PRO-Cashew
WEST AFRICA CASHEW PROJECT

PRO-Cashew: West Africa Cashew Project

Baseline Evaluation Report

Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria

February 3rd, 2021

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PRO-Cashew Baseline Evaluation Report

This publication was produced at the request of the United States Department of Agriculture. It was prepared independently by Cultivating New Frontiers in Agriculture (CNFA) and Agramondis. The authors' views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

USDA Cooperative Agreement No.: FCC-641-2019/006-00-A

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Abbreviations

ACA	African Cashew Alliance
APEX	Agence pour la Promotion des Exportations du Burkina
ATADA	Territorial Agency for Agricultural Development
BCB	Burkina Cashew Board
CBA	Burkinabe Cashew Council
CBN	Central Bank of Nigeria
CCA	Council for Cotton and Cashew
CICC	Consultative International Cashew Council
CNFA	Cultivating New Frontiers in Agriculture
CRIN	Cocoa Research Institute of Nigeria
DDAEP	Department of Breeding and Fishing MAEP
DGC	Direction générale du commerce (Burkina Faso)
DGDI	Direction Générale du Développement de l'Industrie numérique (Burkina Faso)
DGPER	Directorate General for the Promotion of Rural Economy
DSA	Direction des Statistiques Agricoles(Benin)
FENAPAB	National Federation of Producers of Cashew Benin
FFPr	Food for Progress Program
FU	Sampling Frame Unit
FUAM	Federal University of Agriculture Markurdi
FUNAAB	Federal University of Agriculture Abeokuta
FGD	Focus Group Discussion
FMARD	Federal Ministry of Agriculture and Rural Development
FMOT	Federal Ministry of Trade
FMTI	Federal Ministry of Trade and Industry
IFA	Interprofessional Association of the Cashew Sector
INERA	Institute of Research
KII	Key Informant Interview

KOR	Kernel Out-turn Ratio
LBA	Local Buyers Association
MAAH	Ministry of Agriculture and Hydraulic Development
MAEP	Ministry of Agriculture, Livestock and Fisheries
MEF	Ministry of Economy and Finance
MIC	Ministry of Industry and Commerce
MIT	Ministry of Industry and Trade
MOFA	Ministry of Food and Agriculture
MOF	Ministry of Finance
MOUAU	Michael Okpara University of Agriculture Umudike
MT	Metric Tons
NEPC	Nigerian Export Promotion Commission
NIHORT	National Horticultural Research Institute
ODK	Open Data Kit – data collection app
PNDFA	Programme National de Développement de la Filière Ananas (Benin)
PSDSA	Plan Stratégique de Développement du Secteur Agricole (Benin)
PSU	Primary Sampling Unit
RCN	Raw Cashew Nuts
SON	Standards Organization of Nigeria
SSU	Secondary Sampling Unit
TCDA	Tree Crop Development Authority
URCPA	Regional Union of Cashew Producers Cooperative
USDA	United States Department of Agriculture
USU	Ultimate Sampling Unit
WEL	Women Economic Leadership
REDAA	Africa Cashew Research and Development Network

1 Executive Summary

PRO-Cashew is a five-year USDA-funded development program in the West African cashew sector, implemented by Cultivating New Frontiers in Agriculture (CNFA). The program started in 2020 and is working in Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria. It aims at increasing productivity and efficiency of farmers and boosting trade of cashew by improving harvest and post-harvest techniques and supporting supply chain linkages between farmers and agro-food companies in the five intervention countries.

This baseline evaluation establishes the pre-intervention socio-economic baseline of raw cashew nut (RCN) farmers through surveys, as well as cashew sector structures, drivers, barriers, and opportunities through focus group discussions (FGDs) and key informant interviews (KIIs) with other actors in the value chains, namely:

- RCN farmer groups
- Cashew producing rural communities
- Agribusinesses like buying agents, aggregators, traders and processors
- Extension service agents
- Input providers
- Industry associations and the public sector
- Academics and researchers

To that end, a total of 1,733 RCN farmers were surveyed between November 2nd and December 3rd, 2020, between 336 and 368 per country. In addition, 152 KIIs and 82 FGDs, with a total of 1,285 participants, were completed across the entire program.

Unlike typical baseline studies, intervention beneficiaries had not been clearly identified at the time of the study, owing to the approach taken in PRO-Cashew, which works through cashew processers and the farmers in their supply-base, rather than with farmers directly. This made it impossible to define intervention (treatment) and non-intervention (control) groups for later evaluation of the impacts of the program. The sampling strategy adopted hence aimed to cater for the needs of a future statistical evaluation, while working with the realities on the ground. We developed a sampling frame that tries to reconcile these objectives, by taking a representative sample of RCN farmers in the program intervention area in each of the five countries; while forcing a 50/50 split in the sample between farmer communities who were likely to be future beneficiaries and communities who were not. The former were defined as farmers with whom PRO-Cashew processing partners were either already souring RCNs or were planning to source in the coming years. This split will help build balanced samples for treatment and control groups in subsequent evaluations.

Findings for core indicators at baseline are

1. **Yields:** Farmers' surveyed RCN yields were 580 kg / ha (=0.580 MT / ha) on average across the five countries, varying between an average of 508 kg / ha (=0.508 MT / ha) in Benin and 703 kg / ha (=0.703 MT / ha) in Nigeria.

   Survey yields are high compared to other published data, including yields found in dedicated yield surveys conducted by other USD-funded programs. The high yields found in our survey may be an artefact of several factors, mainly unreliable cashew area data from farmers. In this survey, cashew area data were based on farmer recall only, as measurements were not feasible at the time of the year. To establish a realistic baseline, it is recommended to use a multi-year average from robust published sources as the yield baseline, ranging from 307 kg / ha (=0.307 MT/ ha) in Burkina Faso to 444 kg / ha (=0.444 MT /ha) in Côte d'Ivoire. It is also recommended that PRO-Cashew conduct its own yield survey, which would allow for retrospective validation or correction of the baseline
2. **RCN sales value**: In 2020, surveyed farmers on average sold USD 1,464 worth of RCN across the five countries, ranging from between an average of USD 915 in Benin to USD 2,699 in Nigeria. The baseline value across the program was USD 4.27 million.
3. **RCN sales amount**: Surveyed farmers on average sold 2,431 kg of RCN across the five countries in 2020, varying between an average of 1,469 kg (=1.47 MT) in Ghana and 4,436 kg (=4.44 MT) in Nigeria. The baseline value across the program was 7,200 MT.
4. **Cultivated area under cashew**: The survey found that farmers cultivate 3.4 ha of cashew on average across the five countries, varying between an average of 1.4 ha of cashew (in Côte d'Ivoire) and 4.6 ha (in Nigeria). As mentioned above, these area figures should be treated with caution and need to be verified through actual measurements.
5. **Area under improved management**: Farmers already applied good agricultural practices to their cashew plantations in 2020: On average, 55% of cashew plantation firebreaks had been constructed, on 39% trees were pruned, on 27% soil was cultivated around trees, on 23% cashew stands were thinned, and on 19% pests and disease control was applied. Organic and synthetic fertilizers were applied to 2% and 3% of the cashew area, respectively. The baseline value across the program was 4,375 ha.
6. **Number of farmers**: PRO-Cashew works with processor partners who support RCN farmers that supply them. In 2020, two of the nine PRO-Cashew partner processors who had been signed at the time of this study were working directly with farmers, 1,536 in Côte d'Ivoire and 854 in Nigeria, adding up to a total of 2,391 farmers as the baseline value across the program.
7. **Number of farmers applying improved practices**: Of the 2,391 farmers, 2,336 farmers applied at least one improved practice, though with strong variation in the uptake of different improved practices.
8. **Wider footprint**: Beyond working directly with farmers, PRO-Cashew partners buy from intermediaries and thus have a wider footprint: An estimated total of 31,395 farmers supplied PRO-Cashew partners in 2020. They managed an estimated 91,469 ha of cashew of which area. Of this area, between 81 ha (<0.1%) and 55,875 ha (61%) were under various

improved management practices, with fire break, pruning, and cultivating the soil around cashew trees being the most frequently applies ones. The volume of cashew nuts bought by PRO-Cashew partners in 2020 was 70,806 MT, worth USD 41,452,000. These figures for total footprint do not including Ghana, where no PRO-Cashew partner had been signed at the time of conducting this study.

Beyond these core indicators, the low participation of women and young people in the cashew sector become apparent: Only 7.4% of the RCN farmers surveyed were women. The average age of the farmers was around 50, and only 2.5% of all farmers surveyed were under 30 years old. Women are not only seldom involved in cashew cultivation, they also have smaller overall farms and cashew plantation and are also markedly below their male counterparts on a various socio-economic metrics, such as education and access to finance.

Main recommendations for the PRO-Cashew project are to

1. Conduct dedicated annual yield and production surveys during the harvest season, including verification of plot size measurement (see methodology used by BeninCaju)
2. Support farmers in accessing markets directly, shortening the value chain and cutting out intermediaries that do not add value
3. Improve the quality of cashew inputs for the farmers
4. Support farmers in replanting and rejuvenation of cashew plantations
5. Encourage the strengthening and formation of cashew farmer organizations
6. Building for agro-food commodity companies and cashew farm services providers
7. To collaborate with other established USDA-funded cashew programs in West Africa to share learning, foster synergies, and establish best practice, e.g. in cashew yield measurement.

Other observations

1. Participation of women in the cashew value chain is low. A better understanding of the underlying reasons and a strategy for addressing them could increase the participation of women and would distribute the benefits of any intervention more equitably across genders
2. Young people (below 30 years) participate in the cashew value chain but not as farmers. A main issue is access to land. A more detailed understanding of the underlying reasons and a strategy for addressing them could increase young people's participation and share in the value created
3. Cashew apples are currently not widely used and present an untapped potential for additional value creation and income.

2 Project Background

West Africa is the largest cashew producing region worldwide, with 1,795,000 metric tons (MT) of raw cashew nut (RCN) harvested in 2018, or 49% of the world supply. The cashew sector provides income to an estimated 10 million people in Africa. In recent years, cashew has become the second largest export crop in West Africa by value, after cocoa. Despite being the world's cashew production hub, only a fraction of raw cashew nuts is being processed in West Africa, while 90% of the world's production are processed in India and Vietnam.[1]

The PRO-Cashew project is a five year, 23-million-dollar project funded by the United States Department of Agriculture (USDA) Food for Progress program and implemented by Cultivating New Frontiers in Agriculture (CNFA). PRO-Cashew project will, over five years, support cashew farmers in Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria to improve productivity and access to markets. The objective of this baseline evaluation is to establish the pre-intervention status of farmers and stakeholders before the start of project. It seeks to establish baseline levels for all metrics (both quantitative and qualitative), against which changes over time, or differences between treatment and control group will be assessed to evaluate project impact.

CNFA has contracted Agramondis 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.

Report Structure

The PRO-Cashew baseline evaluation work is sub-divided into three documents:

1. **PRO-Cashew Baseline Report.** This document is the main report of the baseline study.
2. **Country Overviews.** The report contains country specific content which covers the analysis of both the quantitative and qualitative data from farmers survey, FGDs and KIIs. The findings of the baseline study for each of the five countries are captured under the following sections:
    1. Characteristics of Cashew Farmers
    2. Agricultural Productivity at Farm Level
    3. Cashew Farmer Communities
    4. Farmer Organizations
    5. Agro-Food Commodity Companies
    6. Cashew Farm Service Providers
    7. Extension Agents

[1] Data: Nitidæ research, see https://www.nitidae.org/files/41dc7432/wa_cashew_sector_review_2019_nitidae.pdf.

8. Government Officials / National Sector Associations
9. Researchers/Academics

3. Annexes. The report contains all the annexes used in the PRO-Cashew Baseline Report:

1. Annex A: Sampling Construction per Country
2. Annex B: Data Collection Protocols: Cashew Farmer Survey
3. Annex C: Data Collection Protocols: KIIs and FGDs
4. Annex D: Statement of Work
5. Annex E: Conflict of Interest signed by the Evaluator.
6. Annex F: Project Results Framework
7. Annex G: Project Implementation timeline

3 Evaluation Framework

In December 2019, CNFA began implementing the West Africa Value Chain project (PRO-Cashew) in the West Africa region, specifically Benin, Burkina Faso, Côte d'Ivoire, Ghana, and Nigeria. This project seeks to achieve the following objectives:

- To increase productivity and efficiency of actors in the cashew value chain through strengthening the capacities of cooperatives/producer organizations, nursery systems and input suppliers and strengthening data collection and dissemination systems.
- To improve and expand the trade of cashew and cashew products through improving crop quality; rehabilitating and renovating orchards; addressing gaps in data collection, analysis and dissemination; strengthening public-private partnerships; and encouraging harmonized regional policies to supply products that meet market demands.

Six key activities comprise the project:

1. Capacity Building: Farmer Organizations and Agro-Food Companies
2. In-Kind Grants: Inputs, Equipment, and Technical Assistance
3. Inputs: Develop Agrodealers and/or Other Input Suppliers
4. Integrated Data System Development
5. Public Information Campaign: Disperse Improved Market Information
6. Capacity Building: Promote Improved Policy and Regulatory Framework

Specifically, CNFA aims to build the capacity of 42,000 farmers, through selected farmer organizations and agro-food suppliers over the life of the project, in areas including: business management, orchard management and service delivery leading to increased use of improved practices and management techniques, productivity, and sales RCN.

The baseline evaluation used a mixed-methods approach to include the collection of quantitative and qualitative data. Data collection aimed to meet the following evaluation objectives: 1) establish quantitative values for the performance indicators and use the data to validate and/or revise existing targets; 2) establish baseline values for all measures (both quantitative and qualitative) needed to both support annual performance monitoring, and mid-term and final evaluation of impact; 3) validate program design assumptions; and 4) identify potential strengths, weaknesses, opportunities, and threats to program implementation. The data collection approach sought to identify specific recommendations to overcome any threats to program implementation and to enhance program monitoring. Table 1 provides an overview of the data collection approaches for addressing the baseline questions defined by CNFA.

In summary, the baseline study included the following data collection methods across the five project countries:

- **Cashew farmer surveys (n = 1,733)** to collect detailed information on farm-level indicators (e.g., cashew production, trade volumes, household characteristics)
- **Cashew farmer communities focus group discussions (FGDs) (n = 82)** to understand farmer relationships with organizations, what services are offered and the current management practices
- **Stakeholder group key informant interviews (KIIs) (n = 152)** amongst farmer organizations, cashew farmer service providers, agro-food commodity companies, extension agents, government officials, associations, researchers and academics to collect information primarily related to services offered, the capacity of organizations, sources of information, etc.

Aside from farmer surveys, KIIs and FGDs, we used the body of existing (and forthcoming) published and gray literature on the structure of the cashew sector in the five study countries, including, but not limited to:

- ACi/ComCashew yield data and sector statistics
- N'kalo monthly trade and production data (2014 to current)
- Consultative International Cashew Council (CICC)
- African cashew research and development network (REDAA)
- LIFFT (under the USDA Food for Progress program in Senegal, The Gambia and Guinea Bissau for comparison)
- BeninCaju (under the USDA program in Benin for comparison)

Qualitative approaches were gender sensitive and include gender-representative focus groups and key informant interviews to gain a richer understanding of the baseline situation based on the perspectives of multiple stakeholders.

Table 1: Baseline Data Collection Approaches

Note: See the Cashew Farmer Survey (English and French) and the FGDs and KIIs protocol and questionnaires in the PRO-Cashew Baseline Report ANNEXES document.

Beneficiary Population	Baseline Question	Data Collection Approach	Purpose
Direct beneficiary RCN farmers	What are the quantitative baseline values for PRO-Cashew outcome indicators? *FFPr Standard Indicator #1:* Yield of targeted agricultural commodities among program participants with USDA assistance (MT/ha) *FFPr Standard Indicator #2:* Number of hectares under improved management practices or technologies with USDA assistance FFPr Standard Indicator #18: Value of annual sales of farms and firms receiving USDA assistance (USD) *FFPr #19:* Volume of commodities sold by farms and firms receiving USDA assistance (MT)	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Nigeria: RCN Farmer Sample Survey.	Establish quantitative baseline values for PRO-Cashew performance indicators.
Farmer organizations	What are farmer sales to the farmer organization? What is the baseline capacity of the farmer organizations? What services are currently offered?	Farmer organization study: Survey of direct beneficiary farmer organizations, Focus Groups and Key Informant Interviews with managers and members.	Triangulate results from the RCN Farmer Sample Survey. Establish farmer organization baseline for current management practices, services offered, and sustainability.
Agro-food commodity companies	What are farmer sales to the agro-food companies? What is the baseline capacity of the companies/ What are current business management practices?	Agro-Food Commodity Companies Study: Survey of direct beneficiary Agro-food commodity companies, Focus Groups and Key Informant Interviews with managers and staff.	Triangulate results from the RCN Farmer Sample Survey. Establish agro-food baseline for business management practices and services offered.
Cashew farm service providers (Farm R&R Providers and Seedling Retailers)	What are current services offered? What are current business management practices?	Survey of direct beneficiary R&R service providers, Focus Groups and Key Informant Interviews with managers and staff.	Establish qualitative baseline values for R&R service providers around current services offered, and business management practices.
Extension agents	What are current services offered by extension agents?	Survey of direct beneficiary extension agents; Focus Groups and Key Informant Interviews with managers and staff.	Establish qualitative baseline values for extension agents around current services offered.
Government officials	What are current uses and sources of data? What are relevant policy making practices?	Survey of direct beneficiary government officials, Focus Groups and Key Informant Interviews.	Establish qualitative baseline values for government officials around current use and sources of data, policy-making practices.

4 Data Schema

4.1 Sampling Strategy

Objectives

The objective of the statistical design is to show the impact of PRO-Cashew on farmers at country level on the selected baseline indicators as shown in Table 1. The objective of this sampling strategy is to create a sample of cashew farmers that is (a) representative of farmers in the PRO-Cashew intervention area prior to the start of the project, and (b) balanced in terms of its representation of potential treatment and control farmers, so that the baseline will be valid for both groups when they are differentiated in subsequent evaluations.

Sample Size

Cashew Farmer Survey

For normally distributed variables, the sample size is determined by the desired level of statistical confidence, the acceptable margin of error, and the size of the population from which the sample is taken. The higher the desired confidence level and the lower the acceptable margin of error, the larger the sample size needs to be at a given population size. In monitoring and evaluation, limited project resources normally constrain the possible sample size. Evaluators can trade off increased accuracy (=low margin of error) against reduced confidence and vice versa.

For this project, we initially proposed to control for a 5% margin of error to enable us to statistically differentiate changes in variables even if they are small. At a manageable sample size, this would have enabled a 90% level of confidence. However, 95% confidence were requested by the client, which can be traded off against an increase in the margin of error to 5.5%. This means that, with a likelihood of 95%, the true value we are trying to determine through the survey (e.g., the average yield or farm size) lies within ±5.5% of the surveyed mean.

With these two parameters set, the sample size relies on the total number of farmers in the population that we are trying to describe. However, at the time of planning and conducting the baseline study, the number of potential beneficiaries in each country had not yet been determined. In total, PRO-Cashew aims to impact at least 42,000 farmers across the five intervention countries in the first five years, so an average of 8,400 farmers per country. The estimated total numbers of cashew farmers in the five project countries range from 65,000 (in Burkina Faso) to 330,000 and more (in Côte d'Ivoire and Nigeria).[2] We therefore assumed that

[2] Farmer number estimates from 2019 ComCashew country reports, see https://www.comcashew.org/downloads.

the evaluations need to show statistically significant differences for populations between 8,400 and 330,000.

The relationship between sample size and population is non-linear and converges for large populations. At the proposed ±5.5% margin of error and 95% confidence, the sample size converges to 318 for populations from around 200,000 and higher. This means that the upper end of the estimated population range (330,000) needs a sample size of 318. However, because of non-linearity, the sample size for the lower end (8,400) is 306, so only 12 surveys less.

We therefore planned conservatively for the higher sample size of 318 farmers in each of the five intervention countries, rounding the number up to 330 to add a safety margin and arrive at an easily sub-dividable number. We subdivided the 330 farmers into 30 communities (sampling locations) with 11 farmers per community. In practice, the field teams oversampled as well, so that between 336 and 368 surveys were conducted.

Stakeholder Interviews

Interviews with different stakeholder groups were conducted to gain contextual information, learn about common practices, hopes, aspirations and perceived barriers, and opportunities from participants. These interviews were semi-structured and held as Focus Group Discussions (FDGs) and as Key Informant Interviews (KIIs).

The FGDs and KIIs are primarily diagnostic and intended to provide deeper and more nuanced insights, explore causal relationships and verify assumptions. The numbers of FGDs and KIIs were determined heuristically, with the aim of capturing a broad cross section of views, not with the aim of achieving a certain level of statistical confidence or power.

The FGDs and KIIs were held across seven stakeholder groups, with an average of 16 FGDs and 30 KIIs per country. The sample numbers for the different stakeholder groups per country can be found in section 0 in Table 16.

Sample Construction

We used a three-stage sampling approach at the level of each individual PRO-Cashew country, comprising the sampling of:

1. Primary Sampling Units (PSUs) — geographic locations
2. Secondary Sampling Units (SSU) — cashew farmer communities
3. Ultimate Sampling Units (USUs) — cashew farmers

Sampling Frame

As the sampling frame we used 1st or 2nd order administrative units in each country in which

1. Cashew is grown; and
2. PRO-Cashew partners (cashew processing companies) operate.

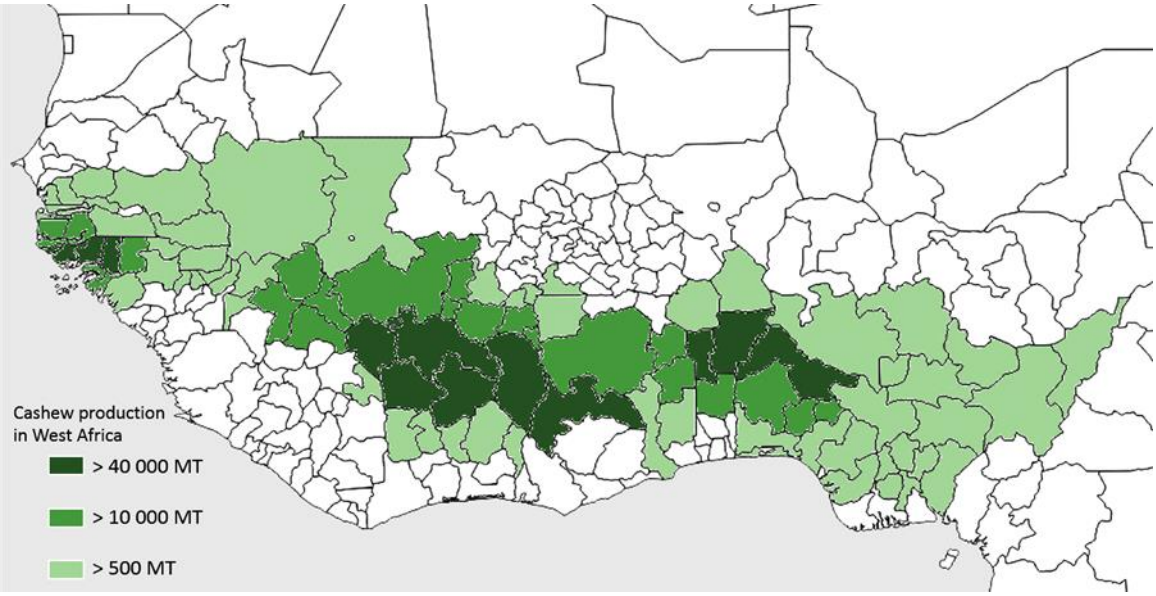


Figure 1: Cashew Production Density in West Africa, by Sub-national Geographic Units. Source: Nitidae (2019)

The first criterion was determined using cashew trade and production information from *N'kalo* (see Figure 1). The second criterion was based on information collected by CNFA from PRO-Cashew partners about their current and prospective sourcing areas (locations of aggregation centers or villages areas, depending on the partner).

In Ghana, where no PRO-Cashew partners had been identified at the planning stage of this study, we only used the first criteria, so included all areas in which cashews are grown.

Table 2 shows the administrative units (subdivisions) in each country that were used to define the sampling frame. We refer to them as sampling frame units (FUs) in the following. The level of administrative unit was selected as the smallest subdivision for which cashew farmer numbers (Côte d'Ivoire) or cashew production figures (Benin, Burkina Faso, Ghana and Nigeria) were available.

Table 2: Official Administrative Units, Sample Frame Units (FUs) and Primary Sampling Units (PSUs)

	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
Official administrative subdivisions	1. Départements 2. Communes 3. Arrondissement 4. Villages/towns	1. Régions 2. Provinces 3. Communes 4. Arondissements 5. Villages/towns	1. Districts 2. Régions 3. Départements 4. Sous-préfecture 5. Villages/Communes	1. Regions 2. Districts 3. Councils 4. Unit committees	1. States 2. Local Government Areas (LGAs) 3. Districts 4. Villages/towns
FU	Département	Province	Région	Region	State
PSU	Commune	Commune	Sous-préfecture	N/A	District or town

Primary Sampling Units

The Primary Sampling Units (PSUs) in this study are geographic locations. They were determined as the smallest administrative units in each country (see Table 2) for which we had sourcing information from PRO-Cashew partners. In some countries, the level of detail provided varied between partners. We tried to determine as specific locations as possible, but there will be remaining variation in the level of spatial exactness.

The selection of the PSUs was based on stepwise allocation process, with the aim to:

a. Achieve a sampling probability proportional to size (also referred to as 'PPS' in the literature)
b. Achieve a balanced representation of different PRO-Cashew partners' sourcing locations within each country, to the extent possible (see below)
c. Force a 50/50 representation of potential partner farmers and non-partner farmers. Note that we do not use the terms 'treatment' and 'control' for the Baseline Evaluation, yet, as the treatment group had not been defined at the planning stage of this study. Instead, we use the terms 'partner farmers', meaning farmers that are within the defined sourcing areas of the PRO-Cashew partners and therefore have a high likelihood of being treatment group farmers in future evaluations; and 'non-partner farmers' for those with a high likelihood of being control farmers in the future. This forced 50/50 split is effectively a stratification, but with the aim of being able to show that there is *no* significant difference between the two strata prior to the intervention, to test whether the entire group is homogenous (the null hypothesis to be rejected in the analysis is that the two strata differ)
d. Randomize selection of PSUs, to the extent possible within above constraints

Per country, we allocated 30 sampling communities across the FUs, each with 11 farmers, to arrive at the total sample size of 30 x 11 = 330. In Burkina Faso we used a reduced number of 22 communities, with a higher number of 15 farmers each, resulting in the same total sample size of 22 x 15 = 330. This alteration was made because of the small number of FUs in the country, owing to (a) the concentration of cashew growing in a limited geographic area in the South West; and (b) the small number of PRO-Cashew partner locations. The 30 (or 22) communities were allocated to FUs as follows:

1. **Proportional Distribution**: First, we distributed the number of communities across all FUs in the country, proportional to the FU size. 'Size' was the number of cashew farmers in Côte d'Ivoire, where detailed census data were available; and the cashew production in the other four countries[3], as the best available proxy for the number of cashew farmers. This resulted

[3] FAO/Ministère de l'agriculture et du développement rural (2019): Recensement des Exploitants et Exploitations Agricoles. Abidjan, 104 pp.

in an initial allocation of the 30 (or 22) communities across FUs. The final sampling per country by region can be found in section 5 of this report in Table 3.

2. **Adjustments**: We then adjusted that distribution to (a) achieve an even number of sampling communities per FU (so that half of them could be allocated to partner communities and the other half to non-partner communities); (b) include some of the smaller sourcing areas which would not have been large enough to be allocated a sampling community; and (c) to accommodate as many produce locations as possible, without deviating too far from the theoretical ('initial') distribution. Finally, for Benin we included the Département of Donga in the FU. Currently, no PRO-Cashew partners operate there, so Donga would have been excluded from the sampling frame. However, Donga is a major cashew growing area. In the expectation that future partner activity might extend to Donga, PRO-Cashew asked to include Donga in the sampling frame. To not deviate from our overall approach, we included Donga but with a reduced number of sampling communities compared to the theoretical number. This was for the practical deliberation that partners might be able to identify a few potential sourcing communities in Donga, but unlikely a large number. No adjustments were made in Ghana, where no PRO-Cashew partners had been identified at the time of writing this report.
3. **Balanced Partner Representation**: We then allocated a first round of sampling communities to the different PRO-Cashew partners, within the maximum numbers of sampling communities per FU as determined in step 2. The aim was to ensure that the different partners in one country were equally represented. See Annex A for details on sampling construction per country in the Baseline Report Annexes document.
4. **Random Sampling**: We then randomly assigned the remaining sampling communities in each FU to partner locations within the FU, with a sampling probability proportional to the population of the respective administrative unit. The population was chosen as a proxy for cashew farmer numbers at the level of the smaller administrative units, where no cashew-specific information was available.

The result of this process is a distribution of sampling communities (PSUs) across the intervention area in each country that:

- Is proportional to cashew farmer numbers (or cashew production, as a proxy) at the FU level and proportional to population (as a proxy for cashew farmer numbers) at the level of the smaller administrative units
- Creates a 50/50 balance between prospective PRO-Cashew partner and non-partner farmers
- Aims to give PRO-Cashew partners an equal representation (though partners with a larger geographic footprint and more locations had a higher chance of being represented more than partners with a small geographic footprint and few locations)
- Ensure random sampling as much as possible within the above constraints.

Secondary Sampling Units

We defined the Secondary Sampling Units (SSU) as *communities*, where 'community' may mean different things, depending on the information available from PRO-Cashew partners. A community can be:

- A formal producer group, such as a cooperative
- An informal producer group, such as independent producers represented by a lead farmer
- A group of farmers supplying to the same village buying agent (*pisteur*)
- A village or rural community with cashew farmers but without any form of organization

The partner communities (so one half of the SSUs) are already relatively well-defined through the approach we used to define the PSUs, which resulted in specific sourcing locations of PRO-Cashew partners. The existing networks of farmers from which partners source in these locations are represented as 'communities'. Where a partner sources from several structures in one location, we randomly selected one, with a sampling probability proportional to membership numbers.

The non-partner communities were selected in the vicinity of partner communities, as much as practically feasible ensuring (a) a spatial buffer to reduce spill-over effects from the partner communities as much as possible; and (b) that they are outside the sourcing catchment of any of the PRO-Cashew partners. To keep the sampling range within a controlled range we aimed at identifying communities of between 300 to 500 members, taking population information into account where available to make any in-situ sampling probability proportional to size.

Ultimate Sampling Units

Ultimate Sampling Units (USUs) are cashew farmers. We planned to random sample 11 cashew farmers (15 in Burkina Faso) for each community, plus 5 (7 in Burkina Faso) replacement farmers, in case any of the first farmers are unavailable or refuse to participate.

Three different procedures were used for random sampling (in descending order of preference):

1. *Formal list:* Farmers were randomly selected from an existing and complete list of group or community members, e.g., as provided beforehand by PRO-Cashew partners
2. *Informal list:* Random selection from lists drawn up by the field teams with the help of lead farmers or community leaders
3. *Walking: Sampling b*y visiting every n^{th} house in the village, where *n* is the inverse of the sampling rate.

For random selections, field teams used random number generators on their mobile phones.

The decision to use a fixed number of farmers per community owed to practicality and keeping instructions for the enumeration teams simple and clear. However, it results in different sampling rates in different communities, as the size of communities varies. In a pre-assessment, we found that many of the communities for which we had information had between 300 and 500 members, which will still create sampling rates that vary by nearly a factor of two.

4.2 Database Cleaning and Analysis Methodology

Quality Control

Each field team was led by a country manager with enumerators working in teams of two. The country managers were in the field with the enumerator teams with dedicated time for re-training, practical support, and shadowing the enumerators to ensure data quality. Data from the cashew farmer survey were entered in the field via mobile devices using ODK, an open-source software for collecting, managing, and using data in resource-constrained environments. The survey was implemented into ODK as one survey with two language options to reduce errors in the case of any updates in the survey during the training and testing phases. We used ODK Central, a server to manage the farmer surveys and access across the five countries. Data was downloaded live using what is called the OData connector directly to Microsoft Excel where the database was managed, and the data cleaning process took place. Restricted value ranges and forced data formats in the data entry app provide a first technological barrier to errors, other checks were done by both the country managers and the central office on a daily basis.

Data from the FGDs and KIIs were entered by the note-taker on a printed form, as a mobile device is not suitable for detailed and quick capture of information during such sessions. Photos of the forms were then sent to the country managers for review after each session. Country managers checked to ensure answers were complete and legible. The files were then put onto a shared Google Drive with a specific naming format where the central office transcribed the results into an Excel database, and translated, in the case of French, acting as a triple check for any errors or inconsistencies.

Human checks happened at several levels:

- During field data gathering, the country managers checked incoming data daily to capture any errors early. This allowed us to go back to enumerators early and often while they were still in the same area.
- Enumerators mostly worked in teams of two. Team partners were instructed to check each other's work.
- The country managers were in the field with the enumerator teams, conducting surveys themselves and dedicated time to re-training, practical support, and shadowing the enumerators to ensure data quality.

Data Entry and Processing

The central team monitored the incoming data from the field during the data gathering phase. They will use both data visualizations and statistical procedures to spot potential error and identify outliers. This process is labor-intensive but, in our experience, highly effective in ensuring data quality as many errors and ambiguities can be detected and corrected while enumerators'

memory is fresh, and they may even have an opportunity to verify information with the data subject.

Monitoring the incoming data from the evaluation will include:

1. Data cleaning to ensure logic and consistency checks
2. Correcting and/or clarifying any missing or unclear data fields via communication with country managers or the enumerator(s) directly
3. Controlling alignment between data collection and planned sampling strategy
4. Keeping a data cleaning log: documenting all steps taken by the consultant to clean and corroborate any data points needed for proper analysis and the rationale

A final dedicated step of data cleaning will happen prior to the statistical analysis.

Data Analysis

We generated descriptive statistics of the farmer survey results per country (mean, median, 5% and 95% percentiles, minimum, and maximum). Correlation analyses were run with SPSS to identify potential co-variates. For key parameters, we tested for statistically significant differences between the PRO-Cashew partner farmers (potential treatment farmers) and non-partner farmers (potential control farmers), using non-parametric tests, to exclude any pre-existing differences (in other words, show that the two data strata are the same). The qualitative data collected through the FGDs and KIIs was systematically coded per country to analyze trends per stakeholder group.

4.3 Challenges and Lessons Learned from Data Collection

Summary of What Worked Well

Generally, in all five countries the ODK app used for data collection worked well, farmers cooperated and there was warm welcome of the enumerators by the farming communities. This was noted especially in partner communities due to the existing relationship between the partners (e.g., Huxley and Vertex in Nigeria). It was therefore easy to leverage on these relationships. Even in countries where partners were not present, like Ghana, the farmers still cooperated. While in general the access to farmers was positive, there were challenges faced, which are explained below. However, overall, there was good collaboration between everyone involved in the process (I.e., enumerators, farmers, partners, field supervisors and country managers) and a general acceptance of the project and willingness to participate.

Gender was not a problem in accessing certain categories of the population, except for Benin, where women were afraid to speak in front of men which resulted in women being difficult to find and responding little.

Specifically, provision of tablets and power banks in countries like Ghana and Benin made work easier and enumerators could power up in cases of low battery.

Summary of Challenges Faced

The challenges experienced across all five countries centered around four issues:

1. *Inaccessible roads and long distance between the different survey locations*

In all five countries, the road network was poor, and it made going to the farmer communities take longer than expected and was stressful due to the short data collection period. Also, the distance between the communities were far. This was especially the case between Kampti and Tako towns of Burkina Faso. Also, in Nigeria, distance between Ikoyi Ile to Alaja in Oyo state.

2. *The search and replacement of farmers and co-operatives in the field plan*

Not every farmer in the contact list provided were available or reachable. Enumerators had to improvise and come up with other solutions and ways to reach the farmers. For example, death among some PRO-Cashew partner farmers in Burkina Faso led to a search for replacement while the listed partner communities were unavailable in Bouaflé and Zanzan town of Côte d'Ivoire. The country managers addressed these by asking for support from farmers already identified and they pointed the team to the people available.

3. *Farmers unavailability*

In some communities across the five countries, pre-sampled farmers were unavailable at the time of the interview, for reasons like harvesting of other cereal crops, market days, prayer time, and election. This meant enumerators had to wait for them, return at a later time, or resort to visiting replacement farmers instead, of which a few were pre-sampled for each community. The most practical course of action was decided by enumerators on the ground, based on circumstances, schedule and the likelihood of being able to speak to the originally sampled farmer. Particular challenges were: in Burkina Faso, the electoral campaign was being held and it was harvest season, resulting in difficulty gathering producer communities and meeting farmer organizations members; in Benin, many farmers were harvesting cereals and soybean; In Nigeria, enumerators had to adjust their planning to wait for farmers on market days. In Côte d'Ivoire and Burkina Faso, the elections led to a delayed start in data collection.

4. *Farmers expecting something in return for providing information*

Farmers in some communities across the 5 countries expected money in exchange for providing information and enumerators had to convince them further that the program will benefit them all in the long run.

5. *No farm records*

Lack of farm records led to overestimation and underestimation of figures such as cashew farm size, and average cashew annual harvest in Ghana and Nigeria. In Nigeria, farmers had to be asked repeatedly and enumerators had to depend on experience and sometimes previously provided information to vet the originality their answers. Lack of farm records is highly correlated with

their educational level; our analysis of the collected data shows that about 79% of the surveyed farmers have either no formal education or only primary education. The surveyed farmers' illiteracy and lack of records also added to the average survey time as they took some time to recall estimates of figures.

There were, however, some country-specific challenges faced:

1. In some communities in Nigeria and Côte d'Ivoire, all the farmers wanted to be interviewed because farmers believe there was some financial benefit attached to participating and some felt that only those interviewed will be beneficiaries of the program. An example of such was Iyale in Kogi state of Nigeria where the farmers insisted that a representative must be taken from each compound. This had to be done for the interview to proceed. Also, neighboring communities in Kogi state were not happy that their communities were left out. This happened because these communities are clustered together and one happening in a community quickly reaches the other community. Another reason is most farmer communities and co-operatives have an equal representation mandate, hence selecting one community as listed by the field plan without the other was naturally unwelcomed.
2. Different units of measurements across different states and sometimes communities in Nigeria and Ghana made the conversion a bit difficult and enumerators needed to keep asking at every point the measurement that was used in each community to get a correct estimate.
3. In Nigeria, there was overestimation of average annual harvest, that resulted from either the assumption they would receive more benefit by having higher production and also the farmers not knowing the actual size of their land. The enumerators requested that they be truthful so that they could be helped, which improved the data quality.

Lessons Learned

Potential areas of improvement for the mid-term and final evaluation:

- The questions should be simplified further while bringing similar or related questions closer together e.g., total area harvested should be closely linked to total quantity harvested.
- Plan longer tests for the questionnaires and ensure the final version of the forms are ready before launching the interviewers on the field.
- Provision of Identification cards for enumerators.
- Train specific set of enumerators to conduct only the KIIs and FGDs
- Provide tablets for enumerators. This would make work easier and questions would be more eligible to read. Some enumerators had to buy phones out of the money they were given because their phones could not capture GPS even though the phones were Android Version 5.

- A background check should be done beforehand to ascertain that the communities and lead farmers shortlisted are genuine and exist. In addition, providing the investigator with a database of stakeholders – for all the countries - to facilitate contacts would have been beneficial.
- All enumerator teams should have both male and female members, especially where gender norms may prevent female interviewees to speak openly to male interviewers. In Nigeria we deployed mixed-gender teams throughout the study, which seemed to increase community members' openness to being interviewed.

Summary of Feedback from the Country Managers

Country managers (lead enumerators) gave feedback on what the PRO-Cashew project needs to consider to be successful:

- Farm mapping technology, and if also available, the technology that can count the number of cashew trees, could be adopted to get the exact farm size and number of trees at interval. This will ascertain that the numbers provided by farmers are true.
- Identify communities with special needs. For example, a community in Ilorin (Ehin Afo) is severely disturbed by herders and there is nothing they can do about it. Some of the farmers said they stopped farming because they were tired of cattle eating all their crops and they are unable to speak for fear of being harmed by the herders.
- Active involvement of women and youth groups in its programs, as well as considerations for improving the living conditions of farmers.
- Train farmers on good management practices for cashew plantations, as well as support for stakeholders in the implementation of activities.
- Involvement of all actors in the value chain.
- Facilitate access to a sustainable and profitable market which guarantees the purchase of products (nuts and apples) from the production of each season from farmer.
- Consideration for the growers should be a major focal point, especially in relation to respecting the price of cashew nuts.
- Carry out cost of production studies per unit area on the basis of which the marketing prices will be set.
- Identify the purchasing areas of PRO-Cashew partners to allow capacity building bringing actors closer.

5 Summary of Evaluation Results Analysis

5.1 Descriptive Statistics of Cashew Farmer Sample

Sample Sizes

A total of 1,733 cashew farmers were surveyed across the five study countries between November 2nd, 2020, and December 3rd, 2020. The target number of 330 surveys per country was exceeded in all countries. Table 3 gives an overview of the total sampled farmer numbers, survey dates, gender distribution, and community type (PRO-Cashew partner vs. non-partner, plus undefined for Ghana, where no PRO-Cashew partners had been contracted at the time of conducting this study). Farmer surveys took an average of one hour to complete, ranging from 45-75 minutes on average.

Gender

The majority of surveyed cashew farms were male headed, see Figure 2. Overall, 7.4% of the farms were female-headed, though the share varied between countries: Ghana had, with 17.3%, the highest share of women-led farms, Burkina Faso with 2.0% the lowest. In Côte d'Ivoire, 8.0% of farmer were women-led, 6.5% in Nigeria and 3.5% in Benin.

These numbers underline that cashew is a more male-dominated crop than others. For instance, in Nigeria, the overall share of women-led farming households was found to be 12% (representative of 3,026 households, CGAP, 2017), compared to the 6.5% we found here; and in Côte d'Ivoire 10% (3,019 households, CGAP, 2017a), compared to the 8% we found in this study. Table 3 shows details by region within countries.

Age

The average age of the head of cashew farming households was around 52, with little variation between countries and genders within countries, see Figure 3. The only exception were women in Burkina Faso, who were nearly ten years younger than their male counterparts. However, with only seven women in the sample for Burkina Faso, this difference may be an artefact of the low number of women in the survey and is not statistically significant.

The average age of heads of household is high compared to the average populations in the study countries, though it needs to be considered that the head of household will normally be an older person, so the higher age comes with the position. No information was collected about the average age of all members of cashew farming households.

We partitioned the heads of household by age group into under 30 years and 30 years and above. As Figure 4 shows, only 43 or 2.5% of the farmers were under 30 years old. All of them were male. Given the low number we did not differentiate by age group in the further analysis.

Table 3: Number of Surveyed Farmers by Country, Region, Gender and Community Type

Country, region	Baseline total Surveyed Farmers	Head of Household Gender		Community type		
		Female	*Male*	*Partner*	*Non-partner*	*Undefined*
Entire study	1,733	129	1,603	725	672	336
Benin	368	13	355	185	183	
Alibori	24	1	23	12	12	
Borgou	164	6	158	84	80	
Collines	76	2	74	41	35	
Donga	48	1	47	22	26	
Zou	56	3	53	26	30	
Burkina Faso	349	7	342	195	154	
Cascades	122	1	121	61	61	
Haut Bassin	114	6	108	90	24	
Sud-Ouest	113		113	44	69	
Côte d'Ivoire	340	29	311	156	184	
Denguéle	24	7	17	12	12	
Sassandra-Marahoué	88		88	44	44	
Savanes	22		22	22		
Vallée du Bandama	116	13	103	34	82	
Woroba	46	5	41	22	24	
Zanzan	44	4	40	22	22	
Ghana	336	58	277			336
Ahafo	55	13	42			55
Bono	68	20	48			68
Bono East	65	15	50			65
North East	43	3	40			43
Northern	49	3	46			49
Oti	11		11			11
Savannah	44	4	40			44
Nigeria	340	22	318	189	151	
Edo	18	3	15	9	9	
Enugu	36	3	33	18	18	
Kogi	97	2	95	49	48	
Kwara	54	11	43	28	26	
Oyo	135	3	132	85	50	

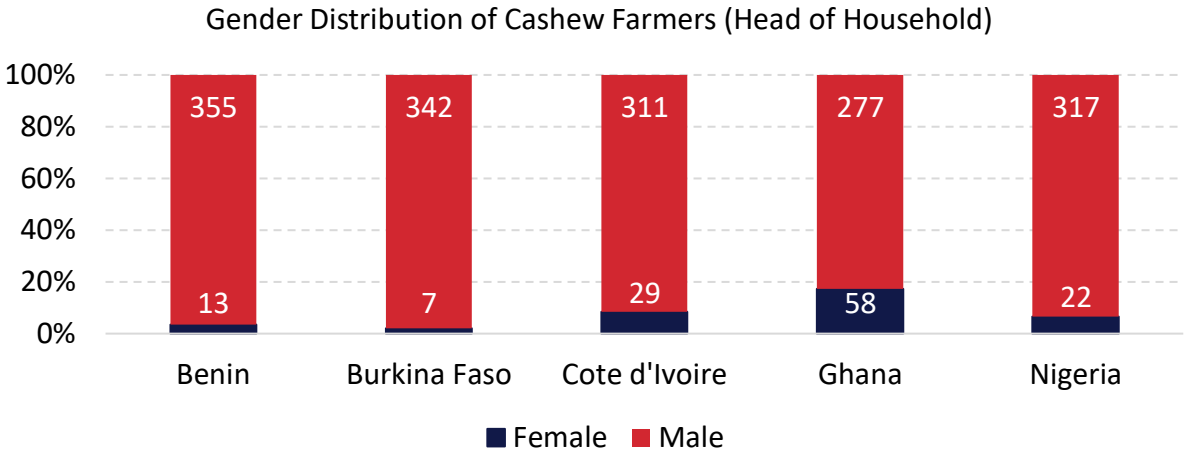


Figure 2: Gender Distribution of Cashew Farm Heads of Household by Country

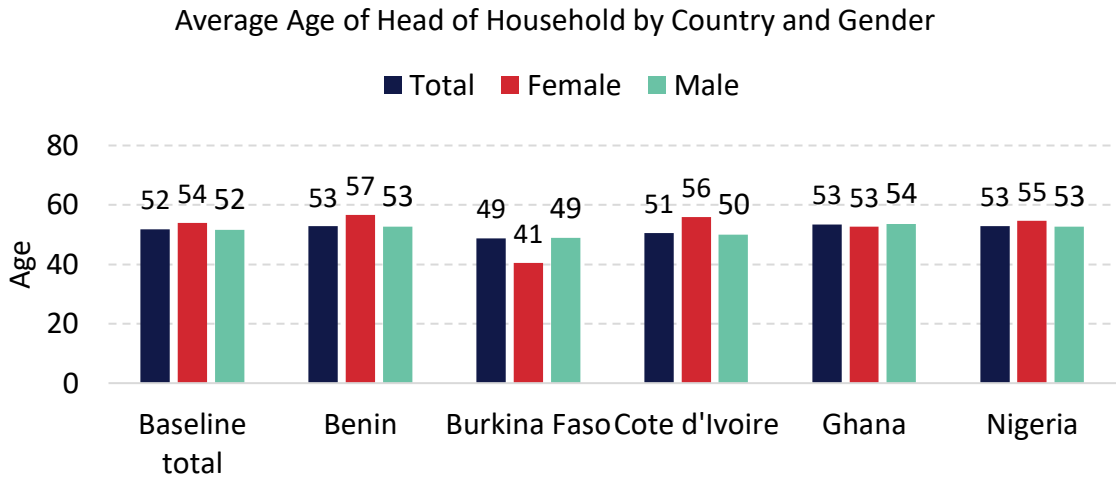
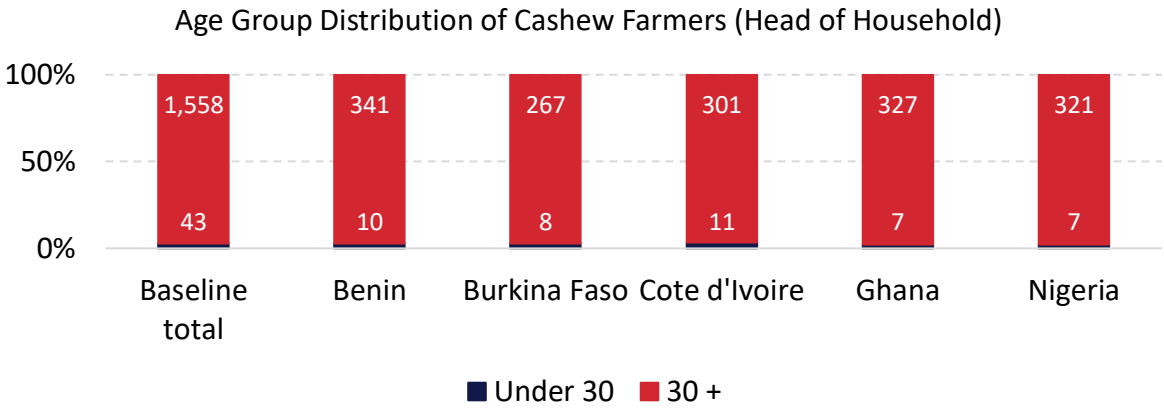


Figure 3: Average Age of the Head of Household by Country and Gender



Note: All farmers aged under 30 were male.

Figure 4: Age Group Distribution of Cashew Farm Heads of Household by Country

Education

We asked for the highest level of education of the survey respondent (who may have differed from the head of household, though). Patterns differ between the francophone and anglophone countries: In Benin, Burkina Faso, and Côte d'Ivoire, around 60% of respondents had no formal education, and only 2% vocational or university education. In Ghana and Nigeria, respondents with no education were 35% and 18% respectively, and 13% had vocational or university education. Further details on education levels are provided in the separate country overview report.

We also asked for respondents' ability to read and write in French or English, respectively. This question revealed a strong gender disparity literacy in all countries: While 21% to 72% of the male respondents said they were able to read and write, only 8% to 45% of the female respondents did (see Figure 5).

Size of Household

We surveyed the number of people living in the household who work on cashew, where a household was defined as the group of people usually eating from the same pot and answering to the same household head. So, this definition differs from a family unit and may include farm workers and others living in the same household. Figure 6 shows the average number of people in the household who work in cashew, varying between 7.8 members in Benin and 3.5 members in Ghana. While in Benin and Ghana female and male-headed households have similar sizes, female-headed households in Burkina Faso, Côte d'Ivoire, and Nigeria were observed to be smaller than male-headed ones.

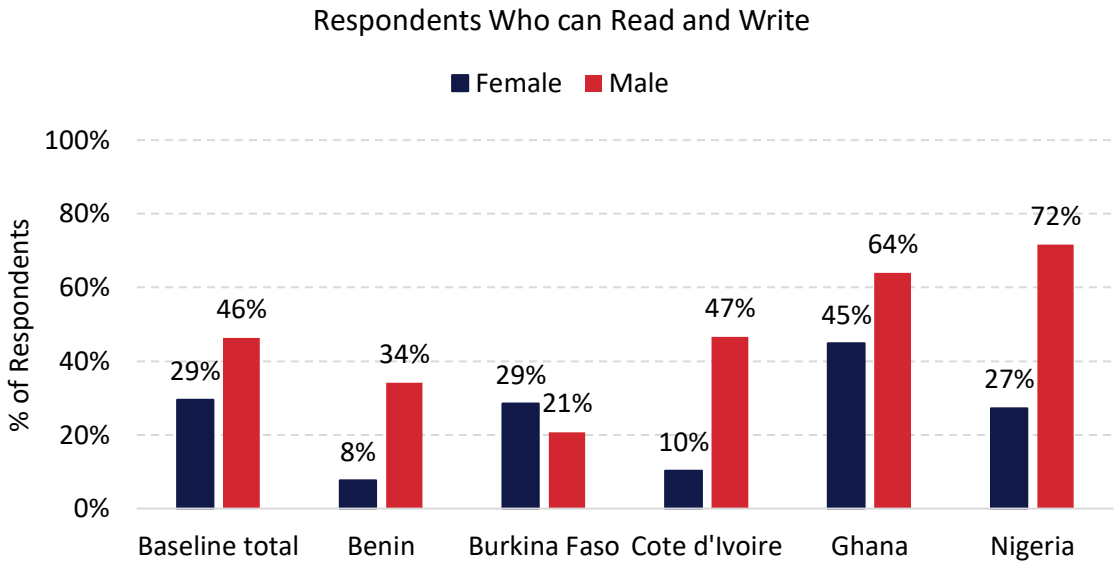


Figure 5: Respondents' Ability to Read and Write in French (Benin, Burkina Faso, and Côte d'Ivoire) or English (Ghana and Nigeria) by Gender

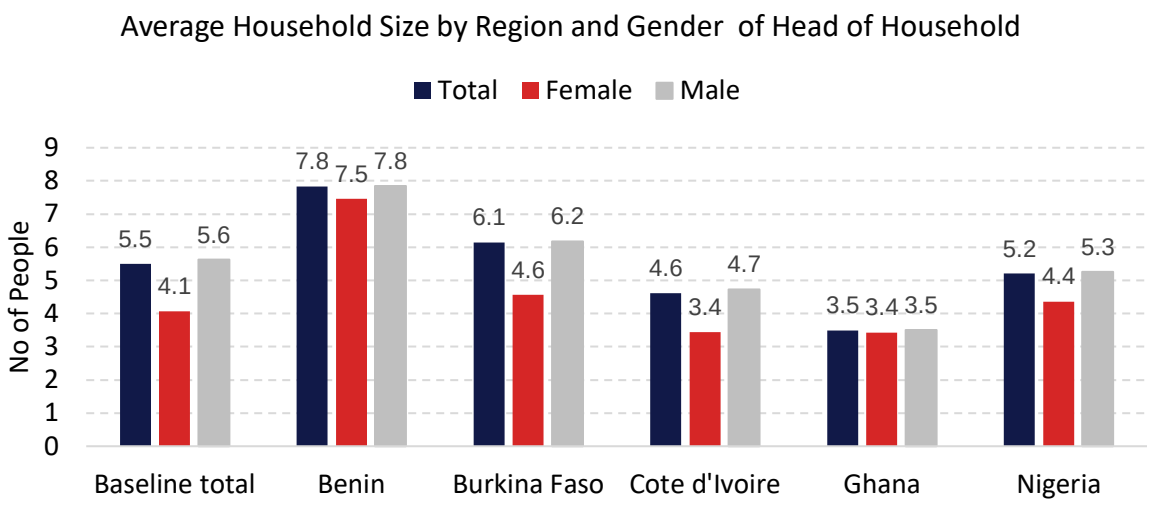
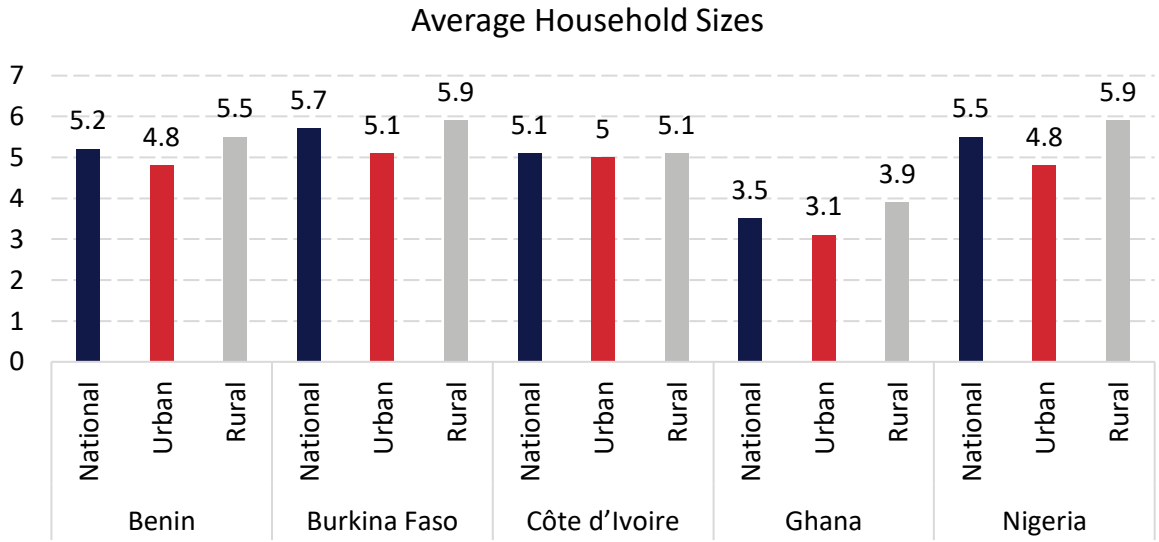


Figure 6: Average Number of People Living in the Household, by Country and Gender of Head of Household

Further, we reviewed official national statistics on urban and rural average household sizes across the five study countries (see Figure 7). The data show that the number of household members currently living in a household is higher in Burkina Faso while the country with the least average household size is Ghana. Generally, the average household size is larger in rural areas when compared with urban areas across the five countries.



Sources: LSMS – ISA (2019), and GHS (2019, 2015, 2013, and 2012).

Figure 7: Average Household Sizes by Country

Farm Size

Farmers were asked about the size of their entire farm as well as about the area they have planted to cashew trees. Farmers generally had a notion of their total farm size, especially in Benin and Côte d'Ivoire, where there had been agricultural census in the past 10 years. Total farm sizes differed both between the countries and between genders within all the countries, with women-led farms being consistently smaller than those headed by men, see Figure 8.

Area under Cashew

Although familiar with their total farm size, farmers often did not know the size of the area under cashew trees. Farmers do not generally know the size of plots and fields, except for arable cash crops like cotton, where buyers map fields for management purposes. This is a known problem, particularly in tree crops, where farmers tend to know the approximate number of trees but not the area they cover. Also, cashew is often grown in mixed stands with other crops, making it difficult to allocate an area to cashew or to clearly define the boundary. As a result, many survey respondents stated they did not know the area under cashew; and of those who provided an answer, a high proportion gave figures that were not plausible.

We checked for plausibility across the entire data set as follows:

Is the stated area under cashew equal or less than the total farm size? If not, further manual checks were done to find and correct any data entry or unit conversion errors. Where inconsistencies remained, farms were discarded for further analysis of tree numbers and derived metrics.

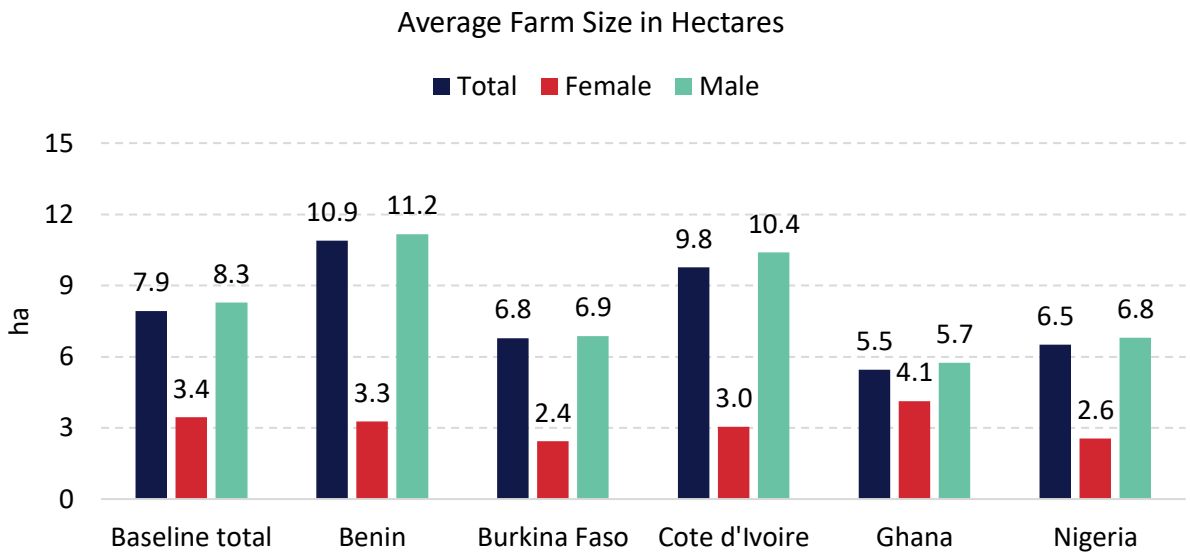


Figure 8: Average Total Farm Size by Country and Gender

Table 4: Summary Statistics of Area Under Cashew Trees

Cashew tree area (ha)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
n	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{area_cashew}	862	135	74	89	301	263
n_{area_cashew} / n	0.50	0.37	0.21	0.26	0.90	0.78
Mean	**3.4**	**2.7**	**1.7**	**1.4**	**3.5**	**4.6**
0.05 percentile	0.5	0.3	0.5	0.3	0.8	0.6
0.95 percentile	10.0	10.0	4.2	4.6	10.0	12.1
Median	**2.0**	**1.5**	**1.0**	**1.0**	**2.0**	**3.0**
Min	0.1	0.1	0.3	0.2	0.4	0.1
Max	80.0	20.0	9.6	15.0	28.0	80.0

Note: n is the number of surveys per country, n_{area_cashew} is the number of plausible cashew area records that were included in the calculation, n_{area_cashew} / n is the ratio of the two. Mean, percentiles, median, minimum and maximum were calculated on n_{area_cashew}.

Table 4 provides summary statistics of the area under cashew in the five study countries, Figure 9 shows the gender disaggregation.

We recommend that PRO-Cashew commission dedicated annual yield and production surveys that include some plot size measurements, as already done by its sister program BeninCaju.

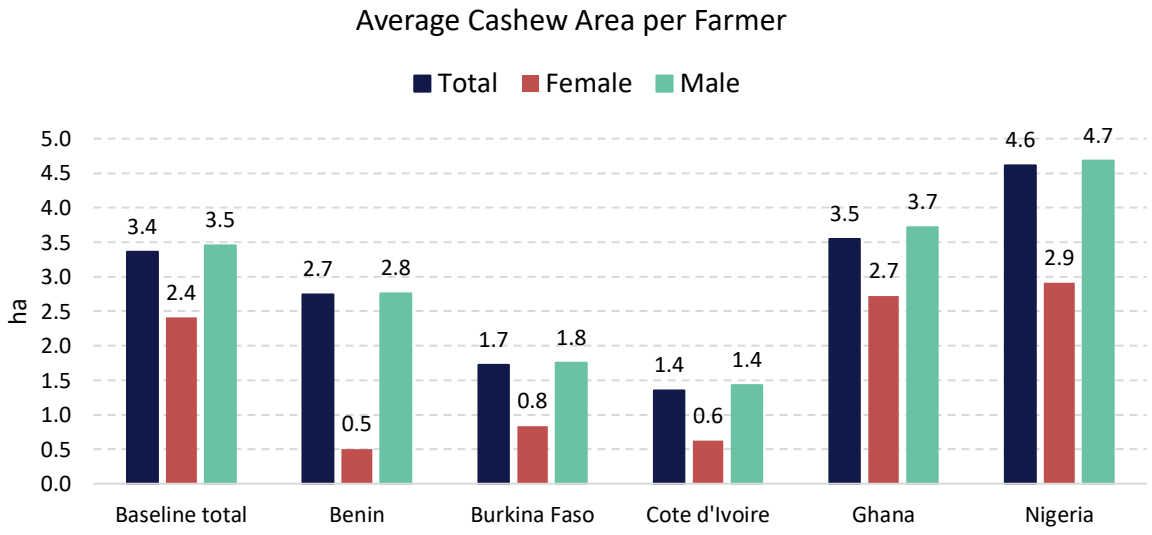


Figure 9: Average Area under Cashew Trees by Country and Gender

The total cashew production of surveyed farms was a key statistic, driving the key performance indicator yield and influencing other metrics. Based on previous experience, we expected that farmers' recall of last year's (2020) production volumes may in many cases be inaccurate. We hence triangulated total production by asking for three figures:

1. Total cashew production

Table 5: Summary Statistics of Total Cashew Production

	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
N	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{yield_ha}	1,169	296	193	239	242	199
n_{yield_ha} / n	0.67	0.80	0.55	0.70	0.72	0.59
Mean	**2,286**	**1,814**	**1,949**	**2,343**	**1,489**	**4,213**
0.05 percentile	160	150	200	59	160	418
0.95 percentile	6,749	6,136	4,146	6,275	4,033	10,040
Median	**1,200**	**825**	**1,110**	**1,500**	**1,000**	**3,000**
Min	4	4	8	5	30	90
Max	80,000	70,050	70,000	60,050	9,600	80,000

Note: n is the number of surveys per country, n_{prod} is the number of plausible cashew production records that were included in the calculation, n_{prod}/ n is the ratio of the two. Mean, percentiles, median, minimum and maximum were calculated on n_{prod}.

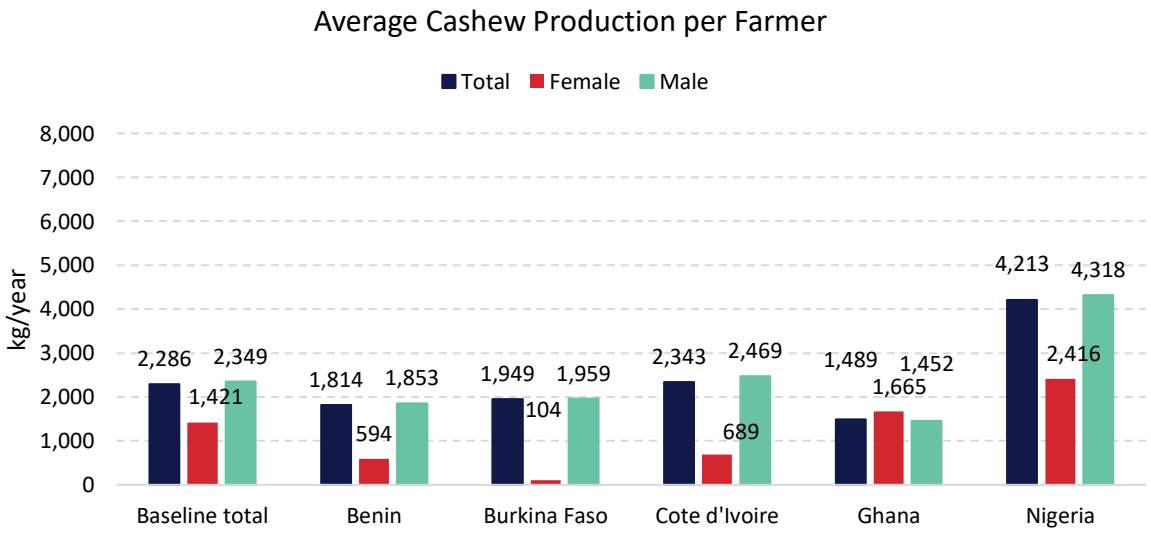


Figure 10: Average Raw Cashew Nut Production by County and Gender

2. Cashew sales amounts and amounts of cashew nuts that were not sold
3. The share of highly productive trees and how much they yield per tree, from which we approximated production

We then checked the consistency of these three figures as follows:

i. *Consistency of 1. and 2.: Is the higher of the two numbers within 20% of the lower?* If so, we used the median of the two as the best estimate for total production. If not, we tested the
ii. *Consistency of 1., 2., and 3.: Is the highest of the three numbers within 50% of the lowest?* If so, we used the median of the three as the best estimate for total production. If not, we discarded the farm for productivity analysis as not plausible.

Summary statistics for the resulting set of production data are shown in Table 5, Figure 10 shows the gender disaggregation.

Number of Cashew Trees

We asked farmers for the number of cashew trees they currently manage, the number of productive trees, as well as information about the evolution of their cashew plantation over time, including recent replanting for replacement and expansion purposes. The latter information was used for plausibility checks in case cashew tree numbers appeared incorrect.

From experience, we expected total tree numbers to be relatively accurate, at least approximately (most farmers gave a number of trees that was 'rounded' to 100 or 50, indicating that the figures they gave are estimates rather than precise figures). The number of productive trees was assumed to be less accurate than total tree numbers. The following plausibility check was done across the entire data set:

Table 6: Summary Statistics of Cashew Tree Numbers

Productive trees (number)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
N	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{tree_num}	1,083	310	178	119	287	189
n_{tree_num} / n	0.63	0.84	0.51	0.35	0.85	0.56
Mean	**676**	**506**	**584**	**306**	**300**	**1,846**
0.05 percentile	40	40	100	25	36	50
0.95 percentile	1,400	1,456	1,500	910	800	1,780
Median	**250**	**278**	**345**	**200**	**200**	**300**
Min	1	3	3	1	4	5
Max	250,000	9,500	12,500	1,500	2,550	250,000

Note: n is the number of surveys per country, n_{tree_num} is the number of plausible cashew tree number records that were included in the calculation, n_{tree_num} / n is the ratio of the two. Mean, percentiles, median, minimum and maximum were calculated on n_{tree_num}.

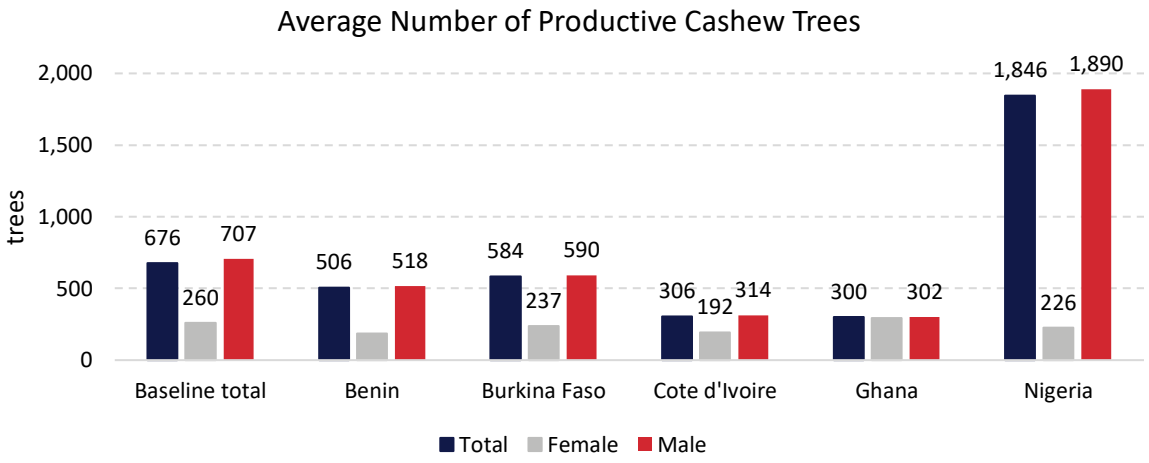


Figure 11: Average Number of Cashew Trees by Country and Gender

Is the number of productive cashew trees equal or less than the total number of cashew trees? If not, further manual checks were done to find and correct any data entry or unit conversion errors. Where inconsistencies remained, farms were discarded for further analysis of tree numbers and derived metrics.

Where farmers had only been able to provide a total number of cashew trees, but did not know the share of productive trees, we assumed that 50% of the trees were productive, which was the average ratio across the farms that had stated both total and productive tree numbers. Summary statistics for the cashew tree numbers are shown in Table 6 and Figure 11 shows the gender disaggregation.

5.2 Quantitative Baseline Performance Indicators

Yield of Targeted Agricultural Commodities Among Program Participants with USDA Assistance (MT/ha) (FFPr Standard Indicator #1)

Yield per area (MT/ha) is one of the USDA standard indicators across projects. Based on previous experience, we did not ask farmers for yields as this is not a metric they usually know. Instead, we calculated the yield as the ratio of production by cashew plantation area. This meant that yield per area could only be calculated where both production and area information were available. As discussed above, we were able triangulate cashew production data collected from farmers, so that this information may be assumed to be relatively accurate. However, the quality of the data on farm area under cashew was poor, especially in the three francophone countries, leading us to discard data that were not plausible. As a result, the usable data points for yield were limited: In Côte d'Ivoire only 8% were usable, in Burkina Faso 11% and in Benin 22%.

The average (mean) yield determined in this way was 580 kg / ha (=0.58 MT / ha), the median 529 kg/ha (=0.53 MT / ha). For detailed summary statistics of the yield data see Table 7, and Figure 12 shows the gender disaggregation.

To plausibility check our yield data, we compared it to published cashew yields in the five countries from reputable sources, see Table 8. Except for Ghana, the yields found in our study exceeded the maximum yields found in other sources (Figure 13). The reasons for the discrepancies will include

1. The likely inaccuracies in farmers' estimates of their area under cashew, see above
2. The small number of valid yield data points (see Table 7), which led to a reduced statistical accuracy of the yield estimate

Table 7: Summary Statistics of Cashew Yield per Area

Yield (kg/ha)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
n	**1,732**	368	349	340	336	339
n_{yield_ha}	488	78	40	27	214	129
n_{yield_ha} / n	0.28	0.21	0.11	0.08	0.64	0.38
Mean	**580**	508	561	694	520	703
0.05 percentile	90	90	104	46	80	173
0.95 percentile	1200	1,096	1,130	1,338	1,054	1,330
Median	**529**	408	569	860	411	659
Min	6	6	44	27	25	69
Max	1,486	1,429	1,250	1,440	1,350	1,486

Note: n is the number of surveys per country, n_{yield_ha} is the number of plausible yield calculations tree number records that were included in the calculation, n_{yield_ha} / n is the ratio of the two. Mean, percentiles, median, minimum and maximum were calculated on n_{yield_ha}.

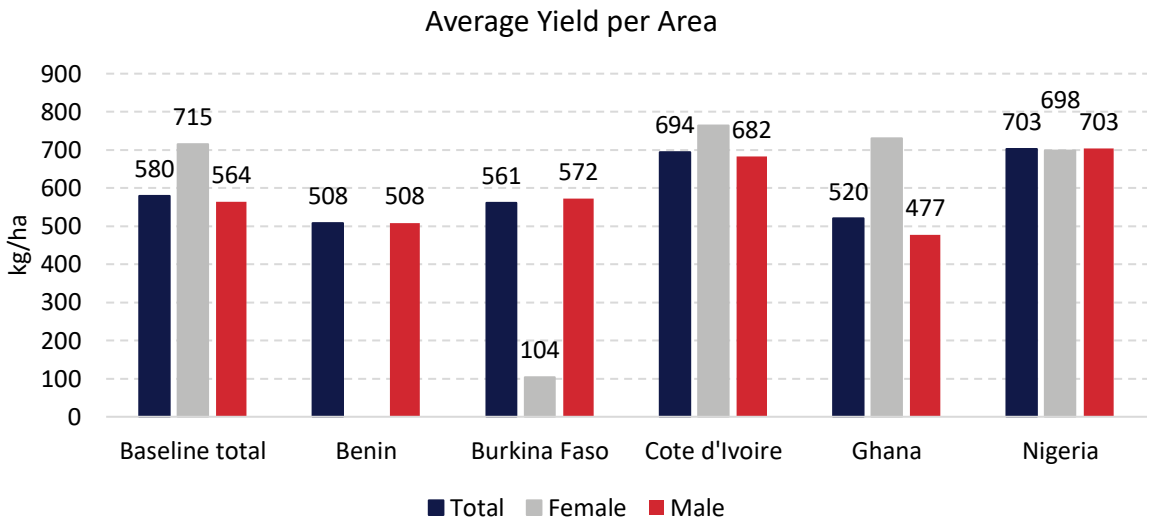


Figure 12: Average Yield per Area by Country and Gender

3. We found a high share of better educated farmers among the valid yields data points. We may assume that better educated farmers are more likely to be conversant in metrics like yield and plot size than less educated farmers and may therefore more likely to provide valid answers. At the same time better educated farmers tend to have higher yields (see below). Thus, we may have introduced a methodological bias by basing yield measures (or plantation area measures, to be precise) on farmer declaration only
4. Variability of yields: agricultural yields are strongly influenced by agro-climatic conditions and subject to strong interannual variability. For this reason, a robust yield baseline should consider at least 3 years' data.

While explicable, the large yield differences between our study and other published data call into question their suitability as a baseline. **We hence recommend that (a) PRO-Cashew conducts yield production surveys, which include cashew plantation area measurements, which will allow to retrospectively correct the area estimates provided by farmers in this study; and (b) use as the preliminary yield baseline the median of the following sources**

1. African Cashew Alliance Cashew Barometer (ACA, 2021): yields of the past five years (2016 to 2020), covering Benin, Côte d'Ivoire, Ghana, and Nigeria. ACA data are based on information collected from the state institutions on hectares under cultivation and the annual production volumes. These are then triangulated and corrected with information on exports, cross border trade and farm losses.
2. ComCashew country profiles (ComCashew, 2019): yields of the past five years (2016 to 2019) as published by ComCashew and the respective public bodies in Benin (FENABAP), Burkina Faso (DGPER), Côte d'Ivoire (CCA), and Ghana (MOFA).

3. Nitidae trade information (Nitidae, 2019): yields of 2018 in all five countries, based on market observation and monthly data requests from commodity national and international traders.
4. BeninCaju 2020 yield survey (BeninCaju, 2020): 2020 yield for Benin from USDA-funded sister program of PRO-Cashew, based on survey among over 1,200 farmers and using validated area estimates.

The data from these sources and the proposed baseline yields derived from them are shown in Table 8.

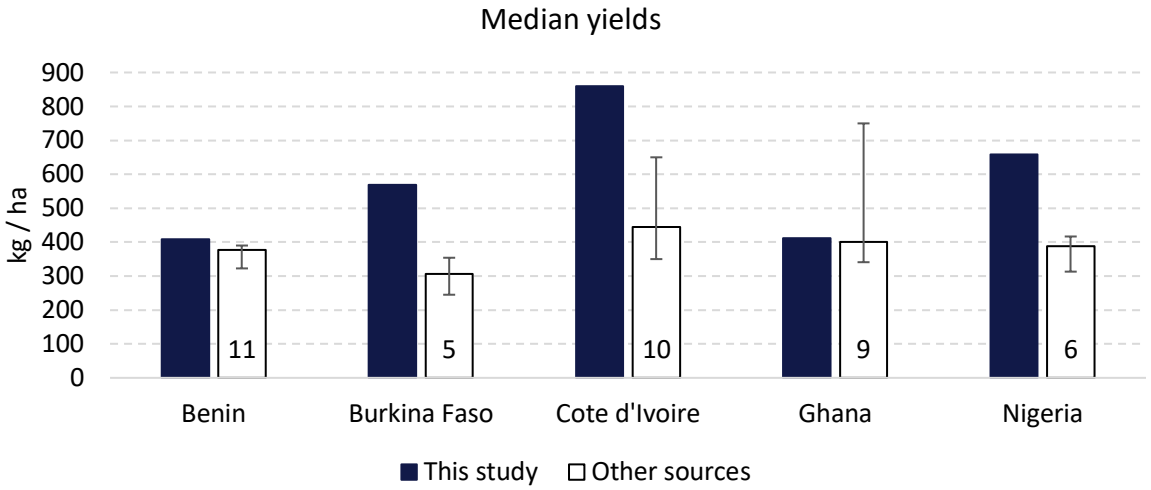
We conducted a multivariate analysis (mixed linear model) using SPSS's MIXED procedure, to try and identify key determinants of yield. Due to the reduced number of valid yield data points, we modelled effect across the five countries, rather than per country. However, no statistically significant effects were found, except some geographic regions: parameter estimates for Cascades (negative effect on yield) Donga (negative), Kogi (positive), North East (negative), Oti (negative), Sassandra-Marahoué (negative) were all significant with a 95%+ confidence level.

Further, there were yield effects of education level University (positive), Producer group membership (negative), and use of chemical pest control (positive), though not statistically significant.

Table 8: Published West African Cashew Yield Data and Yields Found in this Study

Source	Reference year	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
External sources						
ComCashew	2016	375	245	561	606	
	2017	377	303	525	600	
	2018	389	307	650	750	
	2019	390	350	524	1,000*	
ACA	2016	323		461	375	313
	2017	355		427	341	375
	2018	385		419	396	400
	2019	329		422	400	417
	2020	343		410	404	416
Nitidae (2019)	2018	377	354	350	400	363
BeninCaju Yield Survey 2020	2020	390				
Average (mean) across years and sources		**367**	**312**	**475**	**475**	**381**
BASELINE: Median across years and sources		**377**	**307**	**444**	**400**	**388**
Range		**323-390**	**245-354**	**350-650**	**341-750**	**313-417**
This study						
Average (mean) across surveyed farmers		**508**	**561**	**694**	**520**	**703**
Median across surveyed farmers		**408**	**569**	**860**	**411**	**659**

*Notes: * indicates geographically non-representative yield (ComCashew, pers comm. 2021). The median of the shown published yield data is the proposed yield baseline for PRO-Cashew.*



Notes: 'Other sources' the published yields from Table 8. Numbers in the white bars indicate the number of data points per country, error bars Indicate the minimum and maximum value of published data.

Figure 13: Yields Found in this Study Compared to Published Yields

Poor quality of smallholder yield data is not unique to this project and was expected. This is the reason why PRO-Cashew's sister program BeninCaju is moving to a combination of annual yield surveys (on the ground) plus remote sensing. Yield surveys make it possible to monitor the production of defined plots during the harvest season and this give much more reliable information than farmer recall. Remote sensing is an innovation that TechnoServe are testing. CNFA is advised to work with TechnoServe and Shelter for Life, the other two agencies implementing USDA programs in cashew in West Africa, about their experiences and strategies in collecting reliable yield data.

Table 9: Summary Statistics of Cashew Yield per Tree

Yield (kg/tree)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
n	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{yield_ha}	688	224	91	81	210	82
n_{yield_ha} / n	0.40	0.61	0.26	0.24	0.63	0.24
Mean	**4.8**	**3.9**	**3.3**	**3.9**	**5.8**	**6.9**
0.05 percentile	0.8	0.8	0.8	0.5	1.0	1.5
0.95 percentile	11.8	11.2	8.1	10.2	11.1	13.3
Median	**3.7**	**3.0**	**2.2**	**2.9**	**6.0**	**6.9**
Min	0.0	0.0	0.0	0.1	0.1	0.7
Max	15.0	14.3	11.8	15.0	13.3	14.5

Note: n is the number of surveys per country, n_{yield_tree} is the number of plausible yield calculations tree number records that were included in the calculation, n_{yield_tree} / n is the ratio of the two. Mean, percentiles, median, minimum and maximum were calculated on n_{yield_tree}.

Yield per Tree

In addition to the yield per area, we determined the yield per productive cashew tree (kg/tree), which is a frequently used figure for comparing cashew productivity. The average (mean) yield per tree was 4.8 kg/tree, the median 3.7 kg/tree. Summary statistics are shown in Table 9 and Figure 14 shows the gender disaggregation.

Number of Hectares Under Improved Management or technologies that promote improved climate risk reduction and/or natural resources management with USDA assistance (FFPr Standard Indicator #2)

We asked farmers whether they applied a set of seven Good Agricultural Practices: (1) Pruning trees, (2) Thinning cashew stands, (3) Cultivating soil around trees, (4) Applying organic fertilizer, (5) Applying synthetic fertilizer, (6) Creating fire breaks, and (7) Pest and disease control. The share of farmers applying each of these practices is shown in Figure 15. We also asked how much of their cashew area they apply each practice to. Table 10 shows the results by practice and country.

Value of Annual Sales of Farms and Firms Receiving USDA assistance (FFPr Standard Indicator #18)

Value of annual sales is one of the USDA standard indicators across projects. The average (mean) sales in across study countries was USD 1,464, varying between USD915 (Benin) and USD2,699 (Nigeria), though the mean was influenced by a few large producers in every country. The median, as a more representative measure, was USD 727, so about 50% of the mean, varying from USD441 (Benin) to USD1,784 (Nigeria). Differentiation between the countries emerges with

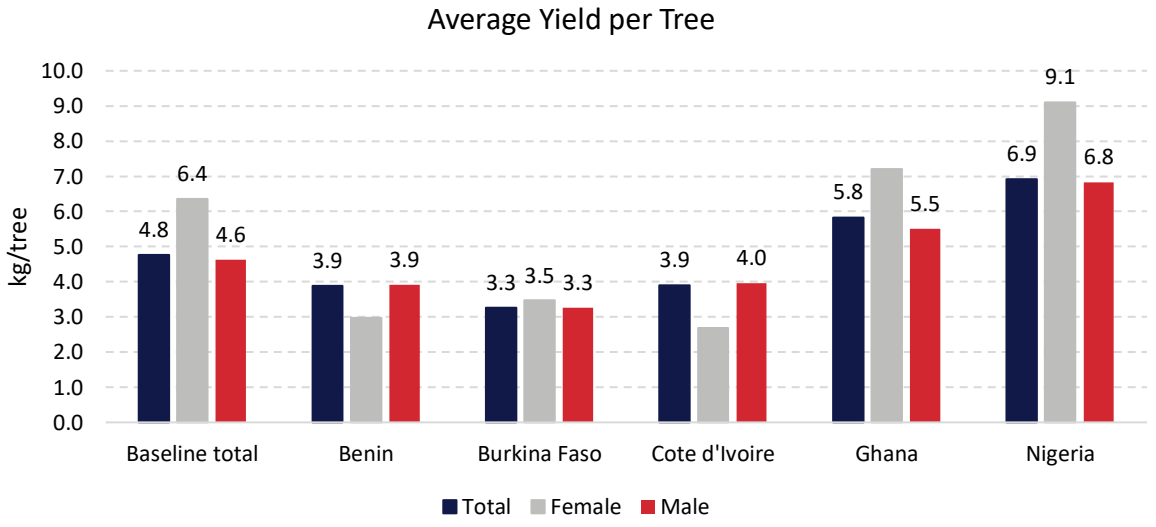


Figure 14: Average Cashew Yield per Tree by Country and Gender

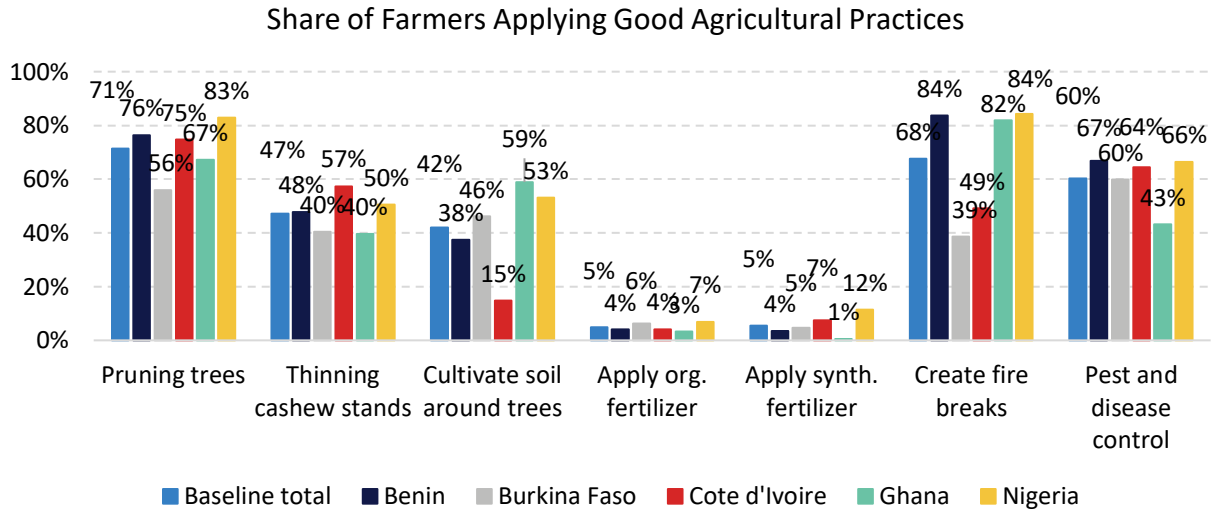


Figure 15: Share of Farmers Applying different Good Agricultural Practices, by Country

Table 10: Average Share of Cashew Area (in %) under Different Good Management Practices, by Country and Gender

	Pruning trees			Thinning cashew stands			Cultivate soil around trees			Apply org. fertilizer			Apply synth. fertilizer			Create fire breaks			Pest & disease control		
	T	F	M	**T**	F	M	**T**	F	M	**T**	F	M	**T**	F	M	**T**	F	M	**T**	F	M
BL	**39**	36	39	**23**	19	23	**27**	24	27	**2**	1	2	**3**	1	3	**55**	54	55	**19**	16	19
BE	**54**	71	53	**29**	38	29	**25**	37	24	**2**	0	2	**2**	6	2	**80**	71	81	**28**	31	28
BF	**24**	23	24	**16**	14	16	**30**	20	31	**2**	0	2	**3**	0	3	**25**	23	25	**11**	17	11
CI	**37**	23	38	**25**	8	26	**4**	1	5	**2**	0	2	**3**	3	3	**26**	22	26	**21**	19	22
GH	**38**	42	37	**23**	26	23	**41**	28	43	**2**	1	2	**0**	0	0	**73**	74	73	**15**	11	15
NG	**40**	21	41	**21**	9	22	**35**	34	35	**4**	2	4	**7**	0	7	**69**	42	71	**20**	17	20

T = total, F = female, M = Male;

BL = Baseline total, BE = Benin, BF = Burkina Faso, CI = Côte d'Ivoire, GH = Ghana, NG = Nigeria

Table 11: Summary Statistics of Farmers' Raw Cashew Nut Sales Value

Sales value (USD)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
n	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{sales_vol}	1,210	293	252	217	234	214
n_{sales_vol} / n	0.70	0.80	0.72	0.64	0.70	0.63
Mean	**1,464**	**915**	**1,252**	**1,398**	**1,311**	**2,699**
0.05 percentile	76	64	119	16	109	198
0.95 percentile	4,505	3,383	3,320	4,387	4,339	7,265
Median	**727**	**441**	**740**	**725**	**797**	**1,784**
Min	1	2	5	1	15	50
Max	45,539	26,023	45,539	44,610	7,252	40,206

Note: n is the number of surveys per country, n_{sales_val} is the number of plausible yield calculations tree number records that were included in the calculation, n_{sales_val} / n is the ratio of the two. Mean, percentiles, median, minimum, and maximum were calculated on n_{sales_val}.

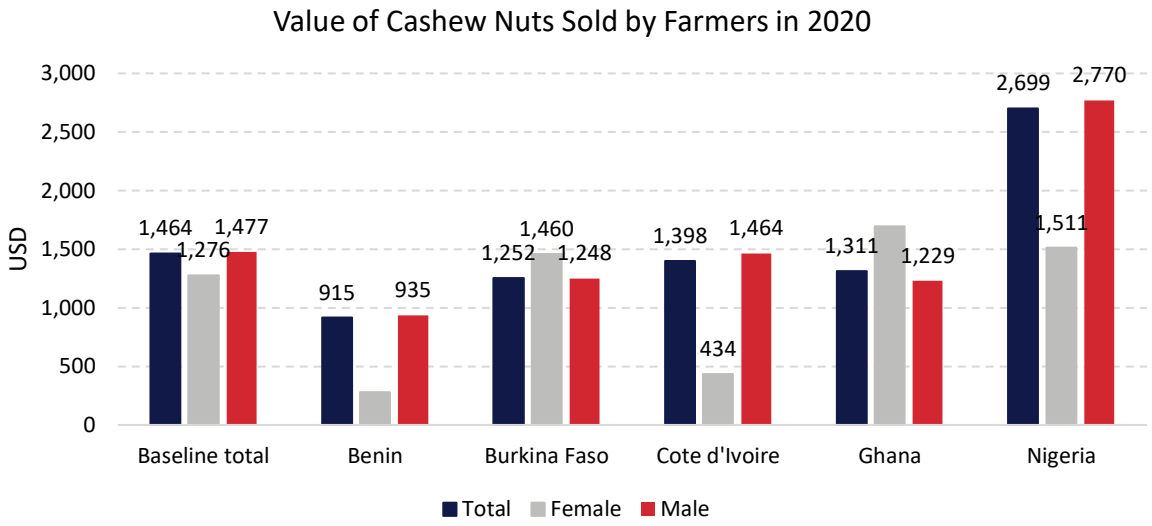


Figure 16: Value of Raw Cashew Nut Sales per Farmer by Country and Gender

both metrics: Beninese farmers receive about one quarter of the income of Nigerian farmers from cashew sales, Burkinabe, Ivorian and Ghanaian farmers receive around 40% of the income of Nigerian farmers. Summary statistics for sales value are shown in Table 11. Figure 16 shows the gender disaggregation.

Volume of Commodities Sold by Farms and Firms Receiving USDA Assistance (MT) (FFPr Standard Indicator #19)

Volume of annual sales is one of the USDA standard indicators across projects. In line with industry convention, we here report volume in kilogram (kg) instead of metric tons (MT). The

Table 12: Summary Statistics of Raw Cashew Nut Sales Volumes

Sales volume (kg)	Baseline Total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
N	**1,732**	**368**	**349**	**340**	**336**	**339**
n_{sales_vol}	1,217	293	252	217	237	218
n_{sales_vol} / n	0.70	0.80	0.72	0.64	0.71	0.64
Mean	**2,431**	**1,796**	**2,464**	**2,287**	**1,469**	**4,436**
0.05 percentile	152	150	200	50	160	335
0.95 percentile	7,000	6,000	6,890	6,100	4,007	10,424
Median	**1,274**	**800**	**1,480**	**1,300**	**1,000**	**2,880**
Min	3	4	7	5	3	90
Max	80,000	70,000	70,000	60,000	9,600	80,000

Note: n is the number of surveys per country, n_{sales_vol} is the number of plausible yield calculations tree number records that were included in the calculation, n_{sales_vol} / n is the ratio of the two. Mean, percentiles, median, minimum, and maximum were calculated on n_{sales_vol}.

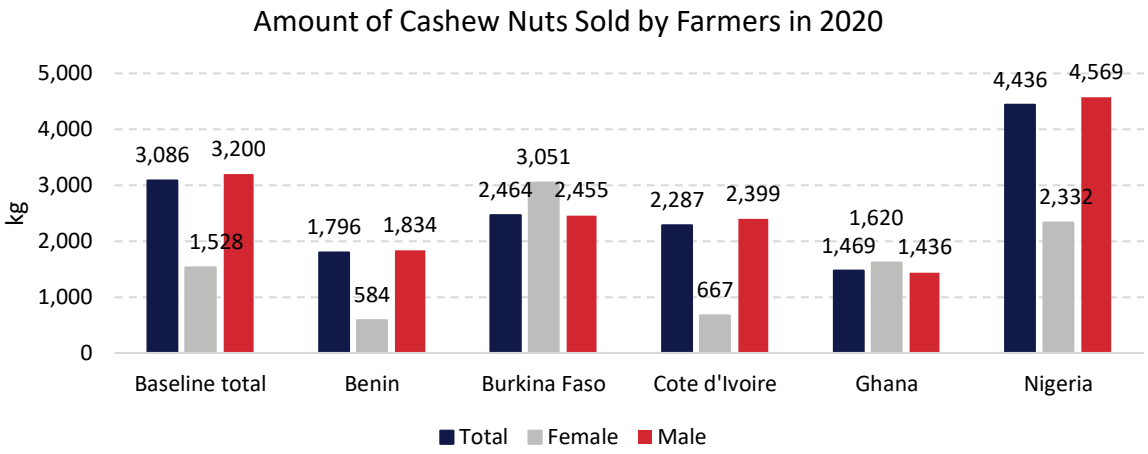


Figure 17: Amount of Raw Cashew Nuts Sold per Farmer by Country and Gender

average (mean) sales volume for 2020 across study countries was 2,431 kg, varying between 1,469 kg (Ghana) and 4,436 kg (Nigeria). As with sales value, the mean was influenced by a few large producers in every country. The median, as a more representative measure, was 1,274 kg, so about 60% of the mean, varying from 800 kg (Benin) to 2,880 kg (Nigeria). Nigerian farmers had the largest sales volumes, being twice as much as in Burkina Faso, the country where farmers sold the second highest amount. Summary statistics for sales volumes are shown in Table 12, Figure 17 shows the gender disaggregation.

Program-Level Totals

PRO-Cashew works with processing partners who support farmers that supply them improve their practices and access to market. In 2020, two of the nine PRO-Cashew partner processors who had been signed at the time of this study were working directly with farmers. According to the PRO-Cashew program office, they directly sourced around 7,200 MT of RCN from farmers, 50% in Côte d'Ivoire and 50% in Nigeria, which on the basis of surveyed average production volumes in these countries (see Table 5) converts to 1,536 farmers in Côte d'Ivoire and 854 in Nigeria, so 2,391 farmers in total.

Using these volume and farmer number figures, we estimated program-level baseline totals for the USDA Core Indicators. Results are shown in Table 13. They were computed using the surveyed production volume per farmer (Table 5), average area under cashew (Table 4), share of land under good practices (Table 10), share of farmers applying good practices (Figure 15), and RCN sales value and volume (Table 11 and Table 12), respectively.

However, PRO-Cashew partners currently only source a small share of their RCNs directly from farmers. Most of the volume they bought in 2020 was sourced through intermediaries.

Table 13: Program-Level Totals for Core Indicators at Baseline (2020)

Indicator	Baseline total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
Yield (MT)		0.377	0.307	0.444	0.400	0.388
Farmers selling directly to PRO-Cashew partners	2,391	0	0	1,536	0	854
Total area of cashew grown by farmers selling directly (ha)	6,025	0	0	2,081	0	3,944
Area under improved management (ha)	4,627	0	0	1,184	0	3,191
Pruning trees	2,443	0	0	764	0	1,584
Thinning cashew stands	1,346	0	0	510	0	824
Cultivate soil around trees	1,701	0	0	89	0	1,390
Apply org. fertilizer	183	0	0	36	0	146
Apply synth. fertilizer	326	0	0	62	0	271
Create fire breaks	3,681	0	0	539	0	2,735
Pest and disease control	1,243	0	0	447	0	776
No. of farmers applying good practices	1,997	0	0	1,487	0	849
Use grafted seedlings	257	0	0	113	0	106
Pruning trees	1,590	0	0	1,148	0	708
Thinning cashew stands	1,075	0	0	881	0	431
Cultivate soil around trees	743	0	0	226	0	454
Apply fertilizer	253	0	0	149	0	141
Apply org. fertilizer	111	0	0	63	0	58
Apply synth. fertilizer	173	0	0	113	0	98
Create fire breaks	1,395	0	0	755	0	721
Pest and disease control	1,348	0	0	990	0	567
Use jute bags	1,379	0	0	1,387	0	479
Value of cashews purchased from farmers selling directly ('000 USD)	4,267	0	0	1,976	0	2,291
Volume purchased from farmers selling directly (MT)	7,200	0	0	3,600	0	3,600

Notes: All numbers are based on Raw Cashew Nut volumes sourced by PRO-Cashew partners directly from farmers. The totals for 'Area under improved management' and 'No. of farmers applying good practices' count the use of at least one of the improved practices listed underneath.

Considering indirect sourcing, they have a wider footprint: To calculate this wider footprint, we used information provided by PRO-Cashew partners to estimate their total RCN sourcing volume, as shown in Table 14. Program-level totals were then computed using the surveyed production volume per farmer (Table 5), average area under cashew (Table 4), share of land under good practices (Table 10), share of farmers applying good practices (Figure 15), and RCN sales value and volume (Table 11 and Table 12), respectively. Results are shown in Table 15.

Table 14: Total volume of Raw Cashew Nuts Purchased by PRO-Cashew Partners in 2020

	Baseline total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
Volume of RCN (MT)	70,806	7,500	4,800	26,109	0	32,397

Table 15: Core Indicators for PRO-Cashew Partners' Total Raw Cashew Nut Sourcing in 2020

Indicator	Baseline total	Benin	Burkina Faso	Côte d'Ivoire	Ghana	Nigeria
Yield (MT)		0.377	0.307	0.444	0.400	0.388
Farmers supplying to PRO-Cashew partners	31,395	4,135	2,336	11,940	0	12,985
Total area of cashew grown for PRO-Cashew partners (ha)	91,469	11,345	4,017	16,170	0	59,937
Area under improved management (ha)	70,239	10,453	2,095	9,199	0	48,492
Pruning trees	37,096	6,116	973	5,940	0	24,066
Thinning cashew stands	20,440	3,324	637	3,963	0	12,516
Cultivate soil around trees	25,828	2,794	1,220	694	0	21,119
Apply org. fertilizer	2,784	202	81	278	0	2,222
Apply synth. fertilizer	4,953	259	104	479	0	4,111
Create fire breaks	55,875	9,111	1,010	4,188	0	41,567
Pest and disease control	18,868	3,152	459	3,473	0	11,785
No. of farmers applying good practices	30,312	4,090	1,760	11,554	0	12,908
Use grafted seedlings	3,895	1,067	341	878	0	1,609
Pruning trees	24,145	3,157	1,305	8,920	0	10,763
Thinning cashew stands	16,319	1,977	944	6,848	0	6,550
Cultivate soil around trees	11,279	1,550	1,078	1,756	0	6,895
Apply fertilizer	3,848	303	241	1,159	0	2,145
Apply org. fertilizer	1,688	169	147	492	0	881
Apply synth. fertilizer	2,625	146	107	878	0	1,494
Create fire breaks	21,184	3,460	904	5,865	0	10,955
Pest and disease control	20,472	2,764	1,399	7,691	0	8,618
Use jute bags	20,929	2,034	837	10,781	0	7,278
Value of cashews bought by PRO-Cashew partners ('000 USD)	41,452	3,843	2,661	14,328	0	20,621
Volume purchased by PRO-Cashew partners (MT)	70,806	7,500	4,800	26,109	0	32,397

Notes: All numbers are based on information about total Raw Cashew Nut sourcing of PRO-Cashew partners, i.e. refer to their entrire supply base in each country, whether boughts directly (as shown in Table 13) or indirectly via intermediaries. The totals for 'Area under improved management' and 'No. of farmers applying good practices' count the use of at least one of the improved practices listed underneath.

Disaggregated figures by farm size, gender and age group for the values shown in Table 13 and Table 15 are provided in the Appendix to this report.

Note, that we used the average farm size to calculate the total cashew area and the area under improved management, so the same caveat as with yields applies: Because the data on area under cashew may not be reliable (see above), the share of area under good management is, too. We recommend that PRO-Cashew verify cashew plantation areas through dedicated yield and production surveys and, if need be, retrospectively adjust the baseline with the improved data on farmers' cashew area.

PRO-Cashew originally aimed to reach 42,000 farmers by year 5, however has revised this target to 55,000 farmers in year 5, distributed across the five countries as follows:

Benin	5,000
Burkina Faso	5,000
Côte d'Ivoire	25,000
Ghana	5,000
Nigeria	15,000

5.3 Qualitative Baseline Questions

A total of 234 KIIs and FGDs (82 FGDs and 152 KIIs) were conducted (see Table 16) across the five study countries and the FGDs and KIIs span across seven stakeholder groups. There was a total of 1,285 participants in the FGDs amongst cashew farmer communities (see Table 17). The interviews were semi-structured with open-ended questions, these questions were designed to stimulate deeper in-depth insights from the participants/respondents and address the key questions outlined in the evaluation framework. There are less FGDs and KIIs in Ghana because the cashew industry is not regulated, and the majority of farmers are working on individual basis, hence difficulty was faced interviewing organizations. There were also no KIIs conducted for Researchers/Academics in Benin, Burkina Faso or Ghana as the timeline of the study made it challenging to reach prospective interviewees. In addition, there were no KIIs for government organizations or associations for Côte d'Ivoire due to challenges reaching interviewees and willingness to participate. This section presents the key insights per stakeholder group and baseline question as outlined in Table 16.

Table 16: FGDs/KIIs per Stakeholder Group

Number of FGDs & KIIs per Stakeholder Group								
Country	Total	Cashew Farmer Communities (FGDs)	RCN Farmer Organizations (KIIs)	Extension Agents (KIIs)	Agro-food Commodity Companies (KIIs)	Service Providers (KIIs)	Government/ Associations (KIIs)	Researchers/ Academics (KIIs)
Benin	69	30	11	12	6	9	1	0
Burkina Faso	40	14	4	5	8	4	5	0
Côte d'Ivoire	38	11	9	3	9	4	0	2
Ghana	31	12	2	5	5	5	2	0
Nigeria	56	15	10	11	3	10	2	4
Regional	1						1	
Total	234	82	36	36	31	33	11	6

Table 17: Number of Participants per FGDs

Number of FGD Participants Amongst the Cashew Farmer Communities					
Country	Number of FGDs	Men	Women	Young People (under 25 years old*)	**Total Number of Participants**
Benin	30	246	64	105	**415**
Burkina Faso	14	51	24	27	**102**
Côte d'Ivoire	11	111	35	36	**182**
Ghana	12	112	55	65	**232**
Nigeria	15	108	144	102	**354**
Total	82	628	322	335	**1,285**

**For Nigeria young people are defined as being less than 35 years old.*

What are farmer sales to the farmer organization?

Generally, most of the cashew farmers do not sell their RCNs to the farmer organization they belong across the countries except in Burkina Faso and Côte d'Ivoire. The membership strength of the farmer organizations ranges between 10 to 45,699 members across the communities in the five countries.

What is the baseline capacity of the farmer organizations?

Across the five countries the farmer organizations use different criteria to select and admit members into the organization. The most common admission criteria include being a cashew farmer, payment of membership fees, payment of the organization's dues, reside within the region/community where the organization is headquartered, among others. Most of the organizations in the countries have written statutes, and they are accessible by members. The leaders are mostly elected by members through voting while few are appointed by selection. For example, a person might be selected unopposed as chairman or for any other position because of their experience in cashew farming. The leaders stay in office for a fixed period which varies across the organizations before the next election is conducted. Most of the organizations hold annual general meetings mostly to discuss the challenges confronting the organizations and proffer solutions as well as to pass important information to the farmers. Beside the annual general meeting, most of the organizations meet on a regular basis to discuss other minor issues regarding the welfare of organizations and their members.

What services are currently offered?

In most of the communities, the organizations offer their members the following services: information about cashew prices and volumes, credit facilities, training of members on best agricultural and post-harvest practices, bulk purchases of inputs on behalf of the members, nursery for cashew seedlings, warehousing, and distribution of inputs, among others.

What are current services offered by extension agents?

The common services offered by the extension agents to farmers in most of the communities across the countries include advice or training of farmers on best agricultural and post-harvest practices, dissemination of information about cashew prices and volumes, nursery for cashew seedlings, and warehousing and distribution of inputs. Further, most of these services are offered free of charge to the farmers. However, the major challenges confronting the extension agents across the countries are poor funding of extension services, poor renumeration, logistics issues, limited number of agents, and poor rural road networks.

Agro-Food Commodity Companies

What are farmer sales to the agro-food companies?

Most of the agro-food companies across the five countries buy RCNs from multiple sources such as farmers, merchants, LBAs, and field collectors. Most of these companies do not keep track of the exact percentage of their total purchase they buy from their respectively sources. Also, where the company is a cashew processing company, they process the RCNs they purchased themselves from various sources. However, other companies buy RCNs and sell to local cashew processing companies and international bulk buyers across USA, Europe, and Asia.

What is the baseline capacity of the companies/What are current business management practices?

Most of the companies, both registered and non-registered, employ full-time and part-time staff including men and women. Most of the companies, especially the ones that are into buying and selling of RCNs (mostly not registered) do not have written business plans as well as updated purchases, sales, and financial records. Some of the companies have accounting departments that oversee their purchases, sales, and financial records and make annual tax returns to the government, particularly for the registered companies. Also, some of the companies make purchases and sales projections on a weekly, monthly, and annually basis. Further, most of the companies source their cashew market price information from ACA, N'kalo (mostly by the francophone companies), other buyers, and their buyers.

Cashew Farm Service Providers

What are current services offered to cashew farmers by service providers?

Most of the cashew service providers offer services and products across other value chains. Specifically, for cashew value chain across the countries, they offer the following services and products to cashew farmers: farm rehabilitation, seedlings, technical support for planting, pruning, thinning, weeding, chemicals, tractor, tool and equipment hire, among others.

What are current business management practices?

Generally, most of these companies are not registered and majority of them do not keep updated sales, purchases, and financial records. Since most of the companies are not registered, they do not make annual tax return to the government. Also, most of the companies do not have a written business plan or make annual sales/purchase projection. Further, the majority of the companies do not run a stock management system, except for some who run manual stock management system while only few on the companies run digital system.

Government Officials / National Sector Associations / Researchers / Academics / Cashew Regional Organization

What are current use and sources of data?

Specifically, most of the government officials and national sector associations across the countries as well as the regional organization source their data from multiple sources as indicated in Table 18. No data were available for Côte d'Ivoire as no interviews were conducted for government officials / national sector associations stakeholder group.

The KIIs were conducted with research institutions and universities in Nigeria and Côte d'Ivoire. The responsibilities of the research institutions and universities with regards to cashew value chains in the two countries include vocational training at university level, research on cashew production, designing of Kernel Out-turn Ratio (KOR) calculation, training materials, agronomy of crop, land intensification, monitoring and evaluation of cashew projects/programs, innovation in cashew production, training of farmers, among others. The institutions identified the following as the most pressing needs of the cashew sector across the two countries: adequate funding, genetic diversity, breeding programs, adequate research facilities, market linkages, stable price regime, etc. The institutions major challenges in the two countries include inadequate funding of the institutions, poor research funding, and unsuitable laboratory equipment.

Further, the regional organization asserted that the following are the major challenges in the cashew sector in Africa; weak institutional structures, lack of sector information from the governments, poor support from governments in data collection across the countries, difficulty accessing the available data in the countries, and poor funding of the sector. The respondent believes that the regional organization can contribute to overcoming these challenges by collecting up-to-date data on cashew value chain in Africa, collaborating with governments in reviewing cashew sector policies, researching on policies implemented in other cashew producing countries around the world, and among others.

What are relevant policies making practices?

Across the countries, there are numerous policies relevant to cashew sector, while some of these policies are general across the entire agricultural value chains in the countries, others are specific to cashew sector. Respondents in Benin, Burkina Faso, Ghana, and Nigeria highlighted the

Table 18: Sources of Cashew Data per Country

Countries	Sources of Data
Benin	State services (DSA, DDAEP, ATDA), technical and financial partners
Burkina Faso	Ministry of Agriculture and Hydraulic Development (MAAH), Consultative International Cashew Council (CICC), cashew producers, national unions, Nitidae, COMCASHEW, and ACA.
Ghana	Ghana Harbor Authority, Ghana Export Promotion Authority and Development partners
Nigeria	Within the organization (the department of agriculture) and NBS
Regional Organization	Own data source

Table 19: Relevant Cashew Policies per Country

Countries	Cashew Policies
Benin	The National Cashew Sector Development Program 2017-2021.
Burkina Faso	National strategy for the development of the cashew sector.
Ghana	Implementation of Africa Cashew Initiative / Competitive Cashew Initiative by Ministry of Food and Agriculture (MOFA).
Nigeria	• Policy on the use of jute bags against polythene bags • Ban on indiscriminate harvesting and control of moisture content.

policies listed in Table 19. However, the regional organization plays the role of advocacy as well as helping cashew producing countries in Africa to set up structures in the sector.

6 Recommendations for PRO-Cashew

The PRO-Cashew project is expected to contribute to achieving an increase in agricultural productivity, with a focus on increasing the physical productivity of cashew crops; and expanded trade of cashew product. Six key activities are defined to achieve the intended results which relate to capacity building of farmer organizations and agro-food companies, in-kind grants, inputs, integrated data system development, public information campaign and capacity building for improved policy and regulatory framework.

The baseline evaluation results highlight the following key potential strengths, weaknesses, opportunities and threats to program implementation:

- **Strengths:** Across the countries there is a clear need for improvement for replanting, renovation and rehabilitation (R&R), access to finance and access to inputs. The evaluation results validate that these should be key focus areas for PRO-Cashew activities to achieve the physical productivity of cashew crops and expanded trade.
- **Weaknesses:** While there are some clear similarities across the countries, there are different structures within which the value chains are organized, as well as different challenges in the respective environments. The program activities should be customized per country for optimum outcomes. This is especially relevant for the activity areas surrounding the public information campaign for improved market information and the capacity building to promote improved policy and regulatory frameworks.
- **Opportunities:** The program aims to be focused on gender and youth and the evaluation highlighted areas for which there are clear opportunities for improvement. For example, in many of the countries, cashew is an interesting crop for farmers. However, the youth who would like to farm are restrained due to lack of access to land, including also access to capital to secure land for farming.
- **Threats:** Program success is reliant on access to, and the strengthening of partnerships, amongst farmer organizations, traders and other stakeholders. The evaluation uncovered that in some of the countries, trust amongst partners may be a constraint in efficient and effective implementation.

Further the evaluator has additional specific recommendations for overcoming any threats to program implementation and to enhance program monitoring.

Monitoring and Evaluation

A couple areas noted for improvement on the monitoring and evaluation of the program are:

- Engage in yield survey in the same form as other USDA programs and researchers. Such as engaging with LIFFT and BeninCaju project teams about their experience to get better yield data. Along the same lines, poor productivity and yield data quality is clearly regional, especially in Ghana and Côte d'Ivoire. Training enumerators on the importance at a regional level, and build in regional-level checks, would help to manage this.

- In future monitoring and evaluation, construct a model for cost and revenue calculations at regional level to better understand cost and value drivers.

Implementation

Support farmers in accessing markets directly to minimize the chain of middlemen: The cashew farmers often complain about getting low price for their RCNs during harvesting season from their buyers. Most of the buyers are village buyers who sell to other buyers and the chain continue until the RCNs get to the final destination (processors). In this process, the farmers who put in more effort in cashew production are the ones who always get lower value for their RCNs compared to other players along the value chain. It will be worthwhile to look into creating a stable market linkage between the cashew farmers and processors where possible or further strategize on how to reduce the number of middlemen along the value chain.

Focus on tree planting and tree rejuvenation: The adoption rate of good agricultural practices is relatively positive, apart from fertilizer use. However, there is an opportunity gap with respect to replacing old trees.

Improve the quality of cashew inputs for the farmers: Across different FGDs with the cashew farmers in the various countries, the farmers complained about lack of quality and affordable inputs. It was observed during the FGDs that most of the inputs such as tarpaulins, nylon thread, central drying floor, fertilizers, chemicals, among others were not available within their communities, and where some of them are available, the prices are too high. Therefore, we recommend a tailored approach based on needs assessment at community level and prioritization of inputs needed per community.

Encourage the strengthening and formation of cashew farmer organizations: Most of the cashew farmers currently do not belong to any cashew farmer organizations and some of the existing organizations are not well structured and organized. It might take some time before the farmers are organized into farmer organizations or for the existing organizations to work in a way that could accomplish most of their set goals. Therefore, it will be worthwhile to form these cashew farmers into organizations as well as strengthen the existing ones, these organizations will eventually develop into sustainable and strong cashew farmers organizations across the communities in the countries.

Capacity building for agro-food commodity companies and cashew farm services providers: Most of the companies were identified during the interviews to have weak management and business practices across the countries except for registered and fully functioning companies such as processing companies. Early focus on capacity building for these companies across the countries will lead to a sustainable cashew sector that will meet the needs of every players along the value chain in the countries.

Other opportunities

Gender strategy with focus on women in the cashew value chain across the countries: Participation of women in the cashew value chain in all five countries is low. A better understanding of the underlying reasons and a strategy for addressing them could increase the participation of women and would distribute the benefits of any intervention more equitably across genders. In developing a gender strategy, it is important to note the different communities across the countries where women are allowed and not allowed to own their farmlands and cashew trees based on the existing customs and traditions in such communities. Thus, understanding the gender differences across the communities should be based on more in-depth gender analyses. The communities which permit women's entitlement to farmlands and cashew trees with relatively higher share of women cashew farmers will provide an easier entry-point to developing a gender strategy for the project.

Gain a better understanding of young people participation in cashew value chain across the countries: The share of young people (below 30 years) among cashew farmers is low. Young people are actively involved in different activities along the cashew value chain across the various communities in the countries. The young people are more confronted with the issues of lack of funds to finance cashew production and poor access to farmlands to cultivate cashew. The issue of inaccessibility of lands is mostly due to the land tenure systems practiced in most of the communities. Even where the farmlands are available, the money to buy inputs and hire labor to start cashew farming by the young people becomes the major challenge. To better understand the needs and aspirations of the young people regarding their interest in cashew farming will be valuable across the communities.

Creating opportunities for the untapped cashew apple across the countries: Across most of the communities in the countries, the cashew apples are often discarded without adding any economic value to the farmers' income. These apples can be processed into juice, jam, or wine for commercial purpose or family consumption. This project can identify and support local companies across the countries that can produce the apples into a range of products for wider market distribution and this will eventually create another stream of income for the cashew farmers.

7 References

AFDB (2017): Cashew Development Support Project in Comoé Basin for Redd+. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Burkina_Faso_Approved_Cashew_Dev__Support_Project_in_Como%C3%A9_Basin.pdf

BeninCajù (2016): Baseline Study Results for the Cashew Integration & Acceleration Program. https://docs.google.com/document/d/1_5Zatp4jyR9RWSWHHJfGhvUW8cl5hgKU/edit

BeninCajù (2020): Enquête de rendement anacarde dans les zones d'intervention de BeninCajù. Rapport Final, Campagne 2020

CABRI (2019): The Role of Governments in Developing Agriculture Value Chains. https://www.cabri-sbo.org/uploads/files/Documents/Case-Study-1_Cashew-ENG.pdf

CGAP (2017): National Survey and Segmentation of Smallholder Households in Nigeria. Understanding Their Demand for Financial, Agricultural, and Digital Solutions. https://www.cgap.org/research/publication/national-survey-and-segmentation-smallholder-households-nigeria

CGAP (2017a): National Survey and Segmentation of Smallholder Households in Côte d'Ivoire. Understanding Their Demand for Financial, Agricultural, and Digital Solutions. https://www.cgap.org/research/publication/national-survey-and-segmentation-smallholder-households-Côte-divoire

ComCashew (2019): Country Reports on Promoting Competitiveness of the Cashew Value Chain. https://www.comcashew.org/downloads

FAO/Ministère de l'agriculture et du développement rural (2019): Recensement des Exploitants et Exploitations Agricoles. Abidjan. 104 pp. http://www.fao.org/documents/card/en/c/CA3111FR/

FAOSTAT (2020): Data on Yield, Harvested Area and Production Quantity. http://www.fao.org/faostat/en/#data/QC

GHS (2012): Burkina Faso Enquête Démographique et de Santé et à Indicateurs Multiples (EDSBF-MICS IV) 2010. https://dhsprogram.com/pubs/pdf/FR256/FR256.pdf

GHS (2013): Côte d'Ivoire Enquête Démographique et de Santé et à Indicateurs Multiples 2011-2012. https://dhsprogram.com/pubs/pdf/FR272/FR272.pdf

GHS (2015): Ghana Demographic and Health Survey 2014. https://dhsprogram.com/pubs/pdf/FR307/FR307.pdf

GHS (2019): Bénin Enquête Démographique et de Santé 2017-2018. https://dhsprogram.com/pubs/pdf/FR350/FR350.pdf

LSMS-ISA (2019): LSMS Integrated Surveys on Agriculture - Nigeria General Household Survey-Panel Wave 4 - 2018/2019. https://www.worldbank.org/en/programs/lsms/initiatives/lsms-ISA#acc34

Nitidae (2019): Analysis of Cashew Production, Processing and Trade in West Africa. https://www.nitidae.org/files/41dc7432/wa_cashew_sector_review_2019_nitidae.pdf

The Guardian (2019): Economics and Techniques of Modern Cashew Farming. https://guardian.ng/features/agro-care/economics-and-techniques-of-modern-cashew-farming/

The National Cashew Association of Nigeria (2016): PowerPoint Slide on Background of the Nigerian Cashew Industry. https://slideplayer.com/slide/11886025/

World Bank (2018): Project Appraisal Document on a Proposed Loan in the Amount of Eur 163.7 million (US$200 million equivalent) to the Cotton and Cashew Council with the Guarantee of the Republic of Côte d'Ivoire for a Cashew Value-Chain Competitiveness Project. http://documents1.worldbank.org/curated/en/132801523584857502/pdf/Project-Appraisal-Document-P158810-FINAL-Board-03212018.pdf

World Cashew Convention & Exhibition (2019): Conference Proceedings from the 5th Edition of the World Cashew Convention & Exhibition Held in Abu Dhabi. http://www.cashewconvention.com/wcc2019/presentation/highlights/English/English_WCCE_Highlights_2019.pdf

8 Appendix: PRO- Cashew Performance Indicators – Baseline Values (disaggregated)

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
FFPr Standard (1)	**MT/ha**	**Yield of targeted agricultural commodities among program participants with USDA assistance (MT/ha)[ii]**		
FFPr Standard (1) - Benin	**MT/ha**	**Country: Benin (Total)**	**0.377**	**0.377**
		Benin: Smallholder (Total)	**N/A**	**N/A**
		Benin Smallholder: Male	**N/A**	**N/A**
		Benin Smallholder: Female	**N/A**	**N/A**
		Benin Smallholder: Age 15-29	**N/A**	**N/A**
		Benin Smallholder: Age 30+	**N/A**	**N/A**
		Benin Non-Smallholder	**N/A**	**N/A**
		Benin Non-Smallholder: Male	**N/A**	**N/A**
		Benin Non-Smallholder: Female	**N/A**	**N/A**
		Benin Non-Smallholder: Age 15-29	**N/A**	**N/A**
		Benin Non-Smallholder: Age 30+	**N/A**	**N/A**
FFPr Standard (1) – Burkina Faso	**MT/ha**	**Country: Burkina Faso (Total)**	**0.307**	**0.307**
		Burkina Faso: Smallholder (Total)	**N/A**	**N/A**
		Burkina Faso Smallholder: Male	**N/A**	**N/A**
		Burkina Faso Smallholder: Female	**N/A**	**N/A**
		Burkina Faso Smallholder: Age 15-29	**N/A**	**N/A**
		Burkina Faso Smallholder: Age 30+	**N/A**	**N/A**
		Burkina Faso Non-Smallholder	**N/A**	**N/A**
		Burkina Faso Non-Smallholder: Male	**N/A**	**N/A**
		Burkina Faso Non-Smallholder: Female	**N/A**	**N/A**
		Burkina Faso Non-Smallholder: Age 15-29	**N/A**	**N/A**
		Burkina Faso Non-Smallholder: Age 30+	**N/A**	**N/A**
FFPr Standard (1) – Cote d'Ivoire	**MT/ha**	**Country: Cote d'Ivoire (Total)**	**0.444**	**0.444**
		Cote d'Ivoire: Smallholder	**N/A**	**N/A**
		Cote d'Ivoire Smallholder: Male	**N/A**	**N/A**
		Cote d'Ivoire Smallholder: Female	**N/A**	**N/A**
		Cote d'Ivoire Smallholder: Age 15-29	**N/A**	**N/A**
		Cote d'Ivoire Smallholder: Age 30+	**N/A**	**N/A**
		Cote d'Ivoire Non-Smallholder	**N/A**	**N/A**
		Cote d'Ivoire Non-Smallholder: Male	**N/A**	**N/A**
		Cote d'Ivoire Non-Smallholder: Female	**N/A**	**N/A**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Cote d'Ivoire Non-Smallholder: Age 15-29	N/A	N/A
		Cote d'Ivoire Non-Smallholder: Age 30+	N/A	N/A
FFPr Standard (1) – Ghana	**MT/ha**	**Country: Ghana (Total)**	**0.400**	**0.400**
		Ghana: Smallholder (Total)	N/A	N/A
		Ghana Smallholder: Male	N/A	N/A
		Ghana Smallholder: Female	N/A	N/A
		Ghana Smallholder: Age 15-29	N/A	N/A
		Ghana Smallholder: Age 30+	N/A	N/A
		Ghana Non-Smallholder	N/A	N/A
		Ghana Non-Smallholder: Male	N/A	N/A
		Ghana Non-Smallholder: Female	N/A	N/A
		Ghana Non-Smallholder: Age 15-29	N/A	N/A
		Ghana Non-Smallholder: Age 30+	N/A	N/A
FFPr Standard (1) – Nigeria	**MT/ha**	**Country: Nigeria (Total)**	**0.388**	**0.388**
		Nigeria: Smallholder (Total)	N/A	N/A
		Nigeria Smallholder: Male	N/A	N/A
		Nigeria Smallholder: Female	N/A	N/A
		Nigeria Smallholder: Age 15-29	N/A	N/A
		Nigeria Smallholder: Age 30+	N/A	N/A
		Nigeria Non-Smallholder	N/A	N/A
		Nigeria Non-Smallholder: Male	N/A	N/A
		Nigeria Non-Smallholder: Female	N/A	N/A
		Nigeria Non-Smallholder: Age 15-29	N/A	N/A
		Nigeria Non-Smallholder: Age 30+	N/A	N/A
FFPr Standard (18)	**USD**	**Value of annual sales of farms and firms receiving USDA assistance (USD)[iii]**		
FFPr Standard (18) – Benin	**USD**	**Country: Benin (Total)**	**0**	**3,842,832**
		Agricultural Commodities – Cashews (Total)	**0**	**3,842,832**
		Producers Smallholder	**0**	**832,255**
		Producers Smallholder - Male	**0**	**806,223**
		Producers Smallholder – Female	**0**	**26,032**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**23,013**
		Producers Smallholder - Age 30+	**0**	**701,504**
		Producers Smallholder – Age N/A	**0**	**107,738**
		Producers Non- Smallholder	**0**	**3,010,577**
		Producers Non-Smallholder – Male	**0**	**3,000,517**
		Producers Non-Smallholder – Female	**0**	**10,061**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**48,705**
		Producers Non-Smallholder – Age 30+	**0**	**2,818,422**
		Producers Non-Smallholder – Age N/A	**0**	**143,450**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
		Firm- Large enterprise or corporation.		
		Firm- Large enterprise or corporation – Male		
		Firm- Large enterprise or corporation – Female		
		Firm- Large enterprise or corporation – Mixed Gender		
		Firm- Large enterprise or corporation - Age 15-29		
		Firm- Large enterprise or corporation - Age 30+		
		Firm- Large enterprise or corporation – Age N/A		
FFPr Standard (18) – Burkina Faso	**USD**	**Country: Burkina Faso (Total)**	**0**	**2,661,006**
		Agricultural Commodities – Cashews (Total)	**0**	**2,661,006**
		Producers Smallholder	**0**	**1,161,755**
		Producers Smallholder - Male	**0**	**1,112,491**
		Producers Smallholder – Female	**0**	**49,265**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**23,781**
		Producers Smallholder - Age 30+	**0**	**501,280**
		Producers Smallholder – Age N/A	**0**	**636,694**
		Producers Non- Smallholder	**0**	**1,499,251**
		Producers Non-Smallholder – Male	**0**	**1,499,251**
		Producers Non-Smallholder – Female	**0**	**0**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**1,176**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Producers Non-Smallholder – Age 30+	**0**	**1,460,384**
		Producers Non-Smallholder – Age N/A	**0**	**37,690**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
		Firm- Large enterprise or corporation.		
		Firm- Large enterprise or corporation – Male		
		Firm- Large enterprise or corporation – Female		
		Firm- Large enterprise or corporation – Mixed Gender		
		Firm- Large enterprise or corporation - Age 15-29		
		Firm- Large enterprise or corporation - Age 30+		
		Firm- Large enterprise or corporation – Age N/A		
FFPr Standard (18) – Cote d'Ivoire	**USD**	**Country: Cote d'Ivoire (Total)**	**1,975,549**	**14,327,507**
		Agricultural Commodities – Cashews (Total)	**1,975,549**	**14,327,507**
		Producers Smallholder	**467,771**	**3,392,474**
		Producers Smallholder - Male	**435,378**	**3,157,546**
		Producers Smallholder – Female	**32,393**	**234,928**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**9,147**	**66,339**
		Producers Smallholder - Age 30+	**430,543**	**3,122,480**
		Producers Smallholder – Age N/A	**28,081**	**203,655**
		Producers Non- Smallholder	**1,507,777**	**10,935,034**
		Producers Non-Smallholder – Male	**1,500,634**	**10,883,226**
		Producers Non-Smallholder – Female	**7,143**	**51,807**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**10,703**	**77,623**
		Producers Non-Smallholder – Age 30+	**1,456,035**	**10,559,774**
		Producers Non-Smallholder – Age N/A	**41,040**	**297,636**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
		Firm- Large enterprise or corporation.		
		Firm- Large enterprise or corporation – Male		
		Firm- Large enterprise or corporation – Female		
		Firm- Large enterprise or corporation – Mixed Gender		
		Firm- Large enterprise or corporation - Age 15-29		
		Firm- Large enterprise or corporation - Age 30+		
		Firm- Large enterprise or corporation – Age N/A		
FFPr Standard (18) – Ghana	**USD**	**Country: Ghana (Total)**	**0**	**0**
		Agricultural Commodities – Cashews (Total)	**0**	**0**
		Producers Smallholder	**0**	**0**
		Producers Smallholder - Male	**0**	**0**
		Producers Smallholder – Female	**0**	**0**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**0**
		Producers Smallholder - Age 30+	**0**	**0**
		Producers Smallholder – Age N/A	**0**	**0**
		Producers Non- Smallholder	**0**	**0**
		Producers Non-Smallholder – Male	**0**	**0**
		Producers Non-Smallholder – Female	**0**	**0**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**0**
		Producers Non-Smallholder – Age 30+	**0**	**0**
		Producers Non-Smallholder – Age N/A	**0**	**0**
		Firm – microenterprise		
		Firm – microenterprise – Male		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
		Firm- Large enterprise or corporation.		
		Firm- Large enterprise or corporation – Male		
		Firm- Large enterprise or corporation – Female		
		Firm- Large enterprise or corporation – Mixed Gender		
		Firm- Large enterprise or corporation - Age 15-29		
		Firm- Large enterprise or corporation - Age 30+		
		Firm- Large enterprise or corporation – Age N/A		
FFPr Standard (18) – Nigeria	**USD**	**Country: Nigeria (Total)**	**2,291,391**	**20,620,582**
		Agricultural Commodities – Cashews (Total)	**2,291,391**	**20,620,582**
		Producers Smallholder	**874,019**	**7,865,427**
		Producers Smallholder - Male	**827,367**	**7,445,601**
		Producers Smallholder – Female	**46,652**	**419,826**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**165,425**	**1,488,684**
		Producers Smallholder - Age 30+	**699,183**	**6,292,055**
		Producers Smallholder – Age N/A	**9,411**	**84,688**
		Producers Non- Smallholder	**1,417,373**	**12,755,155**
		Producers Non-Smallholder – Male	**1,392,079**	**12,527,530**
		Producers Non-Smallholder – Female	**25,294**	**227,625**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**0**
		Producers Non-Smallholder – Age 30+	**1,372,598**	**12,352,221**
		Producers Non-Smallholder – Age N/A	**44,775**	**402,933**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
		Firm- Large enterprise or corporation.		
		Firm- Large enterprise or corporation – Male		
		Firm- Large enterprise or corporation – Female		
		Firm- Large enterprise or corporation – Mixed Gender		
		Firm- Large enterprise or corporation - Age 15-29		
		Firm- Large enterprise or corporation - Age 30+		
		Firm- Large enterprise or corporation – Age N/A		
FFPr Standard (19)	**MT**	**Volume of commodities sold by farms and firms receiving USDA assistance (MT)** [iv]		
FFPr Standard (19) – Benin	**MT**	**Country: Benin (Total)**	**0**	**7,500**
		Agricultural Commodities – Cashews (Total)	**0**	**7,500**
		Producers Smallholder	**0**	**1,666**
		Producers Smallholder - Male	**0**	**1,611**
		Producers Smallholder – Female	**0**	**55**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**41**
		Producers Smallholder - Age 30+	**0**	**1,413**
		Producers Smallholder – Age N/A	**0**	**212**
		Producers Non- Smallholder	**0**	**5,834**
		Producers Non-Smallholder – Male	**0**	**5,814**
		Producers Non-Smallholder – Female	**0**	**20**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**97**
		Producers Non-Smallholder – Age 30+	**0**	**5,547**
		Producers Non-Smallholder – Age N/A	**0**	**191**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
FFPr Standard (19) – Burkina Faso	**MT**	**Country: Burkina Faso (Total)**	**0**	**4,800**
		Agricultural Commodities – Cashews (Total)	**0**	**4,800**
		Producers Smallholder	**0**	**2,482**
		Producers Smallholder - Male	**0**	**2,387**
		Producers Smallholder – Female	**0**	**94**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**34**
		Producers Smallholder - Age 30+	**0**	**841**
		Producers Smallholder – Age N/A	**0**	**1,607**
		Producers Non- Smallholder	**0**	**2,318**
		Producers Non-Smallholder – Male	**0**	**2,318**
		Producers Non-Smallholder – Female	**0**	**0**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**2**
		Producers Non-Smallholder – Age 30+	**0**	**2,244**
		Producers Non-Smallholder – Age N/A	**0**	**73**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
FFPr Standard (19) – Cote d'Ivoire	**MT**	**Country: Cote d'Ivoire (Total)**	**3,600**	**26,109**
		Agricultural Commodities – Cashews (Total)	**3,600**	**26,109**
		Producers Smallholder	**896**	**6,496**
		Producers Smallholder - Male	**839**	**6,083**
		Producers Smallholder – Female	**57**	**413**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**19**	**136**
		Producers Smallholder - Age 30+	**831**	**6,026**
		Producers Smallholder – Age N/A	**46**	**334**
		Producers Non- Smallholder	**2,704**	**19,613**
		Producers Non-Smallholder – Male	**2,693**	**19,534**
		Producers Non-Smallholder – Female	**11**	**79**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**29**	**210**
		Producers Non-Smallholder – Age 30+	**2,600**	**18,857**
		Producers Non-Smallholder – Age N/A	**75**	**546**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
FFPr Standard (19) – Ghana	**MT**	**Country: Ghana (Total)**	**0**	**0**
		Agricultural Commodities – Cashews (Total)	**0**	**0**
		Producers Smallholder	**0**	**0**
		Producers Smallholder - Male	**0**	**0**
		Producers Smallholder – Female	**0**	**0**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**0**	**0**
		Producers Smallholder - Age 30+	**0**	**0**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Producers Smallholder – Age N/A	**0**	**0**
		Producers Non- Smallholder	**0**	**0**
		Producers Non-Smallholder – Male	**0**	**0**
		Producers Non-Smallholder – Female	**0**	**0**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**0**
		Producers Non-Smallholder – Age 30+	**0**	**0**
		Producers Non-Smallholder – Age N/A	**0**	**0**
		Firm – microenterprise		
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
FFPr Standard (19) – Nigeria	**MT**	**Country: Nigeria (Total)**	**3,600**	**32,397**
		Agricultural Commodities – Cashews (Total)	**3,600**	**32,397**
		Producers Smallholder	**1,460**	**13,140**
		Producers Smallholder - Male	**1,379**	**12,409**
		Producers Smallholder – Female	**81**	**732**
		Producers Smallholder – Mixed Gender	**0**	**0**
		Producers Smallholder - Age 15-29	**308**	**2,776**
		Producers Smallholder - Age 30+	**1,140**	**10,257**
		Producers Smallholder – Age N/A	**12**	**107**
		Producers Non- Smallholder	**2,140**	**19,257**
		Producers Non-Smallholder – Male	**2,108**	**18,973**
		Producers Non-Smallholder – Female	**32**	**284**
		Producers Non-Smallholder – Mixed Gender	**0**	**0**
		Producers Non-Smallholder - Age 15-29	**0**	**0**
		Producers Non-Smallholder – Age 30+	**2,030**	**18,266**
		Producers Non-Smallholder – Age N/A	**110**	**991**
		Firm – microenterprise		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Firm – microenterprise – Male		
		Firm – microenterprise – Female		
		Firm – microenterprise – Mixed Gender		
		Firm – microenterprise – Age 15-29		
		Firm – microenterprise – Age 30+		
		Firm – microenterprise – Age N/A		
		Firm - Small and medium enterprise		
		Firm - Small and medium enterprise – Male		
		Firm - Small and medium enterprise – Female		
		Firm - Small and medium enterprise – Mixed Gender		
		Firm - Small and medium enterprise - Age 15-29		
		Firm - Small and medium enterprise - Age 30+		
		Firm - Small and medium enterprise – Age N/A		
FFPr Standard (2)	**Ha**	**Number of hectares under improved management practices or technologies that promote improved climate risk reduction and/or natural resources management with USDA assistance[v]**	**#**	
	Ha	Country: Benin	**0**	**10,453**
		Country: Burkina Faso	**0**	**2,095**
		Country: Cote d'Ivoire	**1,184**	**9,199**
		Country: Ghana	**0**	**0**
		Country: Nigeria	**3,191**	**48,492**
FFPr Standard (4)	**Number**	**Number of individuals in the agriculture system who have applied improved management practices or technologies with USDA assistance[vi]**		
FFPr Standard (4) – Benin	Number	**Country: Benin**	**0**	**4,090**
		Smallholder Producer	**0**	**1,629**
		Male	**0**	**1,517**
		Female	**0**	**112**
		Age 15-29	**0**	**67**
		Age 30+	**0**	**1,449**
		Age N/A	**0**	**282**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**461**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**775**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**1,393**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**1,247**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**135**
		Management practice/tech type: Irrigation	**0**	**0**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**618**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		Non-Smallholder Producer	**0**	**2,460**
		Male	**0**	**2,427**
		Female	**0**	**34**
		Age 15-29	**0**	**45**
		Age 30+	**0**	**2,337**
		Age N/A	**0**	**79**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**607**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**1,202**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**2,067**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**1,517**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**157**
		Management practice/tech type: Irrigation	**N/A**	
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**1,416**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		People in private sector firms		
		Male		
		Female		
		Age 15-29		
		Age 30+		
		Management practice/tech type: Crop genetics		
		Management practice/tech type: Cultural practices		
		Management practice/tech type: Natural Resource/ecosystem management		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Pest and disease management		
		Management practice/tech type: Soil related fertility and conservation		
		Management practice/tech type: Irrigation		
		Management practice/tech type: Climate mitigation		
		Management practice/tech type: Climate adaptation/climate risk management		
		Management practice/tech type: Post harvest handling and storage		
		Management practice/tech type: Value added processing		
		Management practice/tech type: Other		
FFPr Standard (4) – Burkina Faso	Number	**Country: Burkina Faso**	**0**	**1,760**
		Smallholder Producer	**0**	**723**
		Male	**0**	**710**
		Female	**0**	**13**
		Age 15-29	**0**	**40**
		Age 30+	**0**	**636**
		Age N/A	**0**	**114**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**107**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**301**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**241**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**509**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**107**
		Management practice/tech type: Irrigation	**0**	**0**
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**355**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		Non-Smallholder Producer	**0**	**1,037**
		Male	**0**	**1,031**
		Female	**0**	**7**
		Age 15-29	**0**	**7**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Age 30+	**0**	**964**
		Age N/A	**0**	**67**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**234**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**643**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**663**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**890**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**134**
		Management practice/tech type: Irrigation	**N/A**	
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**482**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		People in private sector firms		
		Male		
		Female		
		Age 15-29		
		Age 30+		
		Management practice/tech type: Crop genetics	**#**	
		Management practice/tech type: Cultural practices	**#**	
		Management practice/tech type: Natural Resource/ecosystem management	**#**	
		Management practice/tech type: Pest and disease management	**#**	
		Management practice/tech type: Soil related fertility and conservation	**#**	
		Management practice/tech type: Irrigation	**#**	
		Management practice/tech type: Climate mitigation	**#**	
		Management practice/tech type: Climate adaptation/climate risk management	**#**	
		Management practice/tech type: Post harvest handling and storage	**#**	
		Management practice/tech type: Value added processing	**#**	

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Other	#	
FFPr Standard (4) – Cote d'Ivoire	Number	**Country: Cote d'Ivoire**	**1,487**	**11,554**
		Smallholder Producer	**678**	**5,268**
		Male	**569**	**4,425**
		Female	**108**	**843**
		Age 15-29	**32**	**246**
		Age 30+	**587**	**4,565**
		Age N/A	**129**	**1,001**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**32**	**246**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**429**	**3,336**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**357**	**2,774**
		Management practice/tech type: Pest and disease management - pest and disease control	**452**	**3,512**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**63**	**492**
		Management practice/tech type: Irrigation	**0**	**0**
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**610**	**4,741**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		Non-Smallholder Producer	**809**	**6,286**
		Male	**795**	**6,181**
		Female	**14**	**105**
		Age 15-29	**14**	**105**
		Age 30+	**732**	**5,689**
		Age N/A	**63**	**492**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**81**	**632**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**452**	**3,512**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**398**	**3,090**
		Management practice/tech type: Pest and disease management - pest and disease control	**538**	**4,179**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**86**	**667**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Irrigation	**N/A**	
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**777**	**6,040**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		People in private sector firms		
		Male		
		Female		
		Age 15-29		
		Age 30+		
		Management practice/tech type: Crop genetics		
		Management practice/tech type: Cultural practices		
		Management practice/tech type: Natural Resource/ecosystem management		
		Management practice/tech type: Pest and disease management		
		Management practice/tech type: Soil related fertility and conservation		
		Management practice/tech type: Irrigation		
		Management practice/tech type: Climate mitigation		
		Management practice/tech type: Climate adaptation/climate risk management		
		Management practice/tech type: Post harvest handling and storage		
		Management practice/tech type: Value added processing		
		Management practice/tech type: Other		
FFPr Standard (4) – Ghana	Number	**Country: Ghana**	**0**	**0**
		Smallholder Producer	**0**	**0**
		Male	**0**	**0**
		Female	**0**	**0**
		Age 15-29	**0**	**0**
		Age 30+	**0**	**0**
		Age N/A	**0**	**0**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**0**

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**0**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**0**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**0**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**0**
		Management practice/tech type: Irrigation	**0**	**0**
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**0**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		Non-Smallholder Producer	**0**	**0**
		Male	**0**	**0**
		Female	**0**	**0**
		Age 15-29	**0**	**0**
		Age 30+	**0**	**0**
		Age N/A	**0**	**0**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**0**	**0**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**0**	**0**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**0**	**0**
		Management practice/tech type: Pest and disease management - pest and disease control	**0**	**0**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**0**	**0**
		Management practice/tech type: Irrigation	**N/A**	
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**0**	**0**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		People in private sector firms		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Male		
		Female		
		Age 15-29		
		Age 30+		
		Management practice/tech type: Crop genetics - Use of grafted seedlings		
		Management practice/tech type: Cultural practices - Thinning of cashew stands		
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks		
		Management practice/tech type: Pest and disease management - pest and disease control		
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer		
		Management practice/tech type: Irrigation		
		Management practice/tech type: Climate mitigation		
		Management practice/tech type: Climate adaptation/climate risk management		
		Management practice/tech type: Post harvest handling and storage - Use jute bags		
		Management practice/tech type: Value added processing		
		Management practice/tech type: Other		
FFPr Standard (4) - Nigeria	Number	**Country: Nigeria**	**849**	**12,908**
		Smallholder Producer	**519**	**7,891**
		Male	**469**	**7,125**
		Female	**50**	**766**
		Age 15-29	**13**	**192**
		Age 30+	**494**	**7,508**
		Age N/A	**21**	**313**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**71**	**1,073**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**250**	**3,792**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**429**	**6,512**
		Management practice/tech type: Pest and disease management - pest and disease control	**383**	**5,822**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**73**	**1,111**
		Management practice/tech type: Irrigation	**0**	**0**
		Management practice/tech type: Climate mitigation	**not measured**	

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**262**	**3,984**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		Non-Smallholder Producer	**330**	**5,018**
		Male	**325**	**4,941**
		Female	**5**	**77**
		Age 15-29	**5**	**77**
		Age 30+	**310**	**4,711**
		Age N/A	**15**	**230**
		Management practice/tech type: Crop genetics - Use of grafted seedlings	**35**	**536**
		Management practice/tech type: Cultural practices - Thinning of cashew stands	**181**	**2,758**
		Management practice/tech type: Natural Resource/ecosystem management - Create fire breaks	**292**	**4,443**
		Management practice/tech type: Pest and disease management - pest and disease control	**184**	**2,796**
		Management practice/tech type: Soil related fertility and conservation - Apply fertilizer	**68**	**1,034**
		Management practice/tech type: Irrigation	**N/A**	
		Management practice/tech type: Climate mitigation	**not measured**	
		Management practice/tech type: Climate adaptation/climate risk management	**not measured**	
		Management practice/tech type: Post harvest handling and storage - Use jute bags	**217**	**3,294**
		Management practice/tech type: Value added processing	**not measured**	
		Management practice/tech type: Other	**not measured**	
		People in private sector firms		
		Male		
		Female		
		Age 15-29		
		Age 30+		
		Management practice/tech type: Crop genetics		
		Management practice/tech type: Cultural practices		
		Management practice/tech type: Natural Resource/ecosystem management		

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
		Management practice/tech type: Pest and disease management		
		Management practice/tech type: Soil related fertility and conservation		
		Management practice/tech type: Irrigation		
		Management practice/tech type: Climate mitigation		
		Management practice/tech type: Climate adaptation/climate risk management		
		Management practice/tech type: Post harvest handling and storage		
		Management practice/tech type: Value added processing		
		Management practice/tech type: Other		
FFPr Standard (22)		**Number of individuals participating in USDA food security programs**	**0**	
FFPr Standard (23)		**Number of individuals benefiting indirectly as a result of USDA assistance**	**0**	
CBLD-9		**Percent of USG-assisted organizations with improved performance**	0	
Custom		**Number of improved seedlings sold, and polyclonal seeds distributed by nurseries and seedling distributors receiving USDA assistance**	**0**	
FFPr Standard (9)		**Number of technologies, practices, and approaches under various phases of research, development, and uptake as a result of USDA assistance**	**0**	
Custom		**Number of organizations with increased farm management knowledge with USDA assistance**	**0**	
FFPr Standard (13)		**Number of public-private partnerships formed as a result of USDA assistance**	**0**	
FFPr Standard (14)		**Value of new USG commitments and new public and private sector investment leveraged by USDA to support food security and nutrition (USG)**	**0**	
Custom		**Number of US companies increasing purchases of cashews as a result of USDA assistance.**	**0**	
FFPr Standard (16)		**Total increase in installed storage capacity (dry or cold storage) as a result of USDA assistance (MT)**	**0**	
FFPr Standard (17)		**Number of policies, regulations, and/or administrative procedures in each of the following stages of development as a result of USDA assistance**	**0**	
FFPr Standard (20)		**Number of jobs attributed to USDA assistance**	**0**	

Number	Unit	Performance Indicator Title	Baseline Value	PRO-Cashew footprint 2020[i]
FFPr Standard (7)		**Number of loans disbursed as a result of USDA assistance**	**0**	
FFPr Standard (5)		**Value of agriculture-related financing accessed as a result of USDA assistance**	**0**	

[i] Footprint calculated based on total cashew sourcing volumes and sourcing value as reported by PRO-Cashew partners as of December 2020, see Section 5.2.

[ii] Table shows baseline yields adapted from literature values, as described in Section 5.2, page 37. No disaggregates are available for yield values from the literature.

[iii] Total sales values per country as per Table 13 and Table 15 were disaggregated using the percentage shares of small and large farmers, gender, and age group within the survey sample for that country.

[iv] Total sales values per country as per Table 13 and Table 15 were disaggregated using the percentage shares of small and large farmers, gender, and age group within the survey sample for that country.

[v] Counting area under any of seven improved managememt practices, as decribed in Section 5.2.

[vi] Counting farmers applying any of ten improved managememt practices, as decribed in Section 5.2. To compute disaggregates, country totals as reported in Table 13 and Table 15 were disaggregated using the percentage shares of small and large farmers, gender, and age group within the survey sample for that country; and for individual good practices the shares of farmers applying these in each country.