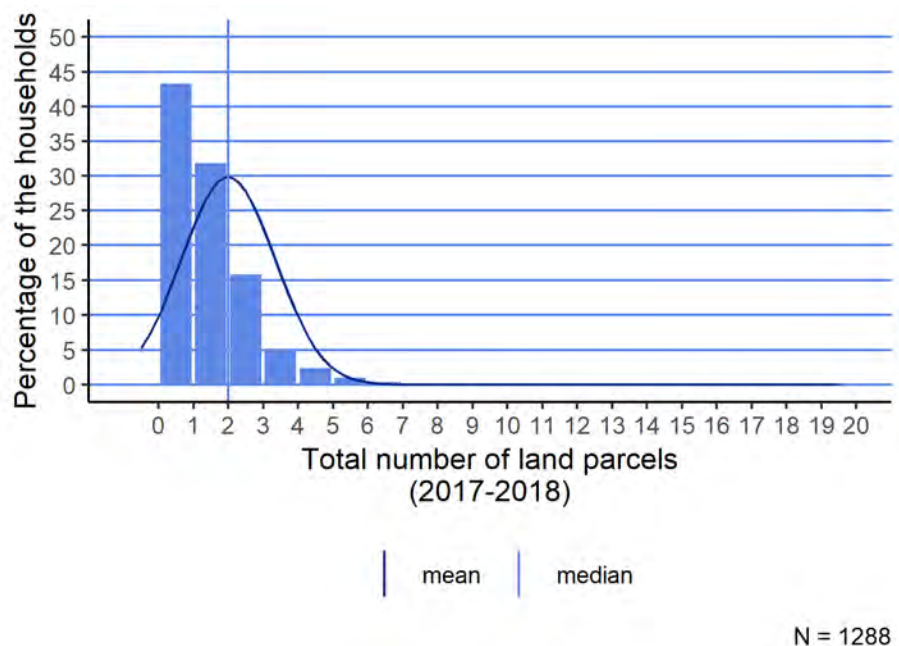


Figure 29: Total number of land parcels (2017-2018) (conditional on total land known by respondent)

Table 44: Land cultivated, owned, leased, sharecropped, parcels (2017-2018) (conditional on total land known by respondent)

All land	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Total land cultivated all crops (2017-2018) (ha)	6.3 [6.03, 6.57]	6.4 [6.05, 6.66]	6 [5.52, 6.41]		6.3 [5.85, 6.69]	5.8 [5.42, 6.24]	6.7 [6.17, 7.14]	**
Total land owned (2017-2018) (ha)	6.7 [6.32, 7.11]	6.7 [6.29, 7.18]	6.6 [5.9, 7.36]		7 [6.3, 7.69]	6.1 [5.51, 6.61]	7 [6.33, 7.74]	**
Total land leased (2017-2018) (ha)	0.2 [0.17, 0.26]	0.2 [0.15, 0.25]	0.3 [0.17, 0.38]		0.1 [0.05, 0.16]	0.3 [0.22, 0.4]	0.2 [0.13, 0.28]	***
Total land sharecropping (2017-2018) (ha)	0.2 [0.1, 0.3]	0.2 [0.09, 0.33]	0.2 [0.07, 0.25]		0.2 [0.09, 0.39]	0.2 [0.1, 0.26]	0.2 [0, 0.41]	
Total number of land parcels (2017-2018)	2 [1.92, 2.07]	2 [1.91, 2.08]	2 [1.86, 2.14]		2.2 [2.09, 2.36]	2.1 [1.9, 2.21]	1.8 [1.72, 1.93]	***
n	1251	891	360		410	433	408	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original questions: S2.Q4. Combien de $\{land_unit_all\}$ votre ménage a-t-il consacré À TOUTES VOS CULTURES au cours de la campagne 2017-2018?, S2.Q5. Combien de $\{land_unit_all\}$ votre ménage POSSÉDAIT-il au cours de la campagne 2017-2018 ? (Terres que le ménage estime « siennes »), S2.Q6. Combien de $\{land_unit_all\}$ votre ménage LOUAIT-il (=vous payez pour utiliser la terre) au cours de la campagne 2017-2018 ?, S2.Q7. Combien de $\{land_unit_all\}$ votre ménage a-t-il utilisé sous MÉTAYAGE au cours de la campagne 2017-2018 ?, S2.Q8. Combien de parcelles séparées votre ménage cultivait-il au cours de la campagne 2017-2018 ?

Table 45: Owned unexploited land (2017-2018) (conditional on total land known by respondent)

Owned unexploited land (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	29%	30%	22%		24%	29%	32%	
[Confidence Interval]	[26.2%, 31.7%]	[27.1%, 33.3%]	[17.4%, 26.0%]	***	[20.2%, 28.7%]	[24.2%, 33.3%]	[26.9%, 36.3%]	*
n	1288	916	372		423	445	420	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q9. Possédez-vous actuellement des terres non encore exploitées?

Table 46: Total land fallow, forest, shallow (2017-2018) (ha) (conditional on owned unexploited land)

Unexploited land	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Total land fallow (2017-2018) (ha)	2.3 [1.7, 2.89]	2.3 [1.6, 2.91]	2.6 [1.77, 3.4]		4.6 [2.06, 7.22]	2.1 [1.61, 2.52]	1.5 [1.04, 1.87]	**
Total land forest (2017-2018) (ha)	0.3 [0.18, 0.37]	0.3 [0.18, 0.38]	0.3 [0.11, 0.42]		0.4 [0.19, 0.62]	0.4 [0.2, 0.51]	0.2 [0.04, 0.3]	*
Total land shallow (2017-2018) (ha)	1 [0.71, 1.29]	1 [0.68, 1.31]	1.1 [0.52, 1.58]		2 [1.16, 2.79]	1.3 [0.57, 1.94]	0.4 [0.25, 0.6]	***
n	351	267	84		104	123	124	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q10. Combien de $\{land_unit_all\}$ non exploités votre ménage a-t-il actuellement sous forme de jachère ?, S2.Q11. Combien de $\{land_unit_all\}$ non exploités votre ménage a-t-il actuellement sous forme de forêt ?, S2.Q12. Combien de $\{land_unit_all\}$ non exploités votre ménage a-t-il actuellement sous forme de bas-fond ?

5. COCOA PRODUCTION

Table 47: Total land used for cocoa known

Total land used for cocoa known	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	99%	99%	99%		98%	99%	99%	
[Confidence Interval]	[98.3%, 99.5%]	[98.3%, 99.6%]	[97.3%, 99.9%]		[96.8%, 99.5%]	[98.5%, 100.2%]	[98.0%, 99.9%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q13. Savez-vous combien de votre ménage a-t-il consacré à la culture du CACAO au cours de la campagne 2017-2018 ?

Table 48: Land with cocoa measured (2017-2018)

Land cocoa measured (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	79%	80%	74%	**	79%	73%	84%	***
[Confidence Interval]	[76.8%, 81.5%]	[77.3%, 82.6%]	[70.0%, 79.0%]		[74.4%, 82.7%]	[68.2%, 76.8%]	[80.6%, 87.9%]	
n	1283	912	371		420	443	420	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q17. La superficie totale de votre plantation de cacao a-t-elle déjà mesurée à l'aide d'un GPS?

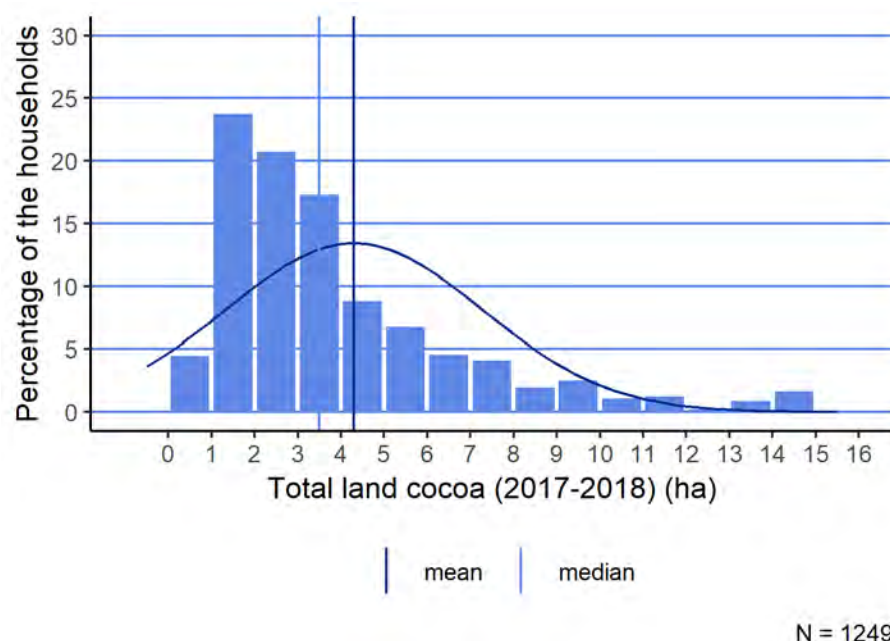


Figure 30: Total land cocoa used (2017-2018) (ha)

Table 49: Total land cocoa used, parcels and owned (2017-2018) (ha) (conditional on total land used for cocoa known)

Land cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Total land cocoa (2017-2018) (ha)	4.3	4.3	4.1		4.6	3.4	4.8	***
	[4.12, 4.48]	[4.13, 4.54]	[3.79, 4.4]		[4.27, 4.87]	[3.16, 3.61]	[4.49, 5.17]	
Total number of land parcels cocoa (2017-2018)	1.4	1.4	1.3		1.6	1.4	1.2	***
	[1.33, 1.41]	[1.33, 1.42]	[1.25, 1.38]		[1.51, 1.67]	[1.28, 1.42]	[1.19, 1.31]	
Total land owned cocoa (2017-2018) (ha)	4.2	4.2	4		4.5	3.3	4.7	***
	[4.02, 4.38]	[4.03, 4.44]	[3.73, 4.33]		[4.18, 4.77]	[3.11, 3.56]	[4.38, 5.05]	
n	1249	887	362		406	441	402	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q14. Combien de \$[land_unit] votre ménage a-t-il UTILISÉS pour le cacao au cours de la campagne 2017-2018 ?, S2.Q15. Combien de parcelles votre ménage utilisait-il pour la culture du cacao au cours de la campagne 2017-2018 ?, S2.Q16. Parmi les terres que vous avez utilisées pour le cacao, de combien de \$[land_unit] de cacao votre ménage était-il PROPRIÉTAIRE au cours de la campagne 2017-2018 ?

Table 50: Land cocoa ownership (2017-2018)

Land cocoa ownership (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Individual ownership	82%	82%	79%		84%	86%	77%	
Family ownership	18%	18%	21%		16%	14%	23%	***
n	1263	895	368		411	444	408	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q18. Ces terres dont vous êtes propriétaire sont-elles en propriété individuelle ou familiale?

Table 51: Land cocoa acquisition (2017-2018) (multiple choices possible)

Land cocoa acquisition (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cleared by respondent	23% [20.2%, 25.6%]	24% [20.6%, 26.6%]	19% [14.3%, 23.5%]	*	15% [11.4%, 19.0%]	3% [1.5%, 5.1%]	42% [36.6%, 46.7%]	***
Inherited	50% [47.1%, 53.1%]	50% [46.5%, 53.3%]	52% [46.2%, 56.9%]		65% [60.4%, 69.9%]	42% [37.4%, 47.2%]	48% [42.6%, 52.8%]	***
Given	10% [7.9%, 11.2%]	9% [6.9%, 10.5%]	14% [10.7%, 18.0%]	***	17% [13.5%, 20.8%]	9% [6.4%, 12.3%]	5% [3.2%, 7.8%]	***
Bought	26% [23.4%, 28.6%]	25% [22.5%, 28.4%]	29% [24.2%, 33.8%]		13% [9.8%, 16.4%]	46% [41.4%, 51.4%]	18% [14.0%, 21.7%]	***
Obtained through sharecropping	3% [1.7%, 3.5%]	3% [1.7%, 3.7%]	2% [0.7%, 3.9%]		5% [2.5%, 6.8%]	4% [1.7%, 5.4%]	1% [-0.0%, 1.7%]	***
Other	1% [0.1%, 1.1%]	1% [0.1%, 1.3%]	0% [-0.4%, 1.2%]		0% [-0.3%, 0.9%]	0% [-0.2%, 0.8%]	1% [-0.0%, 2.2%]	
n	1263	895	368		411	444	408	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q19. Comment avez-vous acquis les terres utilisées pour la culture du cacao dont vous êtes propriétaire?

Table 52: Total land cocoa leased (2017-2018) (ha) (conditional on leasing land for cocoa)

Total land cocoa leased (2017-2018) (ha)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	0.3	0.2	0.4		0.6	0.2	0.2	
[Confidence Interval]	[0.03, 0.49]	[-0.03, 0.49]	[-0.09, 0.89]		[-0.24, 1.38]	[-0.16, 0.57]	[-0.07, 0.56]	
median	0.0	0.0	0.0		0.0	0.0	0.0	
n	171	106	65		26	87	58	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q20. Combien de votre ménage LOUAI-T-IL (=vous payez pour utiliser la terre) pour le cacao au cours de la campagne 2017-2018 ?

Table 53: Total land cocoa sharecropping (2017-2018) (ha) conditional on sharecropping land for cocoa)

Total land cocoa sharecropping (2017-2018) (ha)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2	2.2	1		3.8	1	2	
[Confidence Interval]	[0.97, 2.97]	[0.97, 3.36]	[0.3, 1.77]		[1.57, 5.94]	[0.45, 1.54]	[-0.62, 4.66]	*
median	0.0	0.0	0.0		1.5	0.0	0.0	
n	70	47	23		21	34	15	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q21. Combien de votre ménage a-t-il utilisé en MÉTAYAGE pour le cacao au cours de la campagne 2017-2018 ?

Table 54: Number of cocoa trees known

Number of cocoa trees known	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	8%	9%	3%		1%	7%	13%	
[Confidence Interval]	[6.5%, 10.0%]	[7.1%, 11.1%]	[1.3%, 5.2%]	***	[0.1%, 2.4%]	[4.0%, 9.1%]	[9.8%, 16.7%]	***
n	1297	921	376		428	446	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q22. Savez-vous approximativement combien de cacaoyers (pieds de cacao) votre ménage possède-t-il?

Table 55: Number of cocoa trees (total per hh) (conditional on number of cocoa trees known)

Number of cocoa trees	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	5272.9 [4159.21, 6386.52]	5248.3 [4083.09, 6413.52]	5644.8 [2202.82, 9086.83]		3053.6 [1099.21, 5007.95]	3380.2 [2586.81, 4173.59]	6133.5 [4609.71, 7657.24]	***
median	3863.9	3765.2	4254.2		1999.4	2672.7	3900.0	
n	78	67	11		5	26	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q23. Combien de cacaoyers votre ménage cultive-t-il ?

Table 56: Average age cocoa trees (years)

Average age cocoa trees (years)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	23.4 [22.71, 24.1]	23.2 [22.38, 23.96]	24.7 [23.54, 25.96]	**	19.6 [18.67, 20.62]	17.4 [16.45, 18.31]	29.4 [28.42, 30.45]	***
median	22.0	21.3	25.0		19.0	16.0	30.0	
n	1138	806	332		366	382	390	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q24. Quel est l'âge de la plupart de vos cacaoyers ? En année(s)

Table 57: Total land cocoa per age category (ha) (conditional on number of cocoa trees known by respondent)

Categories	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Total land cocoa trees aged < 5 years (ha)	0.5 [0.43, 0.56]	0.5 [0.44, 0.58]	0.4 [0.34, 0.5]		0.7 [0.56, 0.86]	0.4 [0.31, 0.47]	0.5 [0.36, 0.56]	***
Total land cocoa trees aged between 5-25 years (ha)	2.5 [2.23, 2.73]	2.6 [2.27, 2.85]	2 [1.73, 2.27]	***	3.3 [2.9, 3.77]	2.6 [2.36, 2.79]	1.9 [1.46, 2.42]	***
Total land cocoa trees aged > 25 years (ha)	2 [1.81, 2.26]	1.9 [1.7, 2.18]	2.6 [1.99, 3.23]	**	1.5 [1.11, 1.81]	0.6 [0.43, 0.82]	3.4 [2.95, 3.78]	***
n	1283	912	371		420	443	420	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: Vous avez dit plus tôt que votre ménage possédait \${cocoa_land_used} \${land_unit} de cacao. De cette superficie, combien de \${land_unit} de cacao ont...

Table 58: Current total land cocoa compared to 5 years ago

Total land cocoa <=/> compared to 5 years ago	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Increased	16%	14%	22%	**	21%	13%	15%	***
Decreased	8%	8%	11%		4%	12%	8%	
No change	76%	77%	67%		75%	75%	76%	
Did not grow 5 years ago	1%	1%	0%		0%	0%	1%	
Do not know	0%	0%	0%		0%	0%	0%	
n	1249	876	373		425	445	379	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q28. La superficie des terres consacrées au cacao par votre ménage a-t-elle augmenté ou diminué ou est-elle restée la même par rapport à il y a 5 ans ?

Table 59: How additional cocoa land was acquired (multiple choices possible) (conditional on total land cocoa <=/>)

How additional cocoa land was acquired	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Bush cleared	39% [31.9%, 45.9%]	41% [32.5%, 49.5%]	31% [21.1%, 41.6%]		55% [44.2%, 65.0%]	61% [46.8%, 74.2%]	10% [2.0%, 17.0%]	***
Cleared forest	15% [10.2%, 20.5%]	11% [5.8%, 17.0%]	29% [18.5%, 40.3%]	***	8% [2.6%, 14.3%]	18% [6.6%, 28.7%]	20% [10.5%, 29.3%]	*
Exploitation or reconverted pasture ground	16% [11.1%, 21.1%]	11% [5.9%, 17.0%]	33% [22.3%, 43.0%]	***	22% [14.2%, 30.3%]	8% [0.6%, 15.9%]	16% [6.9%, 25.4%]	**
Purchased land	18% [11.2%, 23.9%]	22% [13.8%, 29.6%]	3% [-1.1%, 6.2%]	***	1% [-1.3%, 4.1%]	10% [1.2%, 18.1%]	38% [24.3%, 50.8%]	***
Inherited	11% [5.8%, 15.4%]	13% [6.6%, 18.6%]	3% [-1.2%, 7.8%]	**	12% [4.7%, 19.4%]	0% [0.0%, 0.0%]	17% [6.4%, 26.9%]	***
Rented	1% [-0.3%, 1.4%]	0% [-0.5%, 1.4%]	1% [-0.9%, 2.7%]		1% [-1.0%, 3.2%]	1% [-0.7%, 2.2%]	0% [0.0%, 0.0%]	
Sharecropping	3% [0.6%, 5.4%]	4% [0.8%, 6.9%]	0% [0.0%, 0.0%]	**	4% [-0.4%, 8.5%]	6% [-0.6%, 12.7%]	0% [0.0%, 0.0%]	**

How additional cocoa land was acquired	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Other	4% [1.2%, 6.2%]	3% [0.3%, 6.2%]	5% [0.7%, 9.8%]		5% [0.6%, 9.4%]	4% [-0.4%, 8.9%]	2% [-2.0%, 6.2%]	
n	215	133	82		96	56	63	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q29. Comment votre ménage a-t-il augmenté la superficie des terres consacrées au cacao ?

Table 60: Reason for decreased land cocoa (multiple choices possible) (conditional on total land cocoa <= / >)

Reason for decreased land cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Deforested for other crops	22% [13.6%, 31.3%]	26% [14.8%, 36.3%]	10% [1.5%, 18.8%]	**	10% [-4.1%, 23.6%]	33% [19.8%, 46.7%]	12% [-0.7%, 25.7%]	**
Deforested and left fallow	12% [5.1%, 18.0%]	14% [5.9%, 21.9%]	2% [-1.8%, 5.4%]	***	54% [29.9%, 78.0%]	7% [-0.7%, 14.4%]	4% [-3.8%, 12.2%]	***
Land sold	1% [-0.8%, 3.6%]	1% [-1.3%, 3.9%]	2% [-1.8%, 5.7%]		0% [0.0%, 0.0%]	3% [-1.5%, 7.3%]	0% [0.0%, 0.0%]	
Other	66% [55.8%, 75.7%]	61% [48.6%, 72.8%]	86% [76.1%, 96.0%]	***	36% [13.8%, 58.8%]	59% [45.4%, 73.4%]	83% [68.5%, 98.2%]	***
n	104	65	39		18	56	30	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q30. Comment votre ménage a-t-il diminué la superficie des terres consacrées au cacao ?

Table 61: Cocoa varieties (multiple choices possible)

Cocoa varieties	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amazonia (Ghana)	61% [57.7%, 63.4%]	59% [56.2%, 62.7%]	67% [62.0%, 71.8%]	**	40% [35.7%, 45.3%]	60% [55.0%, 64.8%]	72% [67.6%, 76.6%]	***
Hybrid (Mercedes)	26% [23.6%, 28.8%]	26% [23.0%, 28.8%]	28% [23.3%, 32.6%]		31% [26.7%, 35.8%]	31% [26.8%, 36.1%]	20% [15.7%, 23.7%]	***
French	26% [23.3%, 28.6%]	26% [22.8%, 28.8%]	27% [22.4%, 31.7%]		25% [20.5%, 28.8%]	23% [19.0%, 27.4%]	29% [24.1%, 33.2%]	
Unselected variety	46% [43.5%, 49.4%]	49% [45.4%, 52.1%]	33% [28.2%, 38.1%]	***	54% [49.5%, 59.2%]	43% [37.9%, 47.7%]	45% [39.7%, 49.7%]	***
Other	1% [0.7%, 2.2%]	2% [0.8%, 2.5%]	0% [-0.4%, 1.2%]	**	1% [0.2%, 2.7%]	2% [0.3%, 3.0%]	1% [0.1%, 2.6%]	
Do not know	2% [1.1%, 2.5%]	2% [0.9%, 2.4%]	3% [1.0%, 4.4%]		3% [1.4%, 5.0%]	2% [0.7%, 3.3%]	1% [0.1%, 1.5%]	**
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q31. Quelles variétés de cacao cultivez-vous dans votre plantation?

Table 62: Cocoa variety used most (largest cultivated area)

Cocoa variety used most (largest cultivation area)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amazonia (Ghana)	50%	49%	57%	**	32%	50%	59%	***
Hybrid (Mercedes)	8%	7%	9%		12%	8%	5%	
French	9%	9%	10%		15%	6%	9%	
Unselected variety	32%	34%	23%		41%	35%	26%	
Other	1%	1%	0%		1%	1%	1%	
Do not know	0%	0%	0%		0%	0%	0%	
n	1257	893	364		404	436	417	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q32. Quelle variétés de cacao cultivez-vous majoritairement (sur la plus grande superficie) dans votre plantation?

Table 63: Cocoa trees in rows

Cocoa trees in rows	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	6% [4.5%, 7.2%]	6% [4.2%, 7.2%]	7% [4.4%, 9.4%]		5% [2.6%, 6.7%]	10% [6.8%, 12.6%]	4% [1.9%, 5.7%]	***
n	1299	923	376		427	447	425	

Cocoa trees in rows	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
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Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q33. Les cacaoyers de votre ménage sont-ils plantés par rangée ?

Table 64: Average distance between cocoa trees known (conditional on cocoa trees in rows)

Average distance between cocoa trees known	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	70%	68%	77%		76%	65%	74%	
[Confidence Interval]	[58.7%, 80.7%]	[55.3%, 81.0%]	[61.7%, 92.7%]		[55.0%, 96.1%]	[50.3%, 80.2%]	[51.0%, 96.9%]	
n	84	54	30		20	48	16	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q34. Connaissez-vous la distance moyenne entre les cacaoyers sur l'exploitation de votre ménage ?

Table 65: Average distance between cocoa trees (mtrs) (conditional on distance between cocoa trees known)

Average distance between cocoa trees (mtrs)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.9	2.9	3		2.8	3.1	2.7	
[Confidence Interval]	[2.6, 3.21]	[2.53, 3.27]	[2.6, 3.3]		[2.45, 3.18]	[2.49, 3.61]	[2.43, 3.06]	
median	2.5	2.5	2.5		2.9	2.5	2.6	
n	60	37	23		16	32	12	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q35. Quelle est la distance moyenne entre les cacaoyers de votre ménage ?

Table 66: Average distance between cocoa rows (mtrs) (conditional on distance between cocoa trees known)

Average distance between cocoa rows (mtrs)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.9	2.8	3.1		3	2.7	3	
[Confidence Interval]	[2.68, 3.05]	[2.59, 3.03]	[2.81, 3.37]		[2.58, 3.46]	[2.51, 2.98]	[2.61, 3.32]	
median	3.0	3.0	3.0		3.0	3.0	3.0	
n	59	36	23		16	32	11	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q36. Quelle est la distance moyenne entre les rangées ?

Table 67: Intercropping of cocoa

Intercropping of cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	78%	79%	73%		71%	86%	76%	
[Confidence Interval]	[75.4%, 80.3%]	[76.0%, 81.4%]	[68.2%, 77.9%]	**	[66.5%, 75.4%]	[82.2%, 89.2%]	[71.9%, 80.3%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q37. Votre ménage associe-t-il la culture du cacao à une autre culture ?

Table 68: Intercropping of cocoa < 5 years (conditional on the practice of intercropping)

Intercropping of cocoa < 5 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	91%	91%	88%		94%	90%	90%	
[Confidence Interval]	[87.9%, 93.8%]	[87.9%, 94.5%]	[82.7%, 93.9%]		[90.1%, 97.0%]	[84.3%, 95.2%]	[84.0%, 95.2%]	
n	453	322	131		191	140	122	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q38. Associez-vous d'autres cultures à des cacaoyers de 5 ans ou moins ?

Table 69: Intercropping of cocoa < 5 years: crop cultivated (conditional on the practice of intercropping)

Intercropping of cocoa < 5 years: crop cultivated	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Avocado	4%	5%	0%	**	0%	3%	9%	***
Akpi	0%	0%	1%		0%	0%	0%	
Pineapple	0%	0%	0%		0%	1%	0%	
Peanuts	0%	0%	2%		0%	0%	0%	
Eggplant	0%	0%	0%		0%	0%	1%	

Intercropping of cocoa < 5 years: crop cultivated	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Sweet banana	1%	1%	1%		1%	0%	1%	
Plantain	62%	60%	79%		86%	53%	50%	
Coffee	3%	3%	2%		1%	7%	1%	
Lemon	1%	1%	0%		0%	0%	3%	
Lime	0%	0%	0%		0%	0%	0%	
Ginger	0%	0%	0%		0%	0%	0%	
Okra	0%	0%	0%		0%	1%	0%	
Yam	6%	7%	2%		6%	8%	5%	
Legumes and beans	0%	0%	0%		0%	0%	0%	
Mais	1%	2%	0%		0%	1%	3%	
Mango	0%	0%	0%		0%	0%	1%	
Cassava	9%	9%	11%		4%	12%	11%	
Orange	5%	6%	0%		0%	0%	13%	
Papaya	0%	0%	0%		0%	0%	0%	
Chilli pepper	0%	0%	0%		0%	0%	0%	
Tomato	0%	0%	0%		0%	0%	0%	
Other	5%	5%	1%		2%	13%	0%	
n	411	296	115		176	126	109	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q39. Quelle autre culture associez-vous à vos cacaoyers de 5 ans ou moins ?

Table 70: Intercropping of cocoa 5-25 years (conditional on the practice of intercropping)

Intercropping of cocoa 5-25 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	85%	86%	81%		72%	93%	86%	
[Confidence Interval]	[82.7%, 88.0%]	[83.0%, 88.8%]	[76.2%, 86.7%]		[66.1%, 77.3%]	[89.8%, 95.8%]	[81.3%, 91.6%]	***
n	786	572	214		260	338	188	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q40. Associez-vous d'autres cultures à des cacaoyers de 5 à 25 ans ?

Table 71: Intercropping of cocoa 5-25 years: crop cultivated (conditional on the practice of intercropping)

Intercropping of cocoa 5-25 years: crop cultivated	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Avocado	7%	7%	4%		3%	3%	13%	
Akpi	2%	2%	1%		0%	0%	5%	
Sweet banana	2%	2%	0%		7%	0%	1%	
Plantain	46%	45%	52%		48%	59%	28%	
Coffee	10%	11%	9%		10%	18%	0%	
Lemon	1%	2%	0%		0%	0%	4%	
Lime	0%	0%	0%		0%	0%	0%	***
Okra	0%	0%	0%		1%	0%	0%	
Mango	2%	2%	1%		0%	0%	5%	
Cassava	10%	9%	11%		10%	2%	18%	
Orange	9%	8%	11%		9%	3%	15%	
Papaya	0%	0%	0%		0%	0%	1%	

Intercropping of cocoa 5-25 years: crop cultivated	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Kola	2%	2%	1%		1%	0%	5%	
Other	9%	9%	12%		10%	14%	4%	
n	658	487	171		178	316	164	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q41. Quelle autre culture associez-vous à vos cacaoyers de 5 à 25 ans ?

Table 72: Intercropping of cocoa > 25 years (conditional on the practice of intercropping)

Intercropping of cocoa > 25 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	82%	83%	77%		54%	84%	87%	***
[Confidence Interval]	[78.1%, 85.7%]	[78.5%, 86.9%]	[69.4%, 84.4%]		[43.6%, 63.7%]	[75.5%, 92.9%]	[83.0%, 91.8%]	
n	427	302	125		106	81	240	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q42. Associez-vous d'autres cultures à des cacaoyers de 25 ans ou plus ?

Table 73: Intercropping of cocoa > 25 years: crop cultivated (conditional on the practice of intercropping)

Intercropping of cocoa > 25 years: crop cultivated	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Avocado	13%	13%	15%	***	2%	10%	16%	***
Akpi	8%	9%	0%		9%	2%	9%	
Sweet banana	1%	1%	1%		10%	0%	0%	
Plantain	19%	17%	30%		24%	32%	15%	
Coffee	6%	5%	11%		11%	22%	2%	
Lemon	2%	3%	0%		0%	0%	3%	
Lime	0%	0%	1%		1%	0%	0%	
Okra	0%	0%	0%		2%	0%	0%	
Mango	6%	6%	1%		0%	2%	7%	
Cassava	14%	13%	20%		17%	5%	16%	
Orange	19%	21%	8%		5%	10%	23%	
Papaya	0%	0%	0%		0%	0%	0%	
Kola	3%	4%	1%		0%	0%	5%	
Other	8%	8%	11%		19%	17%	5%	
n	335	242	93		56	69	210	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q43. Quelle autre culture associez-vous à vos cacaoyers de 25 ans ou plus ?

Table 74: Shade trees

Shade trees	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	80%	80%	77%		76%	73%	88%	***
[Confidence Interval]	[77.7%, 82.3%]	[77.9%, 83.0%]	[73.1%, 81.6%]		[71.3%, 79.9%]	[68.3%, 77.0%]	[84.5%, 90.9%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q44. Utilisez-vous des arbres d'ombrage dans votre plantation ?

Table 75: Shade trees (type) (multiple choices possible) (conditional on presence of shade trees)

Shade trees (type)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Acacia	5% [3.7%, 6.8%]	6% [3.8%, 7.4%]	3% [1.1%, 5.4%]		1% [0.0%, 2.7%]	7% [3.8%, 9.7%]	6% [3.5%, 8.9%]	***

Shade trees (type)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Acacia mangium	7% [5.1%, 8.7%]	8% [5.5%, 9.7%]	3% [0.8%, 4.9%]	***	0% [0.0%, 0.0%]	8% [4.9%, 11.5%]	9% [6.2%, 12.6%]	***
Assamela	2% [0.8%, 2.6%]	2% [0.6%, 2.7%]	2% [0.2%, 4.0%]		0% [-0.2%, 0.6%]	1% [-0.0%, 2.5%]	3% [1.0%, 4.5%]	**
Iroko	33% [30.0%, 36.4%]	33% [29.1%, 36.2%]	36% [30.4%, 42.3%]		25% [20.0%, 29.7%]	27% [22.1%, 32.5%]	41% [35.4%, 45.9%]	***
Bete wood	6% [4.6%, 7.7%]	6% [4.2%, 7.6%]	8% [4.6%, 11.4%]		6% [3.1%, 8.5%]	10% [6.6%, 13.5%]	4% [2.0%, 6.2%]	**
Red wood	7% [5.2%, 8.4%]	7% [4.9%, 8.5%]	7% [3.9%, 10.4%]		11% [7.9%, 15.1%]	6% [3.0%, 8.4%]	5% [2.8%, 7.6%]	**
Frake	37% [34.3%, 40.6%]	35% [31.5%, 38.6%]	52% [46.0%, 58.2%]	***	63% [57.8%, 68.7%]	32% [26.8%, 37.8%]	28% [23.6%, 33.1%]	***
Framire	10% [7.6%, 11.5%]	10% [7.4%, 11.8%]	9% [5.7%, 12.6%]		13% [8.9%, 16.5%]	6% [3.6%, 9.3%]	10% [6.6%, 13.0%]	**
Kapok tree	51% [47.5%, 54.2%]	50% [46.0%, 53.6%]	57% [51.2%, 63.1%]	**	27% [21.9%, 31.8%]	48% [42.0%, 53.7%]	64% [58.9%, 69.1%]	***
Merinda	2% [1.2%, 3.1%]	2% [1.2%, 3.4%]	1% [-0.2%, 2.5%]		1% [0.0%, 2.5%]	5% [2.0%, 7.1%]	1% [-0.0%, 2.3%]	*
Samba	9% [6.6%, 10.5%]	9% [7.0%, 11.4%]	5% [2.4%, 7.0%]	***	7% [4.4%, 10.5%]	9% [5.8%, 12.6%]	9% [5.6%, 11.8%]	
Tiama	7% [5.5%, 8.4%]	7% [5.1%, 8.4%]	8% [5.2%, 11.1%]		24% [19.5%, 29.3%]	3% [0.8%, 4.6%]	1% [0.1%, 2.4%]	***
Teak	5% [3.0%, 6.0%]	5% [3.1%, 6.5%]	3% [0.7%, 4.6%]		2% [0.6%, 3.7%]	3% [0.9%, 4.9%]	7% [3.8%, 9.3%]	**
Do not know	10% [7.8%, 11.8%]	10% [8.1%, 12.7%]	6% [3.2%, 9.0%]	**	10% [6.6%, 13.7%]	10% [6.5%, 13.6%]	9% [6.3%, 12.7%]	
Other	22% [18.9%, 24.5%]	22% [18.4%, 24.6%]	23% [17.6%, 27.9%]		11% [7.4%, 14.3%]	33% [27.3%, 38.4%]	20% [15.9%, 24.5%]	***
n	1011	728	283		328	314	369	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q45. Quels arbres d'ombrage utilisez-vous dans votre plantation ?

Table 76: Cocoa production known (2017-2018)

Cocoa production known (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	82%	82%	82%		91%	84%	75%	***
[Confidence Interval]	[79.5%, 84.2%]	[79.1%, 84.5%]	[78.1%, 86.6%]		[88.8%, 94.2%]	[80.9%, 88.1%]	[70.4%, 79.1%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q48. Savez-vous combien de de cacao votre ménage a produits lors de la campagne 2017-2018 ?

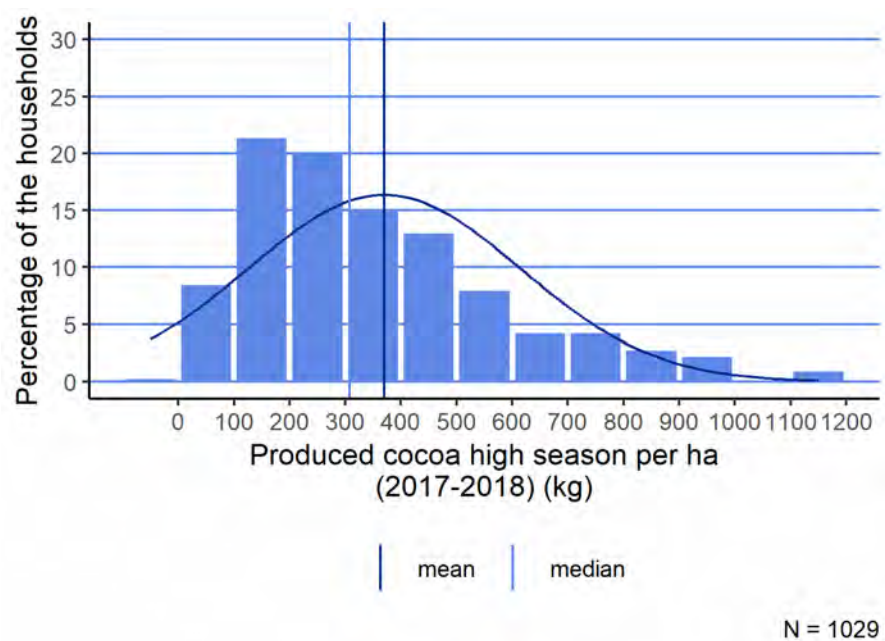


Figure 31: Produced cocoa high season per ha (2017-2018) (kg) (conditional on cocoa production known)

Table 77: Produced cocoa high season per ha (2017-2018) (kg) (conditional on cocoa production known)

Produced cocoa high season per ha (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	369.8	377.6	325.4	***	360.2	308.2	428.5	***
[Confidence Interval]	[352.96, 386.62]	[358.38, 396.79]	[299.63, 351.08]		[337.6, 382.77]	[284.43, 331.89]	[395.64, 461.3]	
median	307.8	320.0	265.1		310.9	250.0	369.6	
n	1029	725	304		367	369	293	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

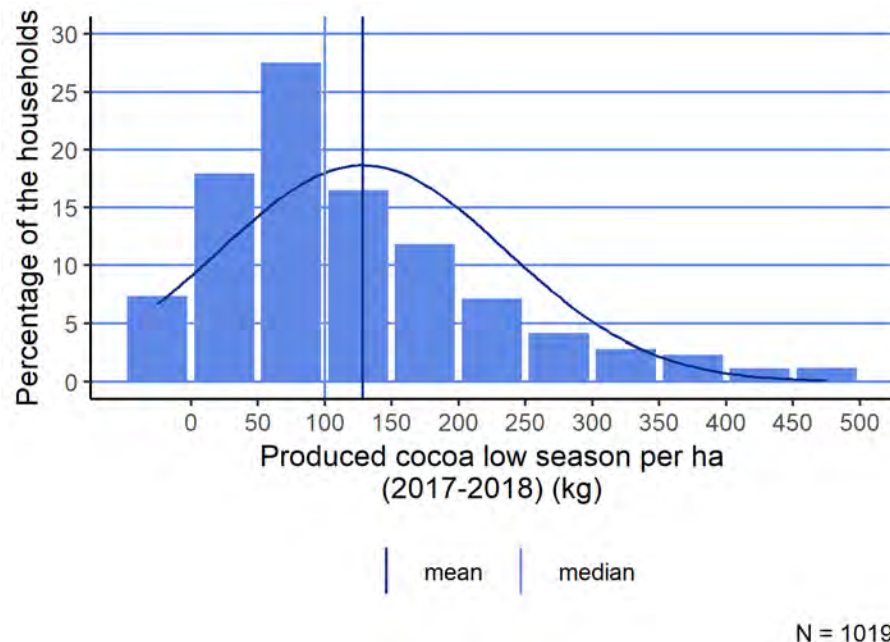


Figure 32: Produced cocoa low season per ha (2017-2018) (kg) (conditional on cocoa production known)

Table 78: Produced cocoa low season per ha (2017-2018) (kg) (conditional on cocoa production known)

Produced cocoa low season per ha (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	128.4	130.9	114.5	**	109.5	97.8	166.9	***
[Confidence Interval]	[120.89, 135.94]	[122.27, 139.51]	[103.09, 125.98]		[101.16, 117.75]	[87.42, 108.27]	[152.01, 181.79]	
median	100.0	100.0	93.3		90.0	80.0	135.7	
n	1019	715	304		368	360	291	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

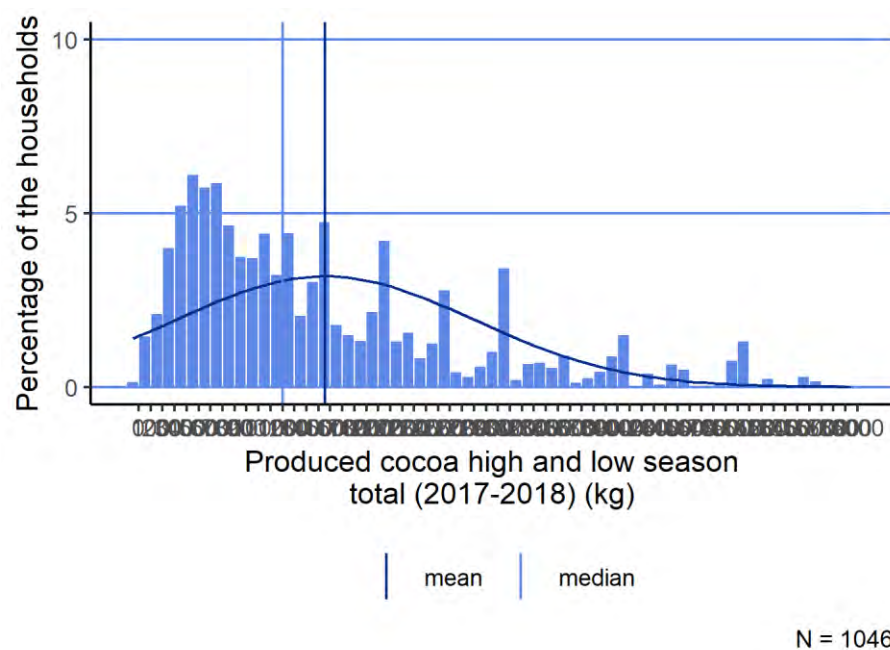


Figure 33: Annual cocoa production (2017-2018) (kg) (conditional on cocoa production known)

Table 79: Annual cocoa production (2017-2018) (kg) (conditional on cocoa production known)

Produced cocoa high and low season total (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	1553.5 [1469.98, 1637]	1583.7 [1489.02, 1678.31]	1383.8 [1236.02, 1531.64]	**	1586.1 [1459.53, 1712.65]	1167.9 [1050.16, 1285.59]	1852.2 [1695.75, 2008.72]	***
median	1200.0	1204.0	1000.2		1205.0	800.0	1503.8	
n	1046	735	311		371	372	303	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

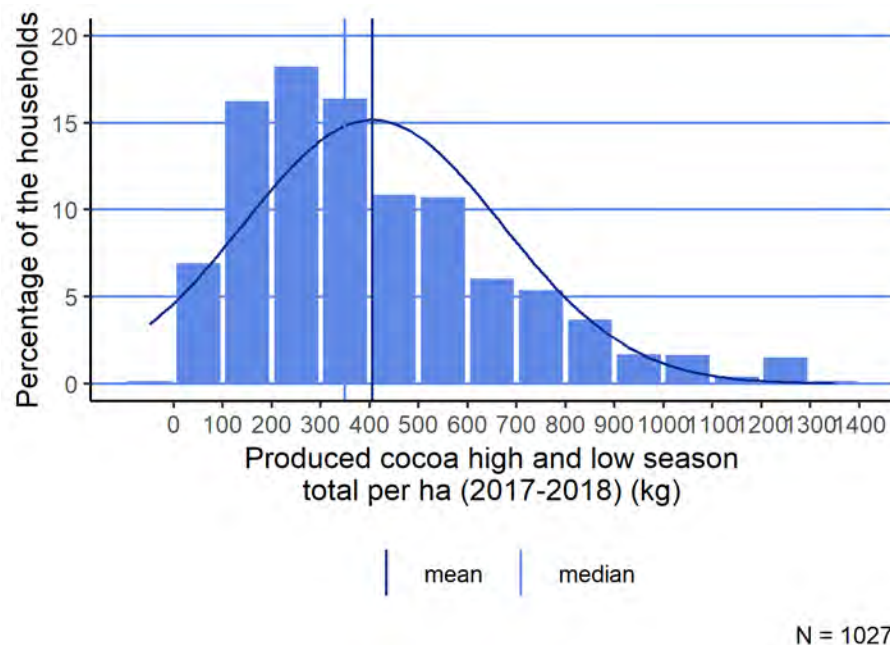


Figure 34: Annual cocoa production per ha (2017-2018) (kg) (conditional on cocoa production known)

Table 80: Annual cocoa production per ha (2017-2018) (kg) (conditional on cocoa production known)

Produced cocoa high and low season total per ha (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	405.7 [387.63, 423.67]	413.8 [393.19, 434.34]	359.5 [332, 386.97]	***	396.5 [371.89, 421.09]	362.7 [334.69, 390.74]	448.1 [413.72, 482.4]	***
median	348.6	350.2	305.7		346.8	303.9	397.8	
n	1027	723	304		366	368	293	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Table 81: Months when cocoa was sold (2017-2018) (multiple choices possible) (conditional on cocoa production known)

Months when cocoa was sold (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	60% [56.4%, 62.7%]	60% [56.4%, 63.6%]	57% [51.1%, 62.6%]		54% [48.8%, 59.1%]	65% [59.3%, 69.7%]	59% [53.6%, 64.9%]	**
February	35% [31.7%, 38.0%]	35% [31.3%, 38.3%]	35% [29.4%, 40.6%]		19% [14.6%, 22.8%]	40% [34.5%, 45.0%]	42% [36.0%, 47.4%]	***
March	34% [31.2%, 37.4%]	33% [29.7%, 36.7%]	40% [34.7%, 46.2%]	**	31% [25.8%, 35.3%]	23% [18.1%, 27.2%]	46% [40.5%, 52.0%]	***
April	42% [39.3%, 45.7%]	42% [37.9%, 45.1%]	48% [42.2%, 53.7%]	*	62% [57.4%, 67.4%]	17% [12.9%, 21.1%]	50% [44.0%, 55.6%]	***
May	38% [34.4%, 40.8%]	38% [34.5%, 41.7%]	35% [29.2%, 40.4%]		49% [44.0%, 54.3%]	9% [5.6%, 11.9%]	53% [47.4%, 58.9%]	***
June	23% [20.4%, 26.2%]	23% [20.0%, 26.5%]	23% [18.3%, 28.6%]		14% [10.9%, 17.9%]	3% [1.2%, 5.1%]	46% [39.8%, 51.3%]	***

Months when cocoa was sold (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
July	13% [10.4%, 15.1%]	12% [9.5%, 14.7%]	17% [12.1%, 21.4%]	*	4% [1.8%, 5.3%]	0% [-0.3%, 1.0%]	29% [23.8%, 34.2%]	***
August	11% [9.1%, 13.5%]	10% [7.8%, 12.7%]	17% [12.3%, 21.6%]	**	4% [2.0%, 5.7%]	1% [0.1%, 2.2%]	24% [19.5%, 29.4%]	***
September	31% [28.1%, 34.2%]	30% [26.6%, 33.5%]	38% [32.2%, 43.6%]	**	24% [19.9%, 28.6%]	19% [14.8%, 23.3%]	46% [39.9%, 51.5%]	***
October	85% [82.5%, 87.2%]	85% [82.4%, 87.7%]	84% [79.4%, 87.9%]		91% [88.5%, 94.4%]	77% [72.1%, 81.1%]	87% [83.1%, 91.0%]	***
November	91% [88.8%, 92.8%]	91% [88.7%, 93.2%]	90% [86.4%, 93.6%]		98% [96.4%, 99.2%]	90% [87.2%, 93.6%]	86% [82.3%, 90.4%]	***
December	89% [86.6%, 90.7%]	89% [86.8%, 91.5%]	86% [81.7%, 89.9%]		93% [90.5%, 95.8%]	86% [81.9%, 89.5%]	88% [84.3%, 91.7%]	***
n	1086	769	317		391	379	316	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q51. Au cours de quels mois avez-vous vendu du cacao au cours de la campagne 2017-2018?

Table 82: Quantity of cocoa production sold to cooperative high season (2017-2018) (kg) (conditional on cocoa production known)

Amount of cocoa production sold to cooperative main season (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	235.8	239.8	212.9		236.6	381.9	119.5	***
[Confidence Interval]	[205.44, 266.26]	[204.98, 274.66]	[168.46, 257.42]		[188.26, 284.97]	[320.2, 443.67]	[77.34, 161.66]	
median	9.5	10.0	7.0		10.0	14.8	7.6	
n	1043	738	305		370	364	309	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q52. Vous avez dit avoir produit de cacao au cours de la grande traite de la campagne 2017-2018. Sur cette quantité, combien de votre ménage a-t-il vendu à la coopérative dont vous êtes membre?

Table 83: Other buyers high season (2017-2018) (multiple choices possible) (conditional on other cocoa buyers)

Other buyers high season (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Other cooperative	8% [4.0%, 12.1%]	10% [4.6%, 14.9%]	2% [-0.7%, 4.1%]	***	16% [6.3%, 26.0%]	4% [-0.1%, 8.7%]	8% [-0.6%, 16.5%]	*
Traders / Private Buyer	92% [87.6%, 95.7%]	90% [84.7%, 94.9%]	98% [95.9%, 100.7%]	***	84% [74.0%, 93.7%]	93% [87.8%, 98.7%]	95% [87.2%, 101.9%]	
Exporter	1% [-0.6%, 1.7%]	1% [-0.7%, 2.2%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	1% [-1.2%, 3.8%]	0% [0.0%, 0.0%]	
Other chocolate company	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	1% [-0.4%, 2.3%]	1% [-0.5%, 2.9%]	0% [0.0%, 0.0%]		2% [-1.8%, 5.5%]	1% [-1.1%, 3.4%]	0% [0.0%, 0.0%]	
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	225	139	86		58	108	59	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q54. À qui d'autre avez-vous vendu du cacao pendant la grande traite de la campagne 2017-2018?

Table 84: Mode of payment buyers (2017-2018)

Mode of payment used by cocoa buyers (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Payment of full amount in cash	66%	67%	58%		48%	83%	63%	
Down payment in cash	33%	31%	41%		51%	14%	36%	
Mobile money transfer	0%	0%	0%	**	0%	0%	0%	***
Bank transfer	0%	0%	0%		0%	0%	0%	
Bank check	0%	0%	0%		0%	0%	0%	
Other	1%	1%	0%		0%	2%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q42. Quel mode de paiement avez-vous utilisé principalement lors de la transaction avec vos acheteurs au cours de la campagne 2017-2018?

Table 85: Cocoa kept by household in high season (2017-2018) (conditional on cocoa sold to cooperative)

Cocoa retained main season (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3%	3%	5%		0%	1%	8%	
[Confidence Interval]	[0.5%, 6.1%]	[-0.4%, 6.1%]	[-0.5%, 10.4%]		[0.0%, 0.0%]	[-1.2%, 3.8%]	[0.7%, 15.9%]	*
n	226	140	86		58	108	60	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q54.1. Avez-vous gardé une partie de votre production de cacao de la grande traite?

Table 86: Quantity of cocoa production sold to cooperative low season (2017-2018) (kg) (conditional on cocoa production known)

Amount of cocoa production sold to cooperative light season (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	42.1	42.3	41.1		68.8	45.9	21.4	
[Confidence Interval]	[35.18, 49.11]	[34.37, 50.27]	[29.98, 52.29]		[54.13, 83.45]	[33.35, 58.48]	[11.92, 30.81]	***
median	2.0	2.0	1.0		3.0	0.0	2.0	
n	1036	730	306		369	363	304	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q55. Au cours de la petite traite de la campagne 2017-2018, vous avez produit de cacao. Sur cette quantité, combien de votre ménage a-t-il vendu à la coopérative dont vous êtes membre?

Table 87: Other buyers low season (2017-2018) (multiple choices possible) (conditional on other cocoa buyers)

Other buyers low season (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Other cooperative	5%	6%	2%		13%	1%	9%	
	[2.1%, 8.1%]	[2.1%, 9.4%]	[-0.3%, 4.9%]		[3.6%, 22.4%]	[-0.6%, 2.9%]	[0.6%, 16.6%]	**
Traders / Private Buyer	95%	94%	98%		91%	98%	91%	
	[92.0%, 98.1%]	[90.8%, 98.1%]	[95.1%, 100.3%]		[83.7%, 99.1%]	[95.7%, 100.4%]	[83.4%, 99.4%]	*
Exporter	0%	1%	0%		0%	1%	0%	
	[-0.4%, 1.3%]	[-0.5%, 1.6%]	[0.0%, 0.0%]		[0.0%, 0.0%]	[-0.8%, 2.4%]	[0.0%, 0.0%]	
Other chocolate company	0%	0%	0%	NA	0%	0%	0%	NA
	[0.0%, 0.0%]	[0.0%, 0.0%]	[0.0%, 0.0%]		[0.0%, 0.0%]	[0.0%, 0.0%]	[0.0%, 0.0%]	
Other	1%	1%	0%		0%	0%	2%	
	[-0.6%, 2.0%]	[-0.8%, 2.5%]	[0.0%, 0.0%]		[0.0%, 0.0%]	[0.0%, 0.0%]	[-2.1%, 6.5%]	
Do not know	0%	0%	0%	NA	0%	0%	0%	NA
	[0.0%, 0.0%]	[0.0%, 0.0%]	[0.0%, 0.0%]		[0.0%, 0.0%]	[0.0%, 0.0%]	[0.0%, 0.0%]	
n	278	180	98		51	157	70	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q57. À qui d'autre avez-vous vendu du cacao pendant la petite traite de la campagne 2017-2018?

Table 88: Cocoa kept by household in low season (2017-2018) (conditional on cocoa sold to cooperative)

Cocoa retained light season (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	5%	5%	3%		0%	7%	3%	
[Confidence Interval]	[1.9%, 7.4%]	[1.8%, 8.3%]	[-0.5%, 6.4%]		[0.0%, 0.0%]	[2.6%, 11.3%]	[-1.3%, 6.8%]	***
n	283	183	100		51	160	72	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S2.Q57.1. Avez-vous gardé une partie de votre production de cacao de la petite traite?

Table 89: Current common price, highest price, lowest price cocoa per kg (2017-2018) (FCFA)

Categories	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Common price cocoa per kg (2017-2018) (FCFA)	699	699	699		700	697	701	
	[698, 701]	[698, 701]	[696, 702]		[699, 701]	[692, 701]	[700, 701]	
Highest price cocoa per kg (2017-2018) (FCFA)	701	701	702		702	697	703	
	[699, 703]	[699, 703]	[699, 705]		[701, 704]	[693, 701]	[702, 704]	**
Lowest price cocoa per kg (2017-2018) (FCFA)	678	678	680		698	634	699	
	[675, 682]	[674, 682]	[674, 686]		[696, 700]	[625, 643]	[698, 700]	***
n	1298	922	376		426	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original questions: S2.Q58. Quel est le prix COURANT/LE PLUS HAUT/LE PLUS BAS que vous avez obtenu pour la majeure partie de votre cacao au cours de la campagne 2017-2018 - PAR KG

Table 90: Generated income cocoa known (2017-2018)

Income generated cocoa known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	45%	46%	41%	*	63%	48%	33%	***
[Confidence Interval]	[42.5%, 48.3%]	[42.8%, 49.5%]	[35.8%, 46.0%]		[58.6%, 68.1%]	[43.3%, 53.3%]	[28.7%, 38.2%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q61. Connaissez-vous le montant des revenus générés par la vente de cacao par votre ménage au cours de la campagne 2017-2018 ?

Table 91: Generated income cocoa (2017-2018) (FCFA, not including costs) (conditional on market income known)

Income generated cocoa (2017-2018) (FCFA, not including costs)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1274454	1304980	1077733	**	1234074	917974	1710307	***
[Confidence Interval]	[1177687, 1371222]	[1195692, 1414267]	[932140, 1223326]		[1106975, 1361174]	[811751, 1024197]	[1478256, 1942358]	
median	950000	980932	800000		906038	781829	1308003	
n	599	430	169		265	211	123	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q62. Quel est le montant des revenus générés par la vente de cacao par votre ménage au cours de la campagne 2017-2018 ? (en FCFA, sans inclure les coûts)

Table 92: Households keeping records (2017-2018)

Record keeping (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	60%	61%	54%	**	62%	36%	76%	***
[Confidence Interval]	[56.9%, 62.7%]	[57.6%, 64.1%]	[48.3%, 58.8%]		[56.9%, 66.5%]	[30.9%, 40.5%]	[71.7%, 80.2%]	
n	1299	923	376		428	446	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q63. Votre ménage a-t-il conservé des traces écrites ou documents comptables sur la production de cacao de 2017-2018 ?

Table 93: Type of record keeping (2017-2018) (multiple choices possible) (conditional on record keeping)

Type of record keeping (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
amount spent on inputs	27%	27%	24%		9%	13%	39%	***
	[23.2%, 30.4%]	[23.1%, 31.2%]	[17.6%, 31.0%]		[5.6%, 13.0%]	[7.5%, 19.4%]	[33.5%, 44.7%]	
amount spent on payment of employed workers	13%	12%	18%	*	7%	6%	17%	***
	[9.9%, 15.2%]	[8.8%, 14.7%]	[11.9%, 23.7%]		[3.9%, 9.9%]	[1.6%, 9.6%]	[13.1%, 21.7%]	
number of days that household members worked on farm	1%	1%	2%		2%	2%	1%	
	[0.5%, 2.1%]	[0.4%, 2.1%]	[-0.2%, 3.3%]		[0.4%, 4.0%]	[-0.3%, 5.1%]	[-0.3%, 1.3%]	
volume of cocoa produced	49%	45%	78%	***	55%	73%	39%	***
	[45.4%, 53.3%]	[40.7%, 49.4%]	[71.8%, 83.9%]		[48.7%, 61.3%]	[65.8%, 80.9%]	[33.3%, 44.3%]	
volume of cocoa sold, price and amount received	95%	95%	96%		97%	98%	93%	**
	[93.3%, 96.9%]	[93.0%, 97.0%]	[92.7%, 98.6%]		[95.2%, 99.0%]	[95.8%, 100.4%]	[90.3%, 96.2%]	
Other	3%	4%	1%	***	2%	2%	4%	
	[1.7%, 4.7%]	[1.9%, 5.3%]	[-0.6%, 2.0%]		[0.1%, 3.5%]	[-0.6%, 3.9%]	[1.9%, 6.7%]	
Do not know	2%	2%	2%		0%	0%	4%	***
	[0.9%, 3.4%]	[0.8%, 3.5%]	[-0.2%, 4.3%]		[0.0%, 0.0%]	[0.0%, 0.0%]	[1.6%, 6.0%]	
n	721	541	180		259	144	318	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q64. Avez-vous conservé des traces écrites ou documents comptables sur...

6. EMPLOYMENT

Table 94: Permanent workers on farm (2017-2018)

Permanent workers on farm (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	36%	36%	35%		67%	19%	31%	
[Confidence Interval]	[33.0%, 38.6%]	[32.8%, 39.1%]	[29.9%, 39.9%]		[62.1%, 71.4%]	[14.7%, 22.4%]	[26.6%, 35.8%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q65. Avez-vous employé un ou des ouvriers agricoles de façon permanente pour la campagne pour travailler dans votre exploitation ?

Table 95: Number of permanent workers (2017-2018) (conditional on permanent workers)

Number of permanent workers (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.2	2.3	1.8		1.9	4	1.8	
[Confidence Interval]	[1.9, 2.52]	[1.93, 2.64]	[1.5, 2.05]	**	[1.6, 2.17]	[2.42, 5.51]	[1.61, 2.07]	**
median	1.0	1.0	1.0		1.0	1.0	1.0	
n	497	366	131		283	80	134	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q66. Combien d'ouvriers avez-vous employé de façon permanente pour la saison 2017-2018?

Table 96: Type of payment permanent workers (conditional on permanent workers)

Type of payment permanent workers	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Salary (FCFA)	16%	17%	10%		4%	61%	11%	
Part of the harvest or sales of cocoa	84%	83%	90%	*	96%	39%	89%	***
n	497	366	131		283	80	134	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q67a. Vous les rémunérez par un salaire ou par une partie de la récolte?

Table 97: Salary amount permanent workers per year (2017-2018) (FCFA) (conditional on permanent workers)

Salary amount permanent workers (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	113266	107630	174487		129122	100368	144333	
[Confidence Interval]	[93420, 133113]	[86720, 128540]	[132874, 216099]	***	[44726, 213518]	[78731, 122005]	[104832, 183834]	
median	120000	110904	200000		37301	82388	150000	
n	67	55	12		10	44	13	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q67b. Quel est le montant de la rémunération versée à UN employé permanent au cours de la campagne 2017-2018 ? (en FCFA)

Table 98: Salary amount in kind permanent workers per year (2017-2018) (% of sales) (conditional on permanent workers)

Salary amount in kind permanent workers (2017-2018) (% production)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	32.8	32.8	33		33.1	30.6	33	
[Confidence Interval]	[32.62, 33.07]	[32.55, 33.1]	[32.85, 33.07]		[32.93, 33.2]	[28.15, 33.06]	[33, 33]	*
median	33.0	33.0	33.0		33.0	33.0	33.0	
n	384	274	110		272	31	81	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S2.Q67b. Quelle est la part de la récolte ou des ventes de cacao qui revient à UN employé permanent au cours de la campagne 2017-2018 ? (en pourcentage)

7. PLANT HEALTH PRODUCTS

Table 99: Application of herbicide (2017-2018) (if no, no further questions on herbicides)

Application of herbicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	17%	16%	25%	***	12%	17%	20%	***
[Confidence Interval]	[14.9%, 19.3%]	[13.2%, 18.2%]	[20.4%, 29.7%]		[9.3%, 15.5%]	[12.8%, 20.3%]	[16.1%, 24.0%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q1. Avez-vous utilisé de l'herbicide pour le traitement de l'exploitation de cacao du ménage au cours de la campagne 2017-2018 ?

Table 100: Frequency of application of herbicide (2017-2018)

Frequency of application of herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.6	1.6	1.5		1.5	1.8	1.5	**
[Confidence Interval]	[1.45, 1.69]	[1.45, 1.73]	[1.31, 1.65]		[1.27, 1.65]	[1.62, 2]	[1.29, 1.64]	
median	1.0	1.0	1.0		1.0	2.0	1.0	
n	226	135	91		64	72	90	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q2. Combien de fois de l'herbicide a-t-il été utilisé sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 101: Month of latest application of herbicide (2017-2018)

Month of latest application of herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	2%	2%	5%	***	0%	2%	4%	**
February	3%	2%	6%		0%	4%	4%	
March	7%	7%	8%		12%	5%	7%	
April	6%	7%	5%		11%	11%	2%	
May	7%	8%	2%		2%	16%	2%	
June	6%	6%	6%		6%	2%	8%	
July	15%	17%	10%		16%	12%	18%	
August	19%	21%	13%		13%	18%	22%	
September	13%	15%	8%		20%	10%	13%	
October	4%	3%	9%		4%	7%	2%	
November	10%	6%	22%		13%	6%	11%	
December	7%	7%	6%		3%	7%	8%	
Do not know	0%	0%	0%		0%	0%	0%	
n	215	129	86		58	73	84	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q3. A quel mois remonte la dernière application d'herbicide?

Table 102: Free donation herbicide (2017-2018)

Free donation herbicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	9%	10%	6%		5%	8%	12%	
[Confidence Interval]	[5.1%, 13.7%]	[4.9%, 15.6%]	[1.5%, 11.1%]		[-0.3%, 10.6%]	[1.8%, 14.6%]	[4.4%, 18.7%]	
n	228	137	91		64	73	91	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q4. Votre ménage a-t-il reçu un don (gratuit) d'herbicide en 2017/2018 ?

Table 103: Source of free donation herbicide (2017-2018) (multiple choices possible) (conditional on free herbicide)

Source of free donation herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ANADER	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
CCC	20% [0.2%, 40.5%]	17% [-4.9%, 39.6%]	38% [-3.2%, 79.1%]		0% [0.0%, 0.0%]	7% [-7.2%, 21.1%]	29% [-1.1%, 59.0%]	
Cooperative	81% [62.4%, 100.1%]	84% [64.0%, 104.9%]	62% [20.9%, 103.2%]		100% [100.0%, 100.0%]	71% [32.1%, 109.6%]	83% [58.6%, 106.8%]	
Private service provider/company	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
NGO/partner	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	6% [-5.6%, 17.4%]	7% [-6.6%, 20.4%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	22% [-15.9%, 60.3%]	0% [0.0%, 0.0%]	
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	20	13	7		4	7	9	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q5. Quelle(s) institution(s) a(ont)-t-elle(s) donné de l'herbicide a votre ménage en 2017/2018?

Table 104: Number of bottles free donation herbicide (2017-2018) (conditional on free herbicide)

Number of bottles free donation herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	2.7 [1.98, 3.38]	2.5 [1.79, 3.28]	3.5 [1.57, 5.38]		5.6 [4, 7.27]	2.6 [1.62, 3.63]	2.2 [1.45, 2.96]	***
median	2.0	2.0	2.0		4.8	2.1	2.0	
n	19	12	7		4	7	8	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q6. Combien de bouteilles d'herbicide vous ont-elles été données au cours de la campagne 2017-2018 ?

Table 105: Purchase herbicide (2017-2018)

Purchase herbicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	96% [93.7%, 98.9%]	97% [94.0%, 100.0%]	94% [88.6%, 98.9%]		99% [97.2%, 100.9%]	95% [90.6%, 99.8%]	96% [91.9%, 100.1%]	
n	228	137	91		64	73	91	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q7. Votre ménage a-t-il ACHETÉ de l'herbicide au cours de la campagne 2017-2018 ?

Table 106: Total expenses on herbicide (2017-2018) (FCFA) (conditional on purchase of herbicide)

Total costs herbicide (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	34655 [24702, 44607]	37445 [24948, 49942]	24350 [17753, 30947]	*	30091 [21097, 39085]	47163 [19690, 74637]	28911 [19277, 38545]	
median	16000	16000	15000		16832	17635	15000	
n	212	128	84		60	66	86	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Table 107: Source of purchased herbicide (2017-2018) (conditional on purchase of herbicide)

Source of purchased herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cash	87%	86%	88%		91%	90%	83%	
Credit	13%	14%	12%		9%	10%	17%	
n	218	133	85		63	68	87	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q10. Comment votre ménage a-t-il acheté de l'herbicide en 2017/2018?

Table 108: Type of credit used for purchasing herbicide (2017-2018) (conditional on credit used for purchase of herbicide)

Type of credit used for purchasing herbicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supplier credit	69%	61%	100%		73%	100%	56%	
Credit cooperative	20%	24%	0%		27%	0%	26%	
Other	12%	14%	0%		0%	0%	18%	
n	26	17	9		5	7	14	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q11. Quel type de credit votre ménage a-t-il utilisé pour acheter de l'herbicide en 2017/2018?

Table 109: Quantity of herbicide used known (2017-2018)

Quantity of herbicide used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	80%	77%	91%	***	86%	75%	82%	
[Confidence Interval]	[74.5%, 86.2%]	[70.1%, 84.6%]	[85.5%, 96.6%]		[76.1%, 95.1%]	[64.1%, 85.6%]	[73.0%, 90.4%]	
n	226	135	91		64	71	91	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q12a. Savez-vous quelle quantité d'herbicide a été appliquée sur votre exploitation de cacao au cours de la campagne 2017-2018?

Table 110: Number of bottles of herbicide used (2017-2018) (conditional on quantity of herbicide used known)

Number of bottles of herbicide used (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	20.5	10.5	51		65.4	10.8	10.1	
[Confidence Interval]	[-0.15, 41.2]	[7.59, 13.38]	[-31.82, 133.9]		[-45.39, 176.11]	[7.12, 14.39]	[6.52, 13.68]	
median	6.0	5.7	5.5		4.5	7.8	5.0	
n	184	103	81		55	52	77	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q12b. Combien de bouteilles d'herbicide au TOTAL ont-elles été appliquées sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 111: Volume of herbicide bottles (2017-2018) (liters) (conditional on quantity of herbicide used known)

Volume of one herbicide bottle (2017-2018) (liters)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.8	2	1.5		3.9	1.4	1.3	
[Confidence Interval]	[1.3, 2.38]	[1.24, 2.67]	[1.28, 1.71]		[1.31, 6.52]	[1.11, 1.77]	[1.09, 1.56]	
median	1.0	1.0	1.0		2.0	1.0	1.0	
n	182	101	81		55	50	77	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q13. Quel est le volume (en litres) d'UNE bouteille d'herbicide ?

Table 112: Land herbicide applied (ha)

Land herbicide applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4.5	4.6	4.1		4.7	4.4	4.6	
[Confidence Interval]	[3.68, 5.39]	[3.58, 5.72]	[3.45, 4.81]		[3.1, 6.39]	[2.36, 6.41]	[3.56, 5.55]	
median	3.0	2.5	3.5		3.5	2.0	3.0	
n	226	135	91		64	71	91	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q14. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de de l'herbicide a-t-il été appliqué ?

Table 113: Herbicide brand

Herbicide brand	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Bin'Fla 360 SL	5%	6%	4%		0%	6%	7%	***
Bin'Fla 720 WG	1%	0%	3%		0%	1%	1%	
Rival 360 SL	1%	1%	0%		0%	3%	0%	
Touchdown Forte 500 SL	0%	0%	0%		0%	0%	0%	
Kalach 360 SL	8%	9%	3%		29%	3%	5%	
Agriherb 360 SL	0%	0%	1%		2%	0%	0%	
Puissance 780 SG	3%	3%	3%		4%	8%	0%	
Binbana	15%	16%	10%		17%	23%	9%	
Tabbouma	0%	0%	1%		0%	1%	0%	
Other	67%	64%	74%		49%	56%	78%	
Do not know	0%	0%	0%		0%	0%	0%	
n	143	81	62		35	46	62	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q15. Nom commercial du produit utilisé en majorité ou le plus fréquemment

Table 114: Applier of herbicide (multiple choices possible)

Applier of herbicide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Household members aged 15 years and over	65% [58.4%, 72.0%]	66% [58.1%, 74.4%]	61% [50.8%, 71.8%]		45% [32.2%, 58.3%]	85% [77.0%, 93.9%]	60% [49.3%, 70.7%]	***
Communal workers / labor exchange group	2% [-0.0%, 4.1%]	2% [-0.4%, 4.8%]	2% [-0.6%, 3.8%]		3% [-1.4%, 7.4%]	2% [-1.3%, 6.1%]	2% [-1.5%, 4.5%]	
Farm workers employed permanently	11% [7.3%, 15.3%]	10% [5.4%, 14.6%]	16% [8.7%, 23.7%]		41% [28.4%, 54.4%]	5% [0.1%, 10.6%]	5% [0.4%, 8.9%]	***
Paid daily workers	4% [1.7%, 7.1%]	4% [0.8%, 6.9%]	6% [0.7%, 12.0%]		3% [-1.5%, 8.0%]	9% [1.9%, 16.5%]	2% [-0.3%, 4.2%]	
Applicators from the cooperative	10% [5.8%, 14.2%]	9% [3.8%, 13.6%]	15% [6.7%, 22.6%]		10% [2.5%, 18.4%]	7% [0.8%, 13.4%]	12% [4.8%, 18.2%]	
Private applicators	14% [9.0%, 19.9%]	17% [10.3%, 24.0%]	5% [0.4%, 8.9%]	***	8% [1.3%, 15.5%]	0% [0.0%, 0.0%]	25% [15.3%, 34.8%]	***
n	228	137	91		64	73	91	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q16. Qui a effectué l'application d'herbicide sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 115: Gender of applier of herbicide

Gender of herbicide applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	100%	100%	100%		100%	100%	100%	
Woman	0%	0%	0%		0%	0%	0%	
Both	0%	0%	0%		0%	0%	0%	
n	228	137	91		64	73	91	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q17. Qui a appliqué l'herbicide sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 116: Costs application of herbicide (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs herbicide application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3056	2721	4766		3898	4105	2795	
[Confidence Interval]	[1881, 4231]	[1628, 3813]	[444, 9089]		[1329, 6467]	[183, 8027]	[1475, 4115]	
median	2000	2000	2000		2000	1532	1989	
n	43	29	14		9	5	29	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q18. Quel montant avez-vous payé pour l'application d'herbicide en 2017/2018? En FCFA

Table 117: Frequency of payment application herbicide (multiple choices possible) (conditional on application costs made)

Frequency of payment application herbicide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	17% [5.5%, 28.8%]	18% [4.2%, 31.4%]	14% [-1.7%, 28.9%]		40% [5.1%, 74.3%]	58% [13.7%, 102.0%]	8% [-2.8%, 19.2%]	**
Amount for each working day	8% [0.2%, 16.8%]	7% [-2.4%, 15.8%]	18% [-2.1%, 37.4%]		15% [-5.7%, 36.2%]	21% [-15.8%, 57.5%]	6% [-2.7%, 14.2%]	
Amount for each unit of product	66% [51.4%, 81.1%]	69% [52.7%, 86.2%]	50% [22.1%, 77.7%]		27% [-7.2%, 60.2%]	21% [-15.9%, 58.4%]	78% [62.4%, 93.5%]	***
Amount for each hectare	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Amount for multiple applications during the season	2% [-1.8%, 5.4%]	2% [-2.1%, 6.4%]	0% [0.0%, 0.0%]		19% [-13.6%, 50.6%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Other	9% [0.0%, 18.9%]	8% [-2.6%, 17.9%]	19% [-4.5%, 42.1%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	12% [0.1%, 24.0%]	
n	43	29	14		9	5	29	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q19. A quelle fréquence avez-vous payé ce montant ?

Table 118: Application of insecticide (2017-2018) (if no, no further questions on insecticides)

Application of insecticide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	88%	88%	88%		90%	86%	89%	
[Confidence Interval]	[86.6%, 90.3%]	[86.3%, 90.6%]	[85.1%, 91.8%]		[86.6%, 92.6%]	[82.7%, 89.6%]	[86.4%, 92.5%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q20. Avez-vous utilisé de l'insecticide pour le traitement de l'exploitation de cacao du ménage au cours de la campagne 2017-2018 ?

Table 119: Frequency of application of insecticide (2017-2018)

Frequency of application of insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.4	2.4	2.4		2.2	2.2	2.6	
[Confidence Interval]	[2.29, 2.45]	[2.28, 2.47]	[2.24, 2.48]		[2.11, 2.3]	[2.12, 2.32]	[2.41, 2.72]	***
median	2.0	2.0	2.0		2.0	2.0	2.0	
n	1129	805	324		372	383	374	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q21. Combien de fois de l'insecticide a-t-il été utilisé sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 120: Month of latest application of insecticide (2017-2018)

Month of latest application of insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	4%	4%	5%		4%	7%	3%	
February	1%	1%	3%		1%	1%	1%	***
March	2%	2%	2%		2%	2%	2%	

Month of latest application of insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
April	3%	3%	2%		3%	2%	3%	
May	2%	2%	2%		1%	4%	1%	
June	6%	7%	5%		10%	6%	5%	
July	20%	20%	21%		24%	21%	18%	
August	31%	31%	29%		33%	22%	36%	
September	15%	15%	13%		15%	10%	18%	
October	4%	4%	4%		1%	3%	6%	
November	2%	2%	2%		2%	4%	1%	
December	9%	8%	13%		4%	17%	6%	
Do not know	0%	0%	0%		0%	0%	0%	
n	1096	775	321		359	377	360	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q22. A quel mois remonte la dernière application de insecticide?

Table 121: Free donation insecticide (2017-2018)

Free donation insecticide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	62%	64%	52%	***	79%	60%	54%	***
[Confidence Interval]	[58.9%, 65.1%]	[60.2%, 67.2%]	[46.5%, 57.8%]		[74.6%, 83.0%]	[54.8%, 65.3%]	[48.8%, 59.4%]	
n	1143	812	331		382	385	376	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q23. Votre ménage a-t-il reçu un don (gratuit) d'insecticide en 2017/2018 ?

Table 122: Source of free donation insecticide (2017-2018) (multiple choices possible) (conditional on free insecticide)

Source of free donation insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ANADER	1% [0.3%, 1.9%]	1% [0.1%, 1.9%]	2% [0.0%, 3.3%]		1% [0.1%, 2.0%]	1% [-0.4%, 2.6%]	1% [-0.4%, 2.7%]	
CCC	23% [19.3%, 25.9%]	22% [18.5%, 25.7%]	26% [19.2%, 32.6%]		25% [20.1%, 30.3%]	16% [10.8%, 20.9%]	26% [19.4%, 31.9%]	**
Cooperative	88% [86.0%, 90.7%]	89% [86.9%, 92.0%]	80% [74.5%, 86.4%]	***	81% [76.5%, 85.5%]	90% [86.0%, 94.3%]	93% [89.3%, 96.3%]	***
Private service provider/company	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
NGO/partner	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	2% [0.8%, 2.7%]	2% [0.8%, 3.0%]	0% [-0.5%, 1.4%]	*	3% [1.0%, 5.2%]	2% [-0.0%, 3.6%]	1% [-0.6%, 1.9%]	
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	723	537	186		298	231	194	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q24. Quelle(s) institution(s) a(ont)-t-elle(s) donné de l'insecticide a votre ménage en 2017/2018?

Table 123: Number of bottles free donation insecticide (2017-2018) (conditional on free insecticide)

Number of bottles free donation insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.6	2.7	2.1	***	2.3	3	2.6	
[Confidence Interval]	[2.34, 2.88]	[2.37, 2.98]	[1.9, 2.37]		[2.09, 2.51]	[2.29, 3.7]	[2.17, 2.96]	
median	2.0	2.0	2.0		2.0	2.0	2.0	
n	713	529	184		292	230	191	

Number of bottles free donation insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively Original question: S3.Q25. Combien de bouteilles d'insecticide vous ont-elles été données au cours de la campagne 2017-2018 ?								

Table 124: Purchase insecticide (2017-2018)

Purchase insecticide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	71%	70%	77%	***	63%	55%	87%	***
[Confidence Interval]	[68.2%, 73.8%]	[66.8%, 73.1%]	[72.9%, 81.8%]		[57.6%, 67.8%]	[49.7%, 60.3%]	[83.0%, 90.3%]	
n	1143	812	331		382	385	376	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q26. Votre ménage a-t-il ACHETÉ de l'insecticide au cours de la campagne 2017-2018 ?

Table 125: Total expenses on insecticide (2017-2018) (FCFA) (conditional on purchase of insecticide)

Total costs insecticide (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	29623	29764	28906	***	31794	23567	31407	***
[Confidence Interval]	[27656, 31591]	[27503, 32026]	[25579, 32234]		[28085, 35503]	[20452, 26682]	[28446, 34368]	
median	21000	22000	21000		22735	16000	24000	
n	712	486	226		222	192	298	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Table 126: Source of purchased insecticide (2017-2018) (conditional on purchase of insecticide)

Source of purchased insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cash	79%	79%	82%		76%	80%	81%	
Credit	21%	21%	18%		24%	20%	19%	
n	788	544	244		247	213	328	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q29. Comment votre ménage a-t-il acheté de l'insecticide en 2017/2018?

Table 127: Type of credit used for purchasing insecticide (2017-2018) (conditional on credit used for purchase of insecticide)

Type of credit used for purchasing insecticide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supplier credit	54%	53%	56%		45%	77%	47%	***
Credit cooperative	45%	46%	42%		55%	19%	53%	
Other	1%	1%	2%		0%	4%	0%	
n	162	115	47		58	46	58	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q30. Quel type de credit votre ménage a-t-il utilisé pour acheter de l'insecticide en 2017/2018?

Table 128: Quantity of insecticide used known (2017-2018)

Quantity of insecticide used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	82%	81%	87%	***	84%	75%	85%	***
[Confidence Interval]	[79.4%, 84.2%]	[78.2%, 83.7%]	[83.3%, 90.4%]		[79.7%, 87.3%]	[70.8%, 80.0%]	[81.5%, 89.1%]	
n	1143	812	331		382	385	376	

Quantity of insecticide used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
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Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q12a. Savez-vous quelle quantité d'insecticide a été appliquée sur votre exploitation de cacao au cours de la campagne 2017-2018?

Table 129: Number of bottles of insecticide used (2017-2018) (conditional on quantity of insecticide used known)

Number of bottles of insecticide used (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4.5	4.5	4.1	**	4.1	3.9	5	***
[Confidence Interval]	[4.23, 4.7]	[4.27, 4.81]	[3.73, 4.4]		[3.79, 4.49]	[3.47, 4.23]	[4.61, 5.41]	
median	4.0	4.0	3.0		3.0	3.0	4.0	
n	905	628	277		308	281	316	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q31. Combien de bouteilles d'insecticide au TOTAL ont-elles été appliquées sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 130: Volume of insecticide bottles (2017-2018) (liters) (conditional on quantity of insecticide used known)

Volume of one insecticide bottle (2017-2018) (liters)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.3	1.3	1.5	*	1.6	1.4	1.1	***
[Confidence Interval]	[1.15, 1.48]	[1.08, 1.47]	[1.31, 1.72]		[1.36, 1.74]	[0.84, 1.92]	[1.05, 1.23]	
median	1.0	1.0	1.0		1.0	1.0	1.0	
n	924	647	277		315	284	325	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q31. Quel est le volume (en litres) d'UNE bouteille d'insecticide ?

Table 131: Insecticide brand

Brand insecticide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Actara 25 WG	10%	11%	6%	***	8%	16%	7%	***
Azudine 50 SL	3%	3%	2%		0%	6%	2%	
Boradyne Super 45 ZL	17%	16%	18%		36%	12%	12%	
Excell 25 EL	0%	0%	0%		0%	0%	0%	
Premium 50 EL	1%	2%	0%		0%	4%	0%	
Voliam Flexi 300 SL	0%	1%	0%		0%	1%	1%	
Callifam Super 40 EL	3%	3%	2%		2%	3%	3%	
Crotale 46 EC	1%	1%	0%		0%	0%	1%	
Agricao 45 SL	1%	1%	0%		0%	2%	1%	
Tonnerre 88EC	1%	1%	0%		0%	1%	1%	
Proteus	11%	13%	0%		8%	10%	12%	
Propicao	2%	2%	2%		2%	5%	1%	
Other	51%	47%	69%		45%	40%	59%	
Do not know	0%	0%	0%		0%	0%	0%	
n	572	397	175		162	180	230	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q33. Nom commercial du produit utilisé en majorité ou le plus fréquemment

Table 132: Land insecticide applied (ha)

Land insecticide applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4.5	4.5	4.4		5	3.3	5	
[Confidence Interval]	[4.2, 4.79]	[4.18, 4.84]	[3.85, 4.96]		[4.49, 5.6]	[3.06, 3.58]	[4.46, 5.56]	***
median	3.0	3.0	3.0		4.0	2.7	3.5	
n	1134	805	329		376	384	374	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q32. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de de l'insecticide a-t-il été appliqué ?

Table 133: Applier of insecticide (multiple choices possible)

Applier of insecticide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Household members aged 15 years and over	19% [16.4%, 21.4%]	19% [15.9%, 21.6%]	20% [15.4%, 24.6%]		13% [9.5%, 16.5%]	19% [14.4%, 22.8%]	22% [18.0%, 26.8%]	***
Communal workers / labor exchange group	1% [0.5%, 1.8%]	1% [0.4%, 1.9%]	1% [0.0%, 1.8%]		1% [0.2%, 2.6%]	1% [0.1%, 2.3%]	1% [-0.1%, 1.9%]	
Farm workers employed permanently	7% [5.6%, 8.8%]	7% [5.1%, 8.6%]	9% [6.0%, 12.6%]		14% [10.7%, 17.8%]	1% [-0.0%, 2.3%]	8% [4.8%, 10.3%]	***
Paid daily workers	5% [3.8%, 6.2%]	4% [3.1%, 5.8%]	8% [5.5%, 11.3%]	**	5% [2.9%, 7.5%]	10% [7.3%, 13.5%]	1% [0.2%, 2.2%]	***
Applicators from the cooperative	62% [59.0%, 65.1%]	63% [59.3%, 66.2%]	58% [52.0%, 63.1%]		62% [57.2%, 67.3%]	65% [59.7%, 69.8%]	60% [54.8%, 65.2%]	
Private applicators	13% [11.1%, 15.4%]	14% [11.4%, 16.4%]	10% [6.4%, 13.2%]	*	14% [10.4%, 17.8%]	8% [5.1%, 10.7%]	17% [12.6%, 20.5%]	***
n	1143	812	331		382	385	376	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q34. Qui a effectué l'application d'insecticide sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 134: Gender of applier of insecticide

Gender of insecticide applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	100%	100%	100%		100%	100%	100%	
Woman	0%	0%	0%		0%	0%	0%	
Both	0%	0%	0%		0%	0%	0%	
n	1143	812	331		382	385	376	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q35. Qui a appliqué l'insecticide sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 135: Costs application of insecticide (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs insecticide application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1789	1757	1967		2112	1875	1534	
[Confidence Interval]	[1654, 1923]	[1608, 1907]	[1676, 2258]		[1881, 2344]	[1651, 2100]	[1310, 1758]	***
median	2000	2000	2000		2000	2000	2000	
n	708	499	209		221	269	218	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q36. Quel montant avez-vous payé pour l'application d' insecticide en 2017/2018? En FCFA

Table 136: Frequency of payment application insecticide (multiple choices possible) (conditional on application costs made)

Frequency of payment application insecticide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	33% [29.1%, 36.2%]	33% [28.5%, 36.6%]	33% [26.5%, 39.5%]		31% [24.8%, 37.0%]	51% [45.0%, 57.5%]	18% [12.7%, 23.2%]	***
Amount for each working day	8% [5.7%, 9.8%]	8% [5.5%, 10.2%]	7% [4.2%, 10.6%]		13% [8.8%, 17.4%]	4% [1.6%, 6.5%]	8% [4.2%, 11.8%]	***
Amount for each unit produced	32% [28.0%, 35.2%]	31% [26.4%, 34.6%]	38% [31.2%, 45.3%]	*	43% [36.7%, 50.1%]	13% [9.0%, 17.2%]	41% [34.0%, 47.2%]	***
Amount for each hectare	4% [2.8%, 6.2%]	5% [3.0%, 7.0%]	1% [-0.2%, 3.2%]	***	4% [1.1%, 6.1%]	4% [1.6%, 6.9%]	5% [2.0%, 8.3%]	
Amount for multiple applications during the season	4% [2.2%, 5.0%]	4% [2.1%, 5.4%]	2% [0.4%, 4.5%]		5% [1.8%, 7.4%]	4% [1.7%, 7.0%]	2% [0.3%, 4.4%]	
Other	22% [18.7%, 25.4%]	22% [18.6%, 26.2%]	20% [14.6%, 25.7%]		4% [1.7%, 7.0%]	23% [18.2%, 28.6%]	31% [24.5%, 37.1%]	***
n	744	530	214		229	286	229	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q37. A quelle fréquence avez-vous payé ce montant ?

Table 137: Application of fungicide (2017-2018) (if no, no further questions on fungicides)

Application of fungicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	23% [20.5%, 25.4%]	23% [20.6%, 26.1%]	21% [16.4%, 25.0%]		36% [31.7%, 41.2%]	20% [16.0%, 24.1%]	18% [13.8%, 21.4%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q38. Avez-vous utilisé du fongicide pour le traitement de l'exploitation de cacao du ménage au cours de la campagne 2017-2018 ?

Table 138: Frequency of application of fungicide (2017-2018)

Frequency of application of fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.3 [2.06, 2.62]	2.4 [2.03, 2.67]	2.3 [1.91, 2.61]		2.6 [2, 3.17]	2 [1.66, 2.35]	2.3 [1.94, 2.74]	
median	2.0	2.0	2.0		2.0	2.0	2.0	
n	307	228	79		154	80	73	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q39. Combien de fois du fongicide a-t-il été utilisé sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 139: Month of latest application of fungicide (2017-2018)

Month of latest application of fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	2%	2%	4%		3%	3%	1%	
February	1%	1%	0%		1%	0%	2%	
March	1%	1%	4%		1%	2%	1%	
April	4%	4%	3%		3%	8%	1%	
May	6%	6%	4%		6%	7%	5%	
June	7%	8%	3%		10%	4%	7%	
July	19%	20%	17%		26%	16%	14%	
August	37%	37%	36%		33%	36%	43%	
September	14%	13%	19%		11%	6%	22%	
October	3%	3%	3%		2%	7%	2%	
November	2%	2%	2%		2%	3%	0%	
December	4%	4%	5%		2%	8%	3%	

**

Month of latest application of fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Do not know	0%	0%	0%		0%	0%	0%	
n	297	222	75		148	76	73	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q40. A quel mois remonte la dernière application de fongicide?

Table 140: Free donation fungicide (2017-2018)

Free donation fungicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	69%	68%	73%		90%	65%	48%	
[Confidence Interval]	[63.2%, 74.8%]	[62.0%, 74.9%]	[62.0%, 83.6%]		[85.6%, 95.3%]	[54.2%, 75.8%]	[36.0%, 59.9%]	***
n	312	232	80		156	81	75	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q41. Votre ménage a-t-il reçu un don (gratuit) de fongicide en 2017/2018 ?

Table 141: Source of free donation fungicide (2017-2018) (multiple choices possible) (conditional on free fungicide)

Source of free donation fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ANADER	3% [0.6%, 4.5%]	2% [0.0%, 4.2%]	5% [-0.9%, 11.3%]		3% [0.2%, 6.3%]	2% [-1.9%, 5.9%]	2% [-1.5%, 4.7%]	
CCC	21% [15.6%, 26.5%]	20% [14.2%, 26.4%]	26% [14.7%, 36.5%]		27% [19.7%, 34.8%]	13% [3.8%, 22.6%]	16% [3.7%, 28.8%]	*
Cooperative	81% [75.7%, 86.2%]	82% [76.6%, 88.2%]	72% [60.3%, 83.7%]		75% [67.2%, 82.0%]	94% [86.5%, 100.6%]	80% [67.3%, 93.7%]	***
Private service provider/company	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
NGO/partner	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	3% [0.2%, 5.4%]	3% [-0.0%, 5.8%]	2% [-2.3%, 7.1%]		2% [-0.6%, 4.1%]	0% [0.0%, 0.0%]	8% [-1.2%, 17.9%]	*
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	232	170	62		142	53	37	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q42. Quelle(s) institution(s) a(ont)-t-elle(s) donné du fongicide à votre ménage en 2017/2018 ?

Table 142: Number of pouches/bottles free donation fungicide (2017-2018) (conditional on free fungicide)

Number of pouches/bottles free donation fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	5.5	5.2	7		6.1	5.7	3.9	
[Confidence Interval]	[4.64, 6.36]	[4.33, 6.14]	[4.43, 9.63]		[4.71, 7.54]	[4.09, 7.27]	[3.16, 4.7]	**
median	4.0	4.0	4.0		4.0	4.0	4.0	
n	213	154	59		130	49	34	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q43. Combien de sachets ou bouteilles de fongicide vous ont-elles été données au cours de la campagne 2017-2018 ?

Table 143: Purchase fungicide (2017-2018)

Purchase fungicide (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	39%	40%	34%		16%	36%	68%	
[Confidence Interval]	[33.2%, 45.3%]	[33.3%, 46.8%]	[22.7%, 45.7%]		[10.4%, 22.4%]	[25.1%, 47.0%]	[57.0%, 79.0%]	***
n	312	232	80		156	81	75	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q44. Votre ménage a-t-il ACHETÉ du fongicide au cours de la campagne 2017-2018 ?

Table 144: Total expenses on fungicide (2017-2018) (FCFA) (conditional on purchase of fungicide)

Total costs fungicide (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	13957	14194	12084		13733	8717	16784	
[Confidence Interval]	[8259, 19655]	[7817, 20570]	[6488, 17680]		[4673, 22794]	[6344, 11089]	[7115, 26452]	
median	8270	8527	6391		10000	6230	8713	
n	82	65	17		17	26	39	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Table 145: Source of purchased fungicide (2017-2018) (conditional on purchase of fungicide)

Source of purchased fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cash	92%	91%	100%		95%	88%	92%	
Credit	8%	9%	0%		5%	12%	8%	
n	102	80	22		25	28	49	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q47. Comment votre ménage a-t-il acheté du fongicide en 2017/2018?

Table 146: Type of credit used for purchasing fungicide (2017-2018) (conditional on credit used for purchase of fungicide)

Type of credit used for purchasing fungicide (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supplier credit	53%	53%			100%	67%	35%	
Credit cooperative	47%	47%			0%	33%	65%	
Other	0%	0%			0%	0%	0%	
n	7	7	0		1	3	3	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q48. Quel type de credit votre ménage a-t-il utilisé pour acheter du fongicide en 2017/2018?

Table 147: Quantity of fungicide used known (2017-2018)

Quantity of fungicide used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	77%	75%	88%		85%	53%	87%	
[Confidence Interval]	[71.8%, 81.9%]	[69.4%, 80.8%]	[81.3%, 95.4%]	***	[79.6%, 91.2%]	[41.4%, 63.9%]	[78.8%, 95.0%]	***
n	311	231	80		155	81	75	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q49a. Savez-vous quelle quantité de fongicide a été appliquée sur votre exploitation de cacao au cours de la campagne 2017-2018?

Table 148: Number of pouches/bottles of fungicide used (2017-2018) (conditional on quantity of fungicide used known)

Number of pouches/bottles of fungicide used (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	7.2	7	8.1		6.1	7.7	8	
[Confidence Interval]	[6.22, 8.1]	[5.95, 8.05]	[6.14, 9.97]		[5.13, 7.12]	[5.21, 10.27]	[6.26, 9.83]	
median	4.0	4.0	6.0		4.0	4.0	5.0	
n	233	167	66		130	41	62	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q49. Combien de sachets ou bouteilles de fongicide au TOTAL ont-elles été appliquées sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 149: Volume of fungicide pouches/bottles (2017-2018) (grams/liters) (conditional on quantity of fungicide used known)

Volume of one fungicide pouches/bottles (2017-2018) (grams/liters)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	51.2	51.9	47.6		46.8	75.7	45.8	
[Confidence Interval]	[38.23, 64.14]	[36.49, 67.28]	[40.41, 54.72]		[31.11, 62.55]	[35.45, 115.89]	[23.06, 68.53]	
median	50.0	50.0	50.0		42.3	32.0	50.0	
n	203	143	60		124	28	51	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q50. Quel est le volume (en grammes OU en litres) d'UNE unite de fongicide ?

Table 150: Fungicide brand

Fungicide brand	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Mega Mil 72 WP	2%	3%	0%		0%	7%	0%	
Nordox 75 WG	1%	1%	0%		0%	4%	0%	
Ridomil Gold Plus 66	45%	46%	42%		15%	59%	47%	
Fantic Plus 69 WP	5%	4%	7%		0%	0%	10%	***
Fongyp 690 WP	12%	13%	7%		11%	10%	15%	
Other	34%	33%	44%		74%	21%	28%	
Do not know	0%	0%	0%		0%	0%	0%	
n	85	67	18		23	31	31	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q52. Nom commercial du produit utilisé en majorité ou le plus fréquemment

Table 151: Land fungicide applied (ha)

Land fungicide applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4	4.1	3.7		4.8	2.5	4.5	***
[Confidence Interval]	[3.55, 4.51]	[3.55, 4.6]	[2.53, 4.89]		[3.78, 5.77]	[2.18, 2.74]	[3.71, 5.22]	
median	3.0	3.0	2.5		3.0	2.0	3.4	
n	310	230	80		154	81	75	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q51. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de du fongicide a-t-il été appliqué ?

Table 152: Applier of fungicide (multiple choices possible)

Applier of fungicide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.2%, 0.7%]	0% [-0.3%, 0.8%]	0% [0.0%, 0.0%]		1% [-0.6%, 1.9%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Household members aged 15 years and over	17% [12.8%, 22.0%]	18% [12.4%, 22.6%]	16% [7.6%, 25.3%]		11% [6.0%, 16.3%]	30% [20.0%, 40.9%]	14% [5.7%, 22.1%]	***
Communal workers / labor exchange group	1% [-0.0%, 1.4%]	0% [-0.3%, 1.0%]	3% [-0.4%, 5.9%]		2% [-0.1%, 3.5%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Farm workers employed permanently	6% [3.0%, 8.0%]	6% [2.9%, 8.6%]	4% [-0.6%, 8.6%]		10% [5.3%, 15.4%]	3% [-1.1%, 6.8%]	2% [-1.1%, 5.5%]	**
Paid daily workers	4% [1.9%, 6.2%]	3% [1.2%, 5.8%]	8% [2.0%, 13.6%]		4% [1.0%, 7.6%]	8% [1.9%, 13.5%]	1% [-0.7%, 2.2%]	**
Applicators from the cooperative	70% [64.5%, 75.3%]	70% [64.4%, 76.4%]	67% [55.7%, 77.3%]		67% [59.7%, 75.0%]	65% [54.2%, 75.6%]	77% [67.0%, 86.9%]	
Private applicators	8% [5.1%, 11.6%]	9% [4.9%, 12.2%]	7% [1.4%, 13.5%]		12% [6.5%, 17.1%]	3% [-1.0%, 6.2%]	9% [2.4%, 15.9%]	**
n	312	232	80		156	81	75	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q53. Qui a effectué l'application de fongicide sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 153: Gender of applier of fungicide

Gender of fungicide applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	100%	100%	100%		100%	100%	100%	
Woman	0%	0%	0%		0%	0%	0%	
Both	0%	0%	0%		0%	0%	0%	
n	312	232	80		156	81	75	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q54. Qui a appliqué le fongicide sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 154: Costs application of fungicide (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs fungicide application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1684	1684	1685		2106	1455	1366	
[Confidence Interval]	[1412, 1956]	[1388, 1981]	[1060, 2310]		[1819, 2394]	[957, 1953]	[794, 1938]	**
median	2000	2000	1500		2000	1124	0	
n	190	147	43		99	40	51	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q55. Quel montant avez-vous payé pour l'application de fongicide en 2017/2018? En FCFA

Table 155: Frequency of payment application fungicide (multiple choices possible) (conditional on application costs made)

Frequency of payment application fungicide	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	31% [23.8%, 38.0%]	31% [23.4%, 39.0%]	29% [14.9%, 42.5%]		23% [14.6%, 30.9%]	51% [35.6%, 67.3%]	28% [14.6%, 40.8%]	***
Amount for each working day	6% [2.7%, 8.5%]	4% [1.0%, 6.9%]	19% [8.1%, 29.1%]	***	11% [5.5%, 17.1%]	1% [-1.0%, 3.0%]	2% [-2.0%, 6.4%]	***
Amount for each unit produced	29% [22.5%, 35.6%]	31% [23.4%, 38.0%]	16% [4.1%, 28.3%]	**	59% [49.3%, 68.8%]	1% [-1.0%, 3.0%]	13% [3.8%, 22.0%]	***
Amount for each hectare	5% [1.8%, 8.8%]	5% [1.3%, 9.0%]	7% [-1.0%, 14.1%]		3% [-0.5%, 5.9%]	10% [0.1%, 18.9%]	6% [-0.9%, 12.2%]	
Amount for multiple applications during the season	5% [1.7%, 7.9%]	4% [0.8%, 7.3%]	10% [0.2%, 20.2%]		3% [-0.1%, 6.4%]	9% [-0.7%, 17.7%]	4% [-0.8%, 9.5%]	
Other	25% [18.2%, 32.4%]	26% [18.2%, 33.8%]	20% [6.0%, 33.6%]		1% [-1.0%, 3.2%]	29% [14.2%, 42.8%]	50% [35.4%, 64.0%]	***
n	194	150	44		102	40	52	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q56. A quelle fréquence avez-vous payé ce montant ?

Table 156: Application of granular fertilizer (2017-2018) (if no, no further questions on granular fertilizer)

Application of granular fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	45%	46%	40%	*	39%	26%	61%	
[Confidence Interval]	[41.7%, 47.7%]	[42.2%, 48.9%]	[34.2%, 44.8%]		[34.0%, 43.7%]	[21.6%, 30.3%]	[56.5%, 66.2%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q57. Avez-vous utilisé de l'engrais granulé pour le traitement de l'exploitation de cacao du ménage au cours de la campagne 2017-2018 ?

Table 157: Frequency of application of granular fertilizer (2017-2018)

Frequency of application of granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.6	1.6	1.4		1.4	1.7	1.6	
[Confidence Interval]	[1.37, 1.78]	[1.38, 1.84]	[1.12, 1.58]		[1.16, 1.62]	[1.25, 2.22]	[1.31, 1.89]	

Frequency of application of granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
median	1.0	1.0	1.0		1.0	1.0	1.0	
n	517	391	126		149	111	257	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q58. Combien de fois de l'engrais granulé a-t-il été utilisé sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 158: Month of latest application of granular fertilizer (2017-2018)

Month of latest application of granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	2%	1%	3%	**	0%	0%	3%	***
February	2%	2%	5%		1%	6%	2%	
March	18%	17%	30%		14%	13%	21%	
April	17%	18%	15%		28%	18%	14%	
May	9%	10%	2%		18%	12%	6%	
June	10%	11%	7%		15%	12%	8%	
July	13%	14%	11%		13%	12%	14%	
August	13%	14%	10%		7%	10%	16%	
September	6%	6%	5%		4%	6%	7%	
October	3%	2%	3%		0%	7%	2%	
November	2%	1%	4%		0%	2%	2%	
December	3%	3%	4%		1%	3%	4%	
Do not know	0%	0%	0%		0%	0%	0%	
n	485	366	119		135	105	245	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q59. A quel mois remonte la dernière application d'engrais granulé?

Table 159: Free donation granular fertilizer (2017-2018)

Free donation granular fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	16%	18%	6%	***	12%	24%	15%	*
[Confidence Interval]	[12.7%, 19.7%]	[13.8%, 21.7%]	[1.7%, 9.8%]		[6.7%, 17.5%]	[15.6%, 32.6%]	[10.4%, 20.0%]	
n	522	394	128		153	111	258	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q60. Votre ménage a-t-il reçu un don (gratuit) d'engrais granulé en 2017/2018 ?

Table 160: Source of free donation granular fertilizer (2017-2018) (multiple choices possible) (conditional on free granular fertilizer)

Source of free donation granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ANADER	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
CCC	4% [-0.6%, 9.4%]	5% [-0.6%, 9.9%]	0% [0.0%, 0.0%]	*	0% [0.0%, 0.0%]	4% [-3.8%, 12.1%]	6% [-2.1%, 13.7%]	
Cooperative	98% [95.5%, 100.8%]	99% [96.5%, 101.1%]	84% [55.3%, 112.6%]		100% [100.0%, 100.0%]	96% [87.9%, 103.8%]	99% [96.1%, 101.3%]	
Private service provider/company	1% [-0.7%, 2.2%]	0% [0.0%, 0.0%]	16% [-12.6%, 44.7%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	1% [-1.3%, 3.9%]	
NGO/partner	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	2% [-1.8%, 5.6%]	2% [-1.9%, 5.8%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	3% [-3.1%, 9.7%]	

Source of free donation granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Do not know	2% [-1.6%, 5.0%]	2% [-1.7%, 5.3%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	3% [-2.8%, 8.8%]	
n	75	67	8		17	25	33	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q61. Quelle(s) institution(s) a(ont)-t-elle(s) donné de l'engrais granulé a votre ménage en 2017/2018?

Table 161: Number of bags/pouches free donation granular fertilizer (2017-2018) (conditional on free granular fertilizer)

Number of bags/pouches free donation granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3.9	4	2.2	***	5.2	4.9	3	***
[Confidence Interval]	[3.29, 4.57]	[3.35, 4.7]	[1.13, 3.27]		[2.94, 7.4]	[3.61, 6.22]	[2.55, 3.4]	
median	3.0	3.0	1.7		4.0	4.1	3.0	
n	67	59	8		16	24	27	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q62. Combien de sacs/sachets d'engrais granulé vous ont-elles été données au cours de la campagne 2017-2018 ?

Table 162: Purchase granular fertilizer (2017-2018)

Purchase granular fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	86%	85%	93%	***	87%	82%	87%	
[Confidence Interval]	[82.5%, 89.1%]	[81.0%, 88.5%]	[88.5%, 97.3%]		[81.6%, 92.6%]	[73.9%, 89.2%]	[82.1%, 91.2%]	
n	522	394	128		153	111	258	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q63. Votre ménage a-t-il ACHETÉ de l'engrais granulé au cours de la campagne 2017-2018 ?

Table 163: Total expenses on granular fertilizer (2017-2018) (FCFA) (conditional on purchase of granular fertilizer)

Total costs granular fertilizer (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	155491	155884	153139		130938	104981	176422	
[Confidence Interval]	[143201, 167782]	[142177, 169591]	[127835, 178443]		[111501, 150376]	[80554, 129408]	[159664, 193181]	***
median	120946	126000	96000		102000	75769	150000	
n	409	301	108		116	78	215	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Table 164: Source of purchased granular fertilizer (2017-2018) (conditional on purchase of granular fertilizer)

Source of purchased granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cash	48%	45%	66%	***	28%	41%	57%	***
Credit	52%	55%	34%		72%	59%	43%	
n	454	336	118		134	91	229	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q66. Comment votre ménage a-t-il acheté de l'engrais granulé en 2017/2018?

Table 165: Type of credit used for purchasing granular fertilizer (2017-2018) (conditional on credit used for purchase of granular fertilizer)

Type of credit used for purchasing granular fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supplier credit	25%	21%	66%	***	16%	49%	21%	***
Credit cooperative	73%	77%	31%		83%	49%	77%	
Other	2%	1%	3%		1%	2%	2%	
n	236	194	42		91	52	93	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q67. Quel type de credit votre ménage a-t-il utilisé pour acheter de l'engrais granulé en 2017/2018?

Table 166: Quantity of granular fertilizer used known (2017-2018)

Quantity of granular fertilizer used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	90%	90%	93%		88%	93%	90%	
[Confidence Interval]	[87.7%, 93.1%]	[86.9%, 93.0%]	[89.1%, 97.7%]		[82.8%, 93.0%]	[87.8%, 98.2%]	[86.7%, 94.2%]	
n	522	394	128		153	111	258	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q68a. Savez-vous quelle quantité d'engrais granulé été appliquée sur votre exploitation de cacao au cours de la campagne 2017-2018?

Table 167: Number of bags/pouches of granular fertilizer used (2017-2018) (conditional on quantity of granular fertilizer used known)

Number of bags/pouches of granular fertilizer used (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	10.3	10	12		10.2	6.1	11.6	***
[Confidence Interval]	[9.19, 11.4]	[8.96, 11.09]	[7.49, 16.53]		[8.01, 12.47]	[4.94, 7.2]	[10.03, 13.22]	
median	6.9	7.0	6.0		6.0	5.0	8.2	
n	472	353	119		133	104	235	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q68. Combien de sacs/sachets d'engrais granulé au TOTAL ont-elles été appliquées sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 168: Volume of granular fertilizer bags/pouches (2017-2018) (kg) (conditional on quantity of granular fertilizer used known)

Volume of granular fertilizer bags/pouches (2017-2018) (kg)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	50	50	50		50	50	50	
[Confidence Interval]	[50, 50]	[50, 50]	[50, 50]		[50, 50]	[50, 50]	[50, 50]	
median	50.0	50.0	50.0		50.0	50.0	50.0	
n	446	335	111		122	95	229	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q69. Quel est le volume (en kilogrammes) d'UN sac/sachet d'engrais granulé ?

Table 169: Land granular fertilizer applied (ha)

Land granular fertilizer applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4.3	4.4	3.5	*	5	2.9	4.4	***
[Confidence Interval]	[3.79, 4.72]	[3.85, 4.89]	[2.78, 4.29]		[4, 5.91]	[2.51, 3.2]	[3.77, 5.12]	
median	3.0	3.0	2.5		3.0	2.5	3.0	
n	517	389	128		149	111	257	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q70. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de de l'engrais granulé a-t-il été appliqué ?

Table 170: Applier of granular fertilizer (multiple choices possible)

Applier of granular fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.2%, 0.6%]	0% [-0.2%, 0.7%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	1% [-1.1%, 3.3%]	0% [0.0%, 0.0%]	
Household members aged 15 years and over	87% [83.7%, 89.8%]	86% [82.8%, 89.6%]	90% [85.2%, 95.6%]		75% [68.3%, 82.2%]	90% [83.9%, 95.9%]	90% [85.9%, 93.7%]	***
Communal workers / labor exchange group	5% [3.1%, 7.1%]	5% [3.2%, 7.8%]	3% [0.3%, 5.1%]	*	7% [2.8%, 11.0%]	4% [0.2%, 7.5%]	5% [2.1%, 7.6%]	
Farm workers employed permanently	26% [22.2%, 30.2%]	28% [23.3%, 32.2%]	16% [9.4%, 22.5%]	***	55% [46.9%, 63.0%]	6% [1.5%, 10.9%]	22% [16.9%, 27.6%]	***
Paid daily workers	1% [0.4%, 2.4%]	1% [0.1%, 2.2%]	3% [0.0%, 6.4%]		2% [-0.3%, 3.9%]	3% [-0.5%, 5.8%]	1% [-0.2%, 2.0%]	
Applicators from the cooperative	4% [2.3%, 5.9%]	4% [2.3%, 6.3%]	3% [-0.3%, 6.2%]		6% [1.9%, 9.7%]	4% [0.2%, 8.8%]	3% [1.1%, 5.7%]	
Private applicators	1% [-0.2%, 1.3%]	1% [-0.2%, 1.5%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	1% [-0.3%, 2.1%]	
n	522	394	128		153	111	258	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q72. Qui a effectué l'application d'engrais granulé sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 171: Gender of applier of granular fertilizer (multiple choices possible)

Gender of applier of granular fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Male	100% [99.3%, 100.1%]	100% [99.2%, 100.1%]	100% [100.0%, 100.0%]		99% [96.8%, 100.5%]	100% [100.0%, 100.0%]	100% [100.0%, 100.0%]	*
Female	3% [1.4%, 4.4%]	3% [1.5%, 4.9%]	1% [-0.9%, 2.7%]	*	6% [1.9%, 9.7%]	1% [-1.1%, 3.3%]	2% [0.5%, 4.5%]	
n	522	394	128		153	111	258	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q73. Qui a appliqué l'engrais granulé sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 172: Costs application of granular fertilizer (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs granular fertilizer application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	6543	7143	347	*	548	11647	5786	
[Confidence Interval]	[586, 12499]	[660, 13626]	[-318, 1012]		[-387, 1483]	[-1325, 24619]	[-2038, 13611]	
median	2000	2000	0		0	2000	2000	
n	16	13	3		4	5	7	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q74. Quel montant avez-vous payé pour l'application d'engrais granulé en 2017/2018? En FCFA

Table 173: Frequency of payment application granular fertilizer (multiple choices possible) (conditional on application costs made)

Frequency of payment application granular fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	39% [13.8%, 64.3%]	33% [6.9%, 59.3%]	100% [100.0%, 100.0%]	***	73% [25.9%, 119.4%]	54% [6.6%, 101.5%]	22% [-8.3%, 52.0%]	
Amount for each working day	24% [-0.3%, 48.0%]	26% [-0.0%, 52.4%]	0% [0.0%, 0.0%]	*	0% [0.0%, 0.0%]	23% [-17.5%, 63.0%]	31% [-5.4%, 68.3%]	
Amount for each unit produced	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Amount for each hectare	23% [-0.4%, 46.5%]	25% [-0.2%, 50.8%]	0% [0.0%, 0.0%]	*	0% [0.0%, 0.0%]	23% [-17.6%, 64.1%]	30% [-6.0%, 65.4%]	
Amount for multiple applications during the season	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	14% [-5.6%, 33.6%]	15% [-6.0%, 36.8%]	0% [0.0%, 0.0%]		27% [-19.4%, 74.1%]	0% [0.0%, 0.0%]	17% [-14.0%, 48.0%]	

Frequency of payment application granular fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
n	16	13	3		4	5	7	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q75. A quelle fréquence avez-vous payé ce montant ?

Table 174: Application of liquid fertilizer (2017-2018) (if no, no further questions on liquid fertilizer)

Application of liquid fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	8%	8%	7%		5%	4%	12%	
[Confidence Interval]	[6.1%, 9.5%]	[6.1%, 9.9%]	[4.1%, 9.6%]		[3.0%, 7.0%]	[2.3%, 6.5%]	[8.5%, 15.1%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q76. Avez-vous utilisé de l'engrais liquide pour le traitement de l'exploitation de cacao du ménage au cours de la campagne 2017-2018 ?

Table 175: Frequency of application of liquid fertilizer (2017-2018)

Frequency of application of liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.7	1.7	1.7		1.4	1.4	1.8	
[Confidence Interval]	[1.43, 1.89]	[1.4, 1.91]	[1.36, 2.08]		[1.14, 1.75]	[1.07, 1.69]	[1.47, 2.11]	
median	1.0	1.0	2.0		1.0	1.0	1.9	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q77. Combien de fois de l'engrais liquide a-t-il été utilisé sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 176: Month of latest application of liquid fertilizer (2017-2018)

Month of latest application of liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	2%	3%	0%		5%	0%	2%	
February	4%	5%	0%		6%	0%	5%	
March	6%	4%	14%		8%	6%	5%	
April	9%	11%	0%		5%	0%	13%	
May	2%	2%	0%		5%	7%	0%	
June	17%	18%	11%		26%	13%	16%	
July	16%	15%	23%		10%	6%	20%	
August	22%	21%	28%		14%	27%	22%	
September	10%	9%	20%		17%	7%	9%	
October	4%	4%	4%		3%	0%	5%	
November	2%	2%	0%		0%	0%	3%	
December	6%	6%	0%		0%	33%	0%	
Do not know	0%	0%	0%		0%	0%	0%	
n	87	64	23		25	15	47	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q78. A quel mois remonte la dernière application d'engrais liquide?

Table 177: Free donation liquid fertilizer (2017-2018)

Free donation liquid fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4%	3%	8%		7%	7%	3%	
[Confidence Interval]	[-0.2%, 8.3%]	[-1.3%, 8.1%]	[-1.0%, 17.9%]		[-0.9%, 14.9%]	[-6.2%, 19.9%]	[-2.5%, 7.7%]	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q79. Votre ménage a-t-il reçu un don (gratuit) d'engrais liquide en 2017/2018 ?

Table 178: Source of free donation liquid fertilizer (2017-2018) (multiple choices possible) (conditional on free liquid fertilizer)

Source of free donation liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ANADER	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
CCC	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Cooperative	100% [100.0%, 100.0%]	100% [100.0%, 100.0%]	100% [100.0%, 100.0%]		100% [100.0%, 100.0%]	100% [100.0%, 100.0%]	100% [100.0%, 100.0%]	
Private service provider/company	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
NGO/partner	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Other	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
n	5	2	3		3	1	1	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q80. Quelle(s) institution(s) a(ont)-t-elle(s) donné de l'engrais liquide a votre ménage en 2017/2018 ?

Table 179: Number of bottles free donation liquid fertilizer (2017-2018) (conditional on free liquid fertilizer)

Number of bottles free donation liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3.2	4	1		1	1	6	
[Confidence Interval]	[0.03, 6.28]	[0.2, 7.7]	[1, 1]		[1, 1]	[1, 1]	[6, 6]	
median	1.0	1.8	1.0		1	1	6	
n	5	2	3		3	1	1	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q81. Combien de bouteilles d'engrais liquide vous ont-elles été données au cours de la campagne 2017-2018 ?

Table 180: Purchase liquid fertilizer (2017-2018)

Purchase liquid fertilizer (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	94%	95%	92%		93%	93%	95%	
[Confidence Interval]	[89.3%, 99.6%]	[89.1%, 100.6%]	[82.1%, 101.0%]		[85.1%, 100.9%]	[80.1%, 106.2%]	[88.5%, 101.8%]	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q82. Votre ménage a-t-il ACHETÉ de l'engrais liquide au cours de la campagne 2017-2018 ?

Table 181: Total expenses on liquid fertilizer (2017-2018) (FCFA) (conditional on purchase of liquid fertilizer)

Total costs liquid fertilizer (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	41515	42894	31941		32596	40639	43661	
[Confidence Interval]	[31574, 51455]	[31628, 54160]	[22566, 41317]		[19710, 45482]	[19740, 61538]	[30371, 56951]	
median	29886	30000	25000		24978	23455	30000	
n	82	61	21		22	15	45	

Total costs liquid fertilizer (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively								

Table 182: Source of purchased liquid fertilizer (2017-2018) (conditional on purchase of liquid fertilizer)

Source of purchased liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cash	67%	66%	69%		83%	13%	77%	***
Credit	33%	34%	31%		17%	87%	23%	
n	83	62	21		23	15	45	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q85. Comment votre ménage a-t-il acheté de l'engrais liquide en 2017/2018?

Table 183: Type of credit used for purchasing liquid fertilizer (2017-2018) (conditional on credit used for purchase of liquid fertilizer)

Type of credit used for purchasing liquid fertilizer (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supplier credit	97%	97%	90%	*	57%	100%	100%	**
Credit cooperative	1%	0%	10%		15%	0%	0%	
Other	2%	3%	0%		29%	0%	0%	
n	28	22	6		4	13	11	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q86. Quel type de credit votre ménage a-t-il utilisé pour acheter de l'engrais liquide en 2017/2018?

Table 184: Quantity of liquid fertilizer used known (2017-2018)

Quantity of liquid fertilizer used known (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	90%	89%	100%	***	81%	87%	93%	
[Confidence Interval]	[83.7%, 96.7%]	[81.4%, 96.2%]	[100.0%, 100.0%]		[64.7%, 97.8%]	[70.4%, 103.9%]	[85.6%, 100.7%]	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q87a. Savez-vous quelle quantité d'engrais liquide a été appliquée sur votre exploitation de cacao au cours de la campagne 2017-2018?

Table 185: Number of bottles of liquid fertilizer used (2017-2018) (conditional on quantity of liquid fertilizer used known)

Number of bottles of liquid fertilizer used (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4	4.3	2.4	**	2.8	3.8	4.4	
[Confidence Interval]	[2.77, 5.33]	[2.85, 5.8]	[1.69, 3.1]		[1.31, 4.31]	[1.15, 6.46]	[2.66, 6.06]	
median	2.0	2.0	2.0		1.0	2.0	2.8	
n	80	56	24		22	14	44	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q87. Combien de bouteilles/bidons d'engrais liquide au TOTAL ont-elles été appliquées sur votre exploitation de cacao au cours de la campagne 2017-2018 ?

Table 186: Volume of liquid fertilizer bottles (2017-2018) (liters) (conditional on quantity of liquid fertilizer used known)

Volume of liquid fertilizer bottles (2017-2018) (liters)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.6	2.5	3.5		5	2.7	2.1	
[Confidence Interval]	[1.89, 3.34]	[1.74, 3.2]	[1.07, 5.96]		[2.18, 7.9]	[0.81, 4.49]	[1.45, 2.79]	
median	1.0	1.0	1.0		2.0	2.0	1.0	

Volume of liquid fertilizer bottles (2017-2018) (liters)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
n	80	56	24		22	14	44	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q88. Quel est le volume (en litres) d'UNE bouteille/bidon d'engrais liquide ?

Table 187: Liquid fertilizer brand

Liquid fertilizer brand	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Supergrow	23%	21%	34%		53%	27%	17%	
Callifert	14%	15%	12%		0%	0%	18%	
Di-grow	3%	4%	0%		0%	0%	4%	
Other	60%	61%	53%		47%	73%	61%	
Do not know	0%	0%	0%		0%	0%	0%	
n	43	32	11		12	4	27	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q90. Nom commercial du produit utilisé en majorité ou le plus fréquemment

Table 188: Land liquid fertilizer applied (ha)

Land liquid fertilizer applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3.9	4.1	2.9	*	3.9	3.4	4	
[Confidence Interval]	[3.09, 4.71]	[3.13, 4.97]	[2.13, 3.59]		[2.56, 5.15]	[2.07, 4.76]	[2.92, 5.16]	
median	2.8	3.0	2.0		2.9	2.1	2.9	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q89. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de de l'engrais liquide a-t-il été appliqué ?

Table 189: Applier of liquid fertilizer (multiple choices possible)

Applier of liquid fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Household members aged 15 years and over	46% [34.7%, 57.4%]	46% [33.5%, 58.8%]	45% [24.1%, 66.1%]		30% [11.4%, 48.5%]	37% [13.3%, 60.8%]	52% [37.2%, 67.1%]	
Communal workers / labor exchange group	0% [-0.4%, 1.1%]	0% [0.0%, 0.0%]	3% [-2.7%, 8.3%]		2% [-2.3%, 6.9%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Farm workers employed permanently	18% [9.8%, 26.8%]	19% [9.1%, 28.0%]	17% [1.1%, 32.0%]		51% [30.3%, 71.2%]	0% [0.0%, 0.0%]	16% [4.7%, 26.5%]	***
Paid daily workers	6% [1.3%, 11.2%]	7% [1.5%, 12.9%]	0% [0.0%, 0.0%]	**	5% [-4.7%, 14.9%]	31% [8.3%, 53.8%]	0% [0.0%, 0.0%]	**
Applicators from the cooperative	31% [20.2%, 41.1%]	28% [16.6%, 39.7%]	47% [26.5%, 68.3%]		28% [10.3%, 44.7%]	26% [4.0%, 47.7%]	33% [18.6%, 46.6%]	
Private applicators	8% [1.4%, 14.1%]	9% [1.3%, 15.8%]	3% [-2.7%, 8.3%]		2% [-2.3%, 6.9%]	6% [-5.5%, 17.5%]	10% [0.6%, 18.4%]	
n	89	65	24		26	16	47	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q91. Qui a effectué l'application d'engrais liquide sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 190: Gender of applier of liquid fertilizer

Gender of liquid fertilizer applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	100%	100%	100%		100%	100%	100%	

Gender of liquid fertilizer applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Woman	0%	0%	0%		0%	0%	0%	
Both	0%	0%	0%		0%	0%	0%	
n	89	65	24		26	16	47	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q92. Qui a appliqué l'engrais liquide sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 191: Costs application of liquid fertilizer (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs liquid fertilizer application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2928	3017	2363		2297	6740	1427	
[Confidence Interval]	[1169, 4688]	[990, 5043]	[1196, 3530]		[523, 4072]	[1348, 12132]	[586, 2267]	
median	2000	2000	2000		1954	2520	758	
n	37	26	11		8	10	19	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q93. Quel montant avez-vous payé pour l'application d'engrais liquide en 2017/2018? En FCFA

Table 192: Frequency of payment application liquid fertilizer (multiple choices possible) (conditional on application costs made)

Frequency of payment application liquid fertilizer	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	42% [24.1%, 59.5%]	46% [26.3%, 66.3%]	13% [-4.7%, 30.6%]	**	40% [2.8%, 78.0%]	50% [18.4%, 81.3%]	39% [14.9%, 62.4%]	
Amount for each working day	7% [-1.3%, 15.8%]	6% [-2.8%, 15.7%]	12% [-10.2%, 34.7%]		21% [-14.6%, 56.9%]	0% [0.0%, 0.0%]	8% [-3.7%, 20.3%]	
Amount for each unit produced	19% [6.7%, 32.1%]	14% [0.7%, 26.7%]	56% [25.0%, 87.2%]	**	29% [-1.8%, 59.5%]	30% [1.0%, 58.2%]	14% [-0.6%, 28.2%]	
Amount for each hectare	16% [1.8%, 30.8%]	19% [2.2%, 35.4%]	0% [0.0%, 0.0%]	**	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	25% [3.9%, 46.8%]	
Amount for multiple applications during the season	3% [-2.6%, 7.8%]	3% [-3.0%, 9.1%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	10% [-8.8%, 28.5%]	0% [0.0%, 0.0%]	
Other	25% [9.2%, 41.3%]	26% [8.1%, 44.4%]	19% [-6.0%, 43.4%]		10% [-9.0%, 28.2%]	11% [-9.3%, 30.7%]	34% [10.9%, 56.3%]	
n	37	26	11		8	10	19	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q94. A quelle fréquence avez-vous payé ce montant ?

Table 193: Use of compost (2017-2018) (if no, no further questions on compost)

Use of compost (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	9%	9%	9%		6%	11%	9%	
[Confidence Interval]	[7.3%, 10.7%]	[7.0%, 10.9%]	[6.1%, 11.9%]		[3.5%, 7.8%]	[8.0%, 14.3%]	[6.3%, 12.2%]	**
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S3.Q95. Du fumier ou du compost a-t-il été appliqué sur l'exploitation de cacao de votre ménage au cours de la campagne 2017-2018 ?

Table 194: Frequency of application of compost (2017-2018)

Frequency of application of manure or compost (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1.3	1.3	1.4		1.2	1.3	1.3	
[Confidence Interval]	[1.17, 1.39]	[1.14, 1.37]	[1.11, 1.77]		[1.06, 1.42]	[1.15, 1.47]	[1.08, 1.45]	
median	1.0	1.0	1.0		1.0	1.0	1.0	
n	115	79	36		29	47	39	

Frequency of application of manure or compost (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
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Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q96. Combien de fois du fumier ou du composte a-t-il été appliqué sur l'exploitation de cacao de votre ménage au cours de la campagne 2017-2018 ?

Table 195: Month of latest application of compost (2017-2018)

Month of latest application of manure or compost (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	5%	4%	7%		2%	5%	5%	
February	6%	6%	7%		4%	9%	4%	
March	19%	21%	13%		14%	20%	21%	
April	14%	16%	2%		16%	10%	16%	
May	7%	7%	4%		2%	11%	4%	
June	15%	16%	9%		19%	17%	12%	
July	9%	8%	11%		19%	7%	6%	
August	10%	8%	26%		13%	9%	10%	
September	10%	9%	15%		7%	7%	14%	
October	4%	4%	7%		2%	5%	5%	
November	0%	0%	0%		0%	0%	0%	
December	2%	2%	0%		0%	0%	3%	
n	117	80	37		30	47	40	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q97. A quel mois remonte la dernière application de fumier ou de composte ?

Table 196: Land compost applied (ha)

Land manure or compost applied	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.9	2.8	3.6		2.8	2.4	3.3	
[Confidence Interval]	[2.37, 3.38]	[2.29, 3.21]	[1.46, 5.7]		[1.75, 3.8]	[2, 2.83]	[2.32, 4.28]	
median	2.0	2.0	2.0		2.1	2.0	2.9	
n	117	80	37		30	47	40	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q98. Vous avez dit plus tôt cultiver le cacao sur . Sur combien de du fumier ou du composte a-t-il été appliqué ?

Table 197: Applier of compost (multiple choices possible)

Applier of compost	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Household members aged 15 years and over	96% [92.5%, 98.9%]	97% [93.6%, 100.1%]	89% [78.4%, 99.9%]		85% [71.1%, 98.2%]	98% [93.2%, 102.2%]	98% [94.4%, 101.0%]	
Communal workers / labor exchange group	1% [-0.3%, 2.8%]	0% [0.0%, 0.0%]	9% [-1.3%, 18.8%]	*	4% [-1.6%, 9.9%]	0% [0.0%, 0.0%]	1% [-1.4%, 4.3%]	
Farm workers employed permanently	12% [6.6%, 18.1%]	11% [4.9%, 17.6%]	19% [6.5%, 31.7%]		59% [39.8%, 77.9%]	3% [-2.5%, 7.9%]	5% [-1.3%, 11.5%]	***
Paid daily workers	2% [-0.9%, 5.8%]	3% [-1.1%, 6.8%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	3% [-2.4%, 7.6%]	3% [-2.9%, 9.1%]	
Company or service provider	2% [-0.8%, 4.7%]	2% [-0.9%, 5.5%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	5% [-1.8%, 11.8%]	0% [0.0%, 0.0%]	
n	117	80	37		30	47	40	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q99. Qui a effectué l'application de fumier ou de compost sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 198: Gender of applier of compost

Gender of manure or compost applicator	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	90%	89%	93%		98%	86%	90%	
Woman	0%	0%	0%		0%	0%	0%	
Both	10%	11%	7%		2%	14%	10%	
n	117	80	37		30	47	40	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q100. Qui a appliqué le fumier ou de compost sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 199: Total costs application of compost (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Costs manure or compost application (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	50000	50000				50000		
[Confidence Interval]	[NaN, NaN]	[NaN, NaN]				[NaN, NaN]		
median	50000	50000	NA		NA	50000	NA	
n	1	1	0		0	1	0	

Note: significance from a one-way ANOVA statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q101. Quel montant avez-vous payé pour l'application de fumier ou de composte en 2017/2018? En FCFA

Table 200: Frequency of payment application compost (multiple choices possible)

Frequency of payment application compost	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Amount for each application	0% [NaN%, NaN%]	0% [NaN%, NaN%]				0% [NaN%, NaN%]		
Amount for each working day	0% [NaN%, NaN%]	0% [NaN%, NaN%]				0% [NaN%, NaN%]		
Amount for each unit produced	0% [NaN%, NaN%]	0% [NaN%, NaN%]				0% [NaN%, NaN%]		
Amount for each hectare	0% [NaN%, NaN%]	0% [NaN%, NaN%]				0% [NaN%, NaN%]		
Amount for multiple applications during the season	0% [NaN%, NaN%]	0% [NaN%, NaN%]				0% [NaN%, NaN%]		
Other	100% [NaN%, NaN%]	100% [NaN%, NaN%]				100% [NaN%, NaN%]		
n	1	1	0		0	1	0	

Note: significance from a one-way ANOVA statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S3.Q102. A quelle fréquence avez-vous payé ce montant ?

Table 201: Farm equipment

Farm equipment	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Personal protective equipment (y/n)	13% [10.8%, 14.8%]	13% [10.8%, 15.4%]	11% [7.7%, 14.5%]		15% [11.8%, 18.8%]	5% [3.0%, 7.3%]	17% [13.2%, 20.7%]	***
Combination (y/n)	3% [1.7%, 3.9%]	3% [1.6%, 4.2%]	2% [0.5%, 3.9%]		2% [0.7%, 3.7%]	1% [-0.1%, 1.9%]	5% [2.3%, 7.0%]	**
Nose cover (y/n)	21% [18.7%, 24.0%]	22% [18.9%, 24.9%]	18% [13.6%, 22.3%]		17% [12.8%, 20.9%]	16% [12.6%, 20.2%]	28% [22.9%, 32.8%]	***
Glasses (y/n)	7% [5.0%, 8.3%]	7% [4.8%, 8.5%]	6% [3.7%, 9.3%]		5% [2.9%, 7.4%]	5% [2.6%, 7.1%]	9% [5.8%, 12.1%]	*
Boots (y/n)	77% [73.9%, 79.1%]	78% [74.9%, 80.7%]	69% [64.1%, 74.4%]	***	72% [67.0%, 76.7%]	71% [66.8%, 76.0%]	83% [79.4%, 87.2%]	***
Gloves (y/n)	17% [14.4%, 19.3%]	18% [15.2%, 20.9%]	10% [6.9%, 13.8%]	***	10% [6.9%, 13.5%]	11% [7.9%, 14.4%]	25% [20.4%, 30.0%]	***
Atomizer (y/n)	11% [9.0%, 12.7%]	10% [8.4%, 12.6%]	13% [9.1%, 16.6%]		9% [5.8%, 11.2%]	8% [5.4%, 10.9%]	14% [10.6%, 17.5%]	**

Farm equipment	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Sprayers (y/n)	28% [25.2%, 30.5%]	25% [22.4%, 28.3%]	43% [37.3%, 48.0%]	***	23% [18.6%, 26.7%]	29% [24.2%, 33.2%]	30% [25.6%, 34.6%]	**
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: Le ménage possède-t-il le matériel/équipement ci-après ?

8. AGRICULTURAL PRACTICES

Table 202: Weeding of cocoa farm (2017-2018) (if no, no further questions on weeding)

Weeding of cocoa farm (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	97%	96%	98%		94%	99%	97%	***
[Confidence Interval]	[95.6%, 97.7%]	[95.2%, 97.6%]	[96.4%, 99.7%]		[91.0%, 96.0%]	[98.1%, 100.0%]	[94.8%, 98.4%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q1. Votre ménage a-t-il désherbé son exploitation de cacao au cours de la campagne 2017-2018 ?

Table 203: Frequency of weeding (2017-2018)

Frequency of weeding (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Every time we go to the field	7%	8%	3%		5%	8%	8%	
Regularly	36%	35%	43%		42%	36%	34%	
When we see that it is necessary	50%	50%	50%		49%	46%	53%	
Occasionally	6%	6%	3%	**	3%	9%	5%	***
Rarely	1%	1%	0%		1%	1%	1%	
Never	0%	0%	0%		0%	0%	0%	
Never, I did not need it	0%	0%	0%		0%	0%	0%	
n	1258	888	370		404	443	411	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q2. A quelle fréquence votre ménage a-t-il désherbé l'exploitation de cacao au cours de la campagne 2017-2018 ?

Table 204: Agent of weeding (multiple choices possible)

Agent of weeding	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.1%, 0.4%]	0% [-0.1%, 0.3%]	0% [-0.4%, 1.1%]		0% [0.0%, 0.0%]	0% [-0.3%, 0.9%]	0% [-0.1%, 0.4%]	
Household members aged 15 years and over	80% [77.8%, 82.4%]	80% [77.3%, 82.6%]	81% [77.1%, 85.0%]		58% [53.2%, 63.1%]	86% [82.1%, 89.2%]	88% [84.4%, 91.1%]	***
Communal workers / labor exchange group	15% [12.5%, 16.7%]	15% [12.7%, 17.5%]	12% [8.6%, 14.7%]	*	5% [2.7%, 6.9%]	28% [23.2%, 32.1%]	10% [7.1%, 13.4%]	***
Farm workers employed permanently	30% [27.6%, 33.0%]	30% [27.3%, 33.4%]	30% [25.2%, 34.9%]		62% [57.2%, 67.0%]	9% [6.5%, 12.2%]	29% [24.2%, 33.4%]	***
Paid daily workers	9% [7.5%, 10.9%]	9% [6.9%, 10.8%]	11% [8.1%, 14.7%]		9% [5.8%, 11.2%]	12% [9.1%, 15.8%]	7% [4.6%, 9.9%]	*
Company or service provider	7% [5.8%, 8.9%]	7% [5.7%, 9.2%]	7% [4.4%, 9.2%]		2% [0.7%, 3.5%]	18% [13.8%, 21.4%]	3% [0.9%, 4.2%]	***
n	1258	888	370		404	443	411	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q4. Qui a effectué le désherbage sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 205: Gender of Agent of weeding

Gender-specific participation to weeding	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	97%	97%	99%		98%	97%	97%	
Woman	0%	0%	0%		0%	0%	1%	
Both	3%	3%	1%		2%	3%	2%	
n	1258	888	370		404	443	411	

Gender-specific participation to weeding	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively								
Original question: S4.Q5. Qui a effectué le désherbage sur l'exploitation de cacao: des hommes, des femmes ou les deux ?								

Table 206: Total costs of weeding (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Weeding costs (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	58966	61923	43827		50556	65895	21358	
[Confidence Interval]	[37790, 80142]	[36795, 87051]	[30232, 57423]		[28715, 72397]	[38206, 93584]	[8569, 34147]	***
median	36127	37181	30000		29493	50000	13108	
n	64	41	23		16	44	4	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q6. Combien avez-vous payé pour le désherbage?

Table 207: Removal of suckers on cocoa farm (2017-2018) (if no, no further questions on removal of suckers)

Removal of suckers on cocoa farm (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	96%	96%	98%		93%	98%	96%	
[Confidence Interval]	[94.7%, 97.1%]	[94.2%, 96.9%]	[96.9%, 99.6%]	***	[90.1%, 95.4%]	[97.2%, 99.6%]	[93.8%, 97.9%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q10. Votre ménage a-t-il effectué l'égourmandage de son exploitation de cacao au cours de la campagne 2017-2018 ?

Table 208: Frequency of removal of suckers (2017-2018)

Frequency of removal of suckers (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Every time we go to the field	15%	14%	18%		17%	12%	15%	
Regularly	36%	35%	37%		27%	38%	39%	
When we see that it is necessary	44%	44%	40%		51%	42%	41%	
Occasionally	5%	5%	5%		4%	7%	5%	***
Rarely	0%	0%	0%		0%	1%	0%	
Never	0%	0%	0%		0%	0%	0%	
Never, I did not need it	0%	0%	0%		0%	0%	0%	
n	1249	880	369		402	438	409	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q11. A quelle fréquence votre ménage a-t-il effectué l'égourmandage l'exploitation de cacao au cours de la campagne 2017-2018 ?

Table 209: Agent of removal of suckers (multiple choices possible)

Agent of removal of suckers	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.6%]	0% [-0.0%, 0.6%]	0% [-0.2%, 0.9%]		1% [-0.1%, 1.8%]	0% [-0.3%, 0.9%]	0% [0.0%, 0.0%]	
Household members aged 15 years and over	88% [85.8%, 89.6%]	87% [85.3%, 89.6%]	89% [86.1%, 92.4%]		69% [64.1%, 73.5%]	97% [95.5%, 98.7%]	91% [87.8%, 93.8%]	***
Communal workers / labor exchange group	7% [5.1%, 8.2%]	7% [5.6%, 9.2%]	3% [1.1%, 4.0%]	***	2% [0.9%, 4.0%]	12% [8.3%, 14.9%]	5% [2.9%, 7.6%]	***
Farm workers employed permanently	28% [24.9%, 30.3%]	28% [25.2%, 31.3%]	24% [19.4%, 28.5%]		58% [53.0%, 63.0%]	8% [5.0%, 10.2%]	26% [21.6%, 30.6%]	***
Paid daily workers	1% [0.5%, 1.7%]	1% [0.4%, 1.6%]	2% [0.1%, 2.9%]		2% [0.4%, 3.2%]	1% [0.1%, 2.4%]	1% [-0.1%, 1.3%]	
Company or service provider	1% [0.2%, 1.1%]	1% [0.2%, 1.3%]	0% [0.0%, 0.0%]	***	0% [-0.3%, 0.9%]	1% [0.2%, 2.6%]	0% [-0.3%, 0.8%]	

Agent of removal of suckers	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
n	1249	880	369		402	438	409	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q12. Qui a effectué l'égourmandage sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 210: Gender of agent of removal of suckers

Gender-specific participation to removal of suckers	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	98%	98%	99%		100%	97%	98%	
Woman	0%	0%	0%		0%	0%	1%	**
Both	2%	2%	1%		0%	3%	1%	
n	1249	880	369		402	438	409	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q13. Qui a effectué l'égourmandage sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 211: Total costs of removal of suckers (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Removal of suckers costs (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	45470 [-33103, 124043]	45470 [-33103, 124043]			20000 [20000, 20000]	86044 [-37225, 209313]	0 [0, 0]	
median	1866	1866			20000	80000	0	
n	4	4	0		1	2	1	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q14. Combien avez-vous payé pour l'égourmandage?

Table 212: Mistletoe removal (2017-2018) (if no, no further questions on mistletoe)

Mistletoe removal of cocoa farm (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	93% [91.5%, 94.5%]	92% [90.6%, 94.0%]	97% [95.5%, 98.7%]	***	91% [88.5%, 94.3%]	90% [86.5%, 92.6%]	96% [94.4%, 98.3%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q18. Votre ménage a-t-il supprimé les loranthus de son exploitation de cacao au cours de la campagne 2017-2018 ?

Table 213: Frequency of mistletoe removal (2017-2018)

Frequency of mistletoe removal (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Every time we go to the field	15%	14%	21%		15%	15%	15%	
Regularly	37%	38%	31%		33%	36%	40%	
When we see that it is necessary	41%	40%	42%		49%	36%	39%	
Occasionally	6%	6%	6%	**	3%	12%	4%	***
Rarely	1%	1%	0%		0%	2%	1%	
Never	0%	0%	0%		0%	0%	1%	
Never, I did not need it	0%	0%	0%		0%	0%	0%	
n	1210	847	363		397	402	411	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q19. A quelle fréquence votre ménage a-t-il supprimé les loranthus de l'exploitation de cacao au cours de la campagne 2017-2018 ?

Table 214: Agent of mistletoe removal (multiple choices possible)

Agent of loranthus removal	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.0%, 0.2%]	0% [0.0%, 0.0%]	1% [-0.3%, 1.5%]		0% [-0.1%, 0.4%]	0% [0.0%, 0.0%]	0% [-0.1%, 0.4%]	
Household members aged 15 years and over	87% [85.3%, 89.2%]	87% [84.8%, 89.2%]	89% [85.4%, 92.0%]		69% [63.9%, 73.3%]	98% [96.0%, 99.1%]	90% [87.1%, 93.2%]	***
Communal workers / labor exchange group	6% [4.1%, 7.0%]	6% [4.4%, 7.7%]	3% [1.5%, 4.6%]	**	2% [0.3%, 2.9%]	11% [8.0%, 14.8%]	4% [1.7%, 5.7%]	***
Farm workers employed permanently	30% [26.8%, 32.3%]	30% [27.2%, 33.5%]	25% [20.4%, 29.7%]	*	60% [55.4%, 65.4%]	8% [5.0%, 10.6%]	28% [23.3%, 32.5%]	***
Paid daily workers	1% [0.5%, 1.8%]	1% [0.4%, 1.8%]	2% [0.3%, 3.4%]		0% [-0.2%, 1.1%]	2% [0.6%, 3.6%]	1% [0.1%, 1.9%]	
Company or service provider	1% [0.2%, 1.3%]	1% [0.2%, 1.6%]	0% [0.0%, 0.0%]	***	0% [0.0%, 0.0%]	2% [0.2%, 2.9%]	1% [-0.2%, 1.5%]	**
n	1210	847	363		397	402	411	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q20. Qui a supprimé les loranthus sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 215: Gender of agent of mistletoe removal

Gender-specific participation to mistletoe removal	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	99%	99%	100%		100%	99%	98%	
Woman	0%	0%	0%		0%	0%	1%	
Both	1%	1%	0%		0%	1%	1%	
n	1210	847	363		397	402	411	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q21. Qui a supprimé les loranthus sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 216: Total costs of mistletoe removal (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Mistletoe removal costs (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	17786	17598	20000		20000	17013		
[Confidence Interval]	[-1512, 37083]	[-3330, 38527]	[20000, 20000]		[20000, 20000]	[-8987, 43013]		
median	5832	11250	20000		20000	2244		
n	5	4	1		2	3	0	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q22. Combien avez-vous payé pour la suppression des loranthus?

Table 217: Pruning (2017-2018) (if no, no further questions on pruning)

Pruning of cocoa farm (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	85%	84%	90%		86%	78%	89%	
[Confidence Interval]	[82.5%, 86.8%]	[81.3%, 86.2%]	[87.0%, 92.6%]	***	[82.8%, 89.8%]	[73.9%, 81.9%]	[85.2%, 91.9%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q26. Votre ménage a-t-il effectué l'élagage de son exploitation de cacao au cours de la campagne 2017-2018 ?

Table 218: Frequency of pruning (2017-2018)

Frequency of pruning (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Every time we go to the field	12%	11%	12%	**	3%	11%	17%	***
Regularly	25%	26%	19%		23%	25%	26%	
When we see that it is necessary	51%	50%	60%		69%	48%	44%	
Occasionally	9%	9%	6%		5%	11%	9%	
Rarely	3%	4%	2%		1%	4%	4%	
Never	0%	0%	0%		0%	0%	0%	
Never, I did not need it	0%	0%	0%		0%	0%	0%	
n	1100	773	327		378	337	385	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q27. A quelle fréquence votre ménage a-t-il effectué l'élagage de l'exploitation de cacao au cours de la campagne 2017-2018 ?

Table 219: Agent of pruning (multiple choices possible)

Agent of pruning	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Household members aged 15 years and over	87% [85.1%, 89.2%]	87% [84.5%, 89.2%]	89% [85.5%, 92.3%]		68% [62.7%, 72.5%]	98% [96.1%, 99.3%]	91% [87.9%, 94.1%]	***
Communal workers / labor exchange group	5% [3.9%, 6.8%]	6% [4.2%, 7.7%]	2% [0.6%, 3.2%]	***	1% [0.1%, 2.7%]	12% [8.4%, 16.0%]	3% [1.2%, 5.0%]	***
Farm workers employed permanently	29% [26.6%, 32.3%]	30% [26.7%, 33.2%]	27% [21.8%, 31.7%]		59% [53.5%, 63.8%]	7% [4.5%, 10.5%]	28% [22.9%, 32.4%]	***
Paid daily workers	1% [0.4%, 1.7%]	1% [0.3%, 1.8%]	1% [-0.0%, 2.3%]		1% [-0.1%, 1.9%]	2% [0.1%, 3.0%]	1% [-0.1%, 1.7%]	
Company or service provider	1% [0.1%, 1.1%]	1% [0.1%, 1.3%]	0% [0.0%, 0.0%]	**	0% [-0.3%, 1.0%]	2% [0.2%, 3.3%]	0% [0.0%, 0.0%]	**
n	1100	773	327		378	337	385	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q28. Qui a effectué l'élagage sur l'exploitation de cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 220: Gender of agent of pruning

Gender-specific participation to pruning	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	99%	98%	100%		100%	97%	99%	
Woman	0%	0%	0%		0%	0%	0%	
Both	1%	1%	0%		0%	3%	1%	
n	1100	773	327		378	337	385	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q29. Qui a effectué l'élagage sur l'exploitation de cacao: des hommes, des femmes ou les deux ?

Table 221: Total costs of pruning (2017-2018) (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Pruning costs (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4000	2231	15000		15000	2231		
[Confidence Interval]	[-517, 8516]	[1809, 2652]	[15000, 15000]		[15000, 15000]	[1809, 2652]		
median	2045	2250	15000		15000	2250		
n	3	2	1		1	2	0	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q30. Combien avez-vous payé pour l'élagage?

Table 222: Diseases/pests (2017-2018) (if no, no further questions on diseases/pests)

Diseases/pests (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	67%	66%	70%		49%	73%	72%	
[Confidence Interval]	[63.9%, 69.4%]	[62.9%, 69.1%]	[65.5%, 75.0%]		[43.9%, 53.7%]	[68.4%, 77.3%]	[67.5%, 76.5%]	***
n	1299	923	376		428	446	425	

Note: significance from a composite Wald statistical test. *** ** * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q34. Au cours de la campagne 2017-2018, avez-vous subi des pertes de cacao liées à des maladies et/ou nuisibles?

Table 223: Types of diseases/pests (2017-2018) (multiple choices possible)

Types of diseases/pests (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Black pod	58% [54.5%, 61.7%]	59% [55.1%, 63.4%]	52% [45.4%, 58.2%]	*	68% [61.6%, 74.8%]	55% [49.0%, 60.6%]	57% [51.0%, 62.5%]	***
Root rot	8% [6.2%, 10.0%]	8% [5.7%, 10.0%]	10% [6.0%, 13.2%]		12% [7.6%, 17.1%]	11% [7.1%, 14.0%]	5% [2.3%, 7.3%]	***
Swollen Shoot	36% [32.0%, 39.1%]	36% [32.0%, 40.1%]	33% [26.6%, 38.8%]		3% [0.3%, 4.8%]	51% [45.4%, 57.0%]	36% [30.8%, 42.1%]	***
Canker	3% [1.8%, 4.2%]	3% [1.9%, 4.7%]	1% [-0.2%, 2.4%]	**	2% [0.1%, 4.2%]	6% [2.8%, 8.2%]	1% [0.1%, 2.9%]	**
Mistletoe	31% [27.6%, 34.6%]	32% [27.8%, 35.8%]	27% [21.2%, 33.0%]		7% [3.6%, 11.2%]	29% [23.8%, 34.4%]	41% [35.6%, 47.1%]	***
Akate	19% [16.3%, 22.2%]	18% [15.0%, 21.7%]	24% [18.1%, 29.5%]		17% [11.7%, 22.5%]	10% [6.8%, 14.0%]	26% [21.3%, 31.5%]	***
Mirids	26% [22.7%, 29.0%]	23% [19.5%, 26.5%]	41% [34.8%, 47.6%]	***	24% [18.3%, 30.5%]	25% [20.2%, 30.4%]	27% [21.8%, 31.7%]	
Black ants	19% [16.0%, 22.0%]	20% [16.9%, 23.8%]	11% [7.4%, 15.3%]	***	10% [5.7%, 14.2%]	19% [14.8%, 24.0%]	22% [17.0%, 27.1%]	***
Termites	17% [14.6%, 20.4%]	18% [15.0%, 21.6%]	13% [8.5%, 17.2%]	**	15% [9.8%, 20.1%]	14% [10.4%, 18.6%]	21% [15.7%, 25.4%]	
Rodents	25% [21.7%, 28.3%]	26% [22.4%, 29.8%]	19% [13.9%, 24.2%]	**	10% [5.5%, 14.1%]	30% [24.2%, 35.0%]	27% [22.1%, 32.6%]	***
Stem borer	36% [32.5%, 39.5%]	34% [29.6%, 37.6%]	49% [42.4%, 55.2%]	***	26% [19.6%, 32.3%]	37% [31.0%, 42.3%]	39% [33.5%, 44.9%]	***
Green moss	8% [5.9%, 9.9%]	9% [6.3%, 10.9%]	4% [1.6%, 6.6%]	**	12% [7.0%, 16.4%]	7% [4.1%, 10.0%]	7% [4.0%, 10.2%]	
Other	6% [4.4%, 7.8%]	6% [4.2%, 8.1%]	6% [2.8%, 8.8%]		4% [1.5%, 7.3%]	9% [5.5%, 12.1%]	5% [2.3%, 7.3%]	*
Do not know	0% [-0.0%, 0.1%]	0% [0.0%, 0.0%]	0% [-0.3%, 0.9%]		0% [0.0%, 0.0%]	0% [-0.1%, 0.4%]	0% [0.0%, 0.0%]	
n	848	590	258		209	327	312	

Note: significance from a composite Wald statistical test. *** ** * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q35. Quelles maladies/nuisibles ont affecté votre production de cacao au cours de la campagne 2017-2018 ?

Table 224: Most severe disease/pest (2017-2018)

Most severe disease/pest (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Black pod	29%	29%	27%		52%	19%	28%	
Root rot	1%	1%	3%		3%	2%	0%	
Swollen Shoot	30%	30%	28%		1%	43%	31%	
Canker	0%	0%	0%		1%	1%	0%	
Mistletoe	4%	5%	1%		2%	2%	7%	
Akate	3%	3%	3%	***	8%	1%	3%	***
Mirids	8%	6%	17%		8%	5%	9%	
Black ants	1%	1%	1%		1%	0%	2%	
Termites	1%	1%	1%		3%	0%	0%	
Rodents	4%	5%	2%		2%	9%	2%	
Stem borer	13%	13%	12%		16%	12%	13%	

Most severe disease/pest (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Green moss	1%	1%	1%		2%	1%	1%	
Other	4%	4%	5%		2%	6%	4%	
Do not know	0%	0%	0%		0%	0%	0%	
n	848	590	258		209	327	312	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q36. Quelle maladie/nuisible a causé la PLUS IMPORTANTE perte de votre production de cacao au cours de la campagne 2017-2018 ?

Table 225: Second most severe disease/pest (2017-2018)

Second most severe disease/pest (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Black pod	24%	24%	23%	**	29%	32%	16%	***
Root rot	2%	2%	1%		8%	3%	0%	
Swollen Shoot	7%	7%	6%		1%	8%	8%	
Canker	1%	1%	0%		1%	0%	1%	
Mistletoe	10%	11%	4%		3%	7%	15%	
Akate	10%	11%	6%		8%	4%	16%	
Mirids	11%	11%	14%		19%	8%	11%	
Black ants	2%	3%	1%		2%	1%	3%	
Termites	3%	3%	1%		6%	1%	4%	
Rodents	5%	5%	6%		2%	8%	4%	
Stem borer	21%	18%	35%		15%	22%	21%	
Green moss	1%	2%	0%		2%	2%	1%	
Other	2%	2%	2%		3%	3%	1%	
Do not know	0%	0%	0%		0%	0%	0%	
n	505	364	141		95	216	194	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q37. Quelle maladie/nuisible a causé la DEUXIÈME PLUS IMPORTANTE perte de votre production de cacao au cours de la campagne 2017-2018 ?

Table 226: Effects most severe disease

Effects most severe disease	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Slight loss	36%	38%	28%	**	46%	19%	45%	***
Average loss	25%	25%	27%		30%	33%	18%	
Significant loss	39%	37%	45%		24%	48%	37%	
n	848	590	258		209	327	312	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q38. Comment votre production de cacao a-t-elle été affectée par ?

Table 227: Counteractions most severe disease (multiple choices possible)

Counteractions most severe disease	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Phytosanitary measures	51% [46.9%, 54.2%]	49% [45.1%, 53.4%]	58% [51.6%, 64.1%]	**	61% [53.9%, 67.6%]	29% [23.7%, 34.1%]	62% [56.8%, 68.1%]	***
Removing infected plants	25% [21.3%, 27.9%]	26% [22.0%, 29.5%]	18% [13.4%, 23.2%]	**	6% [2.6%, 9.1%]	24% [19.5%, 29.5%]	32% [26.1%, 37.2%]	***

Counteractions most severe disease	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No action	27% [24.0%, 30.4%]	27% [23.7%, 31.0%]	26% [20.8%, 31.9%]		27% [20.9%, 33.4%]	42% [36.1%, 47.6%]	17% [12.4%, 21.0%]	***
Other	6% [4.5%, 7.9%]	6% [4.1%, 8.0%]	7% [3.7%, 10.2%]		8% [3.9%, 11.2%]	8% [4.8%, 11.3%]	4% [2.0%, 6.7%]	
n	848	590	258		209	327	312	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q39. Quelles sont les mesures/actions que vous avez prises face à S4.Q39 ?

Table 228: Support most severe disease management

Support most severe disease management (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	15% [12.8%, 17.9%]	14% [11.6%, 17.3%]	20% [14.8%, 25.0%]	*	24% [17.7%, 29.7%]	16% [11.3%, 19.8%]	12% [8.3%, 15.7%]	***
n	848	590	258		209	327	312	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q40. Avez-vous bénéficié d'une aide ou d'un appui pour la gestion de ?

Table 229: Source of support most severe disease management (conditional on receiving support)

Source of support most severe disease management	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Family, friends, relatives	7%	8%	3%		14%	0%	9%	
ANADER	16%	13%	29%		0%	14%	31%	
CCC	10%	9%	13%		12%	4%	13%	
Lead farmer	2%	2%	1%		2%	1%	3%	***
Cooperative	63%	65%	54%		71%	76%	45%	
Service provider/private company	0%	0%	0%		0%	0%	0%	
NGO, partner	2%	2%	0%		0%	5%	0%	
n	142	91	51		50	51	41	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q41. De la part de qui principalement?

Table 230: Rating support most severe disease management (conditional on receiving support)

Self-rating support most severe disease management	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Useless	9%	9%	7%		1%	10%	13%	
Insufficient	39%	40%	35%		68%	34%	22%	
Satisfactory	37%	35%	41%		27%	27%	52%	***
Very useful	15%	14%	16%		1%	27%	13%	
Essential	2%	2%	1%		3%	2%	0%	
n	142	91	51		50	51	41	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q42. Comment-jugeriez-vous l'utilité pour vous de l'appui dont vous avez bénéficié pour la gestion de ?

Table 231: Effects second most severe disease

Effects second most severe disease	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Slight loss	53%	55%	44%		53%	52%	54%	
Average loss	26%	25%	36%	**	27%	31%	23%	
Significant loss	20%	20%	20%		20%	16%	23%	
n	655	476	179		167	240	248	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S4.Q43. Comment votre production de cacao a-t-elle été affectée par ?

Table 232: Counteractions second most severe disease (multiple choices possible)

Counteractions second most severe disease	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Phytosanitary measures	55% [51.0%, 59.3%]	53% [48.3%, 57.6%]	69% [62.5%, 76.4%]	***	54% [45.6%, 61.5%]	42% [35.4%, 48.5%]	65% [58.5%, 71.1%]	***
Removing infected plants	19% [15.6%, 22.5%]	21% [17.1%, 25.0%]	6% [2.6%, 9.7%]	***	6% [2.1%, 9.4%]	14% [9.6%, 19.1%]	27% [21.0%, 33.0%]	***
No action	26% [22.4%, 29.5%]	27% [23.0%, 31.0%]	19% [13.4%, 25.3%]	**	35% [27.1%, 42.3%]	37% [30.7%, 43.7%]	15% [10.5%, 19.8%]	***
Other	6% [3.7%, 7.3%]	5% [3.2%, 7.2%]	8% [3.7%, 11.4%]		6% [2.4%, 9.5%]	8% [4.7%, 12.1%]	3% [1.0%, 5.7%]	*
n	652	475	177		164	240	248	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q44. Quelles sont les mesures/actions que vous avez prises face à \${disease_mostimp2} ?

Table 233: Support second most severe disease management

Support second most severe disease management (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	15% [12.0%, 17.7%]	15% [12.0%, 18.5%]	12% [7.4%, 16.6%]		25% [17.9%, 31.4%]	17% [11.9%, 22.0%]	10% [5.8%, 13.7%]	***
n	658	476	182		169	241	248	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q45. Avez-vous bénéficié d'une aide ou d'un appui pour la gestion de ?

Table 234: Source of support second most severe disease management (conditional on receiving support)

Source of support second most severe disease management	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Family, friends, relatives	9%	10%	0%	***	23%	0%	5%	***
ANADER	8%	7%	13%		5%	0%	19%	
CCC	9%	8%	13%		18%	1%	10%	
Lead farmer	2%	2%	3%		0%	1%	5%	
Cooperative	72%	72%	71%		53%	95%	61%	
Service provider/private company	0%	0%	0%		0%	0%	0%	
NGO, partner	1%	1%	0%		0%	3%	0%	
n	103	78	25		42	39	22	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q46. De la part de qui principalement?

Table 235: Rating support second most severe disease management (conditional on receiving support)

Self-rating support second most severe disease management	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Useless	6%	6%	9%	***	4%	3%	12%	***
Insufficient	42%	40%	54%		60%	37%	31%	
Satisfactory	36%	38%	20%		28%	29%	51%	
Very useful	14%	14%	13%		1%	32%	5%	
Essential	2%	2%	3%		6%	0%	0%	
n	103	78	25		42	39	22	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S4.Q47. Comment-jugeriez-vous l'utilité pour vous de l'appui dont vous avez bénéficié pour la gestion de ?

9. POST-HARVEST PRACTICES

Table 236: Cocoa harvesting in 2017-2018 (if no, no further questions asked on harvesting)

Cocoa harvesting (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	99%	99%	100%	***	97%	99%	99%	**
[Confidence Interval]	[98.1%, 99.4%]	[97.8%, 99.3%]	[99.4%, 100.2%]		[95.2%, 98.7%]	[98.1%, 100.0%]	[98.7%, 100.2%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q1. Avez-vous effectué des récoltes de cacao au cours de la campagne 2017-2018 ?

Table 237: Frequency of cocoa harvesting (2017-2018)

Frequency of cocoa harvesting (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	6.4	6.4	6.4		5.2	5.5	7.7	***
[Confidence Interval]	[6.23, 6.62]	[6.21, 6.66]	[6.01, 6.73]		[5.02, 5.39]	[5.27, 5.76]	[7.36, 8.1]	
median	6.0	6.0	6.0		5.0	5.0	7.0	
n	1280	907	373		417	442	421	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q2. Combien de fois votre cacao a-t-il été récolté au cours de la campagne 2017-2018 ?

Table 238: Months of cocoa harvesting (2017-2018) (multiple choices possible)

Months of cocoa harvesting (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
January	55% [52.2%, 58.1%]	56% [52.6%, 59.3%]	51% [45.6%, 56.2%]		50% [45.5%, 55.5%]	61% [55.8%, 65.6%]	54% [48.7%, 58.7%]	**
February	36% [33.3%, 39.1%]	36% [32.9%, 39.5%]	36% [31.3%, 41.7%]		15% [11.5%, 18.8%]	40% [35.1%, 44.9%]	45% [39.8%, 49.8%]	***
March	36% [33.2%, 39.0%]	36% [32.6%, 39.1%]	37% [32.2%, 42.6%]		34% [29.5%, 39.0%]	20% [15.8%, 23.9%]	49% [43.7%, 53.7%]	***
April	39% [36.2%, 42.0%]	38% [34.5%, 41.0%]	47% [41.3%, 51.9%]	***	57% [51.8%, 61.7%]	9% [6.3%, 12.2%]	51% [45.9%, 55.9%]	***
May	37% [34.2%, 40.0%]	37% [33.6%, 40.2%]	38% [32.9%, 43.5%]		41% [36.0%, 45.8%]	6% [3.4%, 8.3%]	57% [52.4%, 62.4%]	***
June	25% [22.0%, 27.5%]	25% [21.7%, 27.8%]	25% [20.0%, 29.9%]		10% [7.2%, 13.3%]	3% [1.0%, 4.3%]	48% [43.3%, 53.3%]	***
July	15% [13.1%, 17.7%]	14% [11.8%, 17.0%]	21% [16.7%, 26.2%]	**	4% [1.8%, 5.4%]	1% [-0.2%, 1.2%]	32% [27.8%, 37.1%]	***
August	14% [12.1%, 16.5%]	13% [10.4%, 15.3%]	23% [18.1%, 27.7%]	***	6% [3.4%, 7.8%]	1% [0.2%, 2.0%]	28% [24.0%, 32.9%]	***
September	36% [33.3%, 39.1%]	35% [31.6%, 38.1%]	44% [38.7%, 49.3%]	***	22% [17.5%, 25.6%]	27% [22.4%, 31.3%]	51% [45.7%, 55.8%]	***
October	90% [88.1%, 91.8%]	90% [87.8%, 92.0%]	90% [87.1%, 93.4%]		94% [91.1%, 96.1%]	89% [86.3%, 92.4%]	88% [85.2%, 91.8%]	**
November	92% [90.0%, 93.5%]	91% [89.4%, 93.5%]	93% [90.4%, 96.0%]		95% [93.3%, 97.5%]	95% [92.3%, 96.9%]	88% [84.3%, 91.1%]	***
December	87% [84.8%, 89.0%]	87% [84.4%, 89.1%]	88% [84.3%, 91.2%]		91% [88.5%, 94.1%]	87% [83.8%, 90.5%]	84% [80.6%, 88.1%]	**
n	1283	908	375		417	443	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q3. Au cours de quels mois le cacao a-t-il été récolté ?

Table 239: Average frequency of cocoa harvesting

Average frequency of cocoa harvesting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Each week	3%	2%	10%	***	0%	2%	5%	***
Every two weeks strictly	35%	36%	31%		34%	47%	28%	
When we think it is the right time	47%	48%	42%		55%	37%	51%	
According to the availability of workers	2%	2%	1%		3%	2%	2%	
Other	12%	11%	17%		9%	13%	14%	
n	1283	908	375		417	443	423	

Average frequency of cocoa harvesting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively Original question: S5.Q4. A quelle fréquence récoltez-vous votre cacao habituellement ?								

Table 240: Agent of harvesting (multiple choices possible)

Agent of harvesting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.1%, 0.3%]	0% [-0.1%, 0.3%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [-0.3%, 0.9%]	0% [0.0%, 0.0%]	
Household members aged 15 years and over	89% [87.4%, 90.8%]	89% [87.3%, 91.2%]	88% [85.0%, 91.5%]		72% [67.4%, 76.3%]	98% [96.2%, 99.1%]	92% [89.5%, 94.9%]	***
Communal workers / labor exchange group	21% [19.0%, 23.8%]	23% [20.0%, 25.6%]	13% [10.2%, 16.8%]	***	27% [22.1%, 31.0%]	25% [20.3%, 29.0%]	16% [12.5%, 20.1%]	***
Farm workers employed permanently	31% [28.0%, 33.4%]	31% [28.0%, 34.2%]	28% [23.4%, 32.8%]		62% [57.4%, 67.1%]	8% [5.4%, 10.9%]	30% [25.2%, 34.4%]	***
Paid daily workers	2% [1.4%, 3.3%]	3% [1.4%, 3.6%]	1% [0.1%, 2.2%]	*	2% [0.8%, 3.9%]	2% [0.6%, 3.5%]	2% [0.9%, 4.1%]	
Company or service provider	1% [0.3%, 1.2%]	1% [0.3%, 1.3%]	0% [-0.1%, 0.9%]		1% [0.2%, 2.5%]	1% [0.2%, 2.5%]	0% [0.0%, 0.0%]	***
n	1283	908	375		417	443	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q5. Qui a effectué la récolte du cacao: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 241: Gender of agent of harvesting

Gender-specific participation to harvesting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	90%	89%	91%		91%	83%	94%	
Woman	0%	0%	0%		1%	0%	0%	***
Both	10%	10%	9%		9%	17%	6%	
n	1283	908	375		417	443	423	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q. Qui a effectué la récolte du cacao: des hommes, des femmes ou les deux ?

Table 242: Total costs for harvesting (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Daily wage of workers hired for harvesting (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	13354 [8109, 18599]	13187 [7658, 18716]	15068 [-1418, 31554]		14213 [1897, 26529]	14736 [7321, 22151]	11974 [4045, 19903]	
median	7457	7284	6446		5093	12150	7334	
n	19	15	4		7	6	6	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q7. Quel est le montant de la rémunération quotidienne en FCFA d'un ouvrier agricole employé pour la récolte ?

Table 243: Pod breaking in 2017-2018 (if no, no further questions asked on pod breaking)

Cocoa pod breaking (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	98% [97.7%, 99.1%]	98% [97.4%, 99.0%]	100% [99.0%, 100.2%]	***	97% [94.8%, 98.5%]	99% [97.6%, 99.8%]	99% [98.2%, 100.1%]	*
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q9 Votre ménage a-t-il effectué l'écabossage au cours de la campagne 2017-2018 ?

Table 244: Frequency of pod breaking (2017-2018)

Frequency of cocoa pod breaking (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	6.3 [6.09, 6.47]	6.3 [6.05, 6.49]	6.4 [6, 6.72]		5.2 [4.99, 5.37]	5.5 [5.24, 5.74]	7.4 [7.07, 7.8]	***
median	6.0	6.0	6.0		5.0	5.0	6.0	
n	1276	904	372		416	440	420	

Frequency of cocoa pod breaking (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively Original question: S5.Q10. Combien de fois l'écabossage a-t-il été effectué au cours de la campagne 2017-2018 ?								

Table 245: Number of days between harvesting and pod breaking

Number of days between harvesting and pod breaking	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2.7	2.6	2.7		3.5	2.4	2.4	
[Confidence Interval]	[2.56, 2.75]	[2.54, 2.76]	[2.5, 2.89]		[3.3, 3.7]	[2.26, 2.62]	[2.23, 2.5]	***
median	2.0	2.0	2.0		3.0	2.0	2.0	
n	1262	892	370		410	439	413	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q11. Après la récolte des cabosses, combien de jours attendez-vous avant d'effectuer l'écabossage et d'en retirer les fèves ?

Table 246: Reason of waiting period between harvesting and pod breaking

Reason of waiting period between harvesting and pod breaking	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Always up to 7 days after harvest	49%	52%	36%		58%	30%	59%	
Sometimes after 7 days after harvest	1%	1%	0%		1%	2%	1%	
When we think it is the right time	11%	10%	16%	***	22%	6%	9%	***
According to the availability of workers	32%	30%	43%		12%	49%	31%	
Other	6%	6%	5%		8%	13%	0%	
n	1279	905	374		416	441	422	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q12. Quel est la raison pour laquelle vous effectuez l'écabossage après ce temps ?

Table 247: Agent of pod breaking (multiple choices possible)

Agent of pod breaking	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	0% [-0.1%, 0.5%]	0% [-0.2%, 0.5%]	1% [-0.1%, 1.3%]		0% [0.0%, 0.0%]	0% [-0.0%, 0.6%]	0% [-0.3%, 0.9%]	
Household members aged 15 years and over	92% [90.5%, 93.5%]	92% [90.8%, 94.1%]	89% [86.3%, 92.6%]	*	79% [75.2%, 83.2%]	98% [96.5%, 99.2%]	95% [92.5%, 96.9%]	***
Communal workers / labor exchange group	72% [69.5%, 74.9%]	72% [69.4%, 75.4%]	71% [66.3%, 75.9%]		64% [59.3%, 68.9%]	77% [72.9%, 81.3%]	73% [68.5%, 77.5%]	***
Farm workers employed permanently	32% [28.9%, 34.3%]	32% [29.0%, 35.2%]	29% [24.1%, 33.6%]		64% [59.0%, 68.6%]	10% [6.6%, 12.5%]	30% [25.4%, 34.7%]	***
Paid daily workers	1% [0.2%, 1.2%]	1% [0.2%, 1.3%]	1% [-0.3%, 1.5%]		1% [-0.0%, 2.0%]	1% [-0.2%, 1.3%]	1% [-0.1%, 1.5%]	
Company or service provider	0% [-0.0%, 0.5%]	0% [-0.0%, 0.5%]	0% [-0.2%, 0.6%]		0% [-0.1%, 0.4%]	1% [-0.2%, 1.3%]	0% [-0.1%, 0.2%]	
n	1279	905	374		416	441	422	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q13. Qui a effectué l'écabossage: des membres du ménage, des ouvriers payés ou des ouvriers agricoles communaux/groupe d'entraide ?

Table 248: Gender of agent of pod breaking

Gender-specific participation to pod breaking	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	89%	88%	93%		91%	88%	88%	
Woman	0%	0%	0%	*	0%	0%	1%	
Both	11%	12%	7%		9%	12%	12%	
n	1279	905	374		416	441	422	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q14. Qui a effectué l'écabossage: des hommes, des femmes ou les deux ?

Table 249: Total costs for pod breaking (FCFA) (conditional on the use of paid daily workers, applicators from the cooperative, private applicators)

Daily wage of workers hired for pod breaking (2017-2018) (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	32763 [-18433, 83959]	33112 [-20334, 86557]	25000 [25000, 25000]		7045 [411, 13679]	1029 [-451, 2510]	79034 [-27618, 185687]	
median	2456	2000	25000		2000	57	8040	
n	8	7	1		4	2	2	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q15. Quel est le montant de la rémunération quotidienne en FCFA d'un ouvrier agricole employé pour l'écabossage ?

Table 250: Fermenting in 2017-2018 (if no, no further questions asked on fermenting)

Cocoa fermentation (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	93% [91.8%, 94.5%]	93% [91.9%, 94.8%]	92% [89.2%, 94.7%]		82% [77.9%, 85.5%]	95% [92.9%, 97.1%]	98% [96.7%, 99.4%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q17. Avez-vous vous-même (au sein du ménage) effectué la fermentation de votre cacao au cours de la campagne 2017-2018 ?

Table 251: Duration of fermenting of cocoa

Duration of cocoa fermentation	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Less than 6 days	48%	50%	39%	*	52%	58%	39%	***
Between 6 and 7 days	50%	49%	60%		47%	41%	58%	
Between 7 and 10 days	1%	1%	1%		0%	1%	2%	
When we think it is enough	0%	0%	0%		0%	0%	0%	
Other	0%	0%	0%		0%	0%	0%	
n	1191	847	344		352	422	417	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q18. Quelle est la durée de la fermentation que vous pratiquez habituellement?

Table 252: Material used for fermenting of cocoa (multiple choices possible)

Material used for fermenting of cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Rice nylon bag	1% [0.4%, 1.7%]	1% [0.4%, 2.0%]	0% [-0.2%, 0.6%]	**	2% [0.3%, 3.4%]	0% [-0.3%, 0.9%]	1% [0.0%, 2.4%]	*
Banana leaves (baskets)	81% [78.6%, 83.6%]	81% [78.4%, 84.0%]	81% [76.0%, 85.1%]		91% [88.1%, 94.2%]	82% [77.8%, 85.6%]	76% [71.8%, 80.4%]	***
Plastic sheet	25% [22.4%, 27.9%]	25% [22.0%, 28.2%]	26% [20.8%, 30.7%]		12% [8.7%, 15.7%]	25% [20.1%, 28.9%]	32% [26.8%, 36.3%]	***
Bin / crate / fermentation box	1% [0.2%, 1.1%]	1% [0.1%, 1.2%]	1% [-0.1%, 1.7%]		0% [-0.2%, 1.0%]	2% [0.4%, 3.2%]	0% [0.0%, 0.0%]	**
Other	1% [0.5%, 2.0%]	1% [0.5%, 2.1%]	1% [-0.0%, 2.2%]		1% [-0.0%, 1.9%]	0% [-0.2%, 1.0%]	2% [0.6%, 3.4%]	
n	1191	847	344		352	422	417	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q19. Dans quoi mettez-vous vos fèves de cacao pour qu'elles fermentent ?

Table 253: Agent of fermenting (multiple choices possible)

Agent of fermenting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Household members under 15 years of age	1% [0.1%, 1.1%]	1% [0.1%, 1.3%]	0% [0.0%, 0.0%]	**	0% [-0.3%, 0.8%]	1% [-0.1%, 1.8%]	1% [-0.2%, 1.4%]	
Household members aged 15 years and over	92% [90.9%, 94.0%]	92% [90.8%, 94.2%]	92% [89.4%, 95.2%]		79% [74.7%, 83.5%]	99% [97.5%, 99.7%]	94% [92.0%, 96.7%]	***

Agent of fermenting	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Farm workers employed permanently	26% [23.7%, 29.1%]	27% [24.1%, 30.2%]	22% [17.7%, 27.0%]	*	55% [49.2%, 60.0%]	7% [4.4%, 9.6%]	27% [22.6%, 31.6%]	***
n	1191	847	344		352	422	417	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q20. Qui a effectué la fermentation ?

Table 254: Gender of agent of fermenting

Gender-specific participation to fermentation	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Man	97%	96%	98%		96%	97%	96%	
Woman	0%	1%	0%		1%	0%	1%	
Both	3%	3%	2%		3%	3%	3%	
n	1191	847	344		352	422	417	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q21. Qui a effectué la fermentation: des hommes, des femmes ou les deux ?

Table 255: Drying of cocoa in 2017-2018 (if no, no further questions asked on drying and storage)

Cocoa drying (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	93%	93%	94%		79%	98%	97%	***
[Confidence Interval]	[91.7%, 94.4%]	[91.4%, 94.4%]	[91.6%, 96.5%]		[75.3%, 83.3%]	[96.3%, 99.2%]	[95.6%, 98.9%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q22. Avez-vous vous-même (au sein du ménage) séché votre cacao au cours de la campagne 2017-2018 ?

Table 256: Average number of days drying of cocoa

Average number of days for drying cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	6.1	6.1	6.1		6.7	5.6	6.2	***
[Confidence Interval]	[6.01, 6.18]	[6, 6.19]	[5.92, 6.26]		[6.53, 6.78]	[5.51, 5.74]	[6.02, 6.33]	
median	6.0	6.0	6.0		7.0	5.0	6.0	
n	1193	840	353		342	437	414	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q23. Combien de jours en moyenne faites-vous sécher les fèves de cacao ?

Table 257: Material used for drying of cocoa

Material used for drying cocoa	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
On cement in the sun	8%	8%	6%		1%	14%	6%	
On asphalt	0%	0%	0%		0%	0%	0%	
On a plastic sheet in the sun	66%	66%	69%		7%	77%	85%	***
On racks / scaffold in the sun	23%	24%	20%		78%	9%	9%	
With a solar dryer	0%	0%	0%		0%	0%	0%	
Other	3%	3%	5%		14%	0%	0%	
n	1193	840	353		342	437	414	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q24. Sur quoi mettez-vous vos fèves de cacao pour les faire sécher ?

Table 258: Storage of dried beans

Storage of dried beans	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
In the house / at the camp	30%	29%	33%		29%	38%	25%	
In a storage room in the house of the household	15%	14%	22%	***	21%	19%	10%	***

Storage of dried beans	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
At the cooperative	51%	53%	38%		47%	40%	61%	
Other	4%	3%	7%		4%	3%	4%	
n	1193	840	353		342	437	414	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q25. A quel endroit stockez-vous les fèves de cacao séchées ?

Table 259: Material used for storage of dried beans

Material used for storage of dried beans	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
In polyester bags	18%	18%	16%		40%	18%	8%	***
In baskets	0%	0%	0%		0%	0%	0%	
In jute bags	80%	80%	80%		49%	82%	92%	
other	2%	2%	4%		11%	0%	0%	
n	1193	840	353		342	437	414	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q26. Dans quoi stockez-vous les fèves de cacao séchées?

Table 260: Storage losses (2017-2018)

Storage losses (2017-2018) (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	9%	10%	3%	***	2%	1%	17%	***
[Confidence Interval]	[6.8%, 10.7%]	[7.5%, 12.1%]	[0.9%, 4.3%]		[0.6%, 3.6%]	[0.3%, 2.5%]	[13.1%, 21.0%]	
n	1193	840	353		342	437	414	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q27. Au cours de la campagne 2017-2018, avez-vous subi des pertes de cacao liées au stockage?

Table 261: Effects storage losses (2017-2018) (conditional on storage losses)

Effects storage losses (2017-2018)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Slight loss	65%	65%	51%		27%	80%	66%	**
Average loss	16%	15%	22%		63%	0%	14%	
Significant loss	20%	19%	27%		10%	20%	20%	
n	74	65	9		8	7	59	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S5.Q28. Comment votre production de cacao a-t-elle été affectée par les pertes au cours du stockage ?

10. TRAINING AND OTHER SUPPORT

Table 262: Training received in past 3 years (if no, no further questions asked on training)

Training received in past 3 years (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	71%	72%	67%		63%	73%	74%	
[Confidence Interval]	[68.4%, 73.7%]	[68.8%, 74.7%]	[62.3%, 72.2%]		[58.4%, 67.9%]	[68.9%, 77.5%]	[69.5%, 78.3%]	***
n	1299	923	376		428	447	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S6.Q1. Avez-vous VOUS-MÊME personnellement reçu une formation dans le cadre de votre activité de production et commercialisation du cacao au cours des 3 dernières années ?

Table 263: Total number of training days received in past 3 years

Total number of training days received in past 3 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
1-2 days	32%	32%	30%		32%	23%	38%	
3-5 days	17%	17%	20%		28%	23%	8%	
5-10 days	13%	14%	6%	**	15%	17%	8%	***
More than 10 days	38%	37%	43%		25%	36%	46%	
Do not know	0%	0%	0%		0%	0%	0%	
n	871	632	239		268	300	303	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S6.Q2. Combien de jours de formation liée à votre activité dans le cacao avez-vous reçus AU TOTAL au cours des 3 dernières années ?

Table 264: Training received in 2017-2018 (conditional on training received in past 3 years)

Training received in 2017-2018 (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	90%	92%	77%		96%	85%	91%	
[Confidence Interval]	[88.0%, 92.0%]	[89.8%, 94.2%]	[71.9%, 83.0%]	***	[93.3%, 98.2%]	[81.3%, 89.4%]	[87.4%, 93.7%]	***
n	897	648	249		276	310	311	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S6.Q3. Avez-vous reçu une formation liée à votre activité dans le cacao au cours de la campagne 2017-2018 ?

Table 265: Total number of training days received in 2017-2018 (conditional on training received in past 3 years)

Total number of training days received in past year	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
1-2 days	38%	38%	41%		38%	27%	46%	
3-5 days	24%	24%	23%		35%	33%	13%	
5-10 days	11%	11%	7%		10%	16%	7%	***
More than 10 days	27%	27%	28%		17%	24%	35%	
Do not know	0%	0%	0%		0%	0%	0%	
n	786	591	195		260	256	270	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively

Original question: S6.Q4. Combien de jours de formation liée à votre activité dans le cacao avez-vous reçus AU TOTAL au cours de la campagne 2017-2018 ?

Table 266: Topic of training received (multiple choices possible) (any year)

Topic of training received	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Good Agricultural Practices (GAP)	99%	99%	98%		99%	99%	98%	
	[98.0%, 99.6%]	[98.1%, 99.8%]	[95.6%, 99.6%]		[98.4%, 100.3%]	[97.6%, 100.0%]	[97.0%, 99.9%]	
Good environmental practices	84%	83%	92%	***	85%	92%	78%	***
	[81.6%, 86.9%]	[79.9%, 86.0%]	[88.9%, 95.4%]		[80.2%, 89.1%]	[88.9%, 95.3%]	[73.6%, 83.3%]	
Farmer business school	21%	22%	16%	*	22%	23%	19%	
	[18.2%, 23.9%]	[18.6%, 25.1%]	[11.1%, 21.0%]		[17.0%, 27.6%]	[17.8%, 27.7%]	[14.7%, 23.8%]	

Topic of training received	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Post-harvesting cocoa processing and storage	52% [48.2%, 55.3%]	52% [48.0%, 56.0%]	50% [43.9%, 56.9%]		44% [37.9%, 50.2%]	62% [56.3%, 67.7%]	48% [42.3%, 53.9%]	***
Health and security	49% [45.5%, 52.6%]	47% [42.9%, 50.8%]	63% [56.7%, 68.7%]	***	40% [33.5%, 45.7%]	57% [51.6%, 63.2%]	48% [41.8%, 53.4%]	***
Gender	34% [30.8%, 37.5%]	33% [29.1%, 36.6%]	42% [35.7%, 48.8%]	**	29% [22.9%, 34.3%]	27% [22.2%, 32.7%]	42% [35.9%, 47.3%]	***
Child labor	68% [64.6%, 71.1%]	68% [64.7%, 72.0%]	64% [58.5%, 70.4%]		47% [40.7%, 53.1%]	69% [63.3%, 74.1%]	77% [72.1%, 82.0%]	***
Record keeping and business management	27% [23.4%, 29.6%]	27% [23.2%, 30.2%]	25% [19.4%, 31.3%]		18% [13.2%, 23.0%]	36% [30.1%, 41.5%]	24% [19.0%, 28.7%]	***
Savings and loans	20% [17.4%, 23.1%]	19% [16.1%, 22.4%]	26% [20.3%, 32.3%]	**	12% [8.3%, 16.6%]	22% [17.0%, 26.8%]	23% [18.0%, 27.5%]	***
Financial Management and Planning	29% [25.6%, 32.1%]	29% [25.1%, 32.3%]	30% [23.7%, 35.9%]		19% [14.1%, 24.0%]	34% [28.6%, 39.8%]	30% [24.4%, 34.9%]	***
Cooperative management	23% [20.1%, 26.1%]	22% [18.9%, 25.5%]	28% [22.3%, 34.5%]	*	15% [10.5%, 19.6%]	26% [21.1%, 31.4%]	25% [19.7%, 29.5%]	***
other	2% [0.7%, 2.6%]	2% [0.6%, 2.6%]	2% [0.2%, 4.1%]		1% [-0.3%, 2.1%]	2% [0.2%, 3.1%]	2% [0.4%, 3.7%]	
n	897	648	249		276	310	311	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q5. Laquelle des formations suivantes avez-vous reçue au cours des 3 dernières années ? ...

Table 267: Source of training received (multiple choices possible) (any year)

Source of training received	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cooperative	93% [91.1%, 94.4%]	94% [92.7%, 96.2%]	82% [77.4%, 87.1%]	***	90% [85.8%, 93.5%]	93% [89.9%, 95.3%]	94% [91.9%, 96.8%]	
ANADER	24% [21.3%, 27.4%]	23% [20.0%, 26.7%]	31% [24.5%, 36.7%]	**	31% [24.8%, 36.5%]	14% [10.2%, 17.9%]	29% [23.5%, 33.9%]	***
Private buyers/traders	0% [-0.1%, 0.3%]	0% [-0.1%, 0.3%]	0% [0.0%, 0.0%]		0% [-0.4%, 1.2%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Chocolatier or exporter	2% [0.9%, 2.8%]	2% [0.8%, 3.0%]	1% [-0.0%, 2.9%]		3% [0.9%, 5.1%]	1% [-0.0%, 2.5%]	2% [0.2%, 3.3%]	
NGO	3% [2.0%, 4.6%]	4% [2.3%, 5.3%]	0% [-0.3%, 0.9%]	***	7% [3.5%, 10.0%]	1% [-0.0%, 2.5%]	3% [1.0%, 5.2%]	***
Other	2% [1.2%, 3.3%]	2% [1.0%, 3.3%]	3% [0.9%, 4.4%]		2% [0.5%, 4.1%]	3% [0.9%, 4.5%]	2% [0.3%, 3.6%]	
Do not know	1% [0.1%, 1.1%]	0% [-0.2%, 0.9%]	2% [0.0%, 4.1%]		0% [-0.2%, 0.5%]	0% [-0.4%, 1.1%]	1% [-0.1%, 2.0%]	
n	897	648	249		276	310	311	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q6. Qui vous a dispensé ces formations ?

Table 268: Cocoa certification (if no, no further questions asked on certification)

Cocoa certification (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	7% [3.8%, 10.2%]	6% [2.8%, 9.2%]	12% [5.8%, 18.2%]		14% [7.8%, 20.2%]	8% [3.8%, 12.2%]	3% [0.2%, 5.2%]	
Yes	93% [91.8%, 94.2%]	94% [92.8%, 95.2%]	88% [86.8%, 89.2%]	***	86% [84.8%, 87.2%]	92% [91.2%, 92.8%]	97% [96.2%, 97.8%]	***
Do not know	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
n	1159	820	339		398	401	360	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q7. Votre cacao possède-t-il une certification UTZ, Rainforest Alliance, Fairtrade, biologique etc ?

Table 269: Type of cocoa certification (multiple choices possible)

Type of cocoa certification	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
UTZ	72% [68.9%, 74.8%]	71% [67.3%, 74.0%]	79% [74.6%, 83.3%]	***	78% [73.4%, 82.0%]	60% [54.4%, 65.2%]	78% [72.8%, 82.3%]	***
Rainforest Alliance (RA)	27% [24.4%, 30.2%]	29% [26.1%, 32.7%]	15% [10.1%, 19.5%]	***	39% [34.0%, 44.9%]	27% [21.8%, 31.7%]	21% [16.7%, 25.7%]	***
Fairtrade	33% [30.3%, 36.6%]	36% [32.6%, 39.7%]	17% [13.4%, 21.2%]	***	43% [37.3%, 48.2%]	28% [23.3%, 33.3%]	32% [26.9%, 37.5%]	***

Type of cocoa certification	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Organic	0% [-0.1%, 0.6%]	0% [-0.1%, 0.7%]	0% [0.0%, 0.0%]		0% [-0.3%, 1.0%]	0% [0.0%, 0.0%]	0% [-0.3%, 1.1%]	
Other	1% [0.3%, 1.9%]	1% [0.4%, 2.2%]	0% [0.0%, 0.0%]	***	0% [-0.3%, 0.8%]	0% [-0.3%, 1.0%]	2% [0.4%, 3.8%]	
Do not know	6% [4.3%, 7.4%]	6% [4.1%, 7.6%]	6% [3.3%, 8.6%]		5% [2.5%, 6.9%]	6% [3.2%, 8.0%]	7% [3.8%, 9.5%]	
n	1051	757	294		351	354	346	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q8. Quelle(s) certification(s) possédez-vous pour le cacao ?

Table 270: Respondent member of cooperative

Respondent member of cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	3%	3%	3%		2%	1%	4%	
Yes	97%	97%	97%		98%	99%	95%	
Yes, but I am not up to date	0%	0%	0%		0%	0%	1%	
No, I am no longer a member	0%	0%	0%		0%	0%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q9. Êtes-vous VOUS-MÊME membre d'une coopérative ?

Table 271: Name of cooperative

Name of cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
ADI	2%	0%	11%		7%	0%	0%	
AHONDJO	2%	2%	0%		8%	0%	0%	
BOUKABLA	1%	1%	0%		4%	0%	0%	
CAAM	5%	5%	0%		0%	0%	10%	
CANOA	3%	0%	19%		0%	0%	6%	
CAPA	1%	2%	0%		6%	0%	0%	
CAPCB	3%	3%	0%		0%	0%	6%	
CAPEDIG	3%	3%	0%		0%	9%	0%	
CAPRESSA	8%	9%	0%		33%	0%	0%	
CASE DU PLANTEUR	6%	7%	0%		0%	18%	0%	
CEEA	2%	0%	15%		9%	0%	0%	
COPPAZA	4%	5%	0%	***	16%	0%	0%	***
CPR- CANAAN	1%	2%	0%		0%	4%	0%	
COOP HOUNOU	1%	0%	6%		0%	3%	0%	
ECAM	6%	7%	0%		0%	0%	14%	
ECASO	4%	0%	27%		0%	0%	9%	
ECOJAD	4%	5%	0%		0%	14%	0%	
ESPOIR	2%	2%	0%		0%	6%	0%	
FAHO	2%	3%	0%		10%	0%	0%	
KAPATCHIVA	3%	4%	0%		0%	10%	0%	
N'MOH-BLA	1%	1%	0%		2%	0%	0%	
SCAASP	1%	1%	0%		5%	0%	0%	

Name of cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
SCACALAVA	2%	3%	0%		0%	8%	0%	
SCAES	8%	10%	0%		0%	0%	18%	
SCAS	3%	3%	0%		0%	0%	7%	
SCOOPS SAHS	3%	0%	22%		0%	10%	0%	
SCOPAB	0%	0%	0%		0%	0%	1%	
SCOPRANHS	3%	4%	0%		0%	11%	0%	
SOCADMV	2%	3%	0%		0%	7%	0%	
SOCAGNIPI	5%	5%	0%		0%	0%	10%	
SOCOOABAS	2%	2%	0%		0%	0%	4%	
SOCOOPACDI	6%	7%	0%		0%	0%	14%	
Autre	0%	0%	0%		0%	0%	0%	
Non applicable	0%	0%	0%		0%	0%	0%	
n	1300	924	376		428	447	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q10. Nom de la coopérative de laquelle vous OU quelqu'un dans votre ménage êtes membre

Table 272: Distance home and cooperative (km)

Distance home and cooperative (km)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	18.9	18.2	22.7	***	4.3	23.8	23.4	***
[Confidence Interval]	[17.78, 19.98]	[17.01, 19.44]	[20.35, 25.14]		[3.52, 5.08]	[22.26, 25.32]	[21.4, 25.4]	
median	15.0	15.0	21.0		1.0	22.0	17.0	
n	1291	921	370		427	444	420	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q11. Distance depuis votre domicile jusqu'au siege de la cooperative (km)

Table 273: Membership duration cooperative

Membership duration cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Less than 2 years	15%	15%	18%	***	15%	23%	10%	***
Between 2 and 5 years	43%	46%	26%		29%	58%	40%	
Between 5 and 10 years	28%	29%	27%		29%	16%	37%	
More than 10 years	14%	11%	29%		27%	4%	13%	
n	1299	924	375		428	446	425	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q12. Depuis combien de temps êtes-vous membre de cette coopérative?

Table 274: Services of cooperative (multiple choices possible)

Services of cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Training	78% [75.7%, 80.5%]	78% [75.4%, 80.8%]	78% [74.3%, 82.4%]		69% [64.5%, 73.6%]	79% [75.5%, 83.2%]	82% [78.3%, 86.1%]	***
Provision of inputs	67% [64.6%, 70.1%]	68% [65.0%, 71.2%]	63% [57.9%, 67.9%]	*	62% [57.6%, 66.9%]	68% [63.0%, 72.3%]	70% [65.2%, 74.5%]	*
Provision of cocoa seeds/seedlings	45% [42.0%, 47.9%]	46% [43.0%, 49.6%]	37% [32.2%, 42.7%]	***	51% [46.0%, 55.8%]	42% [37.0%, 46.9%]	44% [39.0%, 48.9%]	**
Provision of agricultural equipment	36% [33.6%, 39.3%]	37% [33.8%, 40.2%]	33% [27.9%, 38.2%]		32% [27.2%, 36.6%]	38% [32.7%, 42.3%]	38% [33.3%, 43.0%]	
Savings	14% [12.0%, 16.2%]	13% [10.8%, 15.4%]	20% [15.5%, 24.7%]	***	9% [6.0%, 11.7%]	9% [6.4%, 12.3%]	20% [16.5%, 24.3%]	***

Services of cooperative	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Loan/credit scheme	24% [21.3%, 26.3%]	22% [19.4%, 24.9%]	33% [28.1%, 38.2%]	***	21% [16.9%, 24.7%]	26% [21.9%, 30.7%]	24% [19.4%, 27.7%]	
Organization of labor exchange groups	22% [19.3%, 24.2%]	21% [18.6%, 24.1%]	24% [18.9%, 28.5%]		17% [12.8%, 20.4%]	22% [18.2%, 26.6%]	24% [19.8%, 28.2%]	**
Storage of phytosanitary products	34% [31.1%, 36.7%]	33% [30.1%, 36.3%]	38% [33.0%, 43.6%]		32% [27.3%, 36.6%]	37% [31.8%, 41.4%]	33% [28.5%, 37.8%]	
Classification of approved products	24% [21.4%, 26.4%]	22% [19.6%, 25.1%]	33% [27.8%, 38.2%]	***	11% [7.6%, 14.0%]	34% [29.2%, 38.7%]	24% [19.8%, 28.0%]	***
Cocoa storage	54% [51.2%, 57.1%]	54% [50.8%, 57.4%]	54% [49.1%, 59.6%]		50% [45.6%, 55.4%]	57% [52.3%, 62.1%]	54% [49.0%, 58.9%]	
Cocoa transport	53% [50.4%, 56.3%]	54% [50.5%, 57.2%]	51% [45.3%, 55.9%]		51% [46.2%, 56.0%]	54% [48.6%, 58.5%]	54% [49.5%, 59.4%]	
Certification cash premium	60% [57.4%, 63.2%]	60% [57.1%, 63.7%]	60% [54.4%, 64.6%]		58% [53.5%, 63.2%]	63% [58.5%, 68.0%]	59% [54.3%, 64.1%]	
Community projects	23% [20.4%, 25.4%]	24% [20.8%, 26.5%]	19% [14.7%, 23.1%]	*	12% [9.0%, 15.6%]	35% [30.2%, 39.8%]	20% [16.2%, 24.2%]	***
Funeral assistance	18% [15.8%, 20.4%]	19% [16.0%, 21.3%]	15% [10.9%, 18.7%]		13% [9.1%, 15.9%]	21% [16.8%, 24.9%]	19% [15.3%, 23.1%]	***
None	7% [5.2%, 8.1%]	7% [4.9%, 8.2%]	7% [4.8%, 9.9%]		6% [3.4%, 7.8%]	8% [5.2%, 10.2%]	7% [4.0%, 9.0%]	
Other	1% [0.8%, 2.1%]	2% [0.8%, 2.3%]	1% [-0.2%, 2.0%]		3% [1.6%, 5.2%]	1% [-0.1%, 1.9%]	1% [-0.0%, 1.7%]	**
Do not know	3% [1.7%, 3.4%]	3% [1.6%, 3.5%]	3% [0.8%, 4.5%]		5% [3.1%, 7.8%]	1% [0.0%, 1.7%]	2% [0.9%, 3.5%]	***
n	1299	924	375		428	446	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q13. Quels sont tous les services proposés par cette coopérative ?

Table 275: Support for cocoa farm from bank

Bank (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1%	1%	0%	*	1%	0%	1%	
[Confidence Interval]	[0.3%, 1.5%]	[0.3%, 1.7%]	[-0.2%, 0.6%]		[-0.1%, 1.5%]	[-0.3%, 0.8%]	[0.2%, 2.6%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q14. Banque

Table 276: Type of support received from bank (multiple choices possible) (conditional on support by bank)

Type of support received from bank	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	16% [-13.7%, 45.0%]	16% [-14.1%, 46.4%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	22% [-17.9%, 62.2%]	
GAP training / advice	14% [-12.8%, 40.9%]	15% [-13.2%, 42.3%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	20% [-17.2%, 56.9%]	
Coaching	29% [-5.8%, 64.6%]	30% [-5.8%, 66.6%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	42% [-4.6%, 87.6%]	
Management / Finance	57% [19.5%, 93.6%]	55% [17.1%, 93.1%]	100% [100.0%, 100.0%]		100% [100.0%, 100.0%]	100% [100.0%, 100.0%]	39% [-6.4%, 83.6%]	**
Provision of agricultural equipment	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Quality / Certification	14% [-12.8%, 40.9%]	15% [-13.2%, 42.3%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	20% [-17.2%, 56.9%]	
Other	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	9	8	1		3	1	5	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q15. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 277: Support for cocoa farm from microfinance institution

Microfinance institution (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1%	1%	0%	*	4%	0%	1%	***
[Confidence Interval]	[0.6%, 1.8%]	[0.7%, 2.1%]	[-0.2%, 1.1%]		[1.8%, 5.7%]	[-0.3%, 0.9%]	[-0.2%, 1.3%]	
n	1299	924	375		427	447	425	

Microfinance institution (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
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Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q16. Microfinance

Table 278: Type of support received from microfinance institution (multiple choices possible) (conditional on support by microfinance institution)

Type of support received from microfinance institution	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	5% [-5.3%, 16.3%]	6% [-5.7%, 17.3%]	0% [0.0%, 0.0%]		8% [-7.1%, 22.1%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
GAP training / advice	5% [-5.3%, 16.3%]	6% [-5.7%, 17.3%]	0% [0.0%, 0.0%]		8% [-7.1%, 22.1%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Coaching	2% [-2.4%, 7.0%]	0% [0.0%, 0.0%]	41% [-27.9%, 110.8%]		3% [-3.2%, 9.5%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Management / Finance	64% [39.5%, 89.1%]	65% [38.6%, 90.6%]	59% [-10.8%, 127.9%]		75% [51.2%, 98.0%]	0% [0.0%, 0.0%]	50% [-21.4%, 121.4%]	
Provision of agricultural equipment	17% [-4.7%, 39.0%]	18% [-4.9%, 41.2%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	100% [100.0%, 100.0%]	50% [-21.4%, 121.4%]	
Quality / Certification	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Other	18% [-1.3%, 37.7%]	19% [-1.3%, 39.8%]	0% [0.0%, 0.0%]	*	15% [-4.7%, 34.2%]	100% [100.0%, 100.0%]	0% [0.0%, 0.0%]	
n	17	15	2		14	1	2	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q17. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 279: Support for cocoa farm from local community

Local community (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	1% [0.2%, 1.2%]	1% [0.2%, 1.4%]	0% [0.0%, 0.0%]	***	0% [-0.2%, 0.7%]	2% [0.5%, 3.6%]	0% [0.0%, 0.0%]	**
n	1299	923	376		428	447	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q18. Collectivité locale

Table 280: Type of support received from local community (multiple choices possible) (conditional on support by local community)

Type of support received from local community	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	79% [50.4%, 108.0%]	79% [50.4%, 108.0%]			0% [0.0%, 0.0%]	86% [58.7%, 113.3%]		
GAP training / advice	100% [100.0%, 100.0%]	100% [100.0%, 100.0%]			100% [100.0%, 100.0%]	100% [100.0%, 100.0%]		
Coaching	79% [50.4%, 108.0%]	79% [50.4%, 108.0%]			0% [0.0%, 0.0%]	86% [58.7%, 113.3%]		
Management / Finance	79% [50.4%, 108.0%]	79% [50.4%, 108.0%]			0% [0.0%, 0.0%]	86% [58.7%, 113.3%]		
Provision of agricultural equipment	79% [50.4%, 108.0%]	79% [50.4%, 108.0%]			0% [0.0%, 0.0%]	86% [58.7%, 113.3%]		
Quality / Certification	87% [61.8%, 112.3%]	87% [61.8%, 112.3%]			100% [100.0%, 100.0%]	86% [58.7%, 113.3%]		
Other	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]			0% [0.0%, 0.0%]	0% [0.0%, 0.0%]		
n	8	8	0		1	7	0	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q19. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 281: Support for cocoa farm from international NGO

International NGO (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	3%	4%	0%	***	10%	1%	1%	***
[Confidence Interval]	[2.3%, 4.2%]	[2.6%, 4.8%]	[-0.4%, 1.2%]		[6.9%, 13.2%]	[0.0%, 2.1%]	[-0.0%, 2.0%]	
n	1296	921	375		426	446	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q20. ONG internationale

Table 282: Type of support received from international NGO (multiple choices possible) (conditional on support by international NGO)

Type of support received from international NGO	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	7% [-0.9%, 14.8%]	5% [-2.0%, 12.4%]	100% [100.0%, 100.0%]		3% [-2.7%, 8.5%]	28% [-18.2%, 74.3%]	13% [-13.1%, 39.7%]	
GAP training / advice	11% [0.5%, 21.7%]	11% [0.6%, 22.1%]	0% [0.0%, 0.0%]		6% [-2.1%, 13.6%]	28% [-18.2%, 74.3%]	28% [-18.8%, 74.4%]	
Coaching	15% [2.7%, 27.9%]	16% [2.8%, 28.4%]	0% [0.0%, 0.0%]		3% [-2.7%, 8.5%]	48% [-1.6%, 97.5%]	59% [9.4%, 108.4%]	**
Management / Finance	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Provision of agricultural equipment	5% [-1.9%, 12.2%]	5% [-2.0%, 12.4%]	0% [0.0%, 0.0%]		3% [-2.7%, 8.5%]	28% [-18.2%, 74.3%]	0% [0.0%, 0.0%]	
Quality / Certification	72% [56.5%, 86.6%]	73% [57.8%, 88.0%]	0% [0.0%, 0.0%]		94% [86.9%, 102.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	***
Other	5% [-1.7%, 10.8%]	5% [-1.8%, 11.0%]	0% [0.0%, 0.0%]		3% [-2.6%, 7.9%]	24% [-17.8%, 65.8%]	0% [0.0%, 0.0%]	
n	43	42	1		35	4	4	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q21. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 283: Support for cocoa farm from Anader

ANADER (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	17%	15%	23%	***	22%	15%	15%	***
[Confidence Interval]	[14.4%, 18.6%]	[13.0%, 17.8%]	[18.5%, 27.3%]		[18.2%, 26.5%]	[11.2%, 18.0%]	[11.2%, 18.1%]	
n	1298	923	375		428	447	423	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q22. ANADER

Table 284: Type of support received from Anadar (multiple choices possible) (conditional on support by Anadar)

Type of support received from Anadar	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	44% [36.8%, 50.8%]	50% [41.4%, 58.1%]	21% [12.3%, 29.0%]	***	69% [58.6%, 78.4%]	33% [21.1%, 44.9%]	31% [18.5%, 43.0%]	***
GAP training / advice	74% [67.8%, 79.9%]	78% [71.3%, 85.3%]	57% [45.7%, 67.3%]	***	77% [68.9%, 85.7%]	70% [59.1%, 81.7%]	73% [62.3%, 84.5%]	
Coaching	48% [40.8%, 54.9%]	50% [41.3%, 58.0%]	41% [29.9%, 51.8%]		71% [61.8%, 80.5%]	33% [20.8%, 44.3%]	39% [26.8%, 51.6%]	***
Management / Finance	2% [0.3%, 4.7%]	2% [-0.3%, 4.7%]	4% [-0.6%, 7.8%]		2% [-0.9%, 4.5%]	3% [-1.4%, 7.0%]	3% [-1.3%, 6.9%]	
Provision of agricultural equipment	3% [0.7%, 5.1%]	2% [-0.6%, 3.9%]	8% [1.5%, 14.0%]	*	1% [-0.4%, 2.5%]	3% [-1.4%, 6.9%]	5% [-0.1%, 9.2%]	
Quality / Certification	8% [3.5%, 11.9%]	9% [3.4%, 13.7%]	4% [-0.6%, 9.2%]		1% [-1.2%, 3.8%]	5% [-0.8%, 10.1%]	15% [5.8%, 24.8%]	**
Other	2% [-0.0%, 4.5%]	3% [-0.0%, 5.7%]	0% [0.0%, 0.0%]	*	1% [-1.2%, 3.7%]	4% [-1.3%, 8.5%]	2% [-2.0%, 6.2%]	
n	237	149	88		90	78	69	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q23. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 285: Support for cocoa farm from CNRA

CNRA (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	6%	6%	6%		4%	5%	7%	
[Confidence Interval]	[4.3%, 7.1%]	[4.0%, 7.2%]	[3.4%, 9.1%]		[2.4%, 6.5%]	[2.6%, 7.1%]	[4.5%, 9.5%]	
n	1299	923	376		428	447	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q24. CNRA

Table 286: Type of support received from CNRA (multiple choices possible) (conditional on support by CNRA)

Type of support received from CNRA	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	81% [71.0%, 91.6%]	82% [70.1%, 93.4%]	79% [59.5%, 98.0%]		85% [67.8%, 101.8%]	100% [100.0%, 100.0%]	71% [53.8%, 87.7%]	***
GAP training / advice	26% [14.5%, 37.9%]	30% [16.6%, 43.6%]	6% [-5.4%, 17.1%]	***	26% [4.0%, 47.2%]	12% [-3.7%, 27.8%]	33% [15.5%, 51.3%]	
Coaching	25% [13.4%, 35.9%]	27% [14.1%, 40.1%]	12% [-3.7%, 27.1%]		26% [4.0%, 47.2%]	19% [-0.4%, 37.5%]	27% [10.5%, 44.1%]	
Management / Finance	4% [-0.5%, 8.7%]	5% [-0.6%, 10.4%]	0% [0.0%, 0.0%]	*	13% [-3.8%, 29.9%]	6% [-5.6%, 17.7%]	0% [0.0%, 0.0%]	
Provision of agricultural equipment	7% [0.5%, 14.0%]	7% [-0.8%, 14.4%]	10% [-3.9%, 23.0%]		3% [-2.6%, 7.8%]	12% [-3.7%, 28.4%]	6% [-2.9%, 15.5%]	
Quality / Certification	2% [-1.6%, 4.8%]	2% [-1.9%, 5.8%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	6% [-5.6%, 17.7%]	0% [0.0%, 0.0%]	
Other	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
n	67	49	18		18	17	32	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q25. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 287: Support for cocoa farm from Conseil Café Cacao

Conseil Café Cacao (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	15%	15%	17%		28%	8%	13%	
[Confidence Interval]	[12.9%, 17.0%]	[12.3%, 16.9%]	[12.9%, 20.8%]		[23.4%, 32.3%]	[4.9%, 10.2%]	[9.8%, 16.4%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q26. Conseil Café Cacao

Table 288: Type of support received from Conseil Café Cacao (multiple choices possible) (conditional on support by Conseil Café Cacao)

Type of support received from Conseil Café Cacao	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	27% [20.4%, 33.0%]	23% [16.3%, 30.4%]	44% [31.3%, 56.5%]	***	27% [19.2%, 35.2%]	44% [25.9%, 62.1%]	19% [8.5%, 29.4%]	*
GAP training / advice	20% [13.7%, 26.7%]	22% [14.6%, 29.7%]	11% [2.7%, 18.3%]	**	6% [1.7%, 10.0%]	18% [3.9%, 31.6%]	38% [24.6%, 51.5%]	***
Coaching	13% [8.2%, 17.9%]	12% [6.1%, 16.9%]	21% [10.5%, 30.9%]		11% [5.3%, 16.4%]	21% [6.3%, 35.3%]	12% [3.7%, 21.1%]	
Management / Finance	0% [-0.4%, 1.3%]	1% [-0.5%, 1.5%]	0% [0.0%, 0.0%]		1% [-0.9%, 2.8%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Provision of agricultural equipment	50% [42.1%, 56.9%]	52% [43.8%, 60.8%]	35% [22.7%, 47.8%]	**	64% [55.5%, 73.0%]	34% [16.4%, 50.9%]	39% [25.5%, 52.1%]	***
Quality / Certification	10% [4.8%, 14.7%]	11% [5.0%, 16.6%]	5% [-1.6%, 11.1%]		1% [-0.8%, 2.4%]	8% [-2.5%, 18.1%]	21% [9.8%, 32.4%]	***
Other	12% [7.5%, 17.5%]	11% [5.7%, 16.8%]	19% [7.4%, 30.1%]		4% [0.1%, 7.3%]	26% [9.7%, 42.7%]	17% [7.3%, 26.7%]	***
n	211	146	65		120	33	58	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q27. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 289: Support for cocoa farm from private company/chocolatier

Private company/chocolatier (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	2%	2%	2%		2%	3%	1%	
[Confidence Interval]	[1.2%, 2.8%]	[1.1%, 2.9%]	[0.5%, 3.3%]		[0.7%, 3.5%]	[1.1%, 4.4%]	[0.2%, 2.5%]	
n	1297	924	373		427	445	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q28. Compagnie Privée/Chocolatier

Table 290: Type of support received from private company/chocolatier (multiple choices possible) (conditional on support by private company/chocolatier)

Type of support received from private company/chocolatier	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Provision of seedlings / plants	43% [22.5%, 64.0%]	47% [23.3%, 70.4%]	22% [-6.4%, 49.8%]		45% [11.1%, 78.4%]	43% [12.5%, 74.2%]	42% [-1.4%, 85.2%]	
GAP training / advice	46% [25.1%, 66.6%]	45% [21.9%, 68.6%]	49% [12.5%, 86.2%]		62% [30.1%, 94.8%]	34% [4.3%, 62.8%]	49% [6.3%, 92.3%]	
Coaching	6% [-2.4%, 14.6%]	4% [-3.9%, 11.8%]	19% [-14.0%, 51.8%]		13% [-11.1%, 37.5%]	0% [0.0%, 0.0%]	9% [-8.9%, 26.4%]	
Management / Finance	15% [0.9%, 30.0%]	15% [-1.1%, 30.9%]	19% [-14.0%, 51.8%]		0% [0.0%, 0.0%]	29% [0.8%, 57.8%]	9% [-8.9%, 26.4%]	
Provision of agricultural equipment	13% [-1.0%, 26.6%]	15% [-1.1%, 30.9%]	0% [0.0%, 0.0%]	*	0% [0.0%, 0.0%]	29% [0.8%, 57.8%]	0% [0.0%, 0.0%]	*
Quality / Certification	26% [7.4%, 44.4%]	27% [5.8%, 48.0%]	20% [-6.4%, 46.4%]		24% [-3.1%, 51.7%]	29% [0.8%, 57.8%]	22% [-16.0%, 60.9%]	
Other	22% [4.6%, 39.4%]	26% [5.5%, 45.8%]	0% [0.0%, 0.0%]	**	13% [-11.1%, 37.5%]	43% [11.4%, 74.0%]	0% [0.0%, 0.0%]	**
n	27	19	8		10	11	6	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q29. Quel(s) type(s) d'appui avez-vous reçus de cette organisation au cours des 3 dernières années ?

Table 291: Household ownership of current account bank

Current account household ownership bank (yes/no/don't know)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	94%	94%	93%		89%	97%	94%	
Yes	6%	6%	7%		11%	3%	6%	***
Do not know	0%	0%	0%		0%	0%	0%	
n	1212	847	365		414	426	372	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q31. Compte courant dans une banque

Table 292: Household ownership of savings account bank

Savings account household ownership bank (yes/no/don't know)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	92%	93%	89%		86%	98%	92%	
Yes	8%	7%	11%	**	14%	2%	8%	***
Do not know	0%	0%	0%		0%	0%	0%	
n	1223	858	365		413	426	384	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q32. Compte d'épargne dans une banque

Table 293: Household ownership of microfinance account

Microfinance account household ownership (yes/no/don't know)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	94%	94%	94%		86%	97%	96%	
Yes	6%	6%	6%		14%	3%	4%	***

Microfinance account household ownership (yes/no/don't know)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Do not know	0%	0%	0%		0%	0%	0%	
n	1229	865	364		415	424	390	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q33. Compte dans une microfinance

Table 294: Household ownership of mobile money account

Mobile money account household ownership (yes/no/don't know)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
No	38%	37%	42%		35%	56%	27%	
Yes	62%	63%	58%		65%	44%	73%	***
Do not know	0%	0%	0%		0%	0%	0%	
n	1250	882	368		415	426	409	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q34. Compte Mobile Money

Table 295: Respondent ownership of current, savings, microfinance, mobile money bank account

	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Current account respondent ownership bank (y/n)	8% [6.3%, 9.5%]	8% [6.1%, 9.7%]	8% [4.9%, 10.7%]		10% [7.0%, 13.1%]	4% [2.0%, 5.6%]	10% [6.6%, 12.5%]	***
Savings account respondent ownership bank (y/n)	9% [7.3%, 10.6%]	8% [6.6%, 10.3%]	12% [8.3%, 15.2%]	*	14% [10.4%, 17.3%]	4% [2.4%, 6.3%]	9% [6.6%, 12.3%]	***
Microfinance account respondent ownership (y/n)	7% [5.5%, 8.4%]	7% [5.4%, 8.7%]	6% [3.9%, 8.9%]		14% [10.6%, 17.5%]	4% [1.9%, 5.8%]	5% [3.0%, 7.5%]	***
Mobile money account respondent ownership (y/n)	70% [67.5%, 72.9%]	70% [66.9%, 73.0%]	72% [66.7%, 76.4%]		67% [62.3%, 71.5%]	67% [62.5%, 71.9%]	74% [69.8%, 78.5%]	**
n	1297	922	375		428	445	424	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q36. Compte Bancaire
Original question: S6.Q37. Compte d'épargne
Original question: S6.Q38. Compte dans une microfinance
Original question: S6.Q39. Compte Mobile Money

Table 296: Membership VSLA and/or ROSCA

	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Membership VSLA (y/n)	17% [14.8%, 19.5%]	18% [15.7%, 21.0%]	10% [7.1%, 13.1%]	***	12% [8.7%, 14.9%]	17% [12.8%, 20.3%]	20% [16.4%, 24.6%]	***
Membership ROSCA (y/n)	18% [16.0%, 20.6%]	19% [15.9%, 21.1%]	17% [12.8%, 20.6%]		14% [10.5%, 17.3%]	23% [19.1%, 27.6%]	17% [13.2%, 20.8%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q40. Êtes-vous ou quelqu'un dans votre ménage est-il membre d'une association villageoise d'épargne et crédit (AVEC)?
Original question: S6.Q41. Êtes-vous ou quelqu'un dans votre ménage est-il membre d'une tontine?

Table 297: Debts in past 3 years

Loan in past 3 years (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	23%	22%	28%		30%	33%	13%	
[Confidence Interval]	[20.9%, 25.7%]	[19.8%, 25.2%]	[23.4%, 32.7%]	**	[25.4%, 34.3%]	[28.6%, 38.0%]	[9.3%, 15.8%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q43. Au cours des 3 dernières années, avez-vous personnellement emprunté de l'argent à quelqu'un ? À des amis, des banques, des prêteurs etc.

Table 298: Loan source (multiple choices possible) (conditional on having debts)

Loan source	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Family or friends	45% [38.9%, 50.5%]	46% [39.3%, 52.7%]	39% [29.3%, 48.1%]		27% [18.9%, 34.6%]	52% [43.2%, 60.3%]	55% [41.1%, 68.4%]	***
Village lender	7% [4.0%, 9.4%]	6% [2.6%, 8.4%]	12% [5.3%, 19.0%]	*	8% [3.2%, 13.4%]	4% [0.6%, 7.2%]	10% [3.1%, 16.6%]	
ROSCA/VSLA	3% [1.2%, 5.4%]	3% [0.5%, 5.2%]	6% [1.1%, 10.1%]		2% [-0.6%, 3.6%]	3% [0.3%, 5.3%]	7% [-0.2%, 13.4%]	
Savings and Credit Cooperative /Credit Union	9% [5.6%, 12.2%]	10% [6.0%, 13.9%]	4% [0.5%, 7.5%]	**	14% [7.2%, 19.9%]	7% [2.6%, 11.1%]	7% [-0.6%, 14.2%]	
Microfinance institution	1% [-0.3%, 2.0%]	1% [-0.4%, 2.4%]	0% [0.0%, 0.0%]		1% [-0.9%, 2.9%]	0% [0.0%, 0.0%]	2% [-2.0%, 6.3%]	
Bank	1% [-0.1%, 1.9%]	1% [-0.3%, 1.9%]	1% [-0.5%, 3.3%]		2% [-0.4%, 3.9%]	1% [-0.7%, 2.3%]	0% [0.0%, 0.0%]	
Merchant	6% [3.1%, 9.2%]	6% [2.8%, 9.8%]	5% [0.6%, 10.3%]		1% [-0.8%, 2.5%]	7% [2.2%, 10.9%]	12% [3.2%, 21.6%]	***
Private company	0% [-0.3%, 1.0%]	0% [-0.4%, 1.2%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	1% [-0.7%, 2.3%]	0% [0.0%, 0.0%]	
Church / mosque	0% [-0.3%, 0.8%]	0% [-0.3%, 1.0%]	0% [0.0%, 0.0%]		1% [-0.8%, 2.5%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Traders	12% [8.0%, 15.2%]	11% [6.5%, 14.8%]	16% [9.3%, 22.9%]		10% [4.8%, 15.9%]	13% [7.7%, 18.8%]	10% [1.8%, 18.4%]	
Cooperative	25% [20.4%, 30.2%]	25% [19.7%, 31.2%]	25% [17.0%, 32.7%]		39% [30.2%, 47.5%]	21% [14.1%, 28.2%]	16% [5.3%, 26.0%]	***
Other	3% [0.8%, 4.9%]	3% [0.7%, 5.6%]	1% [-1.2%, 3.8%]		1% [-0.9%, 2.8%]	3% [0.1%, 6.8%]	4% [-1.2%, 9.4%]	
Do not know	0% [-0.4%, 1.1%]	0% [-0.4%, 1.4%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	1% [-0.8%, 2.5%]	0% [0.0%, 0.0%]	
n	342	228	114		131	152	59	

Note: significance from a composite Wald statistical test. ***, ** * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q44. À qui avez-vous emprunté de l'argent au cours des 3 dernières années ?

Table 299: Maximum loan amount in past 3 years (FCFA) (conditional on having debts)

Maximum loan amount in past 3 years (FCFA)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean [Confidence Interval]	191790 [145846, 237734]	191501 [139095, 243907]	193121 [103192, 283050]		246216 [172186, 320245]	116599 [83174, 150025]	266591 [112247, 420936]	***
median	100000	100000	70000		100000	50000	100000	
n	340	226	114		131	152	57	

Note: significance from a composite Wald statistical test. ***, ** * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q45. Quel est le montant maximal qui vous a été prêté au cours des 3 dernières années ? (en une fois, en FCFA)

Table 300: Source of maximum loan amount (conditional on having debts)

Source of maximum loan amount	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Family or friends	40%	41%	37%		24%	46%	49%	
Village lender	5%	5%	9%		8%	2%	8%	
ROSCA/VSLA	3%	3%	6%		2%	3%	7%	
Savings and credit cooperative /Credit union	8%	9%	3%		14%	7%	4%	
Microfinance institution	1%	1%	0%		1%	0%	2%	
Bank	1%	1%	1%		2%	1%	0%	
Merchant	4%	4%	4%		1%	6%	6%	***
Private company	0%	0%	0%		0%	1%	0%	
Church / mosque	0%	0%	0%		1%	0%	0%	
Traders	11%	11%	15%		10%	13%	9%	
Cooperative	23%	23%	24%		37%	19%	13%	
Other	2%	2%	1%		1%	3%	1%	

Source of maximum loan amount	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Do not know	0%	0%	0%		0%	0%	0%	
n	341	227	114		131	151	59	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q46. À qui aviez-vous emprunté ce montant?

Table 301: Repayment success (conditional on having debts)

Repayment success	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Yes	22%	20%	32%		30%	18%	22%	
No	54%	56%	46%	*	41%	66%	49%	***
The repayment term has not yet been reached	24%	24%	22%		30%	16%	29%	
n	342	228	114		131	152	59	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q47. Avez-vous pu rembourser la somme prêtée en respectant le délai de remboursement prévu ?

Table 302: Collateral used (conditional on having debts)

Collateral	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Parcel	3%	3%	0%		0%	3%	4%	
House	0%	0%	0%		0%	0%	0%	
Furniture /house equipment	1%	1%	0%		1%	1%	0%	
Harvest of crop(s)	23%	24%	21%		19%	33%	11%	
Livestock	0%	0%	0%		0%	0%	0%	
Car / motorcycle	1%	1%	1%		1%	0%	2%	
Cash	4%	4%	1%		1%	6%	2%	
Farm	9%	9%	6%		7%	1%	26%	
Nothing / none	56%	54%	67%		66%	52%	50%	
Other	4%	4%	4%		4%	4%	4%	
n	342	228	114		131	152	59	

Note: significance from a Rao-Scott second-order corrected Chi-squared statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q48. Qu'avez-vous utilisé comme garantie ?

Table 303: Use of loan (multiple choices possible) (conditional on having debts)

Use of loan	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Seedlings	5% [1.9%, 7.4%]	5% [1.9%, 8.4%]	3% [-0.3%, 5.6%]		6% [1.8%, 10.1%]	0% [0.0%, 0.0%]	12% [2.2%, 21.6%]	***
Inputs	14% [9.9%, 18.7%]	15% [10.0%, 20.3%]	11% [4.3%, 16.7%]		10% [4.4%, 15.1%]	8% [3.5%, 13.0%]	32% [18.6%, 44.8%]	***
Farm workers	3% [0.7%, 4.9%]	3% [0.3%, 5.1%]	3% [-0.0%, 6.9%]		2% [-0.4%, 5.0%]	1% [-0.2%, 1.3%]	8% [0.1%, 15.3%]	*
Agricultural tools	1% [-0.2%, 1.4%]	1% [-0.3%, 1.7%]	0% [0.0%, 0.0%]		2% [-0.7%, 4.4%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	
Machines / tractor rental	1% [-0.1%, 2.1%]	1% [-0.2%, 2.5%]	0% [0.0%, 0.0%]	*	2% [-0.7%, 4.4%]	1% [-0.8%, 2.6%]	0% [0.0%, 0.0%]	
Machinery / tractors	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Car / motorcycle	1% [0.0%, 2.6%]	2% [0.0%, 3.2%]	0% [0.0%, 0.0%]	**	2% [-0.7%, 4.4%]	2% [-0.6%, 4.0%]	0% [0.0%, 0.0%]	
Purchase or lease of land	1% [-0.0%, 1.4%]	0% [-0.4%, 1.1%]	2% [-0.3%, 4.6%]		1% [-0.9%, 2.9%]	1% [-0.1%, 1.8%]	0% [0.0%, 0.0%]	
Transport costs	2% [-0.2%, 3.6%]	2% [-0.2%, 4.4%]	0% [0.0%, 0.0%]	*	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	7% [-0.6%, 14.9%]	***

Use of loan	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Cocoa storage	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Machine repair	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Payment of membership fees to farmers' organizations	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Payment of health expenses	26% [20.7%, 30.5%]	23% [17.8%, 29.0%]	36% [26.7%, 45.1%]	**	29% [20.9%, 36.6%]	25% [17.8%, 32.5%]	22% [11.3%, 33.5%]	
Payment of tuition fees	38% [32.8%, 44.0%]	38% [31.8%, 44.9%]	38% [29.1%, 47.6%]		35% [26.6%, 43.6%]	44% [35.9%, 53.0%]	31% [18.2%, 44.1%]	
Clothing	1% [-0.3%, 2.1%]	1% [-0.4%, 2.4%]	1% [-0.7%, 2.0%]		1% [-0.6%, 3.2%]	0% [0.0%, 0.0%]	2% [-2.0%, 6.4%]	
Payment of food for household consumption	6% [3.3%, 8.6%]	6% [3.1%, 9.2%]	5% [1.0%, 9.5%]		8% [2.9%, 12.6%]	7% [2.8%, 11.9%]	1% [-1.0%, 3.1%]	***
Payment of funeral expenses	9% [6.1%, 12.7%]	8% [4.5%, 11.8%]	16% [8.3%, 22.9%]	*	6% [2.1%, 10.7%]	10% [5.3%, 15.4%]	12% [3.5%, 19.7%]	
Payment of wedding expenses	0% [-0.2%, 0.7%]	0% [0.0%, 0.0%]	1% [-1.2%, 3.8%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	1% [-0.9%, 2.9%]	*
Starting a small business / shop	5% [2.1%, 7.5%]	5% [1.9%, 8.2%]	4% [-0.0%, 8.0%]		5% [0.8%, 8.3%]	2% [-0.6%, 3.9%]	11% [2.3%, 20.2%]	*
Other	17% [12.6%, 21.9%]	20% [14.1%, 25.1%]	6% [1.9%, 10.7%]	***	11% [4.9%, 16.3%]	20% [12.6%, 26.4%]	22% [9.8%, 33.6%]	*
Do not know	1% [-0.1%, 1.9%]	1% [-0.3%, 1.9%]	1% [-1.2%, 3.8%]		1% [-0.9%, 2.7%]	1% [-0.8%, 2.4%]	1% [-0.9%, 2.9%]	
n	342	228	114		131	152	59	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q49. Q'avez-vous fait avec l'argent emprunté pour le prêt du montant maximal obtenu ?

Table 304: Reason no debt (multiple choices possible) (conditional on no debt)

Reason no debt	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Not available in the community	10% [7.5%, 11.7%]	10% [7.7%, 12.5%]	7% [3.4%, 9.9%]		8% [4.7%, 11.2%]	9% [5.6%, 12.7%]	11% [7.2%, 14.0%]	
Interest rate too high	4% [2.2%, 4.9%]	4% [2.4%, 5.4%]	1% [-0.2%, 2.5%]	***	2% [0.4%, 3.8%]	4% [1.8%, 6.8%]	4% [1.6%, 5.9%]	
Repayment period too short	2% [0.7%, 2.5%]	2% [0.8%, 2.9%]	0% [0.0%, 0.0%]	***	0% [-0.4%, 1.2%]	4% [1.6%, 6.7%]	1% [-0.3%, 1.7%]	**
Lack of guarantee / security	2% [1.1%, 3.2%]	2% [1.2%, 3.6%]	1% [-0.1%, 1.8%]	**	1% [-0.0%, 2.8%]	4% [1.4%, 6.1%]	2% [0.2%, 3.1%]	
I did not need a loan	45% [42.0%, 48.8%]	45% [40.8%, 48.5%]	50% [44.0%, 56.6%]		43% [37.0%, 48.6%]	45% [38.7%, 50.8%]	47% [41.6%, 52.3%]	
I did not want to have debt	52% [49.0%, 55.9%]	51% [47.5%, 55.2%]	60% [53.3%, 65.7%]	**	48% [42.2%, 54.0%]	54% [48.4%, 60.5%]	53% [47.9%, 58.7%]	
My spouse did not want to	1% [0.3%, 1.7%]	1% [0.3%, 1.9%]	0% [-0.3%, 0.8%]		0% [0.0%, 0.0%]	2% [0.4%, 4.0%]	1% [-0.3%, 1.7%]	**
Other	3% [1.8%, 3.9%]	2% [1.1%, 3.4%]	7% [3.3%, 10.1%]	**	2% [0.6%, 4.3%]	3% [1.3%, 5.7%]	3% [1.1%, 4.3%]	
n	958	696	262		297	295	366	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q50. ...Si vous n'avez pas emprunté d'argent au cours des 3 dernières années, quelle est la raison ?

Table 305: Insurance in past 3 years

Insurance in past 3 years (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	5%	5%	6%		2%	5%	7%	
[Confidence Interval]	[3.8%, 6.5%]	[3.4%, 6.5%]	[3.5%, 8.8%]		[0.6%, 3.4%]	[2.8%, 7.0%]	[4.5%, 9.5%]	***
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q51. Vous-même ou quelqu'un dans votre ménage a-t-il souscrit à des produits d'assurance au cours des 3 dernières années ?

Table 306: Insurance products in past 3 years (multiple choices possible) (conditional on insurance in past 3 years)

Insurance products in past 3 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Life insurance	27% [14.8%, 39.5%]	27% [12.4%, 41.1%]	29% [9.3%, 48.8%]		6% [-5.7%, 17.2%]	31% [10.5%, 50.9%]	29% [11.3%, 46.2%]	**

Insurance products in past 3 years	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Health insurance	20% [10.0%, 30.2%]	16% [5.1%, 27.1%]	39% [16.6%, 60.8%]	*	74% [45.2%, 103.0%]	12% [-1.0%, 24.4%]	16% [2.9%, 28.6%]	***
Fire insurance	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	NA
Vehicle insurance	34% [21.9%, 46.9%]	31% [16.6%, 44.8%]	52% [29.1%, 74.4%]		20% [-7.2%, 46.3%]	66% [44.4%, 86.7%]	21% [6.7%, 35.7%]	***
Other	38% [24.6%, 52.2%]	47% [30.7%, 62.5%]	0% [0.0%, 0.0%]	***	14% [-11.6%, 40.2%]	11% [-3.4%, 24.4%]	56% [37.6%, 74.7%]	***
n	62	41	21		9	23	30	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6. Q52. Quels produits d'assurance avez-vous souscrits au cours des 3 dernières années?

Table 307: Insurance in 2017-2018

Insurance in 2017-2018 (y/n)	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
mean	4%	4%	6%		1%	6%	4%	***
[Confidence Interval]	[2.9%, 5.2%]	[2.5%, 5.1%]	[3.0%, 8.2%]		[0.2%, 2.5%]	[3.3%, 7.9%]	[2.4%, 6.4%]	
n	1300	924	376		428	447	425	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6.Q53. Vous-même ou quelqu'un dans votre ménage a-t-il souscrit à des produits d'assurance au cours de la campagne 2017-2018 ?

Table 308: Insurance products in 2017-2018 (multiple choices possible) (conditional on insurance in past 3 years and past year)

Insurance products in 2017-2018	All	MOCA	Control	sig	Abengourou	Daloa	Soubré	sig
Life insurance	21% [8.2%, 32.8%]	19% [5.1%, 33.9%]	25% [3.1%, 46.0%]		21% [-15.3%, 57.0%]	12% [-1.9%, 25.2%]	28% [7.6%, 49.3%]	
Health insurance	19% [7.5%, 29.5%]	16% [3.6%, 28.6%]	28% [6.1%, 49.9%]		70% [32.3%, 108.6%]	6% [-3.2%, 15.7%]	21% [3.1%, 38.9%]	***
Fire insurance	3% [-2.8%, 8.7%]	4% [-3.5%, 10.9%]	0% [0.0%, 0.0%]		0% [0.0%, 0.0%]	0% [0.0%, 0.0%]	6% [-5.6%, 17.8%]	
Vehicle insurance	54% [39.5%, 69.4%]	55% [36.8%, 72.2%]	54% [29.7%, 78.4%]		30% [-8.6%, 67.7%]	82% [66.2%, 97.9%]	34% [12.4%, 54.7%]	***
Other	15% [3.4%, 27.1%]	18% [3.7%, 32.7%]	4% [-3.5%, 10.8%]	*	0% [0.0%, 0.0%]	6% [-3.2%, 15.7%]	26% [4.4%, 47.3%]	**
n	51	33	18		6	24	21	

Note: significance from a composite Wald statistical test. ***, **, * indicate significance levels of 1%, 5% and 10% respectively
Original question: S6. Q54. Quels produits d'assurance avez-vous souscrits au cours de la saions 2017-2018?



KIT Royal
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APPENDIX 3. FIELDWORK REPORT

MOCA baseline

7 – 30 October 2018

Contents

1 INTRODUCTION	3
2 FIELDWORK PLANNING	4
3 QUALITATIVE DATA COLLECTION	6
3.1 Fieldwork process	6
3.2 Difficulties during fieldwork	6
3.2.1 GENERAL DIFFICULTIES	6
3.2.2 DALOA	6
3.2.3 SOUBRÉ	7
3.2.4 ABENGOUROU	7
3.2.5 POTENTIAL BIASES AND FLAWS IN DATA	7
4 QUANTITATIVE DATA COLLECTION	8
4.1 Enumerator training	8
4.2 Sampling & replacements	8

1 Introduction

This report provides insights on the execution of the data gathering in Côte d'Ivoire between the 7th and 30th of October 2018. The fieldwork was conducted by the Royal Tropical Institute (KIT) in cooperation with CNFA. The fieldwork consists of focus group discussions and surveys with farmers, and structured interviews with cooperative managers. Key Informant Interviews with local input providers and processors (SMEs) were also supposed to take place. However, in consultation with CNFA team, it was decided to postpone these interviews (apart from one in Daloa) due to a lack of time.

The table below provides the names and the roles of the members of the research team.

Name	Organisation	Role
Adama Bah	KIT	Enumerator training, coop interviews, farmer FGD
Cedric Steijn	KIT	Coop interviews, farmer FGD
Amoiff Ehui Ernest	n/a	Translation to local languages for farmer FGDs
Bou Diehon Valerie	n/a	Translation to local languages for farmer FGDs
Kingoun Camara Sauveur	CNFA	Programme director
Touré Mariame Yaya	CNFA	Regional director Daloa, arranging field visits with coops
Kouakou Kouassi Saturnin	CNFA	M&E officer in Daloa, supervision of enumerator team
N'Guessan Koffi Yao Lazare	CNFA	Assistant cocoa specialist Daloa, support during fieldwork
Yao Fofié Maxime	CNFA	Assistant cocoa specialist Soubré, arranging visits with coops
Ganon N'Bondanna Diakaridia	CNFA	M&E officer in Soubré, supervision of enumerator team
Tapé Hugues Baï	CNFA	Regional director Abengourou, arranging visits with coops
Traoré Zakaria	CNFA	M&E officer in Abengourou, supervision of enumerator team

Gbodo Olivia	CNFA	Assistant cocoa specialist Abengourou, support during fieldwork
Kouassi N'Deko Rose	CNFA	Operations director, financial administration
Marc Steen	CNFA	Programme manager

The fieldwork objective was to gather reliable data in an organised and transparent fashion. Information on data collection process and its difficulties can be found in the sections below. The objectives also include a certain number of respondents. Details can be found below:

- **For farmer surveys:** number of respondents to include depends on the size of the cooperative (number of members). Prioritise members with lowest rank (i.e. start with #1).
- **For FGDs:** one FGD per cooperative if possible. If not possible, as many as possible and prioritise control group cooperatives. Aim for: between 10-15 participants from different sections, the inclusion of women and the exclusion of members with a leadership role.
- **For cooperative KII's:** one per cooperative for all 32 cooperatives. Aim for: respondents with sufficient knowledge on the cooperative to provide accurate answers (i.e.: Directeur, ADG, Comptable, Président).
- **For SME KII's:** As many as possible, not a priority.

2 Fieldwork planning

The consultants from KIT developed a fieldwork planning in cooperation with the regional directors from CNFA. The planning is based on the time available to the KIT advisors, travelling time and availability of the managers and farmers of cooperatives. The planning includes an interview with the management of each cooperative and a Focus Group Discussion with farmers of selected cooperatives. The KIT team made certain that an FGD took place for every control cooperative. The FGDs for the other (intervention) cooperatives were planned based on distance and available time. Table 2 below provides an overview of the fieldwork planning including the number of participants during the FGDs. Days when no fieldwork activities took place are marked in grey.

Table 309: Fieldwork planning

Date:	Cooperative	CNFA region:	Control/intervention	Facilitator(s)	Total participants:
7-10-2018	Arrival in Abidjan				
8-10-2018	Training of enumerators/field testing of survey/preparation of fieldwork				
9-10-2018					
10-10-2018					
11-10-2018					
12-10-2018	CPR Canaan	Daloa	Intervention	Cedric Steijn & Adama Bah	12 (1)
13-10-2018	Local elections/Sunday				
14-10-2018					
15-10-2018	SCALAVA	Daloa	Intervention	Cedric Steijn	8 (0)
	ESPOIR	Daloa	Intervention	Cedric Steijn & Adama Bah	8 (0)
	SO CADMV	Daloa	Intervention	Adama Bah	n/a
	CAPEDIG	Daloa	Intervention	Cedric Steijn	15 (1)
	KAPATCHIVA	Daloa	Intervention	Adama Bah	27 (8)
	SCOOPS SAHS	Daloa	Control	Cedric Steijn	14 (3)

16-10-2018	HOUNOU	Daloa	Control	Adama Bah	5 (2)
17-10-2018	Case du planteur	Daloa	Intervention	Adama Bah	13 (0)
	Ecojad	Daloa	Intervention	Cedric Steijn	n/a
	SOCOOPRANHS	Daloa	Intervention	Cedric Steijn	12 (0)
	Travel to Soubré				
18-10-2018	CAAM	Soubré	Intervention	Adama Bah	12 (0)
	SCAS	Soubré	Intervention	Cedric Steijn	n/a*
	SOCOOABAS	Soubré	Intervention	Adama Bah	n/a
	SCAES	Soubré	Intervention	Cedric Steijn	16 (1)
19-10-2018	SOCOOPACDI	Soubré	Intervention	Adama Bah	n/a
	SCOPAB	Soubré	Intervention	Adama Bah	8 (0)
	SOCAGNIPI	Soubré	Intervention	Cedric Steijn	7 (0)
	Return to Abidjan (Adama)				
20-10-2018	ECAM	Soubré	Intervention	Cedric Steijn	8 (0)
	SCAPCB	Soubré	Intervention	Cedric Steijn	12 (2)
21-10-2018	Sunday				
22-10-2018	CANOA	Soubré	Control	Cedric Steijn	15 (0)
	ECASO	Soubré	Control	Cedric Steijn	36 (4)
23-10-2018	Travel to Abengourou (Cedric)				

24-10-2018	ADI	Abengourou	Control	Cedric Steijn	14 (9)
	CAPA	Abengourou	Intervention	Cedric Steijn	n/a
25-10-2018	ADHONDJO	Abengourou	Intervention	Cedric Steijn	n/a*
	CEEA	Abengourou	Control	Cedric Steijn	6 (0)
26-10-2018	FAHO	Abengourou	Intervention	Cedric Steijn	8 (1)
	SCAASP	Abengourou	Intervention	Cedric Steijn	n/a
27-10-2018	N'MOH-BLA	Abengourou	Intervention	Cedric Steijn	10 (4)
	BOUKABLA	Abengourou	Intervention	Cedric Steijn	8 (8)
28-10-2018	Sunday				
29-10-2018	CAPRESSA	Abengourou	Intervention	Cedric Steijn	14 (2)
	COPAZZA	Abengourou	Intervention	Cedric Steijn	n/a
	Return to Abidjan (Cedric)				
Total:	32 cooperatives (23 FGDs)				288 (46)

*: FGD was planned, but did not take place

3. Qualitative data collection

FIELDWORK PROCESS

The fieldwork started on Friday the 12th of October with a visit to CPR Canaan in Daloa. The KIT advisors would visit the cooperative headquarters at the predetermined time in order to conduct the interview with the managers of the cooperatives and to discuss where and when the FGD would take place. Cooperatives were asked beforehand to select farmers for the FGDs based on criteria provided by KTI team and were responsible for arranging the transport of the farmers to the location of the FGD. FGDs usually took place in the cooperative headquarters (or warehouse) to minimize travelling time. In some cases, farmers were unable to come to the warehouse in which case the KIT consultant travelled to a central location (community) to conduct the FGD. A representative from the cooperative would accompany the research team to the community.

The first two cooperative interviews were conducted by both Cedric and Adama in order to update the questionnaire in case of issues and to align the interpretation of questions to avoid inter-interviewer variation. The questionnaire for cooperative managers was updated twice in first week to better capture the data.

DIFFICULTIES DURING FIELDWORK

GENERAL DIFFICULTIES

The main difficulty in during the fieldwork was finding participants for the FGD. Cooperatives reported facing difficulties in arranging the FGD as farmers were occupied with the main harvest of their cocoa. This often led to delays, in some cases leading to shorter FGDs where questions were either skipped or discussed only briefly. This especially affected the data for the second exercise on previous projects.

DALOA

Daloa was the first CNFA region to be visited by the KIT research team. The planning for the cooperative visits had only been finalised a few days before the first visit, providing little time for the CNFA team to arrange the visits. The first week of fieldwork had a number of issues related to miscommunication between cooperatives and CNFA. In some cases, managers were not ready at the appointed time, or farmers had not been invited. In a few cases managers mentioned they themselves were farmers and members and could therefore also do the FGD. This caused a few delays leading to a lack of time to conduct full FGDs. However, all scheduled FGDs took place in the Daloa region. Significant delays did occur for the FGDs with members of Hounou, Case du Planteur and Kapatchiva where data on several categories is lacking. In the case of Espoir and Case du Planteur, the FGD participants consisted of farmers who are also members of the management, leading to potentially biased data. Furthermore, the interview with the director of Hounou could not take place at the scheduled time as he was travelling. The interview was later conducted over the phone by Cedric on the last day of fieldwork (30th of October).



Figure 35: Cedric Steijn facilitating a focus group with members of Socooprahns in Fofanadougou (photo by Amoiff Ehui Ernest, 17-10-2018)

SOUBRÉ

The fieldwork in Soubré started on the 18th of October. The main difficulty in this CNFA region was the distance between cooperatives. Most cooperatives are located in Soubré or Méagui, but two cooperatives, SCOPAB and SOCOOPACDI, are located near Divo. Including these two cooperatives in the fieldwork planning was therefore more difficult. In the end, Adama visited both cooperatives on her way back to Abidjan on the 19th of October.

Overall, the fieldwork in Soubré went well and most FGDs have relatively complete data. Managers and farmers were usually present at the scheduled times and little delays occurred. A problem did occur for SCAS: the cooperative is based in Sofoci, but the headquarters are located in Méagui. Sofoci was too far away from Méagui to do the interview as well as the FGD. The FGD therefore did not take place. Another issue occurred on the last day during the visit to Canoa. The management misunderstood the objective of the FGD and argued they themselves were farmers so they could do it. After explaining that this was not possible, farmers were gathered in a community. The community was supposed to be nearby, but it took nearly 2,5 hours to reach the community. This left time for only a short FGD and forced Cedric to travel at night during a rainstorm. The way back to Soubré was very unsafe and took nearly 3,5 hours, totalling 6 hours of travel for 1 hour of FGD. After this, agreements were made between Cedric and CNFA to avoid similar problems in the future.

ABENGOUROU

The last CNFA region visited during the fieldwork was Abengourou. At this time, Adama had left Côte d'Ivoire, leaving only Cedric to visit the remaining 10 cooperatives. Cedric was joined by Hugues Tapé (regional manager Abengourou) during the first visits to control group cooperatives (ADI and CEEA) and by Olivia Gbodo (assistant cocoa specialist Abengourou) for the remainder of the cooperatives. No major issues occurred during the final stage of the qualitative data collection, with the exception of the FGDs at AHONDJO and BOUKABLA. The FGD at AHONDJO was skipped to avoid travelling at night. Upon arrival in Affalikro in the afternoon, farmers were not present and it was unclear when they could arrive. At BOUKABLA, respondents had to attend a funeral and were therefore only available for a short FGD.

POTENTIAL BIASES AND FLAWS IN DATA

The data gathered through FGDs has certain shortcomings. First of all, participants of the FGDs were usually selected on availability (by the cooperative) as it was often difficult to find farmers during the main harvest seasons. The data from respondents might therefore not always reflect the view of the average cooperative member. Women were often underrepresented as well. A second shortcoming is the lack of representativeness of the sample; most FGDs consisted of members who were usually from the same section (or community). The data collected through the FGDs should therefore in no way be generalised to the cooperative as a whole but used as an indication of the current situation of cooperative members. The fact that most participating farmers are from the same community also prohibits generalisations as certain sections may receive more attention in terms of inputs and community projects than others. A third shortcoming relates to the presence of members in managing positions during focus groups. Their presence may affect answers of farmers whom might not feel completely free to express their opinions for fear of consequences. In most FGDs, cooperative managing members (delegates and managers) were asked to leave when the discussion focused on cooperatives. In a few cooperatives, however, all FGD participants were at such positions delegates and lead farmers, due to misunderstandings during communications between MOCA team and cooperatives regarding the type of respondents required for these exercises. Finally, the translation from French to local languages can be a source of misunderstanding, especially when the translators had difficulty with a certain language, or translation to multiple languages was needed.

KIT advisors noted these issues, which may lead to potential biases and are thus taken into account during analysis.

4. Quantitative data collection

ENUMERATOR TRAINING

The quantitative data was collected by a team of enumerators using the programme ODK Collect installed on tablets. The team of enumerators consisted of 24 men and women distributed over the three CNFA regions (8 per region). The enumerators attended an intensive training on the research itself, the survey and the use of the tablet. The training, which took place in Daloa, was provided by Adama Bah and Cedric Steijn from KIT in cooperation with the regional managers and M&E officers from CNFA. The training started on Monday the 8th of October and took 4 days. The training was participatory and invited all people present to propose adjustments and clarifications to the questions in order to improve the quality of the data collected. Enumerators tested and practiced the survey multiple times, first among themselves and also during two field test days during which the enumerators surveyed cocoa farmers in a village near Daloa. The survey questionnaire was continuously updated during the four days of training to improve the use of the survey and the quality of the data collected. During the fieldwork, enumerators were in continuous contact with the M&E officers of their respective region, whom in turn were in close contact with the KIT research team in order to address unforeseen issues in the data collection process and to provide clarifications if needed.

SAMPLING & REPLACEMENTS

The main issue during the farmer survey data collection related to finding farmers selected on the initial list. Due to a lack of time for fieldwork preparations, it was not possible to check beforehand

with cooperatives whether farmers selected were available. Furthermore, data collection was conducted over a relatively short period of time, during which enumerators were by contract required to conduct four surveys per day whereas, in practice, very few surveys took place during the first day at a cooperative, given the need to first locate farmers with the help of the cooperative staff. A number of farmers selected were said to be unavailable for a number of reasons. MOCA team requested for KIT to provide replacement lists to replace farmers who could not be surveyed and be able to obtain the required number of respondents for each cooperative.

It was decided to replace selected farmers who could not be surveyed following the same random selection procedure as the one used for the initial list. Replacement lists were provided by KIT team upon request from MOCA M&E advisors, who supervised the fieldwork. M&E advisors were requested to implement the replacement process par releasing additional names one by one to enumerators according to a ranking established randomly by KIT (instead of providing them with a list of replacement). This was to avoid convenience replacements which could affect the representativeness of the sample. M&E advisors were asked to document why respondents included in the sample were not surveyed and why replacement respondents with a higher rank were replaced with a respondent with a lower rank.

Overall, although KIT team did not receive full information, data submitted by M&E advisors suggest that the replacement process roughly followed the requested process. The table below summarizes results from the implementation of the sampling process, based on data provided by M&E advisors. It shows that there are regional differences in the number of farmers from the initial lists that could not be surveyed, with Daloa region having much less (more than half) farmers not surveyed compared to the other two regions. In terms of reasons for not being surveyed, it was more common that farmers on initial lists did not belong to the cooperative anymore in Soubre region. In Abengourou region, more farmers had permanently relocated or were not accessible by enumerators, in particular due to lack of road.

ADDENDUM TO THE BASELINE REPORT MOCA CÔTE D'IVOIRE: RECOMMENDATIONS FOR THE FINAL EVALUATION

The final evaluation of MOCA will seek to determine the extent of the change experienced by beneficiary cocoa farmers after participation in MOCA activities and attribute these changes to MOCA interventions. In particular, the end-line impact evaluation is expected to provide answers to the following impact evaluation questions:

Did MOCA activities produce increases in cocoa farmer:

- Access to inputs and services: improved planting material, spraying, loans, improved storage?
- Productivity (kg/ha of cocoa produced)?
- Diversification of crops?
- Incomes?

The evaluation will seek to find evidence of a cause-effect relationship between the project interventions and results at farmer level based on a counterfactual evaluation design. The baseline survey can be used to collect a panel dataset, or at least apply a difference-in-difference design. In addition, it is recommended to apply Propensity Score Matching in order to correct for confounding factors and selection bias that are likely to influence the outcome indicators independent of exposure to the intervention. Indeed, the baseline study showed that significant differences exist between the beneficiaries and non-beneficiaries prior to the implementation of MOCA.

However, other issues will need to be considered at the final evaluation as well:

- Spillover effects: the control group may have been affected indirectly by MOCA in certain ways (e.g. improved access to inputs).
- Contamination: the treatment and/or control group has access to other interventions that also affect the outcomes.
- Impact heterogeneity: differences in impact among beneficiaries due to differences in beneficiary type and context.

It is recommended that the final evaluation first reviews the intervention landscape as well as the actual MOCA project activities to assess the likelihood of spillover effects and contamination so these can be taken into account when designing the survey tool.

We advise against a simple comparison of outcome indicators between the treatment and control group. The baseline study shows that there are significant differences in outcome indicators between regions and cooperatives at baseline. These factors are likely to cause impact heterogeneity. Furthermore, MOCA will carry out a multitude of activities to strengthen the cocoa value chain in general and the cooperative capacities in particular. The intervention activities will vary by cooperative, depending on their existing capacity and ambitions. As such, there will be multiple 'treatment arms' that are not predefined. It is thus important that the evaluation also captures the intervention activities received, and change in capacity achieved, at cooperative level as this will influence the outcome at farmer level. A survey at cooperative level will be necessary to

collect the required data on the capacities of the cooperatives, the type of support received, and services provided to farmers.¹⁹

In order to correct for the expected heterogeneity in treatment and impact, it is recommended to use multivariate regression techniques²⁰ to control for the variation in ‘treatment’ interventions as well as important confounding factors (e.g. cooperative capacity, region) to estimate the true effect²¹ of MOCA on cocoa farmers. Treating each intervention package at cooperative level as a separate treatment arm, to be compared against other treatment arms and controls, will be unpractical as the number of treatment arms are likely to require a very large sample size²².

In addition to analyzing baseline and endline values of the outcome indicators, it would also be useful to compare changes in the correlates of productivity at baseline and at endline, as it is possible that the project has an effect on which factors affect productivity (for example, making the use of inputs more significantly correlated with productivity).

In case the decision is made to obtain a new sample of respondents for the final evaluation (rather than collecting a panel dataset), the sampling procedure should follow the two-stage sampling strategy applied at baseline: random sampling of cooperatives followed by random sampling of cooperative members. The procedure is described in the inception report of the baseline study.

¹⁹ King EM, Behrman JR. 2008. Timing and duration of exposure in evaluations of social programs. Policy Research Working Paper 4686. The World Bank

²⁰ See for example: Elbers C, Gunning JW. 2012. Evaluation of development programs: using regression to assess the impact of complex interventions. *Tinbergen Institute Discussion Paper T12012-081/2*. Faculty of Economics and Business Administration, VU University Amsterdam, AIID, and Tinbergen Institute

²¹ Reeves BC, Wells GA, Waddington H. 2017. Quasi-experimental study design series – paper 5: a checklist for classifying studies evaluating the effects on health interventions – a taxonomy without labels. *J. Clin. Epidemiol.* 89: 30-42

²² https://siteresources.worldbank.org/EXTHDOFFICE/Resources/5485726-1295455628620/Impact_Evaluation_in_Practice.pdf

3. ANNEXES

ANNEX 1: REFERENCE STUDY REPORT ON AGRO DEALERS



RAPPORT DE L'ETUDE DE REFERENCE SUR LES AGRO DEALERS

Tables des matières

INTRODUCTION	179
MÉTHODOLOGIE	180
1.1. Echantillonnage	180
1.2. Questionnaire et stratégie de collecte de données	180
1.3. Analyse des données	180
RÉSULTAT DE L'ÉTUDE	180
2.1. Localisation et caractéristiques des MPMES interviewés	180
2.1.1. LOCALISATION DES MPMES	180
2.1.2. CARACTÉRISTIQUES DES MPMES	181
2.2. Principales activités réalisées par les MPMES interviewés	181
2.2.1. ACTIVITÉS RÉALISÉES	181
2.2.2. VENTE DE PRODUITS AGRICOLES	183
2.2.3. SERVICES VENDUS PAR LES MPMES	184
2.3. Employés	185
2.4. Dépenses	186
2.5. Revenus	186
2.6. Bénéfices	186
2.7. Types de clients	187
RECOMMANDATIONS	187
Liste des tableaux	
Tableau 1: Répartition des MPMES interviewés par sexe selon la zone MOCA	181
Tableau 2: Répartition des MPMES interviewés par type d'activités menées	182
Tableau 3: Répartition des MPMES interviewés par type de service vendus	185
Liste des figures	
Figure 1: Pourcentage des répondants par type de produits vendus.	184

INTRODUCTION

Le projet MOCA (« Maximiser les opportunités d'activité du cacao ») est un projet de trois ans financés par le programme Food for Progress du Département de l'agriculture des États-Unis (USDA) et mis en œuvre par CNFA avec le sous-traitant SOCODEVI en Côte d'Ivoire. Le MOCA vise à accroître l'efficacité et le professionnalisme des acteurs de la chaîne de valeur du cacao et à améliorer le commerce du cacao afin d'accroître les revenus des agriculteurs. Le projet a débuté en octobre 2017 et devrait se terminer en septembre 2020. Il est mis en œuvre dans trois zones de micro-production situées dans la ceinture cacaoyère de la Côte d'Ivoire (Abengourou, Daloa et Soubré).

Le projet MOCA a deux grands objectifs stratégiques qui sont :

Objectif stratégique 1 : Augmenter la productivité et l'efficacité des acteurs de la chaîne de valeur du cacao en renforçant les capacités des coopératives / groupements de producteurs, des instituts de recherche, des fournisseurs d'intrants et des transformateurs de cacao.

Objectif stratégique 2 : Améliorer et développer le commerce du cacao et des produits à base de cacao en améliorant la qualité globale de la récolte, les techniques de transformation et de traitement après récolte, et en renforçant les liens de marché et l'organisation de groupes pour fournir des produits répondant aux demandes du marché.

Les activités du projet sont axées sur l'amélioration de la production de cacao (objectif stratégique 1) et la commercialisation du cacao fermenté et séché, ainsi que sur la production et la commercialisation de produits de cacao transformés à valeur ajoutée (objectif stratégique 2). Les bénéficiaires directs comprennent les producteurs de cacao, les coopératives de cacao, les transformateurs qui transforment le cacao en produits à valeur ajoutée et le CNRA, qui produit des matériels de plantation de cacao approuvés. Le projet s'intéresse aussi aux agrodealers et MPME

Le CNFA a confié au KIT le mandat de fournir une expertise technique pour la conception de la méthodologie de l'étude de base, le développement d'outils d'étude, le contrôle de la qualité pendant le travail sur le terrain, ainsi que pour l'analyse et le reporting. Cependant pour une question de logistique le volet MPME du baseline n'a pas pu être réalisé par KIT.

Ainsi cette étude de base des MPMEs vise à établir la situation de base des MPMEs locales des trois régions du projet MOCA.

METHODOLOGIE

ECHANTILLONNAGE

Ne disposant pas de base de sondage, la stratégie d'échantillonnage adoptée dans le cadre de cette étude est l'interview de MPMEs précédemment identifiés lors des différentes missions dans les zones d'intervention de MOCA avec un effectif total de N=55 qui correspond au nombre total des agrodealers/MPME identifiés dans les trois régions CNFA.

QUESTIONNAIRE ET STRATEGIE DE COLLECTE DE DONNEES

Le questionnaire ayant servi de base d'enquête a été élaboré par le KIT et numérisé par MOCA. Ce questionnaire prend en compte l'ensemble des informations sur

- la localisation des MPMEs ;
- les activités réalisées par les enquêtés ;
- les informations sur la vente des produits ;
- les différents services offerts par les MPMEs ;
- le niveau d'employabilité des MPMEs ;
- les dépenses, revenus et bénéfices des MPMEs ;
- la clientèle des MPMEs ;

Par sa simplicité, sa gratuité et sa robustesse, la plateforme KoboToolBox a été choisie pour numériser et permettre la collecte efficace des données. Les interviews ont été réalisés à l'aide des tablettes par les M&E régionaux de CNFA.

ANALYSE DES DONNEES

Après la collecte des données sur la plateforme des premières analyses sur les effectifs étaient systématiquement disponibles. Par la suite nous avons pu procéder à l'analyse plus précise des données à l'aide des logiciels Excel et Stata.

RESULTAT DE L'ETUDE

LES MPMES

Les interviews ont été réalisés au sein des MPMEs locales (fournisseurs d'intrants et transformateurs). Ainsi, nous avons pu réaliser dans l'ensemble 45 MPME sur les 55 soit un taux de réalisation de 81.8%. Les M&E ont été chargés d'administrer l'enquête à tous les MPMEs locales (fournisseurs d'intrants et transformateurs) identifiées dans leur région (Voir graphique 1).

Caractéristiques des MPMEs

La majorité des MPMEs est détenue par les hommes (86.7%) et en minorité par les femmes (13.3%) avec une certaine variation en fonction de la région. En effet, 27.3% des MPMEs interviewés à Abengourou sont détenues ou gérées par les femmes avec 14.3% à Soubré et 5.0% à Daloa. Il faut signifier que cette zone de Abengourou est la zone dans laquelle les femmes sont beaucoup plus impliquées dans les activités agricoles du fait d'une culture moins rigide.

Aussi, la majorité des MPMEs locales ont moins de dix (10) années d'existence dans la communauté (55.6%) dont 33.3 % ont même moins de cinq (05) années de prestation dans la communauté. Force est de savoir que dans les régions d'Abengourou et de Daloa les MPMEs interviewés sont en grande partie ancienne (plus de 10 années d'existence), avec respectivement (72.7%) et (50.0%). En revanche, elles sont relativement récentes à Soubré (85%) ont moins de 10 ans et la moitié des MPMEs à Soubré ont moins de cinq (05 ans).

La moitié des MPMEs détenues par les femmes (50.0%) ont plus de 10 années d'existence contre (43.6%) chez celles détenues par les hommes. Cela pourrait sous-entendre que cela fait longtemps que les femmes se sont intéressées au domaine.

Tableau 1: Répartition des MPMEs interviewés par sexe selon la zone MOCA.

GENRE	ABENGOUROU	DALOA	SOUBRE	ENSEMBLE
Homme	3	1	2	6
	(27.27%)	(5.00%)	(14.30%)	(13.33%)
Femme	8	19	12	39
	(72.73%)	(95.00%)	(85.70%)	(86.67%)
Ensemble	11	20	14	45
	(100.00%)	(100.00%)	(100.00%)	(100.00%)

Source : Etude agrodealeur Janvier 2019, CNFA

Les activités des MPMEs sont pour la plupart des activités de vente de produits et services et de matériels agricoles. Ces activités peuvent être regroupées en 11 catégories (Voir Tableau 2).

Tableau 2: Répartition des MPMEs interviewés par type d'activités menées.

Catégories	Effectifs	%
Vente d'intrants et produits phyto	42	93,33%
Application d'intrants et produits phyto	10	22,22%
Vente de pépinières	12	26,67%
Conseils agricoles	18	40,00%
Démarrage de plantation	8	17,78%
Entretien de plantation	11	24,44%
Réhabilitation de plantation	12	26,67%
Vente d'équipement agricole	26	57,78%
Location d'équipement agricole	10	22,22%
Services financiers	1	2,22%
Business development services	1	2,22%
Autre	2	4,44%

Source : Etude agrodealeur Janvier 2019, CNFA.

Il ressort que dans toutes les trois régions l'activité prédominante des différentes MPMEs à 93.3% est la vente d'intrants et de produits phytosanitaires. Cette activité est la plus menée par les MPMEs suivit de la vente d'équipement et des activités d'appuis conseil.

Très peu de MPME pratiquent l'application d'intrants et produits phyto dans les zones de Daloa et Abengourou, avec respectivement 5.0% et 18.2%. Cependant, dans la zone de Soubré la moitié des MPMEs font l'application d'intrants et produits phytosanitaires.

La vente de pépinière n'est pratiquée par aucune des MPMEs identifiées dans la zone d'Abengourou. Cette activité est pratiquée par seulement 5.0% des MPMEs de Daloa. En revanche à Soubré 78.7% des MPMEs enquêtés s'adonnent à la vente de pépinières. Dans l'ensemble 26.7% des MPMEs pratiquent cette activité.

Le conseil agricole est pratiqué par 36.4% et 20.0% par les MPMEs d'Abengourou et Daloa contre 71.4% à Soubré. Retenons que dans l'ensemble 40% des MPMEs pratique cette activité.

Les activités de démarrage et entretien de plantations sont quasi inexistantes à Abengourou, faiblement pratiquées par les MPMEs de Daloa (5.0%), toutefois relativement pratiquées par les

MPMEs de Soubré avec respectivement 43% et 64.2%. Dans l'ensemble c'est respectivement 17.8% et 24.2% des MPMEs qui pratiquent les activités démarrage et entretien de plantations. Seulement 9.2% et 5.0% des MPMEs locales qui font de la réhabilitation de parcelles une activité, cependant à Soubré ce taux est de 71.4%. Dans l'ensemble c'est 26.8% des MPMEs qui font cette activité.

Dans l'ensemble plus de la moitié des MPMEs vendent des équipements agricoles (57.7%). Cependant ce taux varie d'une région à une autre : 36% à Abengourou, 35.7% à Soubré et 95.0% à Daloa. Quant à la location d'équipement agricole, elle est inexistante à Abengourou et relativement faible dans les deux régions avec 30% et 28.5% respectivement à Daloa et Soubré. En somme c'est seulement 22.2% des MPMEs qui pratiquent cette activité.

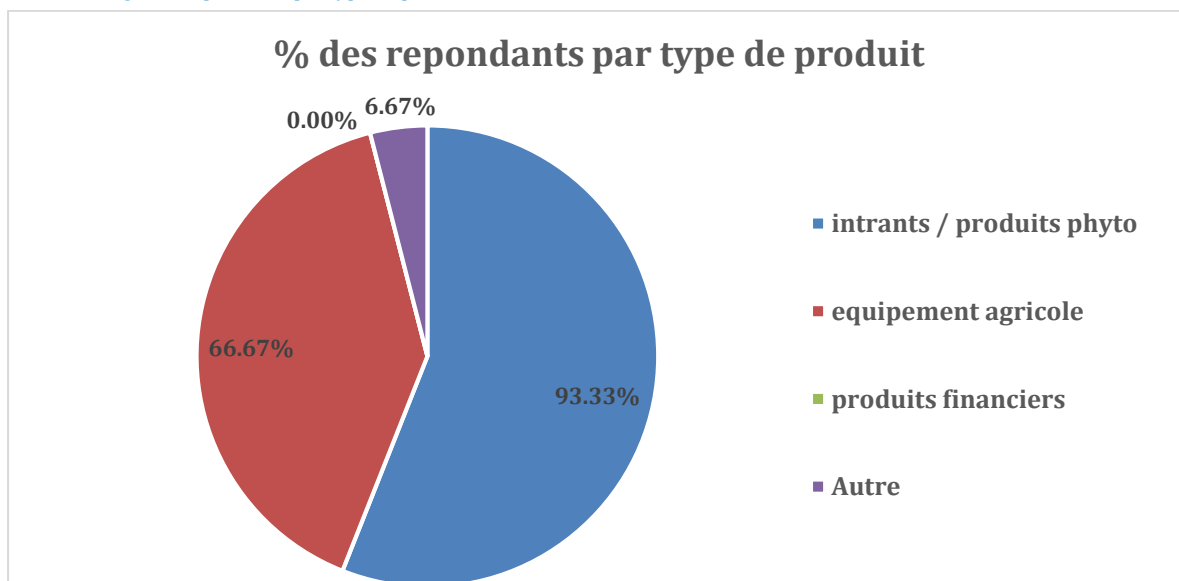
Les MPMEs qui pratiquent des activités de services financiers et du business development services sont faiblement représentées (4.4%). Cette activité est inexistante à Abengourou, elle est de 5.0% et 7.1% à Daloa et Soubré.

Le projet MOCA pourrait permettre, par l'entremise des Grants, l'intensification des autres catégories d'offre des MPMEs (les services de réhabilitation de plantation, application d'intrants et produit phytosanitaire, ...) dans les régions concernées et améliorer les services déjà prédominants mais pas forcément bien appliqués...

De tous les types d'activités cités plus haut, la vente de produit d'intrant et de phytosanitaire est de façon générale l'activité principale de la majorité des MPMEs qui la pratiquent. En effet, 71.1% des MPMEs qui ont cette activité dans leur package la classifient comme activité principale menées.

Les type de produits agricoles vendus sont les herbicides, insecticides, fongicides, de l'engrais et le matériel d'équipement agricole.

Figure 36: Pourcentage des répondants par type de produits vendus.



Source : Etude agrodealeur Janvier 2019, CNFA.

Le nombre moyen de produits différents vendus par MPME varie d'une région à une autre. Dans l'ensemble, le nombre moyen de type de produits vendus par MPME est de deux (2) avec un maximum de 6 produits et un minimum de 1 produits.

A Abengourou et Daloa cette moyenne est de 2 avec un maximum de 5 et 3 respectivement. Tandis qu'à Soubré elle est de 2.6 avec un maximum de 6.

Une analyse selon le sexe fait sortir qu'il n'existe pas de différence significative du nombre moyen de type de produits vendus selon que la MPME soit détenue par un homme ou par une femme. Dans l'ensemble la vente totale de produits pour chaque MPME en 2017 est de 21 millions de FCFA avec un maximal de 205 millions.

Une analyse selon la région montre que cette vente totale moyenne est relativement plus élevée dans les régions de Daloa (21.9 millions FCFA) avec un maximal de (110 millions FCFA), Soubré (26.5 millions FCFA) avec un maximal de (205 millions FCFA) que dans la région d'Abengourou (10.9 millions FCFA) avec un maximal de (35 millions FCFA).

Une analyse selon le genre met en exergue une forte disparité chez les hommes et les femmes avec seulement (3 088 500 FCFA) contre (23.1 millions FCFA) chez les hommes.

Au cours de l'exercice 2017, dans l'ensemble c'est la vente d'intrants et de produits phyto qui a généré plus de revenu chez (90.9% des MPME). A Abengourou, cela a été le cas pour l'ensemble des toutes les MPMEs (100%), Daloa (85.0%) et Soubré (92.3%). Une analyse selon le sexe

montre que dans toutes les MPMEs détenues par des femmes, c'est la vente d'intrants et de produits phyto qui a générée le plus de revenu (100%) contre (89.5%) chez les hommes.

SERVICES VENDUS PAR LES MPMEs

Dans l'ensemble (82.2%) des MPMEs interviewés fournissent plusieurs services aux producteurs. Ces services sont regroupés en 08 catégories (voir Tableau 3).

Tableau 3: Répartition des MPMEs interviewés par type de service vendus.

Catégories	Effectifs	%
Développement des capacités	7	18,92%
Services financiers	6	16,22%
Distribution d'intrants	12	32,43%
Services de conseil	25	67,57%
Services de transport	4	10,81%
Services d'emploi	0	0,00%
Services de démarrage, entretien, ou réhabilitation de plantation	10	27,03%
Service de stockage	3	8,11%
Autre	2	5,41%

Source : Etude agrodealeur Janvier 2019, CNFA.

Dans l'ensemble les MPMEs qui fournissent des services aux clients (40%) fournissent 2 types de services et 14.8 % fournissent plus de 2 types de services.

Dans l'ensemble le revenu moyen des services fournis aux clients au cours de l'année 2017 s'élève à 8.4 millions FCFA, avec un maximal de 70 millions FCFA. En revanche il ressort que pour plus du tiers des MPMEs (34.6%) les services fournis aux clients sont gratuits. De nombreux MPMEs n'ont aucun revenu provenant des services fournis aux clients. En effet, les services sont pour la plupart des services de marketing (appui conseil) ou services après-vente (application de produit phytosanitaires) liées à la vente de produits agricoles (engrais et phytosanitaire).

Le projet MOCA pourrait aider les MPMEs à formaliser leurs activités de vente de produits et services. Aussi, MOCA pourrait aider ces MPMEs dans la maîtrise de l'effort marketing

Dans l'ensemble plus de la moitié (53.3%) des MPMEs ont des employés permanents/temporaires. Cette tendance varie d'une zone à une autre selon les MPMEs interviewés. En effet, elle est de (27.3%) à Abengourou, (40%) à Daloa puis (92.9%) à Soubré.

En moyenne au cours de l'année 2017 les entreprises interrogées ont employé 3 personnes à temps pleins, toutefois il y a de fortes dispersions par région. A Abengourou les MPMEs n'ont employé qu'en moyenne 1 personne chacune, contre 2 à Daloa et 4 à Soubré.

En moyenne, au cours de l'année 2017, les MPMEs ont employé 11 personnes chacune de manière temporaire, toutefois il y a de fortes dispersions par région. A Abengourou les MPMEs ont employé temporairement environ 7 personnes chacune, contre 2 à Daloa et 17 à Soubré.

Dans l'ensemble il y'a 47 employés hommes dont 23 sont âgés de moins de 35 ans. Il n'y a pas d'employé homme dans la zone d'Abengourou. Dans l'ensemble il y' a 19 employés femmes dont 15 sont âgés de moins de 35 ans.

En 2017 plus de la moitié (54.5%) des MPMEs ont eu des employés intérimaires/journaliers et un effectif total de 302 dont 22 à Abengourou, 20 à Daloa et 260 à Soubré. En général ils sont recrutés pour charger et décharger les produits du véhicule de livraison, pour la mise en place et l'offre de service saisonniers (pépinières, mise en place d'une plantation, ...).

L'intensification des activités à travers le projet MOCA permettrait une augmentation des employés de façon générale et donc l'augmentation de l'employabilité communautaire.

Dans l'ensemble les MPMEs ont dépensé en moyenne 20.2 millions chacune au cours de l'année 2017 et plus de la moitié des MPMEs ont dépensé au moins 8 millions au cours de l'exercice écoulé. C'est seulement 6.6% soit trois MPMEs qui ont eu des dépenses annuelles supérieures ou égales à 100 millions dont deux sont à Abengourou et une à Soubré. Cette dépense est de 21.5 millions à Abengourou, 16.9 millions à Daloa et de 23.9 millions à Soubré. Une analyse selon le sexe fait ressortir une disparité selon le genre, en effet cette dépense est de 1.7 million chez les femmes contre 23 millions chez les hommes.

Les dépenses les plus importantes sont l'achat de produits/matières premières (83.7%), les salaires des employés permanents/temporaires /journaliers (11.6%), les frais de location et de transport respectivement (2.3%). Toutefois il y a aussi des lignes de dépenses non négligeables qui sont entre autres, le loyer, les taxes et impôts, le carburant et l'électricité...

La différence selon le sexe est remarquable et en défaveur des femmes : 1.7 millions FCFA contre 23 millions FCFA chez les hommes.

REVENUS

Le revenu moyen annuels de l'ensemble des MPMEs de cette étude est de 16.4 millions FCFA. Il est de 11.9 millions avec un maximal de 35 millions à Abengourou, 14.8 millions avec un maximal

de 85 millions à Daloa et de 22.8 millions avec un maximal de 90 millions à Soubré. Le revenu annuel moyen est de 2.4 millions avec un maximal de 6 millions chez les femmes, en revanche il est de 18.5 millions avec un maximal de 90 millions chez les hommes. Ces revenus sont issus de la vente des intrants/ produits phyto (97.6%), le paiement pour service (30.9%), les intérêts sur crédits/prêts accordés (14.3%), les prêts (11.9%). Cependant les revenus les plus importants proviennent de la vente des intrants / produits phyto (83.7%), du paiement pour service (13.9%), formation conseil encadrement (2.3%).

BENEFICES

Il ressort de l'analyse que 93.2% des MPMEs ont eu des bénéfices pendant l'année 2017. Le bénéfice annuel moyen est de 5.1 millions FCFA pour l'ensemble des MPME. Cependant plus de la moitié des entreprises ont eu un bénéfice inférieur à 2 millions. Ce bénéfice est de 1.5 million FCFA à Abengourou, 3.1 millions FCFA à Daloa et 11 millions FCFA à Soubré. On remarque une forte différence selon le sexe du gérant/propriétaire de l'entreprise. Le bénéfice annuel moyen est de 829 milles FCFA chez les femmes contre 16 millions FCFA chez les hommes.

TYPES DE CLIENTS

Les planteurs de cacao représentent la grande partie des clients dans la majorité des MPMEs (93.2%), ensuite autres planteurs de cultures de rente (70.5%), autres planteurs de cultures vivrières (63.6%), ONG (18.2%), coopératives de producteurs de cacao (31.8%), coopérative d'autres producteurs (11.4%), gouvernement et agence de cacao (6.8%). En 2017 pour l'ensemble des MPMEs, les planteurs de cacao ont constitué le principal type de clients (77.3%), suivi des autres planteurs de cultures vivrières (9.1%), autres planteurs de cultures de rente (4.6%), les coopératives de producteurs (4.6%) et enfin le ONG (2.3%).

En moyenne chaque MPME a eu 236 clients au cours de l'année 2017, toutefois il ressort que la moitié des MPMEs ont eu moins de 103 clients au cours de l'année 2017. Cette moyenne est de 438 à Abengourou, 105 à Daloa et 303 à Soubré. Une analyse selon le sexe donne une moyenne annuelle de 167 chez les femmes contre 248 chez les hommes.

En moyenne au cours de l'année 2017 les femmes représentaient à peine 13.5% de la clientèle dans l'ensemble des MPMEs et plus de la moitié des MPMEs ont moins de 10% de clients femmes. Cette proportion est très faible dans les trois régions, elle est de 7.3% à Soubré, 11.8% à Abengourou et 22.4% à Daloa. La proportion des femmes clientes est indépendante du sexe du gestionnaire de l'entreprise. Les jeunes (moins de 35 ans) représentaient environ 25% des clients de l'ensemble des MPME. Cette proportion est 30.0% à Abengourou, 12.3% à Daloa et 36.5% à Soubré. Cette proportion est de 31.7% dans les entreprises de femmes et de 23% dans les entreprises détenues par les hommes.

RECOMMANDATIONS

- Aider les agro-dealers à tirer les dividendes ou profit des services fournis aux clients afin d'accroître leurs revenus ;
- Faciliter la mise en relation des agro-dealers notamment les femmes avec les structures financières afin d'obtenir des prêts et agrandir leurs entreprises ;
- Sensibiliser les agro-dealers à créer une association ou syndicat afin de renforcer les capacités des membres sur la gestion des revenus, à l'utilisation des intrants car beaucoup d'entre eux sont sans formation ;
- Former les responsables des MPMEs en comptabilités simplifiée afin de maîtriser leurs comptes ;
- Faciliter l'accès au financement des MPMEs ;



BASELINE STUDY MAXIMIZING OPPORTUNITIES IN COCOA ACTIVITY, CÔTE D'IVOIRE

Inception report – final

Date: 5-10-2018



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ACRONYMS

ANADER	Agence National d'Appui au Développement Rural
BDS	Business Development Services
CCC	Conseil du Café et Cacao
CNFA	Cultivating New Frontiers in Agriculture
CNRA	Centre National de Recherche Agriculture
CSSV	Cocoa Swollen Shoot Virus
FAS	Foreign Agricultural Service
FCIA	Fine Chocolate Industry Association
FCS	Farmer Service Center
FI	Finance Institution
GAP	Good Agricultural Practices
GDP	Gross Domestic Product
M&E	Monitoring and Evaluation
MOCA	Maximizing Opportunities for Cocoa Activity
NGO	Non-Governmental Organisation
PPP	Public-Private Partnership
PSM	Propensity Score Matching
R&D	Research and Development
SOCODEVI	Société de Coopération pour le Développement International
SOW	Statement of Work
SPU	Service Provision Unit
USDA	United States Department of Agriculture
WCF	World Cocoa Foundation

TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Background to the assignment	1
1.2 The cocoa sector in Côte d'Ivoire	1
2. THEORY OF CHANGE MOCA	3
2.1 Program logic	3
PROBLEM STATEMENT	3
LONG-TERM OUTCOMES	3
MEDIUM-TERM OUTCOMES	3
SHORT-TERM OUTCOMES	4
OUTPUTS: ACTIVITIES	4
OUTPUTS: PARTICIPATION	6
INPUTS	6
EXTERNAL FACTORS	8
2.2 Evaluation questions	8
2.3 Results framework	9
3. BASELINE METHODOLOGY	12
3.1 Sampling strategy	12
SAMPLING STRATEGY FOR THE FARMER SURVEY	12
SAMPLING STRATEGY FOR THE FGDS AND KIIS	17
3.2 Data collection tools	17
FARMER QUESTIONNAIRE	17
QUESTIONNAIRE TOOL	20
FOCUS GROUP DISCUSSIONS (FGDS)	21
KEY INFORMANT INTERVIEWS (KIIS)	21
3.3 Data treatment and analysis plan	21
SAMPLING WEIGHTS	21
DATA CLEANING AND QUALITY CHECKS	22
INDICATOR TABULATION	22
PSM PROCEDURE	22
DATA ANALYSIS	22
QUALITATIVE DATA FGDS	22
4. WORKPLAN	24
4.1 Schedule of baseline study	24
4.2 Fieldwork protocol	26
REFERENCES	29
ANNEX 1. EVALUATION MATRIX	31
ANNEX 2. FARMER QUESTIONNAIRE	32
ANNEX 3. FOCUS GROUP DISCUSSIONS GUIDELINES	45
ANNEX 4. INTERVIEW GUIDELINES	49

INTRODUCTION

BACKGROUND TO THE ASSIGNMENT

The 'Maximizing Opportunities in Cocoa Activity' (MOCA) project is a three-year project funded by the United States Department of Agriculture (USDA) Food for Progress program and implemented by CNFA with subcontractor SOCODEVI in Côte d'Ivoire. MOCA focuses on increasing the efficiency and professionalism of actors in the cocoa value chain and improving the cocoa trade in order to boost farmers' income. The project started in October 2017 and is scheduled to end in September 2020. The project is implemented in three micro-production zones in the Côte d'Ivoire's cocoa belt (Abengourou, Daloa and Soubre).

The MOCA project has the following objectives:

Strategic Objective 1: To increase productivity and efficiency of actors in the cocoa value chain through strengthening the capacities of cooperatives/producer groups, research institutions, input suppliers and processors of cocoa.

Strategic Objective 2: Improve and expand the trade of cocoa and cocoa products through improving the overall quality of the crop, the processing and post-harvest handling techniques, and strengthening market linkages and organization of groups to supply product to fulfil market demands.

Project activities are focused around improvements to cocoa production (Strategic Objective 1) and marketing of fermented and dried cocoa as well as production and marketing of transformed, value-added cocoa products (Strategic Objective 2). Direct beneficiaries include cocoa producers, cocoa cooperatives, processors that transform cocoa into value-added products, and CNRA, which produces approved cocoa planting materials. The target number of beneficiaries over the life of project is 5,709; this overall target includes a target of 5,625 beneficiary cocoa farmers. The target number cooperatives and farmer organizations directly assisted over the life of the project is 26.

CNFA has contracted KIT to provide technical expertise for the design of the baseline study methodology, development of study tools, quality control during field work, and analysis and reporting. The baseline study aims at 1) establishing quantitative values for the MOCA performance indicators before the start of project activities, and 2) establishing baseline values for all measures (both quantitative and qualitative) needed to assess project outcomes through the mid-term performance evaluation and the final evaluation of impact. The study will establish the baseline situation of three target beneficiary populations: cocoa producers; micro and small enterprises; and producer groups/cooperatives. The baseline study will provide the information needed for conducting the midterm and final evaluations.

THE COCOA SECTOR IN CÔTE D'IVOIRE

Côte d'Ivoire is the market leader in cocoa and was responsible for 39% of world's production (1.518 million tons) in the cocoa season 2015-2016. Cocoa is an important crop for the country's foreign exchange earnings, although the share of cocoa over total exports earnings has been decreasing recently due to growing exports of oil and to declines in cocoa prices and poor cocoa production. Since the 2012 reform of the sector, the government, through the Conseil du Café-Cacao (CCC) which was created in 2011 to be the sole independent cocoa market regulator,²³ fixes

²³ Besides price regulation and price stabilization, the Ivorian government is involved in finance of the crop, future trade, quality control, international trade, and coordinating domestic trade through handing out licenses for buying. The government, in collaboration with public and private partners, is also involved in extension services, certification, input distribution, and sustainability projects and programs. Other institutions that play a role in (some) of these activities are private sector companies, farmer organizations and NGOs.

the farm-gate price at 60% of the 'reference export price', which translated for the 2015/16 season into 1,000 FCFA/kg of dried beans. The fixed farm-gate price should guarantee a minimum revenue to farmers and avoid price volatility within each harvest season. However, the recent price drop in cocoa prices made the Ivorian government decide to lower the farm-gate price by 36% (effectively meaning a price drop from FCFA 1,100/kg to FCFA700/kg).

Cocoa is also the main income source for between 650,000 and 800,000 cocoa farmers throughout the country, the majority being smallholders. The average size of land under cocoa in Côte d'Ivoire is 3.48 ha. Next to price, yield is often projected as the most important factor by which farmer income can be increased (Asamoah et al. 2013). Yields in Côte d'Ivoire are known to be low; the average yield is currently estimated at 362kg/ha (Bymolt et al. forthcoming). For Côte d'Ivoire, projections of yield averages generally vary between 300 and 500 kg/ha. In 2015, it was estimated that 41% of cocoa farmers were 'low yield' farmers, with averages < 250 kg/ha, and 44% belonging to the 'medium yield farmers', with averages of 250-600 kg/ha. The remaining part were so-called high-yield farmers producing on average between 600-2,500 kg/ha.²⁴

Studies²⁵ indicate that low yields are the result of a number of factors, such as pests and diseases, poor extension services and (late) input delivery, low soil fertility, low producer prices, low adoption rates of GAP, inefficient use and allocation of resources, relatively old trees, absence of row planting, inadequate supply/high cost of improved planting material, poor harvest practices, etc. Implementation of GAP is often associated with a higher production cost per kg due to the need to spend more time on the farm. When the cost of labor and inputs are high, the adoption rates of GAP tend to be low. Low GAP adoption rates can also result from no secure land ownership, constraints in the supply of inputs (e.g. not providing inputs at the right time or at an affordable price), a lack of knowledge, financial means or labor. It is also argued that farmers sometimes lack the appropriate tools, for example for pruning.²⁶ The lack of tools compels farmers to hire labor to climb the trees to remove mistletoe, for example, at a high cost.

There are a number of ways to increase yield, and it is argued that these measures work best in combination. Key ways are applying GAP, use of appropriate inputs, (partial) replanting with selected planting material and rehabilitation (Maytak, 2014). Some authors stress the need for financial assistance to enable farmers to adopt these practices (Asamoah et al., 2013). The application of these practices, and the extent to which this will result in an increase in income, depends very much on the producer price. Other factors that influence yields and return on investments are the age of the trees, the farm location, irregular rainfall and pests and diseases (Barrientos & Akyere 2012). A recent study by Balineau *et al.* (2017) argues that key variables for yields are fertilizer use and the age of the trees. The economic lifetime of a cocoa tree is between 30 and 40 years, and old age of trees is seen as one of the main causes of low yields (Wessel & Quint-Wessel, 2015). Farmers also use fewer inputs on 'older plantations' as the return on their investment is less (Tano, 2012).

The recent study conducted by KIT (Bymolt et al., 2018) shows that, in Côte d'Ivoire, yields were found to be around 10% lower than Ghana, averaging 362 kg/ha, with a median of 320 kg/ha. In terms of distribution, Ivorian farmers also typically yielded between 100 and 1,000 kg/ha, with

²⁴ ICI, 2015

²⁵ See, among others, Aneani et al., 2011; Asante-Poku & Angelucci, 2013; Baah & Anchirah, 2010; Balineau *et al.*, 2017; Barrientos & Akyere, 2012; Oomes *et al.*, 2016.

²⁶ Pruning is seen as an important operation and can affect yield for months, even years, as well as affecting the shape and structure of the tree for the rest of its life. Insects and diseases multiply more on unpruned cocoa trees with dense canopies than on trees that have been opened up by pruning and display well-aired canopies. Pruning can also stimulate flowering and pod production. ICCO (2009)

the majority grouping between 100 and 500 kg/ha. The difference with Ghana is that, in Côte d'Ivoire, there is a higher proportion of farmers with a very low yield of 0-100 kg/ha (9% of farmers), and a significantly lower proportion of farmers with more than 500 kg/ha. In contrast to what earlier studies suggest, the difference between male (363 kg/ha) and female respondents (352 kg/ha) was found to be small and not significant.

THEORY OF CHANGE MOCA

PROGRAM LOGIC

The program logic as summarized in this section is derived from the MOCA work plan 2018-2020 (CNFA, 2018).

PROBLEM STATEMENT

The cocoa sector in Côte d'Ivoire is the number-one export and foreign-exchange earner, valued at US\$4 billion in 2017. The majority of cocoa producers are smallholder farmers; the cocoa sector is thus also important for the social and economic wellbeing of rural communities. However, cocoa incomes are estimated to amount to only 37% of the living income in rural Côte d'Ivoire (CNFA, 2018). The cocoa sector still faces many challenges that hamper its competitiveness, including: poor agricultural practices and post-harvest handling, pests and diseases, aging cocoa producers, aging cocoa plantations, low soil fertility, lack of coordination of initiatives, low level of organization among producers, limited local value addition, and precarious living conditions in cocoa producing communities (CCC, 2014). The CCC has set out a long-term sector-wide strategy, the 2QC²⁷ program (2014-2023), to improve the productivity, quality and sustainability of the cocoa sector. The CCC strategy objectives for the cocoa sector are: i) improve productivity; ii) improve the quality of cocoa; iii) improve the commercialization; iv) increase local transformation; v) improve the producers and their communities' livelihoods; and vi) improve the professionalism of cocoa producers and producer organizations.

LONG-TERM OUTCOMES

The MOCA intervention is aligned with the ambitions of the 2QC program of CCC as well as the Cocoa Action Program of the World Cocoa Foundation (WCF)²⁸. The MOCA project aims to improve the competitiveness of the cocoa sector in Côte d'Ivoire as part of the Food for Progress goal of the USDA²⁹. MOCA will contribute to the two strategic objectives of the Food for Progress program as follows:

1. **Increased agricultural productivity:** MOCA aims to increase the productivity and efficiency in the cocoa value chain by strengthening the capacities of the main value chain actors (cooperatives/producer groups, research institutions, input suppliers and processors of cocoa).
2. **Expanded trade of agricultural products:** The MOCA project aims to expand the trade of cocoa and cocoa products through improving the overall quality of the crop, the processing and post-harvest handling techniques, and strengthening market linkages and organization of groups.

MEDIUM-TERM OUTCOMES

MOCA seeks to provide added value to the 2QC strategy of CCC and the Cocoa Action Plan of WCF existing strategies by implementing a market-based intervention that uses a 'market-pull' strategy instead of a technology-push approach. It is within the context of this market-pull strategy that MOCA will focus on the following medium-term goals to contribute to the sustainability of the cocoa sector in Côte d'Ivoire:

²⁷ Quantité- Qualité-Croissance; http://www.conseilcafecacao.ci/docs/PROGRAMME_2QC_2014-2023.pdf

²⁸ For more information see: <https://www.worldcocoaoundation.org/about-wcf/cocoaaction/>

²⁹ For more information see: <https://www.fas.usda.gov/programs/food-progress>

- *Cocoa quality (fine-flavor beans)*: the quality of the cocoa beans will be improved to a standard that is acceptable to the international fine-flavor cocoa market. Côte d'Ivoire is the biggest producer of 'ordinary' cocoa beans but does not supply the fine-flavor beans that obtain a premium price.
- *Certified organic cocoa*: cocoa cooperatives will obtain organic certification status. Many cocoa producers grow organic cocoa by default as they cannot access agro-chemical inputs, but certification of organic cocoa production requires considerable investments.
- *Professionalization and diversification* of cocoa producers to achieve higher incomes from cocoa and other income activities.
- *Women entrepreneurship and leadership*: women within the cocoa sector will be empowered to benefit more from the cocoa revenues and strengthen their influence in their communities, cooperatives and cocoa businesses. MOCA will not address intra-household gender dynamics.
- *Local transformation*: increased engagement of Ivoirian entrepreneurs in cocoa value addition through local and national cocoa transformation industries.
- *Access to finance*: cooperatives become eligible for credit lending due to strengthened capacities in finance and business management.
- *Access to markets*: cooperatives will export cocoa directly to alternative international niche markets (e.g. fine-flavor, certified organic).
- *Cooperative management capacities*: cooperative operations will become more efficient and compliant with cooperative principles.

SHORT-TERM OUTCOMES

The expected short-term outcomes are the strengthened capacities and skills of the direct beneficiaries of the MOCA program, as a result of capacity building and training, in-kind grants for inputs and equipment, and access to loans.

MOCA distinguishes four groups of direct beneficiaries:

1. Government research and regulatory bodies working in the cocoa value chain; in particular CCC, ANADER and CNRA
2. Cooperative / producer groups
3. Agro-dealers and input suppliers
4. Financial service providers and Mobile Network Operators (MNOs)

The end-beneficiaries are the cocoa producers who are expected to benefit from capacity building activities directly as well as from the improved effectiveness of the other value chain actors.

A different kind of short-term outcomes are the strengthened partnerships, improved synergies between interventions and leverage of funds.

OUTPUTS: ACTIVITIES

The main instruments of MOCA are capacity building (across the value chain), in-kind grants, coaching, access to finance, and the facilitation of public-private partnerships within the cocoa sector.

MOCA covers eight activity areas:

1. Capacity building: producer groups / cooperatives

- MOCA will select cocoa cooperatives and producer groups based on their partnerships with exporters, chocolate makers and/or finance institutions identified to date and/or depending on cooperatives' ambitions and vision. MOCA will focus on cocoa cooperatives near the regional offices for project efficiency reasons.
 - MOCA will develop a tailor-made organizational capacity strengthening plan to improve the efficiency of cooperatives in its governance, service provision and economic activities.
2. Capacity building: government institutions
 - MOCA will strengthen the capacity of ANADER to provide advisory services in three thematic areas: weather resilience, farm business plans and sustainable cocoa production.
 - MOCA provides financial support to CNRA for research on soil fertility, swollen shoot virus, weather resilience and increasing farmer income through better agricultural practices and diversification
 3. Capacity building: provide business development services
 - MOCA will support Business Development Service (BDS) providers and promote local value addition and women entrepreneurship & leadership.
 4. Financial services: facilitate agricultural lending
 - MOCA will partner with several financial institutions (e.g. OikoCredit, Advans) to improve farmers' access to financial services through training of FI staff and cooperatives' management.
 - New loan products and financial services will be developed that are better suited to cocoa cooperatives.
 5. In-kind grants: equipment and inputs
 - MOCA will manage a competitive fund for in-kind matching grants for inputs and equipment to improve the productivity of cooperatives, producers, input supply professionals and processors.
 - Three grant windows will be opened, and grants will be awarded based on a competitive application process.
 6. Inputs: develop agro-dealers and/or other input suppliers
 - MOCA will review and update the Farmer-to-Farmer Programmatic Pesticide Evaluation Report and Safer Use Action Plan (USAID) for West Africa.
 - MOCA – in collaboration with Callivoire – will establish five Farm Service Centers (FCS) to facilitate access to input services, agro-chemical inputs, and technical advice on cocoa.
 - An additional five Service Provision Units (SPUs) will be established to employ youth for improved input service provision (spraying, fertilization, harvesting, fermentation), in partnership with OLAM, GIZ and Jacobs Foundation.
 7. Training of improved agricultural production techniques
 - MOCA, in collaboration with other actors from the cocoa sector (e.g. ECOM, Touton, ECOOKIM, OCEAN SA), will support cocoa farmers to develop Farm Business Plans for their cocoa plantations.

- In addition, farmers will be coached by the cooperatives on their farm management.
8. Market access: facilitate buyer-seller relationships
- MOCA signed a MoU with FCIA to facilitate access to the fine-flavor cocoa markets. Selected cooperatives will be supported in quality improvement. MOCA will also pilot the production of certified organic cocoa.
 - MOCA will supported selected cooperatives in improving their cocoa bean quality to facilitate direct exports.

The MOCA activities are implemented within the cocoa belt, in particular the areas around Abengourou (Mid-East), Daloa/Duekoue (West and Mid-West) and/or Soubre/Nawa (South-West).

OUTPUTS: PARTICIPATION

The key partners of MOCA are:

- *Le Conseil du Café – Cacao* is the Ivorian government authority, established within the Ministry of Agriculture, that regulates the cocoa sector. The CCC sets bean quality standards and farm-gate prices and regulates input and service providers (improved seeds and seedlings, extension services) and forward selling contracts within the cocoa sector. MOCA will collaborate with CCC to support the implementation of the 2QC agenda and coordinate efforts of common interests.
- *Agence National d'Appui au Développement Rural* (ANADER) is the leading extension service in Côte d'Ivoire. MOCA will work with ANADER to build its capacity in extension and tailor its services to cocoa producers.
- *The Centre National du Recherche Agronomique* (CNRA) is the country's agronomical research center, which coordinates the country's agricultural research efforts. MOCA will provide short-term technical assistance, project support and research and development (R&D) grants for CNRA's research activities on cocoa production.
- *World Cocoa Foundation* (WCF) is an international membership organization that promotes sustainability in the cocoa sector. Its members include private sector actors such as manufacturers, processors and supply chain managers. MOCA will collaborate with the WCF on common areas of interest, e.g. innovative approaches for extension services.
- *(Micro) Finance Institutions* (FIs): MOCA will work with financing institution (e.g. OikoCredit) to increase access to credit (work capital or investment lending) for cocoa farmers and cooperatives. MOCA will support cooperatives and farmer organizations by building their financial and business management capacities. MOCA will introduce the concept of mobile money using mobile phones and smart cards, in collaboration with Digital Agri-Service.
- *Input and service providers*: many cocoa producers have limited access to inputs of services of good quality. MOCA will introduce the Farm Service Center concept, which will provide local services for spraying, planting, harvesting and post-harvest processing, together with input provider Callivoire, OLAM, GIZ and the Jacobs Foundation.
- *Cocoa industry actors*: MOCA has signed MoUs with Callivoire, ECOM, OLAM, Nestlé, ECOOKIM and Guittard and is in advanced discussions with Touton, Blommer, Tony's Chocolonely, Barry Callebaut and OCEAN SA, in order to help them achieve their sustainability agendas.

- *Fine Chocolate Industry Association (FCIA)* is an association of chocolatiers that is a key partner for MOCA to facilitate access to better flavor quality markets.
- *Cocoa Sector Development Organizations and Projects*: MOCA looks for opportunities to combine efforts and leverage funds from other development organizations, such as GIZ, the Jacobs Foundation, Solidaridad and SOCODEVI.

INPUTS

The MOCA project started in September 2017. The first year was used as a preparation phase to mobilize the Chief of Party to Cote d'Ivoire, the recruitment of key personnel and national staff, monetization process, establishing public-private partnerships, value chain assessments, etc. The second phase of implementation is scheduled to start in October 2018, for a period of two years (until September 2020). However, MOCA is considering requesting a no-cost extension until September 2021 to allow for a third year of implementation due to a delay in the monetization process.

MOCA is implemented by a project team consisting of CNFA and SOCODEVI staff, based in Abidjan. Regional offices are established in the three intervention areas. SOCODEVI staff will focus on the capacity building activities of cocoa cooperatives under the strategic objective 1. The MOCA team includes expertise on cocoa production, value chains and gender, as well as necessary project management skills (finance, M&E, communications, operations manager, etc.). MOCA is governed by a steering committee that advises on the management and direction of MOCA, and a technical committee that will support the implementation of MOCA.

The MOCA team has developed internal coordination procedures including regular monitoring of progress and an internal communication plan for coordination and reflection. The team will take an adaptive management approach, using annual project performance results to revise and update its strategies and activities if needed.

The three-year MOCA budget amounts to US\$10.5 million. Activity area 5 (in-kind grants) receives the largest allocation (US\$1 million) of the operational budget. The operational budgets for the other activity areas are smaller in size, but of similar magnitudes between them.

ASSUMPTIONS

Based on the MOCA workplan, the following underlying assumptions can be identified:

Activity area 1:

- Capacity strengthening of cooperatives and producer groups will improve the products and services delivered to their members.
- Capacity strengthening of cooperatives and producer groups will make them more reliable and bankable for FIs and buyers / exporters.

Activity area 2:

- Strengthening of technical capabilities of ANADER and CNRA will improve the extension and R&D services provided.
- The strengthened capabilities will be directed towards cocoa research and extension, staff turnover will be low (i.e. trained staff are working on cocoa and will remain in their positions).
- Technical capability is the main limiting factor in cocoa R&D and extension.

Activity area 3:

- Individual entrepreneurs (in particular youth and women) are interested in establishing themselves as BDS providers or other opportunities within the value chain (aggregation, transformation, transport, etc.), and are able to turn this into profitable businesses.
- Local MSMEs and producer groups will submit grant proposals of sufficient quality (i.e. feasible five-year business plans) and are capable of implementing these plans.
- Women entrepreneurship and leadership is accepted within the cocoa producer community. Women entrepreneurship and leadership will have a positive effect on productivity and trade.

Activity area 4:

- Cocoa cooperatives and producers will be interested and capable in taking out loans to improve their productivity.
- Default rates of loan repayments will remain low.
- FIs are willing to provide access to credit against reasonable terms and conditions.

Activity area 5:

- MSMEs and cooperatives / producer groups are capable of investing matching grants for the purchase of inputs and/or equipment.
- Grant applications are sufficient (in terms of quantity and quality) to award the expected number of grants in time.
- MSMEs and cooperatives / producer groups will put inputs and equipment into productive use and remain in business (i.e. cocoa trade).
- The purchased inputs and/or equipment have the appropriate specs that match the needs of the grantees; spare parts and repairing skills are locally available in case of breakdowns.
- Investments in inputs and/or equipment will result in increased productivity or trade, and subsequently increase in job creation.

Activity area 6:

- Cocoa producers are willing and (financially) capable to purchase services from the FCS and/or SPUs.

EXTERNAL FACTORS

Multiple external factors will influence the ultimate achievements of the MOCA project. The most obvious factors include:

- Weather resilience;
- Occurrence of (cocoa) pests and diseases;
- Fluctuation of (inter)national market prices;
- Actions of other players (NGOs, government, private sector, certification bodies);
- International demand for organic and fine-flavor cocoa from Côte d'Ivoire.

MOCA tries to manage some of these external factors either by improving the technical and economic resilience of the cocoa sector, or through partnerships with other actors.

EVALUATION QUESTIONS

In line with the OECD/DAC criteria, the following evaluation questions can be formulated for the mid-term and end evaluation:

1. Relevance

- To what extent has the project responded to the actual needs and interests of the target producers?
 - To what extent does the project integrate or strengthen the national cacao strategy of Cote d'Ivoire?
2. Effectiveness
- To what extent have the expected results of the project been achieved? What factors have been critical to the achievement or non-achievement of project objectives?
 - What were the unplanned outcomes that can be attributed to the project?
3. Efficiency
- To what extent have the various units / levels of management and coordination (grants, program staff, M&E) supported the implementation of the project?
4. Impact
- Did MOCA activities produce increases in cocoa farmer:
- Access to improved planting material? Access to spraying services. Access to loans?
 - Access to improved storage?
 - Productivity (kg/ha of cocoa produced)?
 - Diversification of crops?
 - Incomes?
5. Sustainability
- To what extent have local actors (cooperatives and farmers' organizations, government agencies, microfinance institutions) been involved in the management of the project? What is the probability that these actors will be able to provide succession?
 - Are project outcomes likely to be sustained and/or scaled-up after the project closes?
- MOCA specifically focuses on women empowerment and public-private partnerships. This provides an opportunity for two specific learning questions:
- 6. What is the effect of women empowerment and leadership on productivity / trade?
 - 7. What makes PPPs successful in enhancing productivity / trade?

RESULTS FRAMEWORK

The Results Framework of MOCA is based on USDA Foreign Agricultural Service (FAS) M&E framework, and identifies the expected short-term outcomes under the two strategic objectives:

Strategic objective 1: increased agricultural productivity:

- Results stream: increased use of improved agricultural techniques and technologies (FFPr 1.2)
 - o Increased availability of improved inputs (FFPr 1.2.1): training and establishment of spray-service professionals
 - o Improved infrastructure to support on-farm production (FFPr 1.2.2): post-harvest processing facilities at cooperatives
 - o Increased use of financial services (FFPr 1.2.3): increased use of mobile money, insurance and credit services among cocoa producers
 - o Increased knowledge by farmers of improved agricultural techniques and technologies (FFPr 1.2.4): regeneration of cocoa plantations, good agricultural practices (to improve productivity and quality), safe input application, business development, intercropping

- o Improved quality of land and water resources (FFPr 1.1)
- Results stream: Improved farm management (FFPr 1.3)
 - o Improved knowledge regarding farm management (FFPr 1.3.1): financial literacy and planning, business plan
- Foundational results:
 - o Increased capacity of government institutions (FFPr 1.4.1): CCC, CNRA, ANADER
 - o Improved capacity of key groups in the agricultural production sector (FFPr 1.4.4): cocoa cooperatives and producer groups
 - o Increased leverage of private sector³⁰ resources (FFPr 1.4.5)

Strategic objective 2: expanded trade of agricultural products:

- Results stream: increased value added to post-production agriculture products (FFPr 2.1)
 - o Improved quality of post-production agricultural products (FFPr 2.1.1)
 - o Increased efficiency of post-production processes (FFPr 2.1.2)
 - o Improved marketing of agricultural products (FFPr 2.1.3 & 2.2.1)
- Results stream: increased access to markets to sell agricultural products (FFPr 2.2)
 - o Improved marketing of agricultural products (FFPr 2.1.3 & 2.2.1)
 - o Improved linkages between buyers and sellers (FFPr 2.2.2)
- Results stream: improved transaction efficiency (FFPr 2.3)
 - o Improved management practices of buyers and sellers groups within the trade sector (FFPr 2.3.2)

Note that the strategies and activities of MOCA go above and beyond the indicators identified in the Results Framework. It is therefore recommended that additional (qualitative) indicators are formulated for the mid-term and final outcomes to complement the Results Framework. This will allow MOCA to monitor its full range of objectives and achievements, as well as demonstrate its additionality (i.e. added value in comparison to other interventions in the cocoa sector). It is recommended to monitor the intended and unintended effects of MOCA's efforts in women empowerment, public-private partnership building, facilitating direct access of cooperatives to niche markets, and capacity strengthening of supporting actors (e.g. ANADER, CCC, CRNA, FIs).

The additional outcomes have been added to the impact pathways of the results framework, as depicted in Figure 37 and Figure 38.

³⁰ In the case of MOCA, this will include public sector resources

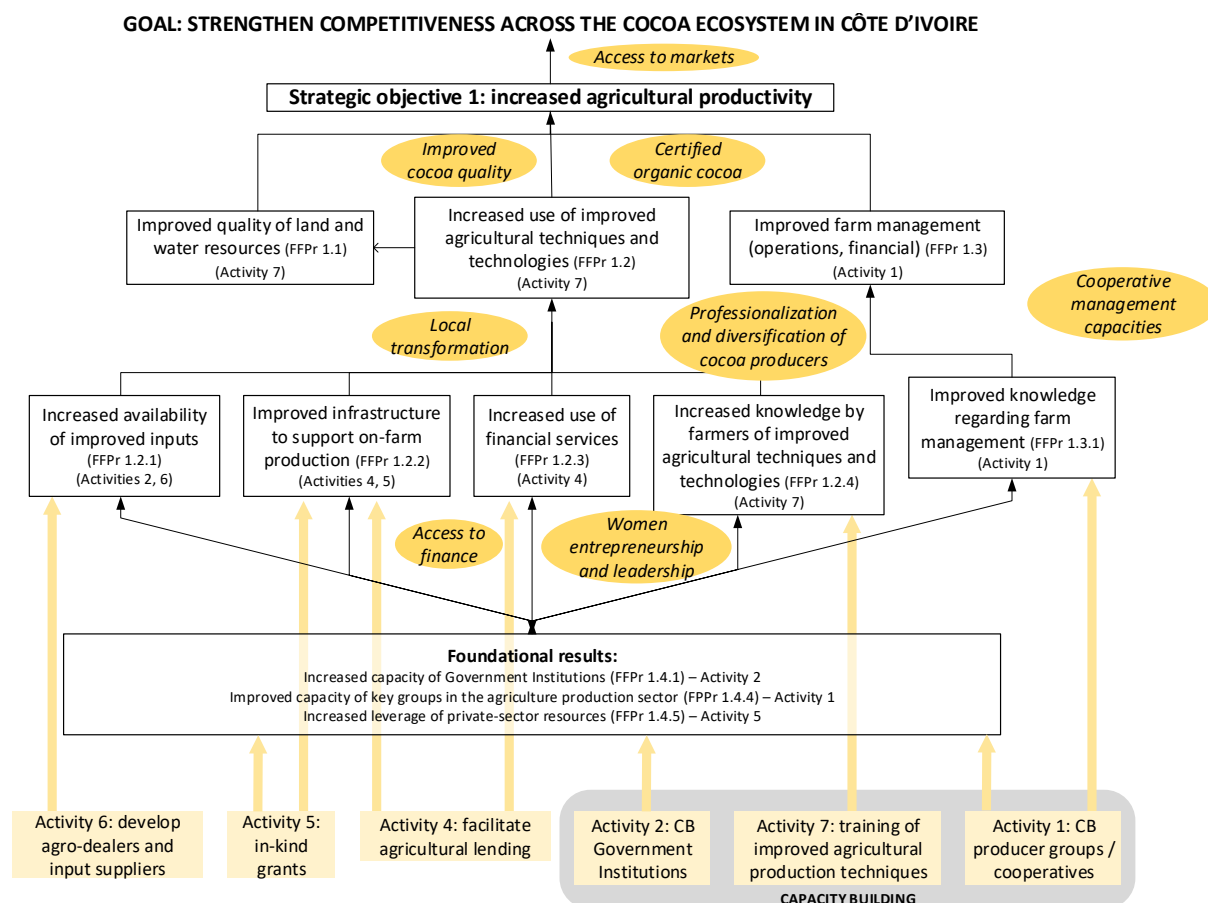


Figure 37. Impact pathways for strategic objective 1 Increased agricultural productivity

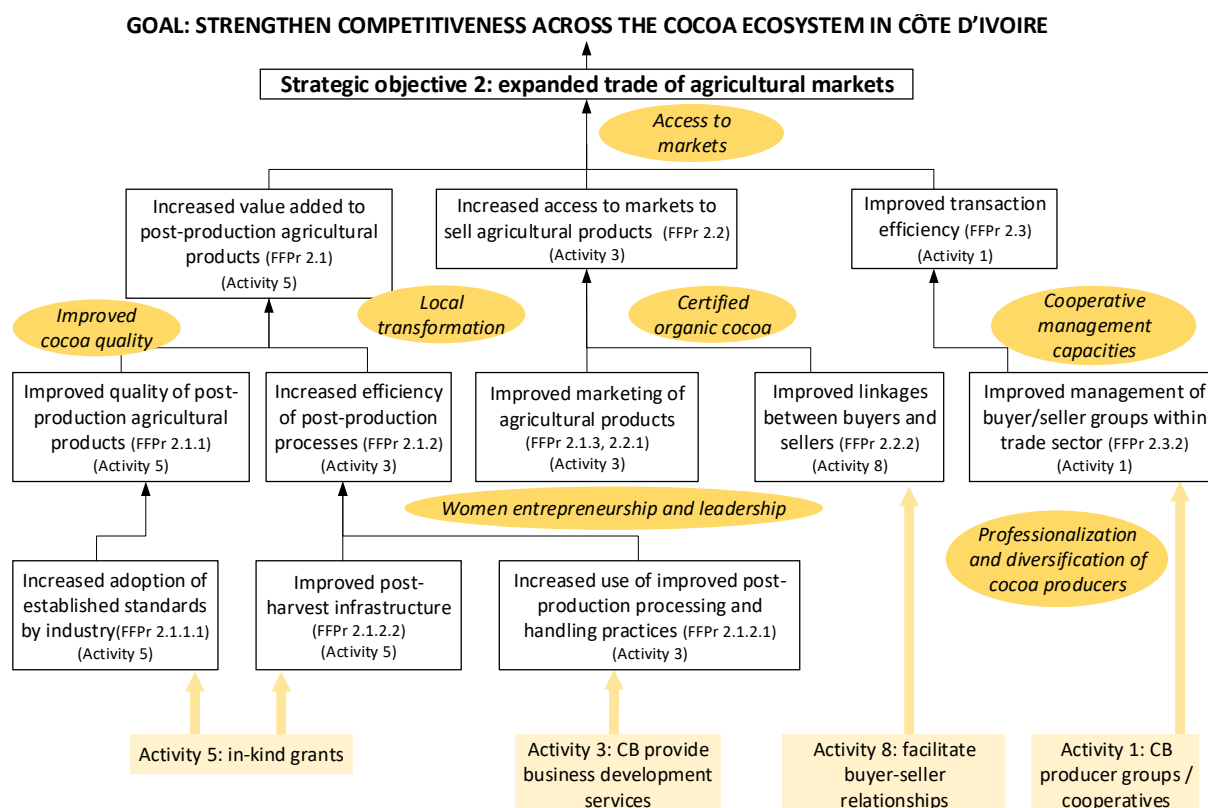


Figure 38. Impact pathways for strategic objective 2 Expanded trade of agricultural markets

BASELINE METHODOLOGY

SAMPLING STRATEGY FOR THE FARMER SURVEY

Sample size calculation

Defining an appropriate sampling approach for the baseline study is important to produce robust results and to be able to statistically identify the impact of the project. There are several options that will depend on:

- i) Sampling calculations to be made using existing information about beneficiary selection and about expected project effect size.
- ii) Budget availability for a certain survey sample size (see budget)
- iii) A survey sample that fits well with existing data and with the way in which the program will be practically rolled out over the years.

MOCA developed a matrix to quantify and measure performance. This matrix includes activities, the indicators, as well as the targets for year 2018, 2019 and 2020. Furthermore, an additional matrix was developed which lists the results, the indicators, the hypothesized baseline values for these indicators, as well as the final target values. However, the majority of these indicators are output indicators of activities (and are not fully operationalized yet), which are not the preferable indicators to use for the power calculations of the sample size. For most of these indicators, the baseline value is zero, which should increase through the intervention. The number of people who have benefitted directly as a result of USDA assistance is an example here. Nevertheless, since a productivity increase of the cocoa producing farmers which are a member of a treatment cooperative of MOCA is the primary strategic objective, we have used this indicator as the basis for the power calculations.

Yields in Côte d'Ivoire are known to be low. A recent study by KIT (Bymolt et al. 2018) reports for 2015/2016 average yields of 362 kg/ha for Côte d'Ivoire. For Côte d'Ivoire, studies show differences in yield between certified and non-certified farmers. For example, Ingram et al. (2014) show that certified farmers average yield was 467 kg/ha, while for uncertified farmers this was only 315 kg/ha.^[2] In a more recent study, we see also higher averages in yields reported by farmers that fall under CocoaAction; these farmers were targeted by cocoa and chocolate companies for support in improving productivity. In 2016/2017, CocoaAction farmers reported an average yield of 629 kg/ha in Côte d'Ivoire.^[3]

Hence, average annual yields are estimated at 362 kg per ha. We take this conservative average to make sure the sample size is large enough to measure any possible effects of the program. Productivity increases are however difficult to bring about. To still be able to measure any effects of this support program, we take a 20% increase in production as the hypothesized endline value (with a standard deviation of 200 kg per ha). Using a conservative endline value will allow us to measure small effects for certain indicators related to other outcome/impact variables, which can be expected in terms of changing the practice of cocoa farmers. Moreover, by using this small

^[2] Ingram, V., Waarts, Y., Ge, L., van Vugt, S., Wegner, L., Puister-Jansen, L., Ruf, F., Tanoh, R. (2014). Impact of UTZ certification of cocoa in Ivory Coast; Assessment framework and baseline. Wageningen, LEI Wageningen UR (University & Research centre), LEI Report 2014-010. Available at <http://edepot.wur.nl/307584>

^[3] DRAFT Sustainable Livelihoods Baseline Report July 2018, Cocoa Action.

percentage we make sure the sample is large enough to measure change in other performance indicators listed by MOCA.

An adequate sample size is calculated as the optimum number of respondents required to be able to arrive at ethically and scientifically valid results. Sample size calculations require a precise specification of the primary hypothesis to be tested (Wittes, 2002). For impact evaluations, this is usually the expected effect size of a key indicator. In the case of this baseline study, this is therefore the 20% increase in cocoa production of targeted producers, in kilograms per hectare per year.

The formula to calculate the sample size based on the effect size is:

$$n = \frac{2\sigma^2(Z_\beta + Z_{\alpha/2})^2}{(\mu_2 - \mu_1)^2}$$

Where: n = sample size

σ = standard deviation

β = power, set at 80% ($Z_\beta = 0.8416$)

α = level of significance, set at 0.05 ($Z_{\alpha/2} = 1.96$ for two-sided tests; $Z_\alpha = 1.65$ for one-sided tests)

$(\mu_2 - \mu_1)$ = difference in mean between treatment (μ_2) and control (μ_1), i.e. the effect size

With the power set at 0.8 ($1 - \beta$) and the type I error rate (α) at 5%, the total sample size required is $N=242$. However, uptake will probably not be 100%, yielding partial or incomplete compliance. This boosts the sample size required: if compliance would be 80%, the sample size would need to increase to $N=386$. If the compliance rate is increased to 90%, the required sample size would be 298, and with 95% to 264. Furthermore, the randomization is performed at cluster level, the cooperatives, which gives rise to intra-cluster correlation (ICC Based on the ICC used in similar studies, we assume an ICC of 0.05. With an average of 15 to 20 farmers per cluster, the design effect (DEFF) will be 1.95 according to the following formula:

$$DEFF = 1 + \delta(n - 1)$$

Where: δ = interclass correlation for the statistic

n = the average size of the cluster

It was found that the DEFF is on average 2 in similar studies in LMICs; when the ICC is unknown, the DEFF is set at 2, as MOCA did in the previous calculations. Assuming an attrition rate of 10% (conservative percentage here for the worst-case scenario, in case at the endline 10% of the producers cannot be found or are not willing/able to participate anymore), the required sample sizes increase to respectively 811 (partial compliance of 80%), 646 (partial compliance of 90%), and 572 (partial compliance of 95%).

There are however two other considerations to take into account. First, MOCA highlights that considerable heterogeneous effects between and within the cluster can be expected with respect to the treatment itself. Support to cooperatives will be tailor-made according to their needs, and

even members of the same cooperative may make use of different types of services (and at different levels of intensity). Second, although we aim to use a more rigorous econometric technique to analyze the endline data, the default option for the analysis is PSM, as MOCA highlighted in the SOW. As explained in our proposal, this requires a further inflation of the sample size, as not all observations in the control and treatment groups will be used, an additional 40%, again to assure we are able to measure all possible effects of the intervention through PSM or a more rigorous econometric technique. This results in a total sample size of respectively 1352 (compliance 80%), 1077 (compliance 90%), and 954 (compliance 95%). This sample has to be divided between the total number of eventual treatment and control clusters, as well as treatment and control producers.

Sample selection

Randomization is extremely important for ensuring that the baseline study is representative of beneficiary and non-beneficiary cocoa farmers in the project areas. We propose a two-stage stratified random sampling approach (Figure 39) in each of the three micro-production zones where the project will be implemented. This allows comparisons between the three zones and ensures that our sample is representative of beneficiary and non-beneficiary cocoa farmers in the project areas. First, cooperatives and/or farmer groups within each micro-production zone should be randomly selected using a randomizing program. With the cooperatives and/or farmer groups identified, the second stage is to randomly sample farmers from the cooperative membership lists. The Sampling Frame for the treatment and control groups will thus comprise of the membership of beneficiary and non-beneficiary cooperatives / farmer groups respectively.

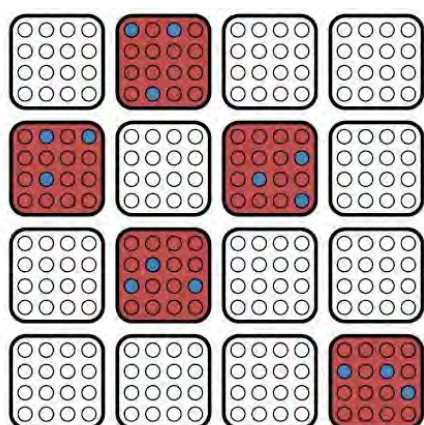


Figure 39. Two-stage random sampling

MOCA has selected a number of beneficiary cooperatives based on recommendations from government institutions, certification and sustainability organizations, and exporters. As such, MOCA selected some cooperatives who are targeting direct exports, that want to add additional value (flavor quality/organic – on recommendation of chocolate makers) and some women-led cooperatives, based on Government recommendations. The other cooperatives were selected based on recommendations of exporters of certified cocoa beans.

Ideally, the evaluation team would randomize on the cooperative level. However, as MOCA has already selected the cooperatives it aims to work with (or is in the process of doing so), the treatment cooperatives will not be selected randomly among a pool of possible cooperatives. This creates selection bias. To still be able to attribute effects to the MOCA intervention, a number of

options are available for the control group selection. The three most suitable options for MOCA are summarized in Table 310.

Table 310. Potential impact evaluation designs for MOCA

	Phase-in design	Difference-in-Differences and Fixed Effects	Controlling for selection bias based on observables
Description	Randomize eligible farmers into several groups, which over the course of time all receive treatment, but one group at the time. For example with 3 groups: first only group 1, with groups 2 & 3 as control groups; then group 2, with only group 3 as the remaining control group; and in the final evaluation period all three groups as treatment groups.	A frequently used in applied work, the difference-in-difference estimates use baseline differences in outcomes or impacts between the treatment and control group to control for pre-existing differences between the groups, when data is available before and after the treatment.	Conditional on a set of observable variables, the treatment can be considered to be as good as randomly assigned or is in fact randomly assigned
Benefit	Thorough design; divides eligible farmers into random groups – support to each group will be phased in over time	Less thorough technique than randomization but allows to study treatment effects by comparing treatment and control groups over time (before and after the intervention). Fixed effects generalize difference-in-differences when there is more than one time period or more than one treatment group (controlling for year and group dummies)	Far less thorough technique than randomization, but allows to study effects under identifying assumptions when randomization is not or only partly possible
Counterfactual	Random group of eligible farmers whose treatment is delayed	Selected control group	Control group of non-random farmers, for example not eligible or farmers not growing cocoa
Weakness	Long-run impacts difficult to measure; MOCA should be willing to randomize over the eligible cooperatives / producer	The parallel trend assumption: in the absence of the treatment, both groups would have evolved in exactly the	Assumption is that appropriately controlling the observables variables

	Phase-in design	Difference-in-Differences and Fixed Effects	Controlling for selection bias based on observables
	groups and apply a phase-in design for 'treatment' (preferably with a delay of 2-3 years between treatment of the first and the second group).	same way with respect to the outcomes and impacts.	is sufficient to eliminate selection bias Omitted variable bias: Set of observable variables must contain all relevant differences between the treatment and control groups This assumption is not testable, but its plausibility must be evaluated in its context
Risks	Contamination of control groups before receiving treatment Treatment and control group are not comparable Expectation of treatment may affect comparison groups, reducing attrition	Treatment and control groups very different at baseline	Assumption not found plausible (wrong or not enough control variables)
Feasible if...	No other interventions are received by farmers, or planned to be received over the course of the evaluation before treatment of phase-in design MOCA is willing to randomize treatment and 'control' (selection into the groups), and to postpone treatment for selected 'control' groups for considerable time	Serves as a back-up when randomization not possible/allowed Credible comparable control and treatment groups can be selected	Serves as a back-up when randomization not possible/allowed

MOCA can choose for a non-random phased-in design. Next to the cooperatives already selected by MOCA for treatment, MOCA could select a number of cooperatives in these regions it would like to work with in the future, following the same selection criteria. These control cooperatives would serve first as the counterfactual, after which these control cooperatives will become treatment cooperatives in two phases (for example with 3 groups: first only group 1 with the cooperatives already selected by MOCA, with groups 2 & 3 as control groups; then group 2, with only group 3 as the remaining control group; and in the final evaluation period all three groups as treatment groups). These phases could be year 1, year 2 and year 3, corresponding to three groups of cooperatives which are all equally eligible for MOCA. However, it is unlikely that this will make a good fit with the implementation strategy of MOCA.

Alternatively, we recommend selecting cooperatives for the control group as comparable as possible to the treatment cooperatives (comparable on key characteristics, and in same region). Nevertheless, these will not be exactly the same as the treatment cooperatives. This demands selection bias corrections, for example a Heckman correction. The evaluation team could also use the proposed matching technique PSM, selecting observations within the total sample of treatment and control cooperatives as comparable as possible. The sample size inflation needed for this has been taken into account in the calculations.³¹

For both options, a list of cooperatives is needed, with a description per cooperative related to the selection criteria used by MOCA.

For the second stage of the random sampling, full lists of members of the treatment and control cooperatives are required prior to the data collection. A random selection of producers will be selected from these lists, including substitutes in case initially selected respondents are not available to participate in the survey.

As each cooperative will receive support tailored to their present level of operation and capacity and depending on the vision/target they want to achieve with MOCA, the exact support provided by MOCA needs to be carefully recorded for all the surveyed cooperatives and therefore producers.³² This to take into account the heterogeneous effects, for which the sample size has been inflated in the calculations.

Notwithstanding the econometric technique to be used at the end line for the evaluation, PSM will be used by the evaluation team at the baseline. This to check whether the control observations are similar to the treatment observations.³³ For the analysis at baseline, the evaluation team should explore the possibility to analyze the data through more rigorous econometric techniques,

³¹ Regression discontinuity design is not possible for the endline evaluation, as the selection criteria are partly based on recommendations instead of strict criteria, which do not allow for an objective cut-off point within the sample.

³² Low capacity cooperatives will receive more intense capacity building support, high performing less. Cooperatives who will enter the quality flavor market will be in a different trajectory then those that want to increase production, improve the service provision to farmers or need access to additional finance. Within cooperatives the same will apply in cases: not all farmers will be directly reached by MOCA's interventions. MOCA will for instance develop farm business plans with a selected number of cooperative members, with the objective to gain experience and provide for practical training to the cooperative extension workers who will then take over and expand the practice. In the case of quality, we will start with a selected number of farmers to increase flavor quality and gradually expand that practice throughout the cooperative.

³³ This need is of course smaller when randomization is applied for the selection of treatment and control cooperatives, or when the control cooperatives are selected based on the premise that these will be treatment cooperatives in the future through the phased-in design.

such as diff-in-diff/fixed effects. The back-up option of PSM to analyze the final data will always remain.

Risks

Uptake/imperfect compliance: Not all the producers in the treatment group will be willing to participate in the MOCA program. Different compliance rates have been used for the sample size calculation.

Contamination: Next to imperfect compliance issues, the control cooperatives can get contaminated through spillover effects or alternative interventions over a certain number of years. As highlighted by MOCA, due to the prescribed method of selecting cooperatives, with a recommendation of exporters, cooperatives are in most cases already in a contractual relationship with exporters and certified, and thus benefit(ed) from CocoaAction. Several cooperatives have additional support partnerships. Also MOCA will work in partnership as foreseen in the program through PPPs with for instance GIZ and Olam or with ECOM to support cooperatives and leverage additional investments in the sector. Therefore, at baseline, both the treatment and control cooperatives are already being treated by several other organizations like MOCA, and it cannot be assumed that the control cooperatives will not receive additional support during the evaluation period. This jeopardizes the evaluation and cannot easily be resolved. What the evaluation team can do is record closely all support given to all producers in the treatment and control cooperatives, and by all organizations. Furthermore, through the triangulation with other data collection tools, the evaluation team should still be able to attribute or contribute effects to the MOCA intervention.

Attrition: attrition can form a large risk in evaluations. When the attrition is non-random, results will be biased. When random, the reduction of the sample size might cause power problems. For this evaluation, the risk of attrition is minimal, as the producers are tied to their farm and the cacao trees. However, as we will also need to survey the voluntary non-takers over the course of the survey, attrition could become a bigger issue. For the power calculations, we have taken this into account and set the attrition rate at a conservative 10%.

SAMPLING STRATEGY FOR THE FGDS AND KIIS

The sampling strategy for the FGDS with cooperative members and KIIs with cooperative management, processors and SMEs will depend on:

- Distance and travel time
- Budget availability for involving enumerators in part of the data collection
- The consent of key informants and exporters

There is currently a list of 26 identified cooperatives, which have a supply contract with an exporter. These will only be accessible with the consent of the exporter or even the chocolate maker. There is an additional number of cooperatives that might be included in the MOCA programme at a later stage and could serve as an initial control group.

The aim of the research team is to involve at least 12 cooperatives and/or producer groups, with a good mix of cooperatives with a small/large member base, and a mix of well-established (before 2008) and more recently established cooperatives (after 2013). At each cooperative an FGD with the group members and conduct short semi-structured interviews with the management. The final sample will be decided upon in consultation with MOCA.

The cooperative questionnaires could be administered to all identified cooperatives and producer groups (treatment and control) by the enumerators (to be discussed with MOCA).

Of the 72 MSMEs, we will select a mix of: processors, BDS, agro dealers and MFIs. There are different options for sampling:

- Random sampling of a pre-defined list of SMEs per district
- Snowball / purposeful sampling to include a range of SMEs

A final selection will be made based on list of identified MSMEs, in consultation with MOCA.

DATA COLLECTION TOOLS

FARMER QUESTIONNAIRE

The M&E team of MOCA developed a questionnaire for the farmer survey. KIT proposes several modifications as described below. The revised questionnaire is presented in Annex 2:

General

A time frame referring to the past cocoa season (2017-2018) was added to most questions. This is important to ensure uniform understanding of the questions across different types of respondents. Note that for some topics, such as the diseases that affect cocoa production, it may be better to leave the question open about the timing. This is to be discussed further within the team.

A number of filter questions have been added, to ensure that respondents know the answer that is required of them ("do you know...") and/or that their household is involved in the activity concerned ("do you do that..").

Section 0

Addition of consent to be read to each respondent to explain the purpose of the survey and guarantee confidentiality in the treatment of information provided

It appears unlikely that the survey will take place at the farm of respondents. It is common that the survey takes place at the house of respondent. Enumerators are thus asked to take GPS coordinates of the location of the survey and subsequently specify the type of location, whether the farm or the house.

To obtain information on distances between respondents' farm(s) and the village, three questions are added, asking the average, minimum and maximum distance between farm(s) and village.

To facilitate data cleaning and minimize the risk of error, it is best to reduce the number of open questions which enumerator have to type in the answers and propose instead multiple choices for questions such as region, district, sub-district, as well as cooperative name.

Section 1

Instead of asking individual information on all household members, which would be rather time-consuming, the total number of household members and their distribution by age and gender is first asked. Then individual information is asked only for adult members (aged 15 and above).

The question on whether a household member has another farm than the household farm is proposed to be replaced by a question on the main source of income for each adult household member. The rationale for this change is that for household where some members have other sources of income than cocoa farming, there may be other incentives and/or other means to apply good practices and seek to increase productivity.

Section 2

Different respondent may use different land units. In order to avoid enumerators having to manually convert a given land unit into hectares, which may increase errors, we suggest keeping the unit used by respondent and integrate in the ODK questionnaire a calculation of the equivalent amount in hectares.

It is key to obtain accurate information about land size allocated to cocoa. In an attempt to minimize errors, a number of questions are added, first to ask the total amount of land used for agriculture, as well as the distribution of this land between bought, rented, sharecropped and others. The land used for cocoa is subsequently asked in the same way. In the ODK questionnaire, additional checks will be added, to calculate the total of all land reported by respondents and verify that they all add up.

It is likely that farmers possess more than one parcel on which they cultivate cocoa. Therefore, it may be misleading to ask about parcel. Instead, we propose to ask about the amount of land with trees of different ages.

For the question on farm workers, we added a question about labor sharing groups, which are becoming more common among cocoa farmers due to labor scarcity. We also recommend improving the accuracy of the questions by asking for specific tasks (such as weeding, pruning, harvest, applying fertilizers and pesticides) whether additional workers (i.e. hired labor input) were hired to help.

For cocoa production and income derived from selling cocoa, we added a set of questions in an attempt to minimize the risk of errors. First, a set of answers focus on understanding the distribution of production between different uses – selling, bartering or others. The ODK questionnaire will also include some automatic calculations that totals match. In addition, we asked about price per unit instead of asking about total amount received, and differentiate between average, lowest and highest prices.

Section 3

In this section, the main changes concern the addition of filtering questions to verify whether the respondent used the different inputs and at which frequency before asking any further questions. It is also asked separately about inputs received for free and inputs purchased. For the latter, information on price and quantity is sought as well. Lastly, the size of the land covered by input use is asked. To know the commercial name of product used, we suggest proposing a number of options, again to avoid potential mistakes in inputting names.

Section 4

Cocoa diseases and pests were separated. A number of cocoa disease and pest types were added, in an attempt to reduce the amount that will be entered as “other”.

For diseases and pests that affect cocoa production, the questions on the timing, the measures taken, support received, and its effectiveness will be asked for each one that the respondent replies yes to. Currently, a respondent who would have several diseases but would have had treated only for one would have the same answer key as another respondent who would have only one disease and treat only this disease.

Section 5

For each post-harvest practice, a question is first asked to determine whether respondents perform the task, and the frequency, before asking when it was last done.

Section 6

For bank account ownership question, it is specified that it is about whether it is personally owned or by someone in the household.

Questions on recordkeeping on cocoa production, which is linked to financial literacy, are added as well.

For each institution which has provided support in the past 3 years, the type of support provided will be asked, to avoid confusion.

Missing questions

A number of questions that would provide useful information for the result framework are missing. These include:

- Questions regarding the certification (in particular, awareness of certification held by the cooperative that respondents are member of, and training received on GAP/GEP/productivity to comply with certification requirements). Furthermore, questions on training and other type of support received by different types of organizations are needed to understand better the environment in which MOCA is being implemented and may help control for contamination issues.
- Financial literacy questions, including financial management.

These questions have been included after consulting the MOCA team.

QUESTIONNAIRE TOOL

The survey tools will be converted to a digital format using Kobo Toolbox. Kobo Toolbox is fully compatible and interchangeable with the open source software Open Data Kit (ODK),³⁴ but delivers more functionality, in particular for data collection monitoring and integrated data management. The survey tool will be deployed on digital Android tablets running the ODK (Figure 40).

³⁴ See Open Data Kit: <https://opendatakit.org>

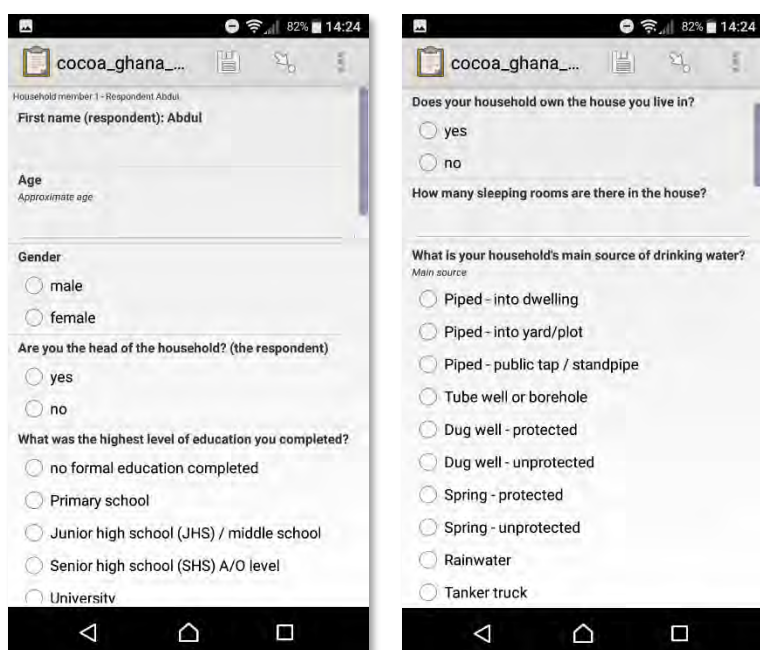


Figure 40. Example screenshots of ODK running on an Android device

Tablets running ODK have many advantages over paper-based surveys. Primarily, they allow for the collection of higher quality and more reliable data:

- Enumerators enter data directly into the 'ODK collect' software application running on the tablets. This saves time, as there is no need for an additional data entry step and eliminates errors which typically occur when transcribing from paper to digital formats.
- Surveys will be programmed to run live calculations. Enumerators receive warnings or errors on screen when unexpected values are entered (e.g. values which obviously too high or too low, based on known ranges).
- Surveys will be programmed with constraints, so that enumerators can only enter valid data types in each field (e.g. text, integers, decimals, select multiple from a list etc.).
- Surveys will be programmed with skip logic, so enumerators only see and ask relevant questions based on a respondent's previous responses. Non-relevant questions are skipped to avoid confusion.
- Surveys are pushed to a cloud server using mobile data, backing them up safely and allowing remote monitoring of survey progress from anywhere in the world via an online control panel. Via KoboToolbox, each completed survey can be displayed on a map and data is accessible moments after it was collected.

KIT will deploy ODK on KoBo Toolbox where it will be securely password protected. The database is automatically generated to match the survey scheme. When desired, the database can be downloaded from KoBo Toolbox as a .csv file and imported into STATA (or other software) for analysis.

FOCUS GROUP DISCUSSIONS (FGDS)

Farmers and local entrepreneurs are generally rational actors who try to make the best possible decisions for themselves and their families one way or another. Due to various reasons (e.g. distance, access to finance, access to inputs etc.) cocoa farmers may make sub-optimal decisions

in terms of economic efficiency, but it is of the utmost importance to understand the constraining and enabling factors behind their choices. The FGDs with cooperative members will provide more detailed information about the local context in which MOCA will operate.

The FGDs will be based on specific exercises to allow for a structured collection of qualitative data. The FGDs also allow the evaluators to discuss current practices before the components of the program in depth, to understand what worked well and what challenges remain. Participants will also be probed to understand how they can themselves make certain changes that may improve their livelihood situation.

Where possible, male and female focus group participants are separated into two groups. If, due to resource constraints, there is only one focus group per community, men and women sit on opposite sides of the hall, and both men and women are asked for their views on each topic, with the women responding first on each occasion.

Exercises that will be included (and have worked very well in similar research by KIT team):

- **Intervention recall** – This exercise helps to understanding the context: Which projects are happening in the area (if any), both past and present, presence of off taker companies, certification bodies, extension services, and presence of cooperatives (or other type of farmer organisations). This exercise will help to understand more precisely the attribution and complementarity of MOCA.
- **Changes** – Understanding changes in key domains of the farming system (e.g. input distribution, finance) in recent years and the reasons for these changes. This exercise also intends to reveal challenges and farmers' perceptions on how these can be overcome. This helps to validate elements of MOCA's programme.

The FGD tool is included in the annex.

KEY INFORMANT INTERVIEWS (KIIS)

An interview tool will be developed to use with key informants, in particular producer group leaders, processors, SMEs, BDS and agro-dealers. The KIT team will be utilizing digital tablets, running on ODK, to conduct the KIIs. The KII baseline questions are straightforward, with pre-designed responses (i.e. categories), easy to replicate at midterm or end line. The structured interviews will also allow enumerators to interview the key informants. The interview tool will ensure that the main issues which are central to the research questions are covered.

DATA TREATMENT AND ANALYSIS PLAN

SAMPLING WEIGHTS

Sampling weights are the inverse of the probability of selection in the sample. Their calculation therefore depends on the sampling design. For MOCA baseline, the actual sample design will be made in consultation with MOCA project team, as it has logistical implications for the fieldwork. There are a number of options being considered for the sample design. One option is to randomly select farmers from the population of members of MOCA and control cooperatives, given that we have membership lists for all cooperatives provided by MOCA team.³⁵ In this case, the sample is

³⁵ This option generates in practice cooperative-level sample sizes which are close to the sample size we would obtain if we would select a sample proportional to cooperative size.

self-weighted. Another option is a two-stage stratified cluster design: first we select a sample of cooperatives from all cooperatives; then farmers are selected from this sample of cooperatives only. In this case, the overall sampling weight attached to each farmer respondent will be the product of two intermediate weights: the first stage (cooperative) weight and the second stage (farmer) weight. A farmer-level nonresponse adjustment will be applied to the farmer weight.

Note that control cooperatives will be oversampled so that their share in the sample reaches 30 percent (instead of 17 percent, based on data provided by MOCA team). Weights will therefore need to adjust for that, so that the original population is correctly approximated. In practice, the impact of those under-represented (treatment) will be inflated, and the impact of those who are over-represented (control) will be deflated.

DATA CLEANING AND QUALITY CHECKS

We remove extreme values from continuous variables. We use an iterative trimming procedure, with 4 standard deviations. The procedure works as follows: the average and standard deviation of a variable is computed and all values which are outside the range of the average plus or minus 4 standard deviations are replaced by a missing value. The new average and standard deviation is computed and the trimming is repeated. The procedure is applied until no values need to be trimmed anymore.

INDICATOR TABULATION

For major indicators, tables will comprise mean, number of non-missing observations, standard deviation and 95 percent confidence interval.

PSM PROCEDURE

First, we will identify variables to be used to estimate the probability of receiving the program by using either a stepwise or beststep approach. Then, based on the estimated probabilities we will classify respondents into treatment and control groups.

DATA ANALYSIS

Analysis will be performed in STATA, and will utilize '.do files', so MOCA will be able to see in detail how all tests were conducted and will be able to replicate the analysis if desired. By default, all tables will include summary statistics by treatment and control status. Additionally, by utilizing loop structures in STATA, KIT will be able to disaggregate data as relevant according to the data and to the project's needs, such as by (MOCA) region, district, gender of the household head, age category of respondent or any other way. All data will be initially output into .xlsx (Excel) files for easy viewing by MOCA and CNFA team. The most relevant and statistically significant data points will be included in the final report.

QUALITATIVE DATA FGDS

The focus group discussion exercises with cooperative members are designed to complement data from the survey and answer the questions 'why', 'how', and 'for whom'. The exercises include ranking and scoring components. For example, the Changes exercise asks whether changes have been positive, negative or whether no change occurred. These rankings can be analyzed to provide a picture on which categories are most problematic in the view of the farmers (i.e. in which areas changes have been negative or positive). The analysis is done by aggregating and then calculating an average of the scores from all FGDS, providing an overall picture of the changes

that have occurred for each of the categories in the past five years. This analysis will be done in Microsoft Excel through the use of Pivot Tables.

The descriptions provided by the FGD participants will highlight why certain changes have occurred, why they are positive or negative and which actor has been involved in the change, or which one should be more involved in the future to improve the situation. Analyzing the descriptions by comparing the different FGDs will provide an overview of the perspective of farmers and highlight recurring themes that are often mentioned in different groups. This will show whether different groups of farmers from different locations encounter similar problems. The qualitative analysis of the FGDs will be done in Microsoft Excel through the use of filters on aggregated and cleaned data.

WORKPLAN

SCHEDULE OF BASELINE STUDY

The following deliverables and deadlines have been agreed upon:

- Inception report including full research design description, data collection tools and work plan (by 25th of September 2018)
- Draft baseline reports (by 5th of November 2018)
- Final report, including summary in French (14th of December 2018)

The project leader, Helena Posthumus (HP), is responsible for the overall methodology, the reporting, quality assurance and project management. Adama Bah (AB) is taking the lead in the farmer survey (design, data collection, and analysis) with technical support of Jesse d'Anjou (JdA). Anna Laven (AL) is taking the lead in the development of the data collection tools for the KIIs and FGDs, with support of Cedric Steijn (CS). Cedric is taking the lead in the data collection and analysis of the KII and FGD data. All team members contribute to deliverables (inception report and draft/final report).

The more detailed schedule is presented in Table 311.

The final report will include:

- Baseline values of all key indicators
- All major data points with standard errors, coefficients of variation, and 95 percent confidence intervals
- Output of all major variables in tabular format
- Presentation of data in graphical format
- Farmer profiles according to certain characteristics of interest (e.g. gender, age, land size, access to market towns, use of financial services, socioeconomic status, etc.) and understand the extent to which these characteristics may correlate with relevant indicators, such as input use, types of agricultural and farm management practices applied, farm productivity or profitability.

Analysis of similarities and differences between the three micro-production zones where the project will be implemented.

Table 311. Schedule for the baseline activities

Activity	Resp.	Level of effort (# days)																					
		HP	AL	JdA	AB	CS	Total	September				October				November				December			
								3 6	3 7	3 8	3 9	4 0	4 1	4 2	4 3	4 4	4 5	4 6	4 7	4 8	4 9	5 0	5 1
INCEPTION PHASE																							
Contract / consultation with MOCA	HP	x					0		x														
Document review and methodology development	HP	1			2		3		x														
Survey design, sampling, tools and protocols	AB/JdA	1	2	5	5	1	14		x	x													
Development KII and FGD guidelines	AL	1	2			2	5			x													
Inception report	HP	1					1				2 5												
FIELDWORK																							
Fieldwork preparations / transit	AB				1	1	2					x											
Training	AB				4		4						x										
Farmer survey	AB				4	2 0	24							x	x								
KIIS and FGDs	CS				4		4						x	x	x								
Data control, database cleaning, variable creation.	AB				4		4								x	x							
Data analysis, statistical outputs and draft quantitative report	JdA			4			4								x	x	x						
Draft report with descriptive statistics	JdA/AB			1	1		2									5							
Compilation of interview data	CS/AB				2	6	8										x	x	x				
Analysis FGDs PO members	CS					4	4										x	x	x				
REPORTING																							
Analysis and full report writing	HP	3	5	5	4	2	19												x	x			
Full baseline report	HP	3					3														1 4		

[illegible]

FIELDWORK PROTOCOL

Fieldwork responsibilities

KIT will be responsible for development of the data collections tools and the training of the local enumerators. KIT advisors will conduct the key informant interviews and lead the FGDs. KIT carries the overall responsibility for ensuring the process is professional and that data is of a high quality. MOCA is responsible for contracting the local field team, the logistical arrangements and the supervision of the enumerators.

The local field team will comprise of MOCA staff and a team of enumerators that have prior experience conducting farmer surveys in cocoa growing areas of Cote d'Ivoire. MOCA staff are responsible for forming the enumerator team, all logistics and planning with local authorities and farmer groups, practical support for the sampling procedure (e.g. providing lists of cooperatives and membership lists, notifying respondents), and the management of the enumerator team. Additionally, a translator will be hired to support the KIT researchers during FGDs.

Training of the local field team (enumerators and MOCA staff)

KIT is responsible for training the local field team over a period of four days. The training focuses first on the basic objectives of the research, reading through the survey together, developing familiarity with the questions, and ensuring that the meaning and intention of all questions is clear to the entire team. Enumerators also become comfortable with using the tablets and all of the common ODK inputs and functions. Later, enumerators will practice asking and answering questions with each other under the observation of the trainer, with regular feedback intervals. When in the field, the KIT advisor, in collaboration with MOCA staff, will continue to train and troubleshoot any issues arising with each enumerator during the first week.

Piloting survey tools (field testing)

The farmer survey tool will be piloted with farmers that are not included in the sampling frame prior to rolling out the final version. Piloting will occur during the enumerator training, so that enumerators can gain practical experience with the survey tool, as well as testing the appropriateness of the questions. Immediately following the testing period the team will sit with the KIT advisor to make final changes. All survey changes will be logged and updated for MOCA to review.

Identification of respondents

A random sample of respondents (both treatment and control groups) will be drawn from membership lists of the cooperatives. The enumerators will be provided with the list of sampled respondents, including a list of randomly sampled substitutes in case some respondents from the initial sample are not available or willing to participate in the survey.

Data collection targets

KIT targets collecting approximately 4 farmer surveys per enumerator per day (on days that no extensive travel between locations is required), as well as one FGD per day. KIIs will be conducted throughout the fieldwork period as efficiently as possible. To ensure consistency and data quality, FGDs and KIIs are conducted by KIT team with the support of a translator. KIT notes that some communities may comprise only few beneficiaries, therefore our sampling plan will need to take account of this. It is recommended to conduct research in neighboring communities on the same

day to improve efficiency and reduce fieldwork costs where possible (if both are selected during random sampling).

Travel days

Invariably, there will be some days where surveys cannot be collected. These are denoted as 'Travel days. For example, the day travelling from Abidjan to the field will not allow time for any survey collection. Furthermore, the team may encounter market days, church days, and religious holidays, all of which will affect the ability to collect a full quota of surveys.

Health and safety

Fieldwork days can be long and hard. Taking good care of the enumerators is important so they remain safe and healthy. It is inconvenient and costly if enumerators drop out of the study because they feel underpaid or overworked.

The supervisors will contact the enumerators on a daily basis to enquire after their progress, concerns regarding their health and safety, or any incidents that may have occurred. It is advised that enumerators travel in pairs or small groups.

Showing respectful behavior towards the local community is the most important factor in one's own security. A short code of conduct has therefore been developed for the enumerators to adhere to.

Code of conduct

KIT researchers will comply with KIT's code of conduct as part of its Integrity Policy. KIT employees are obliged to comply with legal requirements (including international human rights norms) and abide by common social norms and values. Key values of KIT are inclusion, transparency, independence and sustainability.

The MOCA staff will be coordinating the enumerators and also supervise their conduct. Conduct guidelines will be discussed during the training. In order to safeguard the dignity and privacy of the respondents, the enumerators will be asked to adhere to the following code of conduct (which is derived from KIT's Code of Conduct and also applies to the KIT researchers):

- Respondents' participation in the survey is voluntarily; respondents cannot be forced to participate and are free to finish the interview at any time. The enumerators cannot force participants to participate, nor persuade with promises of preferential treatment during the MOCA project or any other incentives unless this has been collectively agreed during the enumerators' training.
- Enumerators will treat the respondents with respect and dignity at all times.
- Enumerators are obliged to ask the respondents' consent to participate in the study, and the enumerators should explain that the information will be used for the study in order to inform and improve the MOCA activities. Enumerators should explain that individual data will be anonymized and personal data will be kept confidential and not shared beyond the KIT/MOCA team. If the respondent does not give his/her consent, the interview has to be abandoned.
- If enumerators take pictures of the respondents and/or their belongings, they should ask explicit permission for a) the picture(s) to be taken, and b) the picture(s) to be used by the evaluation team for non-commercial purposes (e.g. baseline report).

- The enumerators will make sure that the collected data is accurate and updated if necessary. Enumerators will upload the collected data to the cloud database at regular intervals as agreed during the enumerators' training.
- Enumerators will not work under the influence of alcohol or any other illegal substances during the fieldwork.
- Enumerators will be provided with tablets for work-related duties only. They are expected to handle the tablets with care. Occasionally and briefly the enumerators are permitted to use the tablets for personal use, provided that this use does not disrupt normal daily activities and/or the technical infrastructure. They are not allowed to download or install unauthorized content on the tablets.
- Enumerators will report any incidents that affect their safety and/or ability to conduct the survey to their supervisors.

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ANNEX 1. EVALUATION MATRIX

The following matrix (Figure 41) is an illustration of the sources of data that will be drawn on for analysis and reporting. The research applies a mixed-methods approach, implying that often one data type is employed to support another in order to triangulate findings and explain processes. For example, survey data can show *what* levels of fertilizer use are and the effects of this, whereas FGDs or KIIs can help explain *why* fertilizer usage is at a certain level (enablers and barriers) and differences between regions and other characteristics.

Figure 41. Matrix of research questions and data sources for analysis

Indicator	Farmer survey	Focus group discussions	Key informant interviews
Agricultural productivity			
Local availability and use of services by cocoa farmers	✓	✓	✓
Knowledge and application of good agricultural practices by cocoa farmers	✓		
Level of financial literacy and business planning of cocoa farmers	✓		
Cocoa yield levels, sale volumes, and income of cocoa farmers	✓		
Services and inputs provided by cooperatives and producer groups	✓	✓	✓
Trade			
Capacity of cooperatives, processors and SMEs			✓
Value addition of post-production cocoa beans	✓		✓
Access to markets (type of buyers and sellers, purchases, sale volumes, turnover)	✓		✓
Transaction efficiency	✓	✓	✓

ANNEX 2. FARMER QUESTIONNAIRE

CONSENTEMENT

Veillez lire cette demande de consentement avant de commencer l'entretien.

Bonjour Madame/Monsieur, je m'appelle et je travaille pour CNFA Cote d'Ivoire. Nous collectons des données dans le cadre d'une étude sur la culture du cacao en Côte d'Ivoire. Cette étude est menée par l'institut royal des tropiques (KIT) des Pays-Bas pour le compte de CNFA. Les résultats de cette étude permettront de mieux comprendre la culture du cacao et aideront les organisations à concevoir de meilleurs projets à l'avenir.

Vous avez été sélectionné de façon aléatoire pour participer à cette étude. Nous souhaitons nous entretenir avec vous au sujet de votre expérience en matière de culture du cacao. Si vous choisissez de participer à cette enquête, vous êtes libres de refuser de répondre à certaines questions et vous avez également la possibilité de terminer l'entretien quand vous le souhaitez. Vous pouvez m'interrompre à tout moment pour demander des clarifications sur les questions posées. Cet entretien durera environ 1 heure. Nous vous présentons nos excuses par avance pour le temps que cela prendra et pour les interruptions que cela peut causer dans votre programme.

Votre participation à cette enquête est volontaire, vous n'êtes pas obligés d'y participer mais nous espérons que vous accepterez de répondre à nos questions car votre opinion est importante pour nous. Votre participation à cette enquête ne vous affectera en aucune manière puisque l'objectif est seulement de mener ce projet de recherche. Les informations que vous partagerez seront conservées en toute sécurité et resteront confidentielles. Votre nom et toute autre information permettant de vous identifier ne seront accessibles qu'aux chercheurs et n'apparaîtront jamais dans aucune publication.

Si vous avez des questions sur cette enquête, veuillez contacter : CNFA Cote d'Ivoire, XXXX.

Donnez-vous votre consentement pour participer à cette enquête ?

SECTION 0 :	Questions	Codes
ID01	Nom de l'agent	Proposer options
ID02	Date de l'interview	
ID03	Région	Abengourou / Daloa /
ID04	Préfecture	
ID05	Sous-Préfecture	
ID06	Village de rattachement.....	
ID07	Localité/Quartier du	
ID08	Type de localité	Village / campement
ID09	Numéro d'ordre du planteur - Région (1), S/P (02), Village (4), Num d'ordre ds village (2)	_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
	Coordonnées GPS du lieu de l'enquête	
ID10	Latitude _ _ _ . _ _ _ _ _ _ _ _ _	
ID11	Longitude _ _ _ _ . _ _ _ _ _ _ _ _ _	
ID12	Dans quel endroit les coordonnes GPS ont été prises	Domicile du planteur / Champ du planteur / autre
ID13	Distance moyenne de la (des) parcelle(s) du planteur au village (en km)	#
ID14	Distance minimale de la (des) parcelle(s) du planteur au village (en km)	#
ID15	Distance maximale de la (des) parcelle(s) du planteur au village (en km)	#
ID16	Etes-vous membre d'une coopérative ?	Oui/Non
ID17	Nom de la Coopérative :.....	Proposer options
ID18	Siege Social de la coopérative / localité :.....	Proposer options?

SECTION 1 : CARACTERISTIQUES SOCIO-DEMOGRAPHIQUES DU MENAGE

Tout d'abord, je voudrais vous poser des questions sur vous et les membres de votre ménage\

Q100	Questions	Codes
101	Quel est le nombre total de personnes dans votre ménage ? Y compris enfants pour lesquelles vous êtes responsables financièrement	#
102	Parmi celles-ci, combien d'entre elles vivaient-elles en 2018 dans votre ménage/maison ?	#
	Parmi les membres de votre ménage qui vivaient en 2018 dans votre ménage/maison, combien d'entre eux sont...	
103	Des hommes de plus de 65 ans	#
104	Des femmes de plus de 65 ans	#
105	Des hommes entre 15 et 65 ans	#
106	Des femmes entre 15 et 65 ans	#
107	Des garçons entre 5 et 14 ans	#
108	Des filles entre 5 et 14 ans	#
109	Des garçons entre 0 et 4 ans	#
110	Des filles entre 0 et 4 ans	#

[illegible]

SECTION 2 : CARACTERISTIQUES DE L'EXPLOITATION AGRICOLE

Je voudrais vous poser des questions sur les caractéristiques de votre plantation de Cacao

Q200	Questions	Codes
Terres agricoles utilisées par le ménage		
201	Quelle est l'unité de superficie la plus répandue dans votre village ?	1.Hectares 2. Pôles 3. Carre 0.25ha
202	Savez-vous quelle superficie votre ménage a-t-il consacrés à TOUTES les cultures pendant la saison 2017/2018?	#
203	Quelle superficie votre ménage POSSÉDAIT-il en 2017/2018 ? (Terres que le ménage estime « siennes ») Pour toute culture, tout pâturage, toute jachère etc	#
204	Quelle superficie votre ménage LOUAIT-il en 2017/2018 ? Payer pour utiliser les terres d'autrui / Garantie	#
205	Quelle superficie votre ménage a-t-il utilisé sous MÉTAYAGE en 2017/2018 ? Il n'était ni propriétaire ni locataire des terres, mais donnait une portion de sa récolte au propriétaire des terres.	#
206	Disposez-vous actuellement de terres non encore exploitées?	Oui/Non
207	De quelle superficie non encore exploitée sous forme de forêts disposez-vous actuellement ?	#
208	De quelle superficie non encore exploitée sous forme de jachère disposez-vous actuellement ? « en jachère » signifie « au repos, non cultivé »	#
209	De quelle superficie non encore exploitée sous forme de bas-fonds disposez-vous actuellement ?	#
210	Combien de parcelles séparées votre ménage cultivait-il en 2017/2018 ?	#

	Parcelles, terres sous cultures séparées	
211	Savez-vous quelle superficie votre ménage a-t-il consacrés à la culture du CACAO en 2017/2018 ?	#
Terres - Cacao		
212	Quelle superficie votre ménage a-t-il UTILISÉS pour le cacao en 2017/2018 ?	
213	Parmi les terres que vous avez utilisées pour le cacao, de Quelle superficie de cacao votre ménage était-il PROPRIÉTAIRE en 2017/2018 ?	
214	Comment avez-vous acquis cette plantation ?	1. Planté par lui-même 2. Héritage 3. Don 4. Achat Autre à préciser
215	Combien de terre votre ménage LOUAIT-il pour le cacao en 2017/2018 ? Louer des terres possédées par d'autres (payer pour utiliser les terres d'autrui)	#
216	Combien de terre votre ménage a-t-il utilisé en MÉTAYAGE pour le cacao en 2017/2018 ? Il n'était ni propriétaire ni locataire des terres, mais donnait une portion de sa récolte au propriétaire des terres.	#
217	Combien de parcelles votre ménage utilisait-il pour la culture du cacao en 2017/2018 ? Parcelles de cacao séparées	

218	Quelle est la superficie totale de votre plantation pendant la saison 2017/2018?	#
219	Quelle est la superficie de votre plantation qui est effectivement en production pendant la saison 2017/2018	#
220	Savez-vous approximativement combien de cacaoyers votre	Oui/Non
221	Combien de cacaoyers votre ménage cultive-t-il ?	#
222	Depuis combien d'années votre ménage cultive-t-il le cacao ?	#
223	Quel est l'âge de la plupart de vos cacaoyers ? En année(s)	#
224	Vous avez dit plus tôt que votre ménage possédait XX ha de cacao. De cette superficie, quelle superficie de cacao ont...	
225	5 ans ou moins ?	#
226	Entre 5 et 25 ans ?	#
227	Plus de 25 ans réhabilité?	#
228	Plus de 25 ans - non réhabilité?	#
229	Quelles variétés de Cacao cultivez-vous dans votre plantation?	1. Mercedes 2. Ghana Autre
230	Votre ménage associe-t-il la culture du cacao à une autre culture ? Associer plusieurs cultures, c'est planter d'autres cultures entre les cacaoyers. Les arbres d'ombrage ne comptent pas comme culture associée.	Oui/Non.
231	Associez-vous d'autres cultures à des cacaoyers de 5 ans ou moins ?	Oui/Non/Ne sait pas
232	Associez-vous d'autres cultures à des cacaoyers de 5 à 25 ans ?	Oui/Non/Ne sait pas
233	Associez-vous d'autres cultures à des cacaoyers de 25 ans ou plus ?	Oui/Non/Ne sait pas
234	Quelle(s) autre(s) culture(s) associez-vous à celle du cacao ?	Liste de cultures

	Principale autre culture ; L'utilisation d'arbres d'ombrage ne compte pas comme culture associée.	
235	Utilisez-vous des arbres d'ombrage dans votre plantation ?	Oui/Non
236	Quels arbres d'ombrage utilisez-vous dans votre plantation ?	A. B. C.
237	En dehors des membres du ménage, y a-t-il d'autres ouvriers agricoles/manoeuvres qui ont travaillé dans votre plantation pendant la saison 2017/2018?	Oui/Non
238	Employez-vous des ouvriers agricoles de façon permanente pour votre plantation?	Oui/Non
239	Combien d'ouvriers agricoles hommes âgés de plus de 15 ans employez-vous de façon permanente pour votre plantation en 2017/2018?	
240	Combien d'ouvriers agricoles femmes âgés de plus de 15 ans employez-vous de façon permanente pour votre plantation en 2017/2018?	
241	Combien d'ouvriers agricoles âgés de moins de 15 ans employez-vous de façon permanente pour votre plantation en 2017/2018?	
242	Employez-vous des ouvriers agricoles à la journée ou pour une certaine période pour votre plantation?	Oui/Non
243	Combien de journaliers hommes âgés de plus de 15 ans employez-vous pour votre plantation en 2017/2018?	
244	Combien de journaliers femmes âgés de plus de 15 ans employez-vous pour votre plantation en 2017/2018?	
245	Combien de journaliers âgés de moins de 15 ans employez-vous pour votre plantation en 2017/2018?	
246	Employez-vous des ouvriers agricoles communaux ou faites-vous partie d'un groupe d'entraide ?	Oui/Non

Je voudrais à présent avoir les informations sur votre production au cours des 3 dernières saisons

247	Quelle unité de mesure utilisez-vous pour le cacao ?	
248	Quelle est le poids en kg d'une unité de mesure?	Ne sait pas 999 ; si kg écrire 1
249	Savez-vous combien d'unités de cacao votre ménage a produits lors de la campagne 2017-2018 ? Grande et petite campagne/traite ensemble	Oui/Non
250	Combien d'unités de cacao votre ménage a-t-il produits au cours de la grande traite 2017-2018 ?	
251	Combien d'unités de cacao votre ménage a-t-il produits au cours de la petite traite 2017-2018 ?	
	Au total, vous avez produit XX unités de cacao au cours de la campagne 2017-2018. Sur cette quantité, combien de cacao votre ménage a-t-il...	
252	Vendus (contre de l'argent)	#
253	Consommés au sein du ménage	#
254	Donnés sans rien attendre en échange	#
255	Obligation métayage	#
256	Donnés en échange d'autres biens (troc)	#
257	Donnés en guise de paiement pour un travail	#
258	Perdus (par exemple à cause de la mauvaise qualité, de la pourriture ou du vol)	#
259	Quel est le prix COURANT que vous avez obtenu pour la majeure partie de votre cacao en 2017-2018 - par unité	#
260	Quel est le prix LE PLUS HAUT que vous ayez obtenu pour votre cacao en 2017-2018 – par unité	#
261	Quel est le prix LE PLUS BAS que vous ayez obtenu pour votre cacao en 2017-2018 – par unité	#
262	Au cours de quels mois avez-vous vendu du cacao en 2017-2018 ? Plusieurs réponses possibles	Janvier / Février / mars / Avril / Mai / Juin / Juillet / Aout / Septembre / Octobre / Novembre / Décembre

263	À qui avez-vous vendu du cacao en 2017-2018? Plusieurs réponses possibles	Coopérative / société prive / exportateur / pisteur / autre
264	Connaissez-vous le montant des revenus générés par la vente de cacao par votre ménage en 2017-2018 ?	Oui/Non
265	Quel est le montant des revenus générés par la vente de cacao par votre ménage en 2017-2018 ? (en FCFA, sans inclure les coûts)	Ne sait pas ou ne souhaite pas le dire 999
266	Votre ménage a-t-il des documents comptables sur la production de cacao de 2017-2018?	Oui/Non/Ne sait pas
	Avez-vous conservé des documents comptables sur...	
267	montant dépensé dans les intrants	Oui/Non
268	montant dépensé dans le paiement des travailleurs employés	Oui/Non
269	nombre de jours que des membres du ménage ont passé à labourer	Oui/Non
270	le volume de cacao produit	Oui/Non
271	le volume de cacao vendu, le prix et l'argent reçu	Oui/Non

SECTION 3 : UTILISATION DES INTRANTS/PHTOSANITAIRES

Je voudrais vous poser des questions sur l'utilisation des intrants et produits phytosanitaires

Q300	Questions	Codes
301	Avez-vous utilisé des insecticides ou pesticides pour le traitement de vos plants pendant la saison 2017/2018? (un insecticide est un type de pesticide)	Oui/Non
302	Combien de fois du pesticide a-t-il été utilisé sur votre exploitation de cacao en 2017/2018 ?	#
303	A quand remonte la dernière application de pesticide?	# jrs
304	Votre ménage a-t-il reçu un don (gratuit) de pesticide en 2017/2018 ?	Oui/Non
305	Quelle institution a-t-elle donné du pesticide a votre ménage en 2017/2018?	ANADER / CCC/ Coopérative / Prestataire, société privée / ONG, partenaire / autre

306	Combien de bouteilles de pesticide vous ont-elles été données l'an dernier ?	#
307	Votre ménage a-t-il ACHETÉ du pesticide en 2017/2018 ?	Oui/Non
308	Comment votre ménage a-t-il acheté du pesticide en 2017/2018?	Cash/Crédit
309	Quel type de crédit votre ménage a-t-il utilisé pour acheter du pesticide en 2017/2018?	Crédit fournisseur / crédit coop / autre
310	Combien coûte une bouteille de pesticide ?	#
311	Combien de bouteilles de pesticide votre ménage a-t-il achetées l'an dernier ?	#
312	Combien de bouteilles de pesticide au TOTAL ont-elles été appliquées sur votre exploitation de cacao l'an dernier ?	#
313	Quel est le volume (en litres) d'UNE bouteille de pesticide ?	#
314	Vous avez dit plus tôt cultiver le cacao sur XX superficie. Sur quelle superficie du pesticide a-t-il été appliqué ?	#
315	Nom Commercial du Produit	 Proposer options
316	Avez-vous utilisé du fongicide pour le traitement de vos plants pendant la saison 2017/2018?	Oui/Non
317	Combien de fois du fongicide a-t-il été utilisé sur votre exploitation de cacao en 2017/2018 ?	#
318	A quand remonte la dernière application de fongicide?	# jrs
319	Votre ménage a-t-il reçu un don (gratuit) de fongicide en 2017/2018 ?	Oui/Non
320	Quelle institution a-t-elle donné du fongicide a votre ménage en 2017/2018?	ANADER / CCC/ Coopérative / Prestataire, société privée / ONG, partenaire / autre
321	Combien de bouteilles de fongicide vous ont-elles été données l'an dernier ?	
322	Votre ménage a-t-il ACHETÉ des fongicides en 2017/2018 ?	Oui/Non
323	Comment votre ménage a-t-il acheté des fongicides en 2017/2018?	Cash/Crédit

324	Quel type de crédit votre ménage a-t-il utilisé pour acheter des fongicides en 2017/2018?	Crédit fournisseur / crédit coop / autre
325	Combien coûte une bouteille de fongicide ?	#
326	Combien de bouteilles de fongicide votre ménage a-t-il achetées l'an dernier ?	#
327	Combien de bouteilles de fongicide au TOTAL ont-elles été appliquées sur votre exploitation de cacao l'an dernier ?	#
328	Quel est le volume (en litres) d'UNE bouteille de fongicide ?	#
329	Vous avez dit plus tôt cultiver le cacao sur XX superficie. Sur quelle superficie du fongicide a-t-il été appliqué ?	#
330	Nom Commercial du Produit	 Proposer options
331	Avez-vous utilisé des engrais chimiques pour le traitement de vos plants pendant la saison 2017/2018?	Oui/Non
332	Combien de fois des engrais chimiques a-t-il été utilisé sur votre exploitation de cacao en 2017/2018 ?	#
333	A quand remonte la dernière application d'engrais chimique?	# jrs
334	Votre ménage a-t-il reçu un don (gratuit) d'engrais chimique en 2017/2018 ?	Oui/Non
335	Quelle institution a-t-elle donné de l'engrais chimique à votre ménage en 2017/2018?	ANADER / CCC/ Coopérative / Prestataire, société privée / ONG, partenaire / autre
336	Combien de bouteilles d'engrais chimique vous ont-elles été données l'an dernier ?	#
337	Votre ménage a-t-il ACHETÉ de l'engrais chimique en 2017/2018 ?	Oui/Non
338	Comment votre ménage a-t-il acheté des engrais chimiques en 2017/2018?	Cash/Crédit
339	Quel type de crédit votre ménage a-t-il utilisé pour acheter de l'engrais chimique en 2017/2018?	Crédit fournisseur / crédit coop / autre
340	Combien coûte une bouteille d'engrais chimique ?	#

341	Combien de bouteilles d'engrais chimique votre ménage a-t-il achetées l'an dernier ?	#
342	Combien de bouteilles d'engrais chimiques au TOTAL ont-elles été appliquées sur votre exploitation de cacao l'an dernier ?	#
343	Quel est le volume (en litres) d'UNE bouteille d'engrais chimiques ?	#
344	Vous avez dit plus tôt cultiver le cacao sur XX superficie. Sur quelle superficie de l'engrais chimique a-t-il été appliqué ?	#
345	Nom Commercial du Produit	 Proposer options
346	Avez-vous utilisé des engrais organiques (fumier/composte) pour le traitement de vos plants pendant la saison 2017/2018?	Oui/Non
347	Combien de fois des engrais organiques ont-t-il été utilisé sur votre exploitation de cacao en 2017/2018 ?	#
348	A quand remonte la dernière application d'engrais organiques?	# jrs
349	Vous avez dit plus tôt cultiver le cacao sur XX superficie. Sur quelle superficie de l'engrais organique a-t-il été appliqué ?	#
	Disposez-vous du matériel/équipement ci-après ?	<i>Citez le nom du matériel/équipement, si l'enquête en dispose préciser le nombre, s'il n'en dispose pas inscrivez 0</i>
351	A. Combinaison	#
352	B. Cache nez	#
353	C. Atomiseur	#
354	D. Lunettes	#
355	E. Bottes	#
356	F. Gants	#
357	G. Pulvérisateurs	#

SECTION 4 : PRATIQUES AGRICOLES

Je voudrais vous poser des questions sur vos pratiques agricoles

Q400	Questions	Codes
401	Avez-vous fait de l'égourmandage au cours de la saison 2017/2018? L'égourmandage est l'élimination sélective de nouvelles pousses	Oui/Non
402	Combien de fois votre ménage a-t-il effectué l'égourmandage sur l'exploitation de cacao au cours de la saison 2017/2018 ?	#
403	A quand remonte la dernière fois que vous avez effectué l'égourmandage?	# jrs
404	Avez-vous supprimé les loranthus des cacaoyers au cours de la saison 2017/2018?	Oui/Non
405	Combien de fois votre ménage a-t-il supprimé les loranthus des cacaoyers sur l'exploitation de cacao au cours de la saison 2017/2018 ?	#
406	A quand remonte la dernière fois que vous avez supprimé les loranthus des cacaoyers?	# jrs
407	Votre ménage a-t-il effectué de la taille ou élagage pour la culture du cacao l'an dernier ? L'élagage est l'élimination sélective de certaines branches et nouvelles pousses	Oui/Non
408	Combien de fois votre ménage a-t-il effectué l'élagage sur l'exploitation de cacao au cours de la saison 2017/2018 ?	#
409	A quand remonte la dernière fois que vous avez effectué l'élagage?	# jrs
410	Votre ménage a-t-il désherbé votre exploitation de cacao au cours de la saison 2017/2018 ? Le désherbage est parfois appelé « débroussaillage »	Oui/Non
411	Combien de fois votre ménage a-t-il désherbé l'exploitation de cacao au cours de la saison 2017/2018 ?	#
412	A quand remonte la dernière fois que vous avez effectué le désherbage?	# jrs
413	Les cacaoyers de votre ménage sont-ils plantés par rangée ?	Oui/Non
414	Connaissez-vous la distance moyenne entre les cacaoyers sur l'exploitation de votre ménage ? Espacement moyen	#
415	Quelle est la distance moyenne entre les cacaoyers de votre ménage ?	Mètres
416	Quelle est la distance moyenne entre les rangées ?	Mètres
417	Régalez-vous la densité des cacaoyers et l'ombrage en vue d'une meilleure production	Oui/Non
418	Combien de fois votre ménage a-t-il réglé la densité des cacaoyers sur l'exploitation de cacao au cours de la saison 2017/2018 ?	#
419	A quand remonte la dernière fois que vous avez réglé la densité des cacaoyers ?	# jrs
Pertes de cacao		
420	Au cours des 12 derniers mois, avez-vous subi des pertes de cacao liées à :	
421	A. ...des maladies du cacao	Oui/Non
422	B. ...des nuisibles/ravageurs s'attaquant au cacao	Oui/Non
423	C. ...des pertes au cours du stockage ?	Oui/Non

Maladies du cacao		
424	Quel (s) cas de maladie(s) du cacao avez-vous déjà connu?	
425	A. Pourriture brune	Oui/Non
426	B. Pourriture noire	Oui/Non
427	C. Les pourridiés	Oui/Non
428	D. Swollen shoot	Oui/Non
429	E. Chancre	Oui/Non
430	Autre préciser.....	Oui/Non
431	Quand avez-vous connu ce(s) cas de maladie (s) ?	Actuellement présente / moins de 3 mois / entre 3 mois et 1 an / Un an et plus
432	Comment votre production de cacao de 2017-2018 a-t-elle été affectée par ce(s) cas de maladie (s) ?	Légère perte / Moyenne perte / perte
433	Quelles sont les mesures/actions que vous avez prises face à cette situation ?	Traitement phytosanitaire / Arrachage des plants / aucune action / autre
434	Avez-vous bénéficié d'une assistance/appui pour la gestion de	Oui/Non
435	Pour quelle maladie avez-vous reçu de l'assistance/appui ?	Pourriture brune / Pourriture noire / les pourridies / Swollen shoot / chancre / autre
436	De la part de qui principalement?	Parents, amis, proches / ANADER / CCC / Cooperative / Prestataire, société privée / ONG, partenaire / autre
437	Comment-jugeriez-vous l'utilité pour vous de l'appui dont vous avez bénéficié pour la gestion de la maladie	Inutile / Insuffisant / Satisfaisant / Très utile / Indispensable
Nuisibles/ravageurs s'attaquant au cacao		
438	Quel (s) cas de nuisibles/ravageurs s'attaquant au cacao avez-vous déjà connu ?	
439	A. Loranthus	Oui/Non
440	B. Akate / punaise verte	Oui/Non
441	C. des mirides	Oui/Non
442	D. des fourmis noires	Oui/Non
443	E. des termites	Oui/Non
444	F. des rongeurs	Oui/Non
445	G. Foreuse de tige	Oui/Non
446	H. Mousse verte	Oui/Non
447	I. Inconnu / non-identifié	Oui/Non
448	X. Autre préciser.....	Oui/Non
449	Quand avez-vous connu ce(s) cas de nuisibles/rongeurs (s) ?	Actuellement présente / moins de 3 mois /

		entre 3 mois et 1 an/ Un an et plus
450	Comment votre production de cacao de 2017-2018 a-t-elle été affectée par ce(s) cas de nuisible (s) ?	Légère perte / Moyenne perte / perte
451	Quelles sont les mesures/actions que vous avez prises face à cette situation ?	Traitement phytosanitaire/ Arrachage des plants / aucune action / autre
452	Avez-vous bénéficié d'une assistance/appui pour la gestion de ce(s) nuisible (s)	Oui/Non
453	De la part de qui principalement?	Parents, amis, proches / ANADER / CCC/ Cooperative / Prestataire, société privée / ONG, partenaire / autre
454	Comment- jugeriez-vous l'utilité pour vous de l'appui dont vous avez bénéficié pour la gestion de ce ravageur ?	Inutile/ Insuffisant / Satisfaisant / très utile / Indispensable

SECTION 5 : EVALUATION DE LA QUALITE DU CACAO

Je voudrais vous poser des questions sur la Récolte, Fermentation, Séchage, stockage du cacao

Q500	Questions	Codes
501	Avez-vous récolté du cacao pendant la saison	Oui/Non
502	Combien de fois avez-vous récolté du cacao pendant la	#
503	A quelle fréquence récoltez-vous votre cacao	Avant chaque semaine /
504	Avez-vous effectué l'écabossage du cacao l'an dernier ?	Oui/Non
505	Combien de fois avez-vous effectué l'écabossage de	#
506	Après la récolte des cabosses, combien de jours attendez-vous avant d'effectuer l'écabossage pour retirer les fèves ?	#
507	A quel moment l'écabossage est-il	Au maximum 7 jours après
508	Avez-vous effectué la fermentation des fèves de cacao	Oui/Non
509	Dans quoi mettez-vous vos fèves de cacao pour qu'elles fermentent ?	sac riz / feuilles de bananiers (paniers / tapis / boîte à fermentation / ne sait pas / autre
510	Combien de jours laissez-vous les fèves de cacao fermenter ?	#
511	Quelle est la durée de la fermentation que vous	Moins de 6 jours / Entre 6
512	Votre cacao a-t-il été séché l'an dernier ?	Oui/Non
513	Combien de jours faites-vous sécher les fèves de cacao ?	#

514	Dans quoi mettez-vous vos fèves de cacao pour les faire sécher ?	Sur le goudron au soleil / sur claie et au soleil / sur des baches/plastiques au soleil / autre
515	Comment les fèves de cacao séchées sont-elles stockées ?	Dans des sacs et dans un magasin avec les produits phytosanitaires / Sacs en jute dans un endroit sans aération / sacs en jutes loin de la fumée et des produits phytosanitaires dans un endroit aéré

SECTION 6 : INTERACTIONS AVEC LES AUTRES ACTEURS DE LA CHAÎNE DES VALEURS

Accès au crédit/ compte bancaire, types d'appuis reçus au cours des 3 dernières années, Formations/coaching reçus, circuit de commercialisation

Q60	Questions	Codes
	Possédez-vous (quelqu'un dans le ménage ou planteur personnellement) un de ces comptes ?	
601	A. Compte Bancaire	Oui/Non
602	B. Compte dans une microfinance	Oui/Non
603	C. Compte Mobile Money	Oui/Non
604	D. Aucun compte	Oui/Non
605	X. Autre à préciser	Oui/Non
606	Avez-vous bénéficié d'un prêt financier d'une quelconque organisation au cours des 3 dernières	Oui/Non
	Quelle organisation était l'auteur de ce prêt ?	
607	A. Institution Bancaire	Oui/Non
608	B. Microfinance	Oui/Non
609	C. Coopérative	Oui/Non
610	D. Collectivité locale	Oui/Non
611	E. Particuliers	Oui/Non
612	X. Autre à préciser	Oui/Non

613	Quel est le montant maximal qui vous a été prêté au cours des 3 dernières années ? (en une fois, en FCFA)	#
	Avez-vous bénéficié d'un quelconque appui d'une de ces organisations au cours des 3 dernières années ?	
614	A. Institution Bancaire	Oui/Non
615	B. Microfinance	Oui/Non
616	C. Coopérative	Oui/Non
617	D. Collectivité locale	Oui/Non
618	E. ONG internationale	Oui/Non
619	F. Collectivité locale	Oui/Non
620	G. ANADER	Oui/Non
621	H. CNRA	Oui/Non
622	I. CCC	Oui/Non
623	J. Compagnie Privée	Oui/Non
624	X. Autre préciser.....	Oui/Non
	Pour chaque organisation qui a fourni un appui (réponse Oui), quel(s) type(s) d'appui avez-vous reçu ?	
625	A. Mise à disposition de plants	Oui/Non
626	B. Formation/conseils en PBA	Oui/Non
627	C. Coaching permanent	Oui/Non
628	D. Gestion /finances	Oui/Non
629	E. Mise à disposition de matériels	Oui/Non
630	F. Qualité/Certification	Oui/Non
631	X. Autre préciser..... __	Oui/Non
632	Comment commercialisez-vous principalement vos produits ?	A des pisteurs particuliers / A la coopérative / au plus offrant / autre
633	Quel mode de paiement est utilisé principalement lors de la transaction avec vos acheteurs ?	Paiement cash sur place / paiement cash différé /

		transfert mobile money / virement bancaire / autre
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ANNEX 3. FOCUS GROUP DISCUSSIONS GUIDELINES

Farmer FGDs - KII data entry form - Baseline October 2018 - Maximizing Opportunities for Cocoa Activity (MOCA)

Facilitator Name(s):
CNFA production zone:
Region:
Community/Village:
Cooperative:
Date:
of participants
of male participants
of female participants

Introduction

Nous travaillons pour KIT, un institut de connaissance indépendant basé à Amsterdam. On nous a demandé de mener une étude de base pour un nouveau programme sur le cacao, appelé MOCA, financé par le gouvernement des États-Unis et le CNFA. On vous invite à répondre à nos questions et de donner votre avis sur les sujets concernant le cacao.

Notes		Check
Time:	100 minutes	Total time:
Process:	Ask if the identity and contact details of the respondent can be shared	Yes/No

CHANGEMENTS							
Sujet de discussion	Aller en profondeur, demander des détails	Maintenant / aujourd'hui	Il y a 5 ans	Raisons du changement?	Institution	Note	Futur
	<i>Demander pourquoi/pourquoi pas; comment; pour ou par qui</i>	<i>Decriere la situation actuelle</i>	<i>Decrire la situation il y a 5 ans/ avant Tony's ou avant d'integrer la cooperative</i>	<i>Essayer de saisir a qui le changement est attribue</i>	<i>Quelle(s) institution(s) vous soutiens?</i>	<i>1 negatif, 2 pas de changement/mix, 3 positif</i>	<i>Comment la situation peut etre ameliore? Par qui?</i>
Productivite	Produits Phyto (Pesticide, fongicide)	Accès, utilisation, donné/acheté, type, biologique/chimique					
	Engrais	Accès, utilisation, donné/acheté, type, biologique/chimique					
	Équipement (machète, bottes, pulvérisateur)	Accès, utilisation, donné/acheté, type					
	Pépinière/semmences	Accès, utilisation, donné/acheté, type					
	Maladies du cacao	Augmentation/diminution, type					

	CHANGEMENTS							
	Sujet de discussion	Aller en profondeur, demander des détails	Maintenant / aujourd'hui	Il y a 5 ans	Raisons du changement?	Institution	Note	Futur
		<i>Demander pourquoi/pourquoi pas; comment; pour ou par qui</i>	<i>Decriere la situation actuelle</i>	<i>Decrire la situation il y a 5 ans/ avant Tony's ou avant d'integrer la cooperative</i>	<i>Essayer de saisir a qui le changement est attribue</i>	<i>Quelle(s) institution(s) vous soutiens?</i>	<i>1 negatif, 2 pas de changemen t/mix, 3 positif</i>	<i>Comment la situation peut etre ameliore? Par qui?</i>
	Formation	Recue, a quelle frequence, si appliquee. Si non appliquee, pourquoi pas? Dans quel endroit? Ferme-ecole? Etes-vous toujours informes? Par qui? (Cooperative ou autres)						
	Production	Augmentation (due a une augmentation de la plantation ou augmentation de la productivite)/Diminution						
	Qualite	Et la qualite?						
	Diversification/plantation mixte	Augmentation/diminution, types de diversification/ est-il important de diversifier?						

Sujet de discussion	Aller en profondeur, demander des détails	Maintenant / aujourd'hui	CHANGEMENTS				
			Il y a 5 ans	Raisons du changement?	Institution	Note	Futur
	<i>Demander pourquoi/pourquoi pas; comment; pour ou par qui</i>	<i>Decriere la situation actuelle</i>	<i>Decrire la situation il y a 5 ans/ avant Tony's ou avant d'integrer la cooperative</i>	<i>Essayer de saisir a qui le changement est attribue</i>	<i>Quelle(s) institution(s) vous soutiens?</i>	<i>1 negatif, 2 pas de changement/mix, 3 positif</i>	<i>Comment la situation peut etre ameliore? Par qui?</i>
Credit/facilités de pret	Groupes d'epargne et credit/ acces au credit						
Cooperative	Comment fonction la cooperative? Satisfait des services?						
Prime/bonus de cacao (montant)	Recevez-vous un bonus ou une prime pour votre cacao? Expliquer les raisons pour lesquelles une prime est recue?						

Rappel des projets

Durée: 45 minutes

Ask for all previous interventions that took place in the passed 5 years Note down as many as possible time wise. Focus as much as possible on cocoa/agriculture projects.

Nom du projet	Secteur	Nom(s) de(s) initiateur(s)	Type d'initiateur	Description du projet (opbreken)	Date(s) de - a	Impact	Evaluation de l'impact
<i>Si ils ne connaissent pas le nom, demander l'objectif</i>	<i>Agriculture (cacao/non cacao), eau, sante, infrastructure, education, autre</i>	<i>Notez tout les noms qui sont mentionner en tant que organisations qui ont initier ce projet</i>	<i>Gouvernement, ONG- non religieuse, ONG religieuse, Entreprise, Cooperative, propre initiative, autre</i>	<i>Qui sont les principales beneficairees? Quelles etait les actions? Quelles etait les resultats?</i>	<i>Quand es ce que le projet a commence? Duree? Frequence</i>	<i>Negative= 1, pas d'impact= 2, Positive=3, tres positive= 4</i>	<i>Raison de l'impact. Explication de la note</i>
Meilleur projet?							
<i>Quelle projet etait le meilleur? Et pourquoi?</i>							

Quelle est (approximativement) la composition en termes d'âge?	# of male members < 35 years
	# of male members > 35 years
	# of female members < 35 years
	# of female members > 35 years
Quelle est la composition du conseil d'administration de la coopérative?	# males/# females
Quelle est la composition du personnel la cooperative (management staff)?	# males/# females
Volume of production	
Quelle est la production totale en volume de cacao achetée par la coopérative en 2017/2018?	Metric Tonnes
La coopérative achète-t-elle uniquement le cacao de ses membres ?	yes/no
Si non, quelle est la part (en %) des fèves de cacao achetées des membres par rapport aux non-membres?	estimate share in %
La coopérative achète-t-elle tout le cacao produit par ses membres?	yes/no
Si non, quelle part la coopérative achète-t-elle à la production totale de cacao des membres?	estimated share in %
Quality	
Est-ce que tout le cacao que vous achetez aux membres est de qualité suffisante?	yes/no
La coopérative rejette-t-elle (une partie des) fèves de cacao de ses membres en raison de sa qualité insuffisante?	yes/no
Quelle est la part totale des fèves de cacao que la coopérative refuse, car les exigences de qualité ne sont pas satisfaites?	estimated share in %
Certification	
Is the cooperative certified?	yes/no

If so, which one(s)?	Fairtrade, UTZ, RA, Organic, Company Sustainability Programme (e.g. CocoaLife, CocoaPlan, CocoaPromise), none (more options possible)
What percentage of the cocoa bought by the cooperative is sold as UTZ/Rainforest or Fairtrade in 2017/2018?	estimate share in %
What percentage of the cocoa bought by the cooperative is sold as organic in 2017/2018?	estimate share in %
What percentage of the cocoa bought by the cooperative is sold as part of company sustainable programme in 2017/2018?	estimate share in %
What percentage of the cocoa bought by the cooperative is sold as conventional (non-certified or non-verified) in 2017/2018?	estimate share in %
Yields	
What is the average land size of the cooperative members used for cocoa production?	# hectares
How does the cooperative measure/estimate land size?	GPS, poles, measuring tape, self-reported
What is the average productivity per hectare?	kgs/ha
Export	
In 2017/2018 , what was the total volume of beans sold by the cooperative?	# in MT
In 2017/2018, what was the average price received per MT beans?	# in MT
In 2017/2018, what were the total revenues of the cooperative?	estimate # in CFA
In 2017/2018, to whom did the cooperative sell the beans?	exporter/traitant/processor/chocolate manufacturer/other (more options possible)
Does the cooperative usually work with fixed contract in terms of tonnage? (per contract)	yes/no

Does the cooperative usually work with fixed contract in terms of price? (per contract)	yes/no
What is the average duration of a contract with a buyer?	1 cocoa season, 2,3 or more
In 2017/2018, did the cooperative have any difficulties complying with the contract(s) they had?	don't know/yes/no
Do you process currently (part of the) cocoa beans into cocoa products or chocolate?	yes/no
Do you have concrete plans to start processing beans in the coming 2 years?	yes/no
Do you have concrete plans to start chocolate making in the coming 2 years?	yes/no
Other crops	
Do you trade other crops besides cocoa for your members?	yes/no
If so, which crops?	List of options (more options possible): include coffee, cashew, palm oil, rubber, cassava, maize, vegetables, fruits, other
Finance	
Does the cooperative make an financial annual planning?	don't know/yes/no
In 2017/2018 what kind of income sources/revenues did the cooperative have?	don't know/marketing margins/premiums/membership fees/savings/service payment/grants/other (more options possible)
In 2017/2018, what was the main source of revenue?	don't know/marketing margins/premiums/membership fees/savings/service payment/grants/other (more options possible)
In 2017/2018 did your cooperative receive any in-kind grants (e.g. equipment and inputs)?	yes/no

In 2017/2018, were your actual income sources in line with the cooperatives' financial planning?	don't know/yes/no
if no, were your actual income sources in 2017/2018 higher or lower than planned?	higher/lower
In 2017/2017 what kind of expenditures did the cooperative have?	don't know/cooperative costs//service delivery/community development/cash premium to farmers/debt-repayment/other (more options possible)
What were in 2017/2018 the main expenditures of your cooperatives? (more options)	don't know/cooperative costs//service delivery/community development/cash premium to farmers/debt-repayment/other (more options possible)
In 2017/2018 did your cooperative invest in a matching grant for the purchase of inputs and/or equipment> any in-kind grants (e.g. equipment and inputs)?	don't know/yes/no
In 2017/2018 did your cooperative have any savings?	yes/no
In 2017/2018 did the cooperative have any outstanding debts or loans?	yes/no
In 2017/2018, were your actual expenditures in line with the cooperatives' financial planning?	don't know/yes/no
if no, were your actual expenditures in 2017/2018 higher or lower than planned?	higher/lower
Have you ever defaulted on your loan repayment?	don't know/yes/no
When was the last time you defaulted?	year
Capacity assessment	
How many trainers/extension workers do you currently employ?	# number
What is the number of male trainers/extension workers?	# males
What is the number of female trainers/extension workers?	# females

Does the cooperative have access to a service provision unit that operates in its zone?	yes/no
The last three years, did the cooperative management receive any training to improve its management skills?	yes/no
The last three years, did the cooperative management receive any training related to certification?	yes/no
The last three years, did the cooperative management receive any training related to gender equality?	yes/no
The last three years, did the cooperative management receive any training related to child labour?	yes/no
Does your cooperative participate in CLMRS - Child Labour Monitoring and Remediation System?	yes/no

Service delivery to members - 2017/2018 season	
	Categories
Training	
Did the cooperative provide training to its members in 2017/2018?	yes/no
On what topic(s)?	GAP/GEP/FBS/IPM/Child labour/diversification/savings/nutrition/gender/certification/other (more options possible)
If yes, how frequently did you give the training to the members in 2017/2018?	#
What was the duration of the training?	1-2 days, 3-5 days, 5-10 days, 10+ days
Where did the training take place?	Office/demonstration-plot/on farm/other
Did the cooperative provide this training for free?	yes/no/partly
What was the condition for providing the training?	no condition/membership of cooperative/selling all cocoa to

	cooperative/on credit/other (more options possible)
Last cocoa season, were there other actors that trained members of your cooperative?	don't know/yes/no
Provision of inputs	
In 2017/2018 did the cooperative provide any of the following inputs to its members:	chemical fertilizer: yes/no
	organic fertilizer (manure): yes/no
	pesticides: yes/no
	fungicides: yes/no
	herbicides: yes/no
	weedicides: yes/no
If yes, are they provided for free?	yes/partly/no
What was the condition for providing the input?	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)
In 2017/2018 were there other actors that provided inputs to your members?	don't know/yes/no
If yes, who was involved ?	ANADER/CCC/Pisteur/NGO/Company/Certifier/other (more options possible)
what input?	chemical fertilizer/organic fertilizer/pesticides/fungicides/herbicides/weedicides/other (more options possible)
In 2017/2018 did the cooperative provide pruning services to its members?	yes/no
If yes, are these services provided for free?	yes/partly/no
What was the condition for providing pruning services	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)

In 2017/2018 were there other actors that provided pruning services to the cooperative members?	don't know/yes/no
If yes, who was involved ?	ANADER/CCC/Pisteur/NGO/Company/Farmer or labour group/other (more options possible)
In 2017/2018 did the cooperative provide spraying services?	yes/no
If yes, are these services provided for free?	yes/partly/no
What was the condition for providing spraying services?	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)
In 2017/2018 were there other actors that provided spraying services to the cooperative members?	don't know/yes/no
If yes, who was involved ?	ANADER/CCC/Pisteur/NGO/Company/Certifier/farmer or labour group/other (more options possible)
Nursery	
Does the cooperative manage a cocoa nursery?	yes/no
Does the cooperative provide seedlings to members?	yes/no
What kinds of seedlings	Mercedez/Ghana/French/Hybrid/Fine flavour/Others (more options possible)
If yes, are these seedlings provided for free?	yes/partly/no
What was the condition for providing seedlings?	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)
In 2017/2018, were there other actors that provided seedlings to your members?	yes/no
If yes, who was involved ?	ANADER/CCC/Pisteurs/NGO/Company/Certifier/community nursery/other (more options possible)

what types of varieties?	Mercedez/Ghana/French/Hybrid/ Fine flavour/others (more options possible)
In 2017/2018 did your cooperative provide seedlings for shade trees to your members?	yes/no
If yes, are these seedlings provided for free?	yes/no/partly
in 2017/2018 did your cooperative provide any other seedlings to your members?	yes/no
What kind of seedlings?	vegetables/fruits/other
Is yes, are these seedlings provided for free?	yes/no/partly
Transport and storage	
In 2017/2018 did you provide transport and storage services to your members in 2017/2018?	yes/no
If yes, did the cooperative provide this service for free?	yes/no/partly
What was the condition for provising transport and/or storage services	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)
<i>Financial services</i>	
Did you provide any financial services to your members in 2017/2018?	yes/no
What kind of services?	small loan/input on credit/saving groups/mobile savings/mobile payment/other (more options possible)
Under what conditions?	no condition/membership of cooperative/selling all cocoa to cooperative/on credit/other (more options possible)
Marketing services	
Do you buy all the cocoa from your members?	yes/no
If not, why?	No funds/no market/quality issues/other

Do you also buy other (non-cocoa) crops from your members?	yes/no
Do you pay a cash premium (certification) to all your members?	yes/no/only to part of members
If yes/part, in which month do you pay the premium?	Jan/Feb/March/Apr/May/June/July/Aug/Sept/Oct/Nov/Dec
community projects	
Does your cooperative invest in any community projects dans votre zone d'activite?	yes/no
What type of projects?	education/health&hygiene/water/child labour/food&safety/income generation/employment/other

SMEs - KII data entry form - Baseline October 2018 - Maximizing Opportunities for Cocoa Activity (MOCA)

Facilitator Name(s):
Name of business:
Name of respondent(s):
Function of respondent(s):
Contact details (phone and/or email):
Region:
Community/Village:
Date:
Geolocation:

We work for KIT, which is an independent knowledge institute. We have been asked to conduct a baseline study for a new cocoa programme, called MOCA, financed by the US government and CNFA. Because you have first-hand knowledge on the research topic of interest you are invited to participate in this interview.

Time:	30 minutes	Total time:
Process:	Ask if the identity and contact details of the respondent can be shared	Yes/No

Fact sheet - about the SME	2017
<i>Introduction</i>	<i>Categories</i>
What is your core business?	agrodealer/financial service supplier/business development services/other
Since when are you operational?	year
Since when are you operational in this community/district?	year
What is your area coverage?	zone/region/district/country/regional/global
Sales	
Do you sell any products?	yes/no
if yes, what kinds of products do you sell?	inputs/equipment/financial products/other
Last year, what was your total volumes of sales?	# in CFA
Last year, what was the total value of your sales?	estimate # in CFA
last year, which product generated most value for your business?	inputs/equipment/financial products/other
Services	
Do you provide any services?	yes/no
if yes, what kinds of services do you provide?	capacity development/financial services/input distribution/advisory services/transport services/labour

	services/land services/storage services/other (more options possible)
Last year, what was the total payment received for your services provided?	# in CFA
Last year, what was the total value of your service provision?	estimate # in CFA
last year, which service generated most value for your business?	capacity development/financial services/input distribution/advisory services/transport services/labour services/land services/storage services/other (more options possible)
<i>Labour costs</i>	
In 2017, how many people were fulltime employed in your business?	#
In 2017, how many people were parttime employed in your business?	#
What was the composition of employees?	# of men < 35 years
	# of men > 35 years
	# of women < 35 years
	# of women > 35 years
In 2017, did you have any temporary/seasonal workers?	yes/no
How many?	
<i>Costs and revenues</i>	

Last year, what were your total expenses?	estimate # in CFA
Last year, what type of expenses did you have?	transport/storage/purchase price of products/rent/salaries/wages/interest on loan/other (more options possible)
Last year, what was your largest type of expenses?	transport/storage/purchase price of products/rent/salaries/wages/interest on loan/other (more options possible)
Last year, what were your total revenues?	estimate # in CFA
Last year, what types of revenues did you have?	sales of products/payment for services/interest/loan/grant/other (more options possible)
Last year, what was your largest type of revenues?	sales of products/payment for services/interest/loan/grant/other (more options possible)
In 2017, did you make any profit?	yes/no
In 2017, what was your actual profit?	estimate # in CFA
<i>Customers</i>	
In 2017, what was the total number of clients?	#
How much of your client base is women?	estimate %
How much of your client base is <35 years?	estimate %

Fact sheet - about the processor	2017
<i>Introduction</i>	<i>Categories</i>

What is your core business?	processing cocoa beans/manufacturing cocoa beans/trading cocoa beans/exporting cocoa beans/other (more options possible)
Since when are you operational?	year
Since when are you operational in this community/district?	year
What is your area coverage?	zone/region/district/country/regional/global
Processing capacity	
What is your annual processing capacity?	beans in MT
What was last cocoa season the volume of beans processed?	beans in MT
What was last cocoa season the volume of beans bought?	beans in MT
<i>Sourcing</i>	
Where do you source your beans from?	direct from farmers/cooperatives/pisteurs/traitants/international companies/other (different options possible)
In 2017, what price did you pay per MT of beans?	# CFA
Do you usually work with a fixed contract with your supplier?	yes/no
if yes, what is usually fixed in these contracts?	price/tonnage/duration/quality/other (more options possible)
Do you source certified cocoa beans?	yes/no
If yes, what type of certification?	Fairtrade,UTZ/RA, Organic, Company Sustainability Programme), other (more options possible)
If yes, do you pay a premium for certified beans to your suppliers?	yes/no
If yes, how much premium for you per MT	# CFA

<i>Sales</i>	
To whom do you sell your end product?	processor/chocolate maker/trader/exporter other (more options possible)
Last year, what was your total volumes of sales?	# in MT
Last year, what was your selling price?	# per MT
Last year, what was the total value of your sales?	estimate in # CFA
<i>Services</i>	
Do you provide any services?	yes/no
if yes, what kinds of services do you provide?	capacity development/financial services/input distribution/advisory services/transport services/labour services/land services/storage services/other (more options possible)
Last year, what was the total payment received for your services provided?	# in CFA
Last year, what was the total value of your service provision?	estimate # in CFA
last year, which service generated most value for your business?	capacity development/financial services/input distribution/advisory services/transport services/labour services/land services/storage services/other (more options possible)
<i>Labour costs</i>	
In 2017, how many people were fulltime employed in your business?	#
In 2017, how many people were parttime employed in your business?	#
What was the composition of employees?	# of men < 35 years
	# of men > 35 years
	# of women < 35 years

	# of women > 35 years
In 2017, did you have any temporary/seasonal workers?	yes/no
How many?	
<i>Costs and revenues</i>	
Last year, what were your total expenses?	estimate # in CFA
Last year, what type of expenses did you have?	transport/storage/purchase price of products/rent/salaries/wages/interest on loan/other (more options possible)
Last year, what was your largest type of expenses?	transport/storage/purchase price of products/rent/salaries/wages/interest on loan/other (more options possible)
Last year, what were your total revenues?	estimate # in CFA
Last year, what types of revenues did you have?	sales of products/payment for services/interest/loan/grant/other (more options possible)
Last year, what was your largest type of revenues?	sales of products/payment for services/interest/loan/grant/other (more options possible)
In 2017, did you make any profit?	yes/no
In 2017, what was your actual profit?	estimate # in CFA
<i>Customers</i>	
In 2017, what was the total number of customers?	#
Do you usually work with a fixed contract with your customers?	yes/no
if yes, what is usually fixed in these contracts?	price/tonnage/duration/quality/other (more options possible)
Do you sell certified cocoa beans?	yes/no
If yes, what type of certification?	Fairtrade,UTZ/RA, Organic, Company Sustainability Programme), other (more options possible)

If yes, does your customer pay a premium for certified beans?	yes/no
If yes, how much premium do your customers pay for certified beans per MT?	# CFA