



The CocoaSoils Programme, a public-private consortium (with funding from the Norwegian Government - NORAD) has been created to address the issues of decline in productivity in cocoa and improve the livelihoods of smallholder cocoa farmers while avoiding deforestation. The program has two main arms: Research for Development (R4D) and Partnership for Delivery (P4D). The R4D focuses on developing the protocols, establishing trials as well as data collection and management, while the P4D focuses on disseminating the recommendations from these trials in order to empower farmers and improve their livelihoods. In this edition of the Gazette, we focus on updates of some activities undertaken in the final quarter of 2020.

Validation of the CocoaSoils Training Manuals: A successful start

A Partnership for delivery (P4D) workshop has been held across the four implementation countries to validate the Integrated Soil Fertility Management Manual and farmers' handbook developed for the Partnership for Delivery (P4D) component of the CocoaSoils project. The purpose of the workshop was to bring together all stakeholders to review and validate the training manual and handbook.

In Ghana, the validation workshop was held on August 20 – 21, 2020 in Accra with 18 participants representing ten organizations, namely Ghana Cocoa Board (Cocoa Health and Extension Division – CHED; Cocoa Research Institute of Ghana – CRIG), Sustainable Trade Initiative (IDH), YARA, World Cocoa Foundation (WCF), Kuapa Kokoo, Mondelez,

OVERVIEW:

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Rockwinds/TransRoyal, Grameen Foundation, and the International Institute of Tropical Agriculture (IITA). In Cote d'Ivoire, a similar process of validating the manual was undertaken in Abidjan, Cote d'Ivoire from September 23 – 25, 2020, with 14 participants. In Nigeria, the workshop was held on October 20, 2020, in Akure, with 15 participants from the Federal Department of Extension (FMARD), Cocoa Research Institute of Nigeria – CRIN, IITA, Tulip Cocoa, OCP Africa, Harvest Industries Limited, Olam and IDH. In Cameroon, the validation workshop was held on October 21 – 22, 2020 in Mbalmayo for nine participants from MINADER, IRAD, IITA and IDH.

Improving the productivity of cocoa while avoiding deforestation is the main objective of the CocoaSoils program. This objective is being achieved by using Integrated Soil Fertility Management (ISFM) options through research activities on-site and with farmers in four countries: Cameroon, Côte d'Ivoire, Ghana and Nigeria. It is within this framework that the P4D component of the program has as part of its mission developed a training manual for use by extension workers and technicians from the private and public sector partners. The primary purpose of this workshop was to have a technical discussion and validation of the training manuals that have been developed for this purpose.

The training manual for extension agents has three main sections:

- The duality of productivity and deforestation sets the scene,
- Good agricultural practices
- Management of soil fertility

The draft manual had received previous comments from members of the CocoaSoils team, ahead of the validation meeting. This meeting was held at the level of the in-country P4D Committee, to ensure the alignment of the contents of the manual with existing policies in the country and guarantee the institutional credibility of the Manual and its acceptance by stakeholders in the country. The manual validation workshop was attended by the P4D steering committee members, Ghana Cocoa Board (COCOBOD), and other private sectors partners.

*Contribution by Jean-Paul Nlend-Nkott
J.Nlend-Nkott@cgiar.org*

Pre-Testing of Validated Manual and Refresher training

Ghana

A pre-testing of the validated manual was carried out in September after the physical validation of the training manual in Ghana, from Monday 14 – Friday 18 September 2020.

In accordance with COVID-19 protocols, the trainings were held in sessions for two separate groups. Each group consisted of extension agents with several years of experience in the cocoa sector and training of farmers. The following organizations and companies were represented: Cargill, CHED, Kuapa Kokoo, Mondelez, Olam and Rockwinds/Transroyal. The first group consisted of 16 participants (13 male and 3 female) and the second group of 13 participants (12 male, 1 female).

Each program consisted of the following sessions:

- Training skills – facilitated by Manon Mireille Dohmen (Knowledge & Skills)
- Technical aspects related to soil and GAPs – facilitated by Mr. Eric Bani (CHED) and Dr. Evans Dawoe (KNUST)
- Technical sessions from the manual facilitated by participants

Cote D'Ivoire

A similar pre-testing activity was undertaken in Cote

d'Ivoire from 29 September to 1 October 2020, in Yamoussoukro for 9 participants, from Olam, Cargill, Mondelez and IITA.

A second set of pre-testing activity was held from 12 – 17, October 2020 in Gagnoa for 29 technicians from Olam.

P4D Steering Committee Meeting – Ghana

The Steering Committee of the P4D platform in Ghana has held a steering committee meeting in Koforidua, Ghana, from 18 – 19, November 2020. The objective of this meeting was to discuss the feedback from the Training of Trainers and pre-testing held in Kumasi, discuss the updates of the Core and Satellite Trials, and discuss the next steps for policy dialogue in the next months and the P4D annual work plan for 2021.

The Steering Committee meeting was followed by a general meeting by the P4D platform committee members, which was attended by the project coordination team, public and private sector partners, and the media. The meeting had a presentation on the Monitoring and Evaluation framework on how the results from the baseline survey will be used in dissemination and a presentation of the P4D work plan for 2021.

Updates from Core Trials

Ecuador

The core trial in Ecuador at the ESPOL's campus has been installed according to the set protocols. All plants (including temporary shade) have been sown and are growing well.

Below are a few pictures of the installed site.



*Images from Core Trial Site in Ecuador
(Photo credit: ESPOL - Ecuador)*



Images from Core Trial Site in Ecuador
(Photo credit: ESPOL - Ecuador)

IITA, Ghana

On the Mabang site, harvesting of plantain has been completed. Currently, weed control and mulching are ongoing.

Below are images of plantain harvesting being undertaken



Harvesting of plantain on IITA - Ghana site
(Photo credit: CRIG - Ghana)



Harvesting of plantain on IITA - Ghana site
(Photo credit: CRIG - Ghana)

IRAD, Cameroon

A refresher training on the ODK platform for data upload has been done for technicians and data collection has begun. Weed control will be undertaken with the use of herbicide since it's usage is not restricted in Cameroon.

IITA, Cameroon

Soil profile description and soil sampling have been done. Also, there are preparations for the installation of irrigation at the IITA site.

IITA, Nigeria

In Nigeria, the cocoa trees at the core trial site flourished through the rainy seasons of 2020, despite low rainfall at the beginning of the first season. At around 9 months after planting into the field trees were on average 85 cm tall, had a stem diameter of 14.3 mm and carried 50 fully developed intact leaves. On 98.2% of the trees, the apex was alive and 69.7 % had developed branches other than the jorquette. The evaluation was early in the first rainy season with 75% of the trees flushing new leaves. However, only 3.4% of the trees had formed a jorquette.

By the time the trees were for 12 months in the field, the height had increased to 120 – 140 cm and the stem diameter had increased to 20 – 25 mm. Leaf counts were deemed impossible due to the strong expansion of the canopy. The proportion of trees with a jorquette had increased in all plots yet with high variability ranging from around 30% to 75%. First trees had formed flowers on the main stem and a few trees retained cherelles. By November 2020 (16 MAP) flowering trees were found in 47 of the 120 plots (39.2%) and pods (figure 1) were retained on trees in 33 plots (27.5%).

The 9 MAP evaluation data were used to support the treatment allocation in the trial and by now 88 plots were selected and the fertilizer application treatment was established. All plots and all trees are barcode labelled and data collection has been moved from paper and excel to ODK.

The fertilizer treatments were implemented by the first NPK application, followed by the application of the Ca and Mg fertilizers. For the micro-elements Zn and B specific application methods had to be devised to prevent heterogeneous distribution and consequent toxicities. Zinc was applied in liquid form as ZnSO₄ from bottles containing the exact amount per plot and sprinkled along the inter-row spaces in each plot. Boron was applied as H₃BO₃ as fine powder in a similar way from bottles with appropriate holes to distribute uniformly.

Weed control posed a major problem in the first season as the plantains had lost most canopy and were not shading the plots. Weed control was first conducted manually and combined with the re-shaping of the erosion and run-off control ridges along the cocoa & plantain lines across the slope. Later in the season weed control was done using herbicides and large plywood sheets to protect the cocoa and plantain from spray shift. A multitude of caterpillars (figure 2) and mealybugs enjoyed feeding on the young trees, requiring several insecticide applications

After the first heavy rains in the first season, the plantains recovered rapidly and formed a large number of suckers, to the extent that they appeared to compete severely with the cocoa and plantain leaves touched the flushing leaves leading to abrasions and a large proportion of damaged and lost new leaves. The plantains were de-suckered to prevent direct damages and to reduce competitions. Heavy storms caused many plantains to snap or uproot, some of which damaged cocoa trees. Some trees were broken at the main stem (figure 3) and needed to be replaced. In cases where branches were affected some were 'bandaged' (figure 4) and recovered.

By early November the dry season had set in and irrigation started in mid-November. Currently, the system is being upgraded to provide a larger amount of water to the trees. A second round of plantain de-suckering to retain one or two stems only is planned for the first half of December to reduce competition for water and to provide a mulch layer.



Figure 2: Caterpillar feeding on young leaves.
(Photo credit: IITA - Nigeria)



Figure 3: Main stem split to the ground.
(Photo credit: IITA - Nigeria)



Figure 4: Broken branch fixed by a bandage.
(Photo credit: IITA - Nigeria)



Figure 1: Pod bearing cocoa tree at 12 MAP.
(Photo credit: IITA - Nigeria)

Nestle, Cote d'Ivoire

The irrigation system has been installed successfully. Cocoa was ready to be planted in the field in the last week of October. The weather stations will be installed in November.

Contribution by Core Trial Managers and Research Assistants

PhD student publishes paper

Urcil Kenfack, the PhD student, based in Cameroon, has published a paper in Human Ecology on "Farmers' Perceptions as a Driver of Agricultural Practices: Understanding Soil Fertility Management Practices in Cocoa Agroforestry Systems in Cameroon".

The paper is accessible [here](#)

CocoaSoils: Understanding the nutritional needs of cocoa

Smallholder farmers producing cocoa in Africa achieve only 20% (300-600 kg/ha) of the potential (1500-3000 kg) bean yield under optimal conditions. This large yield gap is the result of an interplay of many factors including poor agronomic and pest/disease management practices, poor soil fertility as well as a lack of access to good quality agro-inputs and extension services. Approximately 70% of the global supply of cocoa originates from West African smallholder farmers, who remain in persistent poverty due to low net incomes caused by low productivity and unfavorable prices.

Read [here](#) for full feature article in Fertilizer Focus (pp 64 – 67)

Profiles



Fred Ankuyi

Fred Ankuyi is the Research technician on the CocoaSoils project in Ghana. He holds a Bachelor of Science degree in agriculture from the Kwame Nkrumah University of Science and Technology (KNUST) Ghana, with specialization in Agricultural Extension and Rural Sociology. He has worked with Olam Ghana Limited and Cargill Ghana Limited as a field assistant and district field coordinator respectively.

He has developed experience working in diverse environments which requires tactfulness, talent for solving technical and handling difficult situations and ability to cope with daunting challenges. His rich background combined with several years of experience in agriculture extension, sustainable agriculture, human capital development, poverty alleviation, training and facilitation, UTZ/RA cocoa certification, cocoa agronomy, agricultural research, climate-smart agriculture, livelihood enhancement and empowerment has offered him the opportunity to interact with varied rural community settings.

Contribution by: Fred Ankuyi
f.ankuyi@cgiar.org

Upcoming Activities

Annual CocoaSoils Forum

Virtual Meeting

Date: 26 - 28, January 2021

CocoaSoils Discussion Forum

What are your burning questions about enhancing cocoa production, maintenance of soil fertility, the challenges facing smallholder cocoa farmers, etc?

The CocoaSoils team has access to a very wide range of scientific and business expertise through the many partner institutions and companies who are collaborating. Please pose your questions to the coordinator at R.Asare@cgiar.org and we are open to a discussion in the next edition of our newsletter.

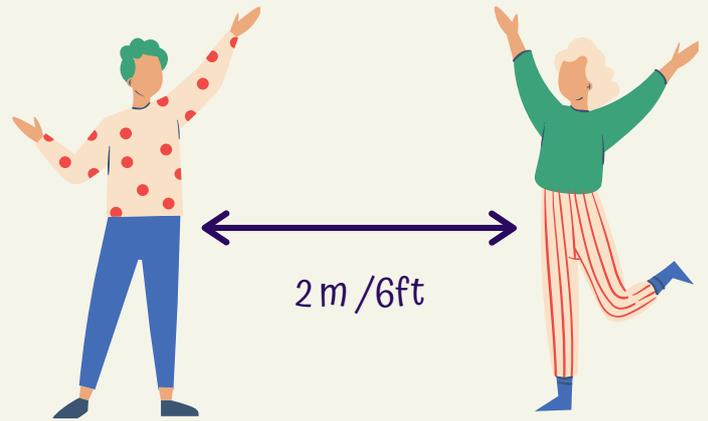


STOP THE SPREAD



WASH YOUR HANDS FREQUENTLY

Regularly and thoroughly clean your hands with an alcohol-based hand sanitizer or wash them with soap and water.



MAINTAIN PHYSICAL DISTANCING

Maintain at least a 2 metre (6 feet) distance between yourself and anyone who is coughing or sneezing.



AVOID TOUCHING EYES, NOSE AND MOUTH

Hands touch many surfaces and can pick up viruses. Once contaminated, hands can transfer the virus to your eyes, nose or mouth.



IF YOU HAVE A FEVER, COUGH AND DIFFICULTY BREATHING, SEEK MEDICAL CARE EARLY

Stay home if you feel unwell. If you have a fever, cough and difficulty breathing, seek medical attention and call in advance.

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Editing and Layout: Selom Akande

Communications Officer for CocoaSoils

Website: www.cocoasoils.org

Do you have a story to share? Send it to: Sa.Akande@cgiar.org