Workshop

Cocoa agroforestry in West and Central Africa: from definition to innovation and implementation pathways

West and Central Africa (WCA) are responsible for 71 % of world cocoa production, with an annual output (2013-2014) of some 3.1 million tons, 6 million hectares of cultivation area, and (assuming an average 2.5 ha per family) involving some 2.6 million smallholder farmers. Cocoa is cultivated mainly in open-sun monocultures or under very light shade; it is estimated that less than 30 % of the area cultivated with cacao in WCA is under tree shade i.e. in agroforestry systems.

Agroforestry is now widely promoted in cocoa cultivation in WCA to sustain high cocoa yields, conserve wild and agrobiodiversity, store atmospheric carbon in woody biomass, reduce air temperature, and produce timber, fruits, and other tree-based products to generate additional income, increase food security and reduce the financial vulnerability of the rural families. To transform agroforestry policies into practice, farmers, governments, and chocolate and certification companies need a definition of cocoa agroforestry that can be used to both benchmark their activities and measure progress toward clearly defined goals.

Different stakeholders use different definitions of cocoa agroforestry causing a lot of confusion. Farmers organizations and cocoa companies either: 1) adhere to definitions set by certification companies (e.g. Rainforest Alliance), sectoral platforms (e.g. ISCO), public – private initiatives (e.g. Cocoa and Forest Initiative) or government bodies (e.g. COCOBOD in Ghana, Conceil du Cacao -CCC- in Cote d'Ivoire), or 2) develop their own definition of agroforestry (e.g. Halba, Lindt & Sprungli, CEMOI, Nitidae, etc.).

A whitepaper is being written to help in the discussions on the pros and cons, reaches and limits of current definitions of cocoa agroforestry in WCA (Whitepaper). An inspection of the definitions adopted by different stakeholders in the cocoa value chain in WCA (see Annex 1 of the whitepaper) shows that the debate / controversy is not on whether a production system is agroforestry, but on what specific management parameters (trees per hectare, number of tree species, percent tree canopy cover, etc.) it should have. A scientific manuscript analyzing the strengths and limitations of these management parameters is available here: [https://www.researchsquare.com/article/rs-2648919/v1]. A scientifically solid discussion on whether these management parameters help farmers and land managers to achieve their agroforestry goals is at the center of the workshop proposed below.

The workshop

We (CATIE, MAK'IT-University of Montpellier, CIRAD-UMR-ABSys, the Sustainable Agricultural Systems and Engineering Lab of Westlake University, the International Union of Agroforestry (IUAF), Mars, and the cocoa agroforestry scientific and application/innovation communities) will hold an international 2-days workshop to contribute to the heated, on-going debate on the definition of cocoa agroforestry in West-Central Africa (WCA) and on the ways to innovations and implementation at scale. The outcomes of this workshop will be directly relevant to cocoa production in Asia and America.

The 2-days workshop is scheduled to take place on 15-16 May 2023, in a mixed format combining an in-person gathering in Agropolis, Montpellier, France with many others linked virtually via Zoom. The first day (we call it "science day") will be devoted to cocoa agroforestry science; the second day (we call it "innovations / applications day") will be devoted to discussions on how to mainstream cocoa agroforestry in WCA. The workshop will be held in English and French; simultaneous translation will be available. **If you plan to participate in-person, please make sure you bring your headphones with you because translation will only be available remotely via Zoom.**

You can register to the workshop at this link. It takes only 2-3 minutes to register. (https://docs.google.com/forms/d/e/1FAIpQLSdmKEgNPjL70xYI9O5i_IbD-PeI-rq5IoT-9_KLomxMqgGX8Ag/viewform?usp=sf_link).

A nuanced description of the goals and activities foreseen in the two days of the workshops is given below. A preliminary program of the workshop is presented in Annex 1.

Logistic details can be found at this link:
https://www.dropbox.com/s/kljvwtycoqhpzqw/Logistic%20sheet.pdf?dl=0

The list of participants registered to the workshop can be seen at this link:
https://docs.google.com/spreadsheets/d/1BBcGOY3ahRFcsFoM6SRRRM4SFT-KeU9qypyuwEhpH9qs/edit?usp=sharing

Science Day

In the "science day" cocoa agroforestry scientists will convene to:

1) Review cocoa agroforestry models in use in WCA and America
2) Review current definitions for cocoa agroforestry (see Annex 1 of the whitepaper)
3) Work in specialized groups to assess how management parameters (tree density, canopy cover, species richness, botanical composition, spatiotemporal patterns of tree and crops planting, and the vertical stratification of the shade canopy) allow farmers to achieve the following key goals:

    1. Maintain or increase cocoa yields (by improving soil fertility, reducing pests and diseases, reducing shading, or reducing competition for water)
    2. Produce timber, fruits, medicine, firewood, etc. to increase and diversify farmers income and food security and reduce financial risks
    3. Conserve wild biodiversity (list plant or animal species targeted for conservation)
    4. Store carbon in woody biomass and increase soil organic matter to mitigate & improve adaptation to climate change

4) prepare a succinct, science-based report on the reaches and limitations of various cocoa agroforestry definitions to achieve the key goals. This report will be the basis of a manuscripts to be submitted to a scientific journal.

Innovations/Applications Day

Adopting a definition is just a first step to mainstream cocoa agroforestry in WCA. The key challenge is to make it happen. In the "innovations / applications day" representatives of the cocoa industry, European national cocoa platforms known as ISCOs (Switzerland, Germany, France, Belgium, Netherlands), NGOs, certification companies, governments, donors, and other key stakeholders in the cocoa value chain will meet to discuss the following guiding questions:

1. What current agroforestry models used around the world can be amplified in WCA e.g. cocoa - tree crops systems (e.g. cashews, citrus, etc.), cocoa – timber, mixed shade systems, etc.? Agroforestry models and approaches to the optimal design of cocoa agroforestry systems.
2. Which obstacles are holding up agroforestry development and adoption in WCA and how to overcome those obstacles? How to scale-up and mainstream agroforestry production models at the community and country levels? Farmers' adoption of agroforestry innovations (including the analysis of legal frameworks on farm timber).
3. What are economically viable models (and its institutional underpinnings such as markets and property/use rights) that are available for cocoa agroforestry in WCA? What are the finance mechanisms that could help support greater adoption and use of cocoa agroforestry systems? To what extent are carbon initiatives and payments for environmental services viable propositions for smallholder farmers? Profitability and cost-effective implementation of agroforestry.
4. How can we monitor progress of on-farm implementation of agroforestry transformations? Technologies and approaches to monitoring agroforestry development and the plot, region, and national levels.

The second day of the workshop will include: 1) a selection of presentations on different agroforestry models tested in Africa and the Americas, 2) expose the potentials and limitations of agroforestry in terms of profitability and management of financial risks and farmers adoption, and 3) show the advances in remote sensing and other large-scale tree planting monitoring technologies in cocoa production regions. This second day of the workshop features six panels to: 1) evaluate the applicability of various agroforestry models to WCA, 2) discuss current approaches adopted by chocolate companies and sustainable cocoa platforms to mainstream agroforestry, 3) debate on the reaches and limitations of carbon credits, biodiversity conservation and payments for environmental services to stimulate the expansion of cocoa agroforestry, and 4) explore how cocoa agroforestry can contribute to the development of fine flavor cocoa value chains.

Annex 1. Tentative agenda (IN PREPARATION)

Day 1: Science day (15 May 2023)			
Hour	**Minutes**	**Title**	**Speaker**
09:00 – 09:10	10	Opening	Eduardo Somarriba, , CATIE/MAK'IT/CIRAD-UMR-ABSys, Costa Rica
09:10 - 09:30	20	Prelude: Controversies and Transitions	Patrick Caron, Directeur MAK'IT-University of Montpellier, Montpellier, France
09:30 – 09:55	25	Cocoa agroforestry in West and Central Africa	Richard Asare, IITA, Ibadan, Nigeria
09:55 – 10:20	25	A review of cocoa agroforestry definitions	Tom C. Wanger, Sustainable Agricultural Systems & Engineering Lab, West Lake University, China
10:20 – 10:50	30	Shade canopy density variables and optimal agroforestry design	Eduardo Somarriba
10:50 – 11:00	10	Q&A	
11:00 – 11:30	30	**Coffee & Chocolate Break**	
11:30 – 12:30	60	Break-up groups: 1) Maintain or increase cocoa yields (by improving soil fertility, reducing pests and diseases, reducing shading, or reducing competition for water); 2) Production of timber, fruits, medicine, firewood, etc. to generate income and profit, provide food/fiber security, diversify production and reduce financial risk; 3) Generate income and profit, provide food/fiber security, diversify production and reduce financial risk; 4) Conserve wild biodiversity, and 5) Store carbon in woody biomass and increase soil organic matter to mitigate & improve adaptation to climate change.	Group leaders: 1) Martin Ten Hoppen, CIRAD, Montpellier, France, 2) Stephane Saj or Luis Orozco, 3) Francois Ruf (TBC), 4) Tom Wanger, 5) Rebecca Asare (TBC)
12:30 – 13:00	30	Break-up groups report to plenary (6 minutes by group).	Group leaders
13:00 – 14:00	60	**Lunch**	
14:00 – 14:20	20	Cabrucas: rustic cocoa agroforestry systems from Brazil	Deborah Faria, Universidade Estadual de Santa Cruz, Ilheus, Bahía, Brazil (TBC)
14:20 – 14:40	20	Dynamic agroforestry systems	Joachim Milz, ECOTOP, Germany
14:40 – 15:00	20	Cocoa – Tree crop (citrus, cashew, oil palm, etc.) agroforestry models in WCA: design, yields and financial performance	WCA cocoa agroforestry expert (TBC)
15:00 – 15:20	20	Cocoa agroforestry models from Brazil: design, yields and financial performance	Tony Gama, Universidade Estadual do Norte Fluminense Darcy Ribeiro, RJ, Brasil
15:20 – 15:40	20	Cocoa-timber agroforestry systems in Latin America: designs, yields and financial performance	Luis Orozco, Fundación Nica-France, Nicaragua
15:40 – 16:10	30	**Coffee & Chocolate Break**	
16:10 – 17:10	60	Panel 1: Agroforestry models in WCA and America	Moderator: Goetz Schroth. Panelists: 1) Joachim Milz, 2) Léo Godard, Nitidae (TBC), 3) Richard Asare, 4) Luis Orozco
17:10 – 17:30	20	Monitoring trees in cocoa agroforestry systems using remote sensing techniques	Jessica Ertel, World Resources Institute
17:30 – 17:45	15	Summary of the science day, closure	Bruno Rapidel

Day 2: Innovations/applications day (16 May 2023)			
Hour	**Minutes**	**Title**	**Speaker**
09:00 - 09:20	20	Profitability and risk management of cocoa agroforestry models	Beatrice Obiri, Deputy Director, CSIR-FORIG, Ghana
09:20 – 09:40	20	Assessing the financial performance of cocoa agroforestry models using the FarmTree tool	Arnoud Braun, CEO, FarmTree Tool, University of Wageningen, The Netherlands
09:40 – 10:00	20	Adoption by farmers	Francois Ruf, CIRAD (TBC)
10:00 – 11:00	60	Panel 2: Agroforestry policies and implementation strategies by NGOs, sectoral platforms, and certification companies.	Moderator: TBC. Panelists: 1) Stephanie Gagliardi, PUR Projet; 2) European International Sustainable Cocoa Platforms, ISCOs, Charles Snoeck (TBC); 3) WCA expert or company representative (TBC)
11:00 – 11:30	30	Coffee & Chocolate Break	
11:30 – 12:30	60	Panel 3: Agroforestry policies and implementation strategies by chocolate companies and Governments.	Moderator: TBC. Panelists: 1) Ethan Budiansky, World Cocoa Foundation; 2) Samantha Forbes, MARS; 3) Halba Chocolates, Petra Heid, Head Sustainability, Halba, Switzerland; 4) Asma Chemlal, Barry Callebaut
12:30 – 12:45	15	Cocoa agroforestry systems and the conservation of bat diversity for pest control	Diogo Ferreira or Cecilia Montauban or Ivana Budinsky (TBC)
12:45 – 13:00	15	Cocoa agroforestry systems and the conservation of trees and insects	Bohdan Lojka, Czech University of Life Sciences, Prague, Czech Republic
13:00 – 14:00	60	Lunch	
14:00 – 14:15	15	Cocoa agroforestry systems and the conservation of bird diversity	Ruth Bennet, Smithsonian's National Zoo, Conservation Biology Institute
14:15 – 15:00	50	Panel 4: Conservation of biodiversity in cocoa agroforestry systems	Moderator: Stephane Saj. Panelists: 1) Ruth Bennet, 2) Deborah Faria, 3) Andreanna Welch, 4) Bohdan Lojka
15:05 – 15:25	20	Coffee and Chocolate Break	
15:25 – 16:15	50	Panel 5: Carbon credits to mainstream cocoa agroforestry	Moderator: Rebecca Ashley Asare, Director of Programmes & Research, Nature Conservation Research Centre (NCRC), Accra, Ghana. Panelists: 1) Léo Godard, Nitidae; 2) Christian Bunn, Alliance CIAT-BIOVERSITY (TBC), 3) Thomas Fungenzi, Mars.
16:15 – 17:15	60	Panel 6: Agroforestry and fine flavor cocoa	Moderator: Liz Toomey, USAID-Madagascar; Jim Hazen/TSIRO Chief of Party -Madagascar; Jerry Toth/TM Alliance – Ecuador; Darin Sukha/Cocoa Research Center - Trinidad/West Indies; Philippe Bastide, Cacao Expert, Cacao Consultant & Cie, France
17:15 – 17:50	35	**Plenary discussion and brainstorming: the way forward (including reading of declaration on cocoa agroforestry definition)**	Eduardo Somarriba
17:50 – 17:55	05	Closure	TBC