



**World Cocoa Foundation  
African Cocoa Initiative (ACI) Phase II**

**Cooperative Agreement AID-OAA-A-16-00052**

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## Acronyms

ACBG	African Cocoa Breeders' Group
ACI II	African Cocoa Initiative Phase II
AOR	Agreement Officer's Representative
CCC	<i>Conseil du Café-Cacao</i>
CNRA	<i>Centre National de Recherche Agronomique</i>
COP	Chief of Party
CRIG	Cocoa Research Institute of Ghana
CRIN	Cocoa Research Institute of Nigeria
FMARD	Federal Ministry of Agriculture and Rural Development
FTF	Feed the Future
FTFMS	Feed the Future Monitoring System
GDA	Global Development Alliance
GDI	Global Development Incubator
GIZ	German International Development Cooperation
ICRAF	World Agroforestry Centre
IITA	International Institute of Tropical Agriculture
IRAD	<i>Institut de Recherche Agronomique pour le Développement</i>
ISF	Initiative for Smallholder Finance
MINADER	Ministry of Agriculture and Rural Development
PMP	Performance Management Plan
R&R	Rehabilitation and renovation
SNV	Netherlands International Development Organization
TWC	Technical Working Committee
USAID	United States Agency for International Development
USAID/BFS	United States Agency for International Development/Bureau for Food Security
VSLA	Village Savings and Loans Association
WCF	World Cocoa Foundation
WCF/ACI	World Cocoa Foundation African Cocoa Initiative, the first phase of ACI II

## Glossary

### **African Cocoa Breeders' Group (ACBG)**

The African Cocoa Breeders Working Group (ACBWG) is made up of breeders from Cameroon, Côte d'Ivoire, Ghana, Nigeria and Togo with representation from the International Institute of Tropical Agriculture (IITA). The ACBWG supports regional collaboration on breeding, given the wide disparities in capacities across the sub-region and the need for improved varieties to meet national rehabilitation goals.

### **African Cocoa Initiative Phase II (ACI II)**

In September 2016, USAID approved a global development alliance program, entitled the African Cocoa Initiative Phase II (ACI II) project, which is purposefully designed to be a direct support to the CocoaAction sustainability platform. ACI II focuses on a limited number of high-value interventions to: 1) increase cocoa production using quality and affordable planting materials and 2) facilitate access to financial services and products in support of the total farm productivity and resilient agri- food systems among smallholder cocoa farmers in West Africa.

### **Better Than Cash Alliance (BTCA)**

A UN-based global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments to drive inclusive growth. The Alliance has over 60 members across 30 emerging markets, including companies and business organizations such as Unilever, H&M, Gap Inc and Grupo Bimbo.

### **Biodiversity International (BI)**

A research institute of the Consultative Group for International Agricultural Research (CGIAR) Consortium whose focus is on maintaining tree biodiversity. BI facilitates the development of a standard method for measuring and recording plant performance to support the PSP's crop ontology work in Objective 1.

### **Centre National de Recherche Agronomique (CNRA)**

Côte d'Ivoire's national research institute for agriculture including cocoa. Plays a strong role in cocoa productivity research & breeding. Active in ACBWG. Involved as a national institute in the supply of improved planting material and the assessment of heat/drought tolerant planting material.

### **Cultivating New Frontiers in Agriculture (CNFA)**

A non-profit international development organization based in Washington, DC. CNFA's mission is to increase and sustain rural incomes in less developed areas of the world by assisting farmers and rural entrepreneurs. CNFA works in Eastern Europe, the Caucasus, South and Central Asia, Africa, the Near and Middle East and the Caribbean to improve agricultural economies by strengthening market linkages; building input supply networks; promoting enterprise growth and development; enabling agribusiness financing and improving processing and marketing. CNFA receives funding from a variety of donors, including USAID, USDA, the Millennium Challenge Corporation, and the Rockefeller Foundation

### **CocoaAction (CA)**

CocoaAction was launched in 2014 as a voluntary industry-wide strategy that focuses on world's leading cocoa and chocolate companies' sustainability priorities with those of the governments of Côte d'Ivoire and Ghana. CA common action and coordinated activities and investments with other key stakeholders aim to improve learning and knowledge management across the sector.

### **Cocoa Research Institute of Ghana (CRIG)**

CRIG is the national cocoa research institute of Ghana and host organization for current ACI flavor and sensory laboratory. CRIG has a strong role in cocoa productivity research & breeding; is an active member of the African Cocoa Breeders' Group (ACBG); and is involved in the supply of improved planting material to WCF member companies.

**Cocoa Research Institute of Nigeria (CRIN)**

CRIN is the national cocoa research institute of Nigerian. CRIN plays a key role in cocoa productivity research & breeding and very active in the ACBWG. CRIN will host the third ACI II flavor and sensory laboratory in 2020.

***Conseil du Café-Cacao (CCC)***

CCC is the National regulatory authority for the cocoa sector in the Côte d'Ivoire. CCC is responsible for the coordination and policy making for cocoa sector in Côte d'Ivoire, including season price setting, farmer training, rural services, and overall sector performance. CCC will work with ACI II as the government representative and partner.

**Ghana Cocoa Board (COCOBOD)**

COCOBOD is the National regulatory authority for the cocoa sector in Ghana. COCOBOD is responsible for purchasing all cocoa destined for export. COCOBOD represents the Government of Ghana's interests under ACI II.

***Institut de Recherche Agronomique pour le Développement (IRAD)***

IRAD is the National research institute for Agriculture in Cameroon including cocoa. IRAD support ACI productivity research & breeding strategies. IRAD is a key member of ACBG and facilitate the dissemination and delivery of improved cocoa planting material to end-users in Cameroon. IRAD will host the fourth ACI II flavor and sensory laboratory in 2020.

**Village Savings and Loans Associations (VSLA)**

A VSLA is a type of self-managed microfinance that provide communities with access to savings, credit and other capacity building services. Association members are self-selected and self-governed. They meet on a weekly basis to deposit their savings.

## Executive Summary

This report contains details of the activities undertaken and progress towards the achievement of ACI II project results from October 2019 to March 2020.

In September 2016, USAID approved a Global Development Alliance program, entitled the African Cocoa Initiative Phase II (ACI II) project implemented by the World Cocoa Foundation (WCF), designed to be a direct support to the CocoaAction sustainability platform. In June 2019, USAID amended the agreement for ACI II to include new activities on Village Savings and Loans (VSLA) in Côte d'Ivoire and extend the end date of the program from September 30, 2021 to May 31, 2022. ACI II focuses on interventions to: 1) increase cocoa production using quality and affordable planting materials, 2) facilitate access to financial services, 3) Village Savings and Loans Associations in Côte d'Ivoire; and 4) Improved flavor quality of cocoa to support total farm productivity and resilient agri-food systems among smallholder cocoa farmers in West Africa.

Under Objective 1, “Increased Production and Use of Quality Cocoa Planting Material”, the Institute of Agricultural Research for Development (IRAD) in Cameroon continued the production of fruit and permanent shade tree seedlings for the pilot plot to introduce clonal planting material to farmers. In Côte d'Ivoire, *Centre National de Recherche Agronomique* (CNRA) has grafted 1,642 potential heat and drought tolerant plants ready to be established in centralized budwood garden. CNRA also conducted the first harvest of the impact of irrigation on cocoa seed pod production with preliminary results showing significant differences in the number of pods per tree and on bean quality between irrigated and non-irrigated plots. In Ghana, the Cocoa Research Institute of Ghana (CRIG)'s initial data analysis to identify heat/drought tolerance planting material showed promising Leaf Chlorophyll Content (LCC) and Leaf Fluorescence Content (LFC) levels, both indications of drought tolerance, for 9 of the 20 hybrids trialed.

Towards Objective 2, “Increased Provision of Financial Services in support of the Cocoa Value Chain”, WCF, working with the Better Than Cash Alliance (BTCA) conducted a “cost of cash” study, which showed a USD 21.5 million per annum cost of cash transactions to actors in the cocoa value chain in Ghana. The report makes the case for digitalizing payments in cocoa supply chains in Ghana in addition to ongoing efforts under ACI II to digitize the operations of VSLAs.

For Objective 3, “Village Savings and Loans Associations in Côte d'Ivoire”, 101 new VSLAs were established across the cocoa-producing ones in the country. These newly created VSLAs consist of 2,507 members (2,190 female). Also, 32 mature VSLAs were linked to formal financial institutions between October 2019 and March 2020.

Under Objective 4, “Improved flavor quality of cocoa”, TCHO and parent company Ezaki-Glico are funding the construction of a new flavor laboratory and training center at CRIG to host larger scale equipment provided under ACI II, which will allow the team in Ghana to train more farmers and other stakeholders in the cocoa value chain on flavor quality. In Côte d'Ivoire, the team at the CNRA flavor laboratory undertook the first coordinated sensory analysis of clonal and hybrid cocoa varieties from farmers' fields and pilot plots in the country. Whereas in Cameroon and Nigeria reviews of renovation work at the designated spaces for the new flavor labs at IRAD and the Cocoa Research Institute of Nigeria (CRIN) has been done, both labs have received the first sets of equipment, and the Institutes have designated their lab management teams and are preparing for training.

Finally, we discuss the effect of COVID-19 on program activity implementation and the mitigation measures employed to lessen the impact. In the main, almost all activities (meetings, trainings, workshops, working groups) are now conducted remotely. Activities that require in-person interactions have been postponed indefinitely.

## Introduction

The United States Agency for International Development (USAID) issued Cooperative Agreement AID-OAA-A-16-00052 for the African Cocoa Initiative (ACI) Phase II through its Global Development Alliance (GDA) mechanism, in concert with relevant government agencies in participating countries. The \$12,000,000 program (\$5M from USAID and, \$7M in cash and in-kind leverage from WCF members) was to run from October 2016 to September 2021.

In June 2019, USAID approved a modification to the GDA for ACI II to include a new activity on Village Savings and Loans Schemes (VSLA). This VSLA activity is in line with USAID’s Private Sector Engagement Policy and the Women’s Global Development and Prosperity Initiative (W-GDP). The modification added \$1,039,000 to USAID’s funding for ACI II and extended the period of performance by eight (8) months from September 29, 2021 to May 31, 2022.

Focus countries are Cameroon, Côte d’Ivoire, Ghana, and Nigeria, with the bulk of the effort going to Côte d’Ivoire and Ghana as the focus countries of the CocoaAction strategy. ACI II follows the successful implementation of the first phase of the WCF African Cocoa Initiative (WCF/ACI) project, from 2011 to 2016. The program is aligned with the new WCF vision of sustainable and thriving cocoa sector – where farmers prosper, cocoa-growing communities are empowered, human rights are respected, and the environment is conserved. WCF is achieving this vision through a stronger “systems approach” that integrates the various individual actions and actors into a holistic framework to drive the step- change needed to reach our shared vision.

Initially, the program was strongly aligned with WCF’s CocoaAction framework, which was a voluntary industry-wide strategy that focused on the world’s leading cocoa and chocolate companies’ sustainability priorities with those of the governments of Côte d’Ivoire and Ghana, and other key stakeholders for common action, coordinated activities and investments, and improved learning and knowledge management across the sector.

ACI II’s goal is to sustainably increase cocoa productivity among smallholder farmers in West Africa. ACI II objectives are: 1) Increasing production and the use of quality cocoa planting material; 2) Increasing the provision of financial services in support of the cocoa value chain; 3) Village Savings and Loans Associations in Côte d’Ivoire; and 4) Improved flavor quality of cocoa. ACI II is also documenting the relationship between cocoa production and food and nutrition security at the cocoa-based household level.

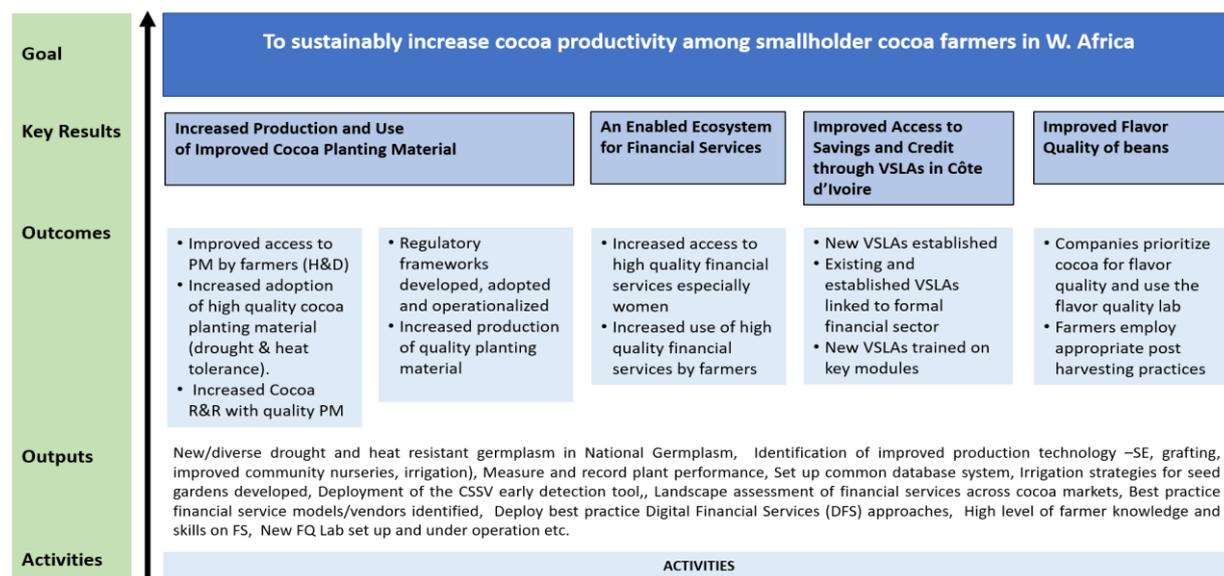


Figure 1: Updated ACI II Results Framework

## Objective 1 – Increased Production and Use of Improved Cocoa Planting Material

Over the years, cocoa breeding programs internationally and in West Africa have produced new clones and hybrids with varying levels of tolerance to the most significant biotic and abiotic stressors of the crop. These breeding efforts have focused on increasing the productivity of cocoa alongside tolerance to pathogens and abiotic stressors. In spite of the progress made in breeding, many improved varieties have yet to be approved by for distribution to farmers. As a result, yields remain low and unpredictable.

Other factors that account for low yields include the limited application of good agricultural practices (GAPs) by farmers, the aging tree stock, recurrent outbreaks of pests and diseases and the use of local varieties at the expense of improved planting materials, either genuine hybrid material or clonal plants.

Over the past decade, drought and heat stress have become the most important limitations to the successful establishment and productivity of cocoa farms in West Africa, especially in Ghana. This is largely attributable to a rapidly changing climate. These effects are exacerbated by soils of very low water holding capacity arising from farming practices that are incompatible with cocoa production.

Previous investigations into the existence of heat and drought tolerant cocoa varieties have identified cocoa genetic groups that contribute to high seedling survival in the field, early fruiting and high, stable yields of mature trees under relatively high soil water stress. However, it remains unclear whether hybrids currently under development will exhibit the same potential when cultivated in benchmark sites of drought prevalence in the cocoa belt.

Objective 1 aims at translating the gains and progress made in breeding for improved planting materials to farmers. This is achieved through identification of heat and drought tolerant varieties as well as increased production and distribution of improved planting material to smallholder farmers.

### Outcome 1.1 Increased Production of Quality Planting Material Using New Genetic Material and Technologies

To address the challenge of heat and drought stress, ACI II is supporting Côte d'Ivoire and Ghana to identify tolerant varieties, which farmers can use in areas with high frequency of drought. These activities, implemented by CRIG in Ghana and CNRA in Côte d'Ivoire, are using multilocational trials with the best-performing clones and hybrids. The expected outcome is a screening protocol for heat and drought tolerant planting material that will be used in screening national and international cocoa collections and the identification of promising new and safe materials to be transferred and incorporated into the national breeding programs of ACI II countries.

In Cameroon, ACI II continues to support IRAD in the work of introducing clonal material to farmers. This involves the transfer of previously developed clonal varieties under WCF/ACI to farmers' fields and the training of the beneficiary farmers in the appropriate methods and technique for the handling, propagation, production and maintenance of clonal planting material.

### Key achievements and Milestones

#### Development of heat and drought tolerant planting materials in Ghana

Beginning in September 2018, ACI II has supported CRIG to conduct research to select cocoa varieties with high levels of tolerance to soil water and heat stress. The aim is to:

- Ascertain the relative growth rates, survival, precocity and yield of new and existing cocoa hybrids during the first 36 months after planting in areas with high frequency of drought stress;
- Determine the level of genotype x environment interaction of selected cocoa hybrids tested at six

benchmark sites for growth and yield traits; and

- Validate physiological traits known to contribute to plant survival and yield in the field under conditions of soil water stress and high ambient temperatures.

The first set of preliminary results, reported in November 2019, showed clear differences in stem diameter, and by extension early establishment, between the various hybrids. The results will be confirmed in November 2020 after the plants have experienced their first major dry spell. Also, initial leaf chlorophyll content (LCC) and leaf fluorescence content (LFC) measurements show promising results for 9 of the 20 hybrids in the trial.

Unfortunately, COVID-19 related in-country and international travel restrictions came into force just before data gathering scheduled for late March to May 2020. This caused a delay that is preventing the comparison of the data from the previous year to confirm preliminary results. It is anticipated that the restrictions on movement will be completely lifted in time to allow for meaningful data collection ahead of the FY2020 annual report.

**Using the “citizen science” approach in Ghana to test clones and hybrids for climate adaptation** WCF, under the ACI II project in collaboration with Bioversity International, is using a public-private-civil society partnership to adapt the citizen science “tricot” approach (where farmers select the best performing planting material based on performance on their farms) to cocoa variety testing. In this project WCF and Bioversity are working with women and men farmers to test cocoa hybrids and clones for climate adaptation in a gradient of agroecological zones in Ghana. Anticipated outcomes include:

- New knowledge about how to implement farmer citizen science trials focused on cocoa in Ghana, including validated protocols and concrete experiences, with relevance to other countries and regions and other perennial species, and which may be scaled.
- Increased capacity of national partners to design, execute and analyze citizen science trials using the tricot approach, including the climatic analysis of trial data.
- New knowledge about the influence of climate-induced stress variables on the establishment and early growth of cocoa seedlings under farmer conditions and genotype-specific responses, enabling the identification of adapted improved planting material.
- Establishment of a network of farmer citizen scientists who may contribute to cocoa observational and experimental research in the long-term, including the long-term monitoring of the hybrids and clones present on their farms.
- Increased capacity of women and youth to manage nurseries and budwood gardens, to produce and distribute climatically adapted, stress-tolerant hybrids and clones, ensuring constant varietal renewal depending on the emerging needs of farmers and the findings on climate adaptation from on-farm testing; and
- Sharing of this knowledge and research results in the uptake through stakeholder platforms established at the farmer community and national levels.

Field activity implementation started in late 2019 following disbursement of the first batch of funding for the project and post-doctoral fellow has arrived in Ghana to coordinate field data collection. ACI II will support the supervision and coordination of field activity implementation in addition to convening review and knowledge sharing meetings.

A major constraint encountered is the sourcing of cocoa seed pods for the establishment of community nurseries, which is the first step in farm establishment in the context of the project. Fortunately, ACI II is working with the Seed Production Division of COCOBOD to address the issue of seed pod supply in the broader context of ACI II Objective 1. The temporary solution is for companies to source seedlings from the national distribution system to fill gaps in their internal seedling production efforts. The more permanent solution, still under discussion, is for companies to manage some seed gardens from which they can produce and distribute seed pods. This will eliminate the need to wait for SPD stations to supply pods in future.

### Develop and distribute heat and drought tolerant planting materials in Côte d’Ivoire

Over the last three seasons, droughts lasted three to six consecutive months in the main production areas in Côte d’Ivoire affecting yields, beans quality and the establishment of new cocoa farms. Consequently, CNRA and the government of Côte d’Ivoire have prioritized heat and drought tolerance cocoa varieties. From 2010 to 2014, CNRA established pilot plots to evaluate the behavior of about twenty hybrids in drought conditions. WCF, under ACI II, is building on this previous work to confirm the heat/drought tolerance of these hybrids planted in different agroecological zones. In the long term, the project aims to provide cocoa farmers with heat and drought tolerant hybrids and clones with a good level of production. ACI II hopes that the first generation of heat/drought tolerant planting materials will be made available to farmers when the ban on productivity enhancing interventions is lifted. This work complements an ongoing CFC/ICCO/Bioversity project to define the parameters for heat and drought tolerance for cocoa by collecting and analyzing data from old cocoa farms in different marginal areas of the country.

By the end of March 2020, CNRA had 1,642 grafted plants (raised from 182 accessions from 14 farmer and CNRA trial plots) in nursery ready to be transferred to the clonal garden plot. Table 2 shows the provenance of the planting material.

Table 2. Status of production of potential heat/drought tolerant clones

Location	Number of plots sampled	Number of accessions	Number of plants in nursery
Bouaflé	6	83	989
Yamoussoukro	4	59	370
Tiébissou	3	29	107
Dimbokro	1	11	176
<b>Total</b>	<b>14</b>	<b>182</b>	<b>1,642</b>

### Observation of the impact of irrigation on pod production in seed gardens

Increasingly challenging environmental factors and prolonged dry spells have increased the need for irrigation in the production of cocoa as more areas of intense production turn marginal. This is more important in seed gardens that supply planting material in the form of hybrid seed pods from which farmers raise seedlings to establish new farms or to replace old or diseased trees. However, due to significant cost involved in the installation and maintenance of irrigation infrastructure, a clear business case must be made to justify the costs. ACI II is supporting CNRA to document empirical impact of irrigation on seed pod production in seed gardens at CNRA stations at Divo and Soubré to make the business case for irrigation. The irrigation system is established in two of the seed gardens established during WCF/ACI between 2014 and 2016.

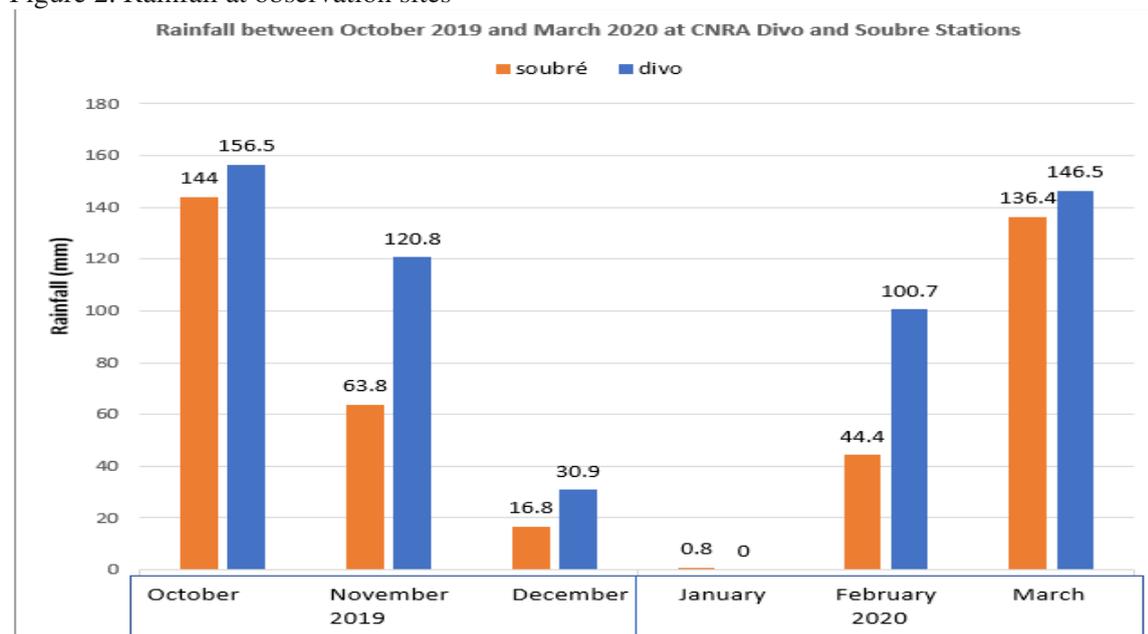
This activity is comparing irrigated and non-irrigated seed gardens of the same age growing under similar conditions over a 36-month period. The aim is to document the impact of irrigation on the quantity and quality of seed pod produced in these seed gardens. Parameters under consideration include the number of cherelles formed after pollination, number of wilted cherelles after pollination, number of pods formed after pollination, number of matured pods and the quality of beans in matured pods.

At the Divo station, the comparison is between 300 irrigated trees and 300 non-irrigated trees all planted in 2014 and between 150 irrigated trees and 150 non-irrigated trees planted in 1972. At Soubré, the comparison is between 448 irrigated trees and 504 non-irrigated trees planted in 2014 on one hand, and 480 irrigated trees and 520 non-irrigated trees planted in 2019.

As reported in the FY 2019 annual report, the first period of observation from April to September 2019 coincided with the major rainy season, preventing the collection of good data on the effectiveness of irrigation. However, the current period under review (October 2019 to March 2020) covered the dry season

as illustrated in Figure 2, with low rainfall especially at Divo for December, January and February.

Figure 2. Rainfall at observation sites



October 2019 is the first-time matured pods were harvested from the plots under observation. Preliminary results from the observation, as presented in Tables 3 and 4, showed clear differences in all bean quality parameters (Number of matured pods harvested per tree, Pod size, Number of normal beans per pod and Average bean weight) for irrigated and non-irrigated plots.

Table 3. Results of observation of the impact of irrigation after first harvest at Divo

Plot Type	Plot 1				Plot 2			
	Number of Pods	Pod Size (mm <sup>3</sup> )	Normal Beans	Bean weight (g)	Number of Pods	Pod Size (mm <sup>3</sup> )	Normal Beans	Bean weight (g)
Irrigated	41	607	47	1.38	43	500	46	1.43
Non-irrigated	36	516	42	1.33	31	493	41	1.38

Table 4. Results of observation of the impact of irrigation after first harvest at Soubré

Plot Type	Plot 1				Plot 2			
	Number of Pods	Pod Size (mm <sup>3</sup> )	Normal Beans	Bean weight (g)	Number of Pods	Pod Size (mm <sup>3</sup> )	Normal Beans	Bean weight (g)
Irrigated	43	560	40	1.28	44	554	46	1.43
Non-irrigated	41	333	27	0.48	29	383	41	0.65

The results obtained (Tables 3 and 4) illustrate the positive impact of irrigation on the number of pods per tree, the average pod size, number of normal beans and bean weight compared to non-irrigate plots. These results will be confirmed in 2021 and 2022.

### Introducing clonal planting materials to farmers in Cameroon

In Cameroon, WCF is introducing clonal material to the farmers to transfer clonal varieties developed under WCF/ACI and previous breeding programs to farmers' field. This activity will also equip beneficiary farmers and field technicians with the tools and skills to successfully produce, distribute and use clonal planting material. Activities are designed to take advantage of existing capacity that WCF member company sustainability programs have built at the farm level over the years.

IRAD completed the first steps of improving facilities dedicated to the clonal propagation of improved cocoa varieties in 2019. The subsequent steps to produce and propagate clonal and shade trees, select testing sites and to introduce the cocoa clonal varieties' concept to the selected farmers are ongoing. As of March 2020, 15 pilot plots have been well established and maintained. Each established plot includes hybrid seedlings and permanent shade and fruit trees and grafted/budded plants established for on-farm budwood gardens. Table 5 provides a summary of the status of activities as of March 31, 2020.

Table 5. Summary of activities for introduction of cocoa clonal planting material to farmers in Cameroon

Component	Activity	Specific Tasks	Major Achievements
<b>Capacity Building for Introduction of Clonal Planting Material to Farmers</b>	1. Development of training manuals	Validation and distribution of training manuals through ToT and sessions with farmer groups	The first draft of the clonal planting and management, and the regeneration of old cocoa plantations have been finalized
	2. Training of farmer groups	Training sessions with members of the two Cooperatives	Trainings delivered during field visits
	3. Training of master grafters	ToT Sessions	IRAD technical staff trained on cocoa propagation techniques and the master grafters selected from cooperatives' membership
<b>Establishment of bud-wood gardens for introducing clonal material to farmers</b>	1. Multiply IRAD best clones to create bud-wood garden	Budding/Grafting	About 20 well-known IRAD cocoa clones currently multiplied to create two on-farm budwood gardens and expand the central budwood garden at Nkolbisson
	2. Establish central bud-wood garden for clonal material at IRAD, Nkolbisson and one each in the target communities.	Clonal Production / Land Preparation / Establishment of temporary shade (plantain) / Establishment of cocoa clones	A budwood gardens established and maintained at Nkolbisson
<b>Support farmers for the introduction of clonal planting material</b>	1. Establishment of permanent shade in on-farm clonal plots using recommended tree species	Production of clonal material	10,000 cocoa plants already budded and 25,000 rootstocks available for budding
		Planting of clonal material	15 on-farm plots of 0.25 hectares each successfully established and maintained in both pilot areas.
	2. Establish farms for selected farmers using clonal material;	Production of rootstock/grafting	1,000 soursop seedlings under production 1,000, of 1,500 avocado rootstocks produced, successfully grafted 2,500 citrus rootstocks produced and being grafted.
		Planting of shade trees in the on-farm clonal plots	Planting starts in May 2020

## Outcome 1.2 Increased adoption by companies of technologies to produce certified planting material

In Côte d'Ivoire, the infected area of cocoa swollen shoot virus (CSSV) was estimated at 100,000 ha in 2017. In 2019, le Conseil estimated that the disease has progressed by 8% for a total of 125,000 ha CSSV infected farms. Between 2014 and 2017 le Conseil was able to cut 21,000 ha of CSSV infected farms. In 2018 le Conseil cut about 32,000 ha of CSSV infected farms. Le Conseil is targeting 35,000 ha by June

2020 to reach 88,000 ha from the 100,000-ha planned in 2017. Le Conseil expects to complete the cutting-out campaign by May 2021 and to replant when the farmer and farm surveys are completed.

In Ghana, second country-wide surveys (2017) by the Cocoa Health and Extension Division (CHED) of COCOBOD indicates that (23%) of Ghana cocoa tree stock is infected with CSSV. CHED has planned to rehabilitate 91,400 ha in the next five years.

WCF industry members have collectively agreed to proactively tackle CSSV within the cocoa supply chains in Ghana and Côte d'Ivoire in alignment with the Abidjan Declaration and inclusive of their contributions to the national cutting out efforts in the two countries. ACI II supported WCF to develop a CSSV and rehabilitation program as an integrated system approach that combines research, best practices and technologies to manage CSSVD. It aims to provide effective solutions to manage the virus and its mealybug vectors: this includes supporting the used of high yielding and disease tolerant and heat and drought tolerant varieties developed under ACI II to rehabilitate CSSV infected farms and to identify suitable cropping systems that provide suitable income to farmers post cutting out and reduce the spread of the virus including IPM technologies to manage mealybugs.

### Developing technologies to manage the Cocoa Swollen Shoot Virus Disease (CSSVD) and to rehabilitate CSSVD infected farms

The program comprises three components, namely: 1) research-based solutions; 2) suitable cropping systems; and 3) IPM technologies to manage mealybugs and KPI.

The research-based solutions are focusing on disease detection, disease control and management and the support to breeding for high yielding and disease tolerant varieties. The suitable cropping systems aim to implement cropping systems that provide additional income to cocoa farmers and reduce the spread of the virus and the mealybug vector. While the IPM technologies to manage mealybugs will focus on barrier cropping, biological control agents and enhance the capacity of farmers to use current insecticides better and reduce the use of POP and HHP in the cocoa supply.

### Key Achievements and Milestones

#### MOU for CSSVD Control Laboratory

To be successful, CSSV control requires collaboration at all levels especially between Côte d'Ivoire and Ghana, the two leading producers accounting for more than 60% of global production. WCF is contributing to this effort with a regional laboratory in Abidjan, which will aid in early detection of the virus on farm even when there are no visible symptoms. A memorandum of understanding for the use of the lab is under review by the Conseil and COCOBOD.

## Objective 2 – An Enabled Ecosystem for Financial Services

Recognizing how digital payments can be a game-changer for farmers, WCF and the Better Than Cash Alliance are working in partnership to support the growth of digital payments in the cocoa value chain to promote inclusive growth, boost productivity and improve the livelihoods of smallholder cocoa farmers, especially women.

WCF is a member of the Better Than Cash Alliance, a UN-based global partnership of governments, companies, and international organizations that accelerates the transition from cash to digital payments to drive inclusive growth. The Alliance has over 60 members across 30 emerging markets, including companies and business organizations such as Unilever, H&M, Gap Inc and Grupo Bimbo.

The objectives of this initiative are:

- **Learn:** Better understand the opportunities and challenges of introducing digital payments to cocoa farmers
- **Disseminate:** Share the learnings and best practices knowledge; and
- **Support:** Support WCF members with neutral and responsible DFS-related technical assistance.

## Outcome 2.1 Increased availability and use of high-quality financial services by farmers

Following a baseline survey on farmer understanding and use of DFS in 2019, ACI II has been undertaking a sensitization campaign in the target implementation areas to educate farmers on the uses and advantages of DFS for their transactions. ACI II has also engaged with the mobile telecommunications companies, selected appropriate merchants and has assisted willing companies to pilot the provision of digital financial services to farmers on a pre-competitive basis.

### Key Achievements and Milestones

#### Provide input for training on digitizing cocoa value chain

Licensed Buying Companies (LBC) have kicked off the transition from cash in Ghana's cocoa value chain as they seek channels to deliver increased benefits to farmers while improving efficiency, sustainability, and transparency in their cocoa procurement. Staff and agents of LBCs face substantial risks every day by making payment for cocoa purchases in cash. Digitizing payments in the value chain can mitigate these risks while reducing the significant finance costs that threaten the profitability of the sector.

End-to-end financial transparency (using blockchain technology, for instance) can help cocoa processors around the world verify where their product is sourced, as well as reducing the risk profile of the sector for domestic lenders. For the smallholder farmers who form the backbone of the cocoa sector, digital payments can unlock financial services that will help them afford better inputs, manage liquidity, and maintain resilience throughout the year.

As this evolution begins, LBCs are debating whether and how to shift from cash to electronic payments. To assist in this decision-making, and to provide insights for training down the line, the Better Than Cash Alliance, together with ACI II commissioned an inquiry into the costs of cash payments in the cocoa value chain, as well as the costs associated with digitizing those payments. The study, which is being finalized for publication in late June, estimates a direct cost of cash of \$21.5 million per annum in the Ghana's cocoa value chain. This consists of:

- Delays associated with cash payments increase the interest expense for LBCs by at least \$3.9 million a year
- \$15.9 million worth of risk from the carrying of cash and bad debts specifically related to cash theft totaling \$113,000
- Time and travel costs associated with cash of up to \$1.5 million spread across the value chain.

#### Provide technical assistance on digital financial services to WCF member companies

Building on the continued provision of technical assistance in support of the deployment and use of digital payment systems has resulted in the development of sensitization materials on DFS for farmer outreach. A good example is the material recorded in voice notes by FarmerLine for a WCF member company, which are disseminated to farmers by phone.

Another example is the support to Beyond Beans, which is in its second phase of the piloting digitized payments focusing primarily on premium payments. In the second phase, Beyond Beans plans to digitize payments for 3,500 Ferrero, Mars and Nestle farmers across six cocoa districts in July 2020 via mobile money using different service providers. The service providers identified to provide the payment platform are direct to telco payments and financial aggregators (FarmerLine and nFortics). The technical assistance to be provided includes farmer sensitization, merchant point identification and digitization, field officers and Purchasing Clerk education on DFS, farmer onboarding as well as pay points setup and liquidity

management by service providers. Payment as agreed per the scope of work will be done in July 2020.

### Farmer Access to Financial Services

Farmer access to financial services in the cocoa value chain in Ghana has been a challenge. In the quest to understand the financial services that is in the cocoa value chain, interviews were conducted with financial institutions. Forms of financial services provided to cocoa farmers are savings and input credit. Some partnerships in the form of tripartite agreements that exist between licensed buying companies, input companies and financial institutions. Village Savings and Loans Associations (VSLA) are a proving way to improve bankability in rural communities that rely on agriculture, like cocoa production, as a main economic activity. ACI II is undertaking a landscape analysis of services providers and fintechs, developers of digital platforms to assess the scalability of the lending products in the cocoa value, which could lead to the digitization of VSLAs. The study will verify if companies that provide platforms for VSLAs to be digitized could be engaged to facilitate the linkage of digitized VSLAs to formal financial institutions.

### Digitizing Payments in Ghana's Cocoa Supply Chain: Four Building Blocks for Responsible and Scalable Digitization

ACI II in collaboration with BTCA presented four building blocks as complementary information to the Costs of Cash study which set out *how* to digitize payments in a way that is responsible and scalable, to the benefit of all stakeholders. These building blocks are summarized as follows:

1. **Know your smallholder farmers** – Responsible digitization starts with understanding the financial lives of farmers, establishing their level of comfort with digital financial services (DFS), and gauging their demand for those services. This information helps to put farmers' financial behavior and expectations at the center of digitization measures. It also serves as an initial sensitization tool which builds farmers' familiarity with digital payments and helps ensure companies move at the right pace as they implement their digitization measures
2. **Build the internal and external value proposition for digitization** – Creating a clear understanding across the entire value chain of the benefits of digitization is essential. This applies equally in making the initial decision to switch to digital payments, in selecting an FSP, and in agreeing on an implementation approach with the selected FSP. There are two key elements to building this value proposition. First, by ensuring there is agreement within the company on the objective and scope of digitization, including with Purchasing Clerks (PCs), district officers of LBCs (DOs) and other partners. Second, by being rigorous in the selection and oversight of the FSP, and ensuring implementation plans and timelines are developed jointly with the FSP;
3. **Enable farmers to spend funds and access services digitally by building a robust digital payments acceptance ecosystem** – Digitizing cocoa payments alone is not sufficient to drive adoption and scale in Ghana's supply chain. Success in this regard will depend largely on developing an ecosystem in which farmers can buy goods and services digitally without having to cash out. Access to digital services (financial or non-financial) which present a good value proposition for the farmers is also critical; and
4. **Sensitize both staff and farmers on the value of digital payments** – Given the low level of financial and digital literacy in Ghana's rural areas, helping staff and farmers understand and embrace digital payments is crucial to success. This starts with developing materials for staff and PCs explaining why digitization is beneficial to the company, as well as materials for farmers which explain the benefits for them of moving away from cash to digital payments.

ACI II and BTCA plan to launch a report with more detailed information regarding these building blocks in conjunction with the launch of the cost of cash report in late June 2020.

## Objective 3 – Village Savings and Loans Associations (VSLA) in Côte d'Ivoire

Village Savings and Loan Associations (VSLA) are community-based women's associations/organizations with an average of 20 members each. VSLA members regularly contribute to a savings fund based on an unanimously agreed amount and, from the funds saved, grant each other loans. The repayment of the loans is made with an interest rate that increases the amount available in the fund. The objective of the VSLA Program in Côte d'Ivoire is to increase the capacity of impoverished cocoa growing households, and especially their female members, to manage their financial resources and withstand shocks to their livelihoods by providing access to three basic financial services – savings, credit and enhanced household income. This VSLA activity is in line with USAID's Private Sector Engagement Policy and the Women's Global Development and Prosperity Initiative (W-GDP). It is expected that 20,850 participants in an estimated 934 VSLAs in Côte d'Ivoire will benefit from the program. This new activity focuses on the establishment of 384 new VSLAs and the linkage of 550 existing VSLAs (including 74 of the total new VSLA's created) to the formal financial sector by May 2022, which is a crucial step in supporting small and micro-enterprises to access adapted financial services.

### Key Achievements and Milestones

#### Creating New VSLAs

Between October 2019 and March 2020, 6 implementing companies have created 101 new VSLAs with 2,507 members (2,190 female) in the departments of Abengourou, Adzopé, Agnibilékrou, Bloléquin, Daloa, Divo, Duékoué, Fresco, Guitry, Méagui, Oumé, San-Pedro, Sassandra, Sinfra, Soubré Taabo, Tabou, Toumodi, Vavoua and Yamoussoukro.

Between October 2019 and March 2020, ACI II organized awareness-raising and information meeting with groups of potential VSLA members to jointly discuss and agree on the functioning, the basic principles, the criteria for choosing members and especially the importance of the VSLA to empower rural women and better protect children in communities. In general, the communities welcomed this new project with great interest with exceptional mobilization in most of the target communities. Between February and March 2020, at least 2,000 people, mostly women, took part in these activities, which were attended by village chiefs, community leaders, producers' wives and young men and women.

#### Linking Established VSLAs to formal financial institutions

An analysis of more mature VSLA groups was conducted to assess their performance and readiness to be connected to formal financial services. During the reporting period, VSLA promoters received training on e-banking and started linking VSLAs to microfinance institutions to help them better manage funds and access credit for larger-scale business initiatives. Two implementing companies have linked 32 VSLAs to formal financial institutions. Of these 32 linked VSLAs, 13, supported by one implementing company, have started operating a savings account (1,043 USD saved) and no credits were granted between October 2019 and March 2020.

#### VSLA Trainings

VSLAs have provided a platform for members to have access to both informal financial services and training in selecting, planning and managing income-generating activities. Even in the first few months of implementation, members have started to save money, and have planned and implement income-generating activities. Using lessons from VSLA trainings, members are contributing with tools, equipment and labor to construct water reservoirs and drip irrigation systems to improve food crop production within their communities. They also anticipate that water availability will boost sanitation and hygiene in their respective community.

## Challenges

In some communities, conflicts between influential community members delayed group formation. Other communities were disillusioned, having tried and failed at previous attempts at forming VSLAs. Also, there was markedly low participation of women in some communities because of the long distances between farms and the settlement and the intensity of agricultural activities. Also, identification documents demanded by existing financial institutions, (following strict “know your client” rules) which most farmers do not have has been another main constraint preventing successful VSL group formation.

The first two challenges were addressed through targeted information sessions on VSLAs, dedicating more time for discussion with community leaders and more space for discussion for community members. For the low mobilization of women, WCF in collaboration with participating companies are working on incentives targeting women who still hesitant to join. To address the issue of documentation, implementers are meeting with local authorities for information on the process for obtaining the required legal documentation. VSLA members are paying the prescribed fees for the documentation.

COVID-19 related restrictions on movement and group meetings have delayed (reporting), slowed (routine monitoring) and sometimes even stopped (meetings of VSLAs) the program activity implementation. As these restrictions came into force in mid-March, the effect on activities and outcomes contained in this report was mostly in the form of delayed reporting. The full effects, which will be felt between April and September 2020, will be reported in the FY2020 annual report.

## Objective 4 – Increased Flavor Quality of Cocoa

### Outcome 4.1 Companies Prioritize Cocoa from West Africa for Flavor Quality and use the Flavor Quality Lab to support their Purchasing Decisions/ Practices

ACI II is working to ensure that flavor quality, which is the reason chocolate makers include cocoa from specific origins in their recipes, is not lost in the pursuit of other desirable traits like higher yields and disease resistance during breeding. ACI II achieves this through the cocoa flavor quality laboratories that provide the tools to enable national cocoa research institutes to integrate flavor characteristic into their cocoa breeding programs. The flavor laboratories also make liquor from cocoa beans for the training of cocoa extension staff and subsequently cocoa farmers on the effects of harvest and post-harvest practices on flavor development.

During the first phase of ACI, from 2011 to 2016, WCF supported the establishment of a flavor quality laboratory at the Cocoa Research Institute of Ghana (CRIG). WCF supported the transitioning of the laboratory to CRIG, which operated the lab without WCF support from December 2016 to March 2018. In April 2018, a new MOU was signed between WCF and CRIG to implement activities under ACI II, which includes WCF providing larger scale equipment. WCF has also supported the establishment of a second flavor quality laboratory at and the *Centre National de Recherche Agronomique* (CNRA) in Côte d'Ivoire in 2019 and is in the process of establishing a new lab in Cameroon and Nigeria. These laboratories have provided the two countries with the capacity to train cocoa extension staff and farmers on appropriate harvest and post-harvest techniques to ensure that traditional flavor quality is maintained.

ACI II engaged a consultant to work directly with staff of CRIG, CNRA, CRIN and IRAD to bring the labs up to international standards and to document the standard operating procedures (SOP) for the operations of the lab and equipment, fermentation and drying, tasting sessions and trainings. It is expected that each country will adapt the SOP documents, which are currently in the draft format, and will include these SOPs in their standard manuals for flavor quality laboratory management.

## Key Achievements and Milestones

### Expanding capacity of flavor quality laboratory in Ghana

To enable the flavor quality laboratory at CRIG to train more farmers, ACI II supported the acquisition of larger scale equipment for the lab. This new equipment expands the labs capacity from 30kg of samples per week to close to 100kg, which will enable CRIG to produce enough cocoa liquor to train all cocoa farmers in Ghana on flavor quality. Unfortunately, there is not enough room to host the new larger scale equipment. In February 2020, WCF member TCHO, and parent company Ezaki-Glico provided a boost for the expanded capacity with the sod cutting ceremony for the construction of a new flavor laboratory and training center. The facility, which will cost almost USD 170,000, is expected to be completed ahead of Ghana's National Cocoa Day on October 1, 2020.

### Supporting training on flavor quality in Côte d'Ivoire

ACI II completed the establishment of a second flavor laboratory at CNRA at Bingerville in 2019 and provided laboratory management training to the CNRA team after CNRA completed all required civil works for the lab. Between October 2019 and March 2020, members of the lab team participated in the 2019 International Cocoa Awards, where they interacted with and learned from members of the Cocoa of Excellence Technical Committee. The team has also undertaken fermentation, drying and prepared liquor from cocoa clones from CocoaAction trial plots as well as hybrid introduced to farmers at different periods over the past few decades. These liquor samples will be distributed to WCF company flavor quality experts to verify the results of tastings of the CNRA lab team.

### Establishing new flavor quality laboratory in Cameroon and Nigeria

CRIN in Nigeria and IRAD in Cameroon have received the first set of equipment for their respective labs. Both institutes have nominated four-member teams to manage the lab. The ACI II Flavor Quality Consultant undertook a review of the lab Nigeria in December 2019 followed by the lab in Cameroon in Marcy 2020. Both CIRN and IRAD are in the process of making the recommended renovation works at the locations designated to host each lab. Training for the lab teams had been planned for April 2020 before the imposition of COVID-19 related travel restrictions. The ACI II team is working with the Consultant to deliver the training, to the extent possible, remotely until the travel restrictions have been lifted.

## Outcome 4.2 Increased use of appropriate post-harvest practices by farmers that ensures high flavor quality of cocoa

### Improve the knowledge and skills of government extension agents and farmers on flavor quality

With the sustained low price of cocoa on the global market over the years, farmers could earn more by producing, and selling, better quality beans as cooperatives that supply niche chocolatiers have been doing. In FY2019, ACI II developed long-term flavor quality work plans in collaboration with CNRA and CRIG to train cocoa farmers to produce beans with improved flavor quality. Similarly, ACI II is facilitating discussions between cooperatives and the lab teams at CRIN and IRAD to provide flavor quality trainings to their farmers once the newly established labs are up and running in both countries.

## Cross-cutting Research and Learning Activity

### Cocoa income and household food security study

ACI II is supporting WCF's vision of a cocoa sector where farmers prosper, communities are empowered, human rights are protected, and the environment is preserved. In delivering on these strategic priorities, ACI II engaged a group of consultants from the University of Ghana, to conduct an assessment on the contribution of cocoa to nutrition and food security, with the main goal of increasing sustainable cocoa productivity among smallholder cocoa farmers in West Africa. This study was one of the main recommendations of USAID's final evaluation of the first phase of ACI. A draft of the study is currently under review.

The study focuses on the multiple dimensions of food security (availability, accessibility, utilization, stability) including controls for household demographics and wealth indicators. The main objective of the assignment is to conduct a comprehensive study on the contribution of cocoa production to nutrition, food security and the livelihood of cocoa farmers.

The consultants provided a comprehensive literature review and conceptual pathways between cocoa production, nutrition and food security (Figure 3).

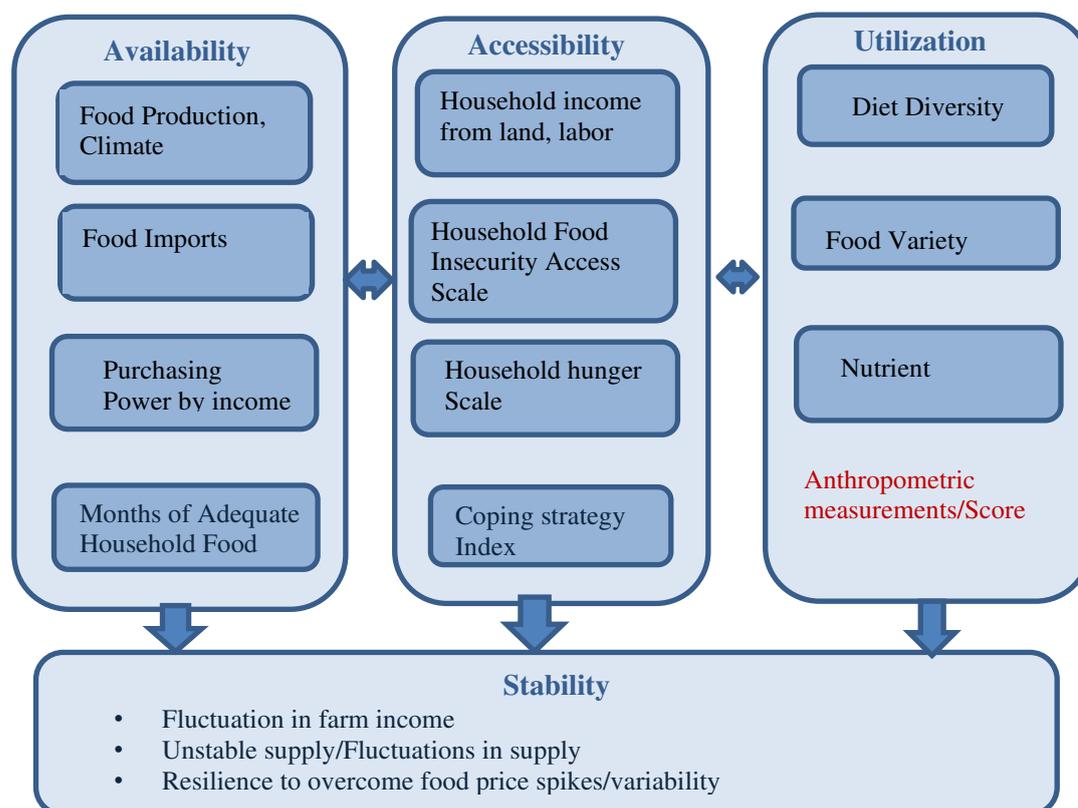


Figure 3. Pathways of the impact of cocoa production on the four dimensions of food and nutrition security.

### Study and sampling design

For Ghana, the consultants developed questionnaires, trained enumerators, and undertook a pilot survey based on which the questionnaires were modified. The consultants administered the questionnaires to 636 farmers, including 147 women as indicated in Table 6. Data collection in Ashanti, Ahafo, Western North and Western South Regions was completed between 6<sup>th</sup> and 15<sup>th</sup> July 2019. WCF will collect data in Cameroon and Côte d’Ivoire to complement the data collected in Ghana.

Table 6. Sample size for Food Security Study in Ghana

Region	No. of Communities	No. of Farmers Sampled (women)
Ahafo	12	175 (59)
Ashanti	12	185 (48)
Western North	12	126 (32)
Western South	10	150 (35)
<b>Total</b>	<b>46</b>	<b>636 (174)</b>

For each region in Ghana, data was collected using a two-step stratified random sampling approach. First, a community list was obtained from the directorate of Ministry of Food and Agriculture (MoFA) in each region and categorized into ten strata: those participating in various cocoa farmer groups under the

following companies: Barry Callebaut, Cargill, Beyond Beans, ECOM, Hershey, Kuapa Kokoo, Kookoo Pa, Mondelez, Olam and Touton.

Table 7. summary of indicators for the study.

Aspect	Variable	Indicators (metrics)	Source
<i>Food Security</i>	Availability	Months of Adequate Household Food Provisioning or Supply	Food Survey Frequency
	Access	Household Food Insecurity Access Scale Household Hunger Scale Reduced Coping Strategies Index	Food Survey Frequency
	Utilization	Diet Diversity Scores (HDDS, WDDS, CDDS) Food Variety Score Anthropometric scores: Height-for-age Weight-for-height Weight-for-age	Food Survey Anthropometric survey
	Stability	Months of food self-provisioning capacity Variability of food prices	Household Survey
<i>Confounding Factors</i>	Cash Crop Production	Quantity of Cash Crops Produced (kg) Percent of Total Land for Cash Crops (%)	Household Survey
	Household Demographics	Female Headed Households (% of Total) Household Head Education Level Dependency Ratio	Household Survey
	Wealth	Total Land Used for Agriculture (ha) Asset Index	Household Survey
	Cocoa revenue/income	Total cocoa revenue/income from households	Household Survey

The consultant completed the first iteration of the field surveys, in Ghana, in October 2019. The draft report based on the data from Ghana is currently under review. It is anticipated that the final version of the report would be completed in time for dissemination with the FY2020 annual report.

## Impact of COVID-19 on ACI II activities

ACI II conducts verification visits to field implementation sites ahead of the semi-annual report in March and April each reporting year. Unfortunately, the team could not undertake all these visits scheduled ahead of the current report due to COVID-19 related national and international travel restrictions. This means that not all the information presented in this report has been verified. However, depending on how early the restrictions are lifted in all implementing countries, the ACI II team plans to undertake the verification trips ahead of the annual report due in November 2020.

### Mitigation measures

While the travel restrictions remain in force, ACI II, following WCF policy and protocols is conducting all businesses remotely. All team members, including consultants, are working from home. Regularly scheduled conference calls continue as scheduled. The team is undertaking other engagements, like trainings and meetings, that required in-person interactions remotely (by phone, WebEx, Skype, Microsoft Teams, etc.) where possible. Larger gatherings like conferences, or activities that require interactions at close quarters like VSLA formation engagement meetings, have been postponed.

## Annexes

1. CRIN Lab Renovation Review Report
2. IRAD Lab Renovation Review Report
3. IRAD Lab Equipment Installation Update