

Looking back and moving forward:

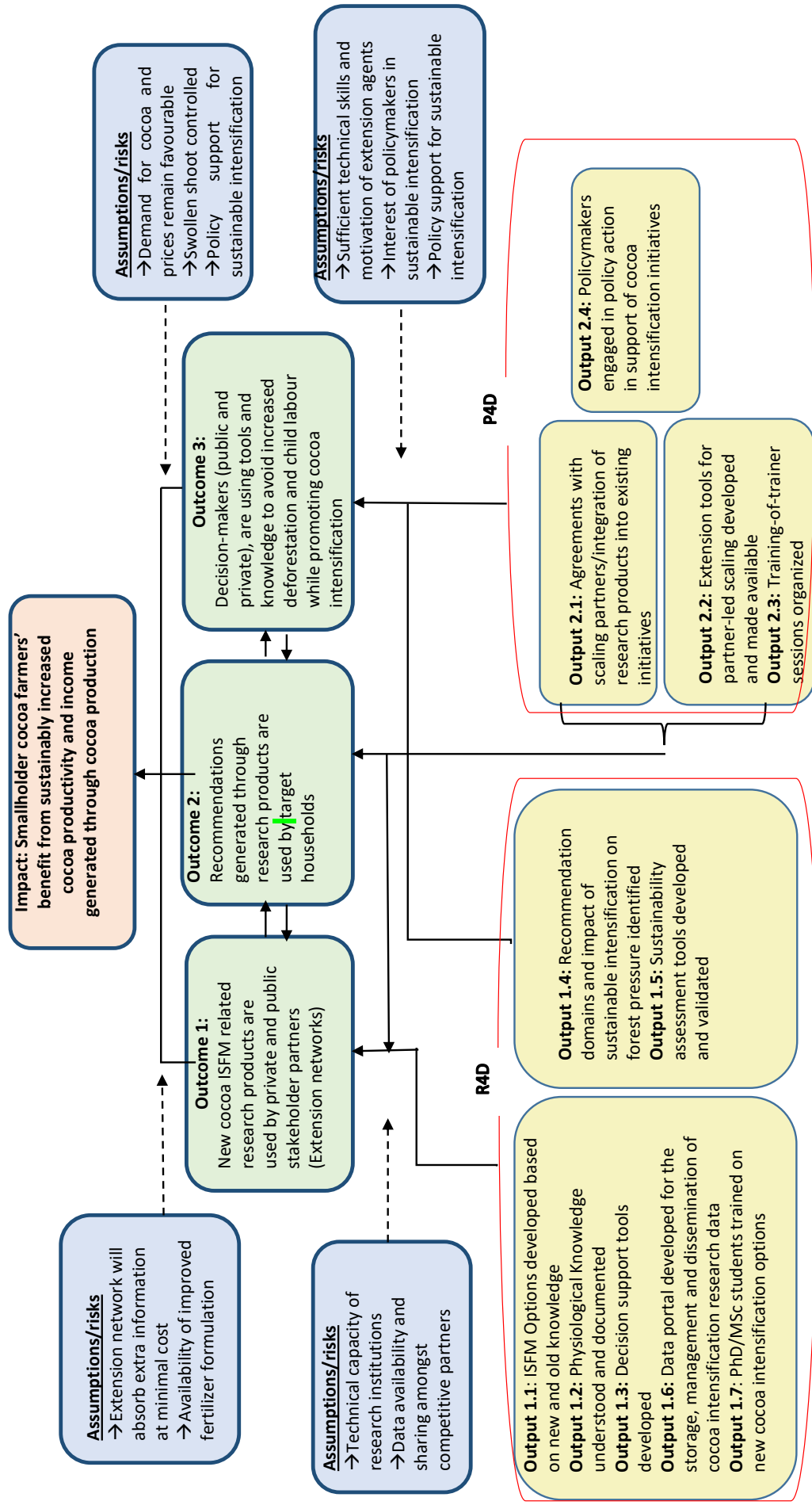
Overview of results, achievements and key learnings

CocoaSoils 2022





Project Theory of Change/Results

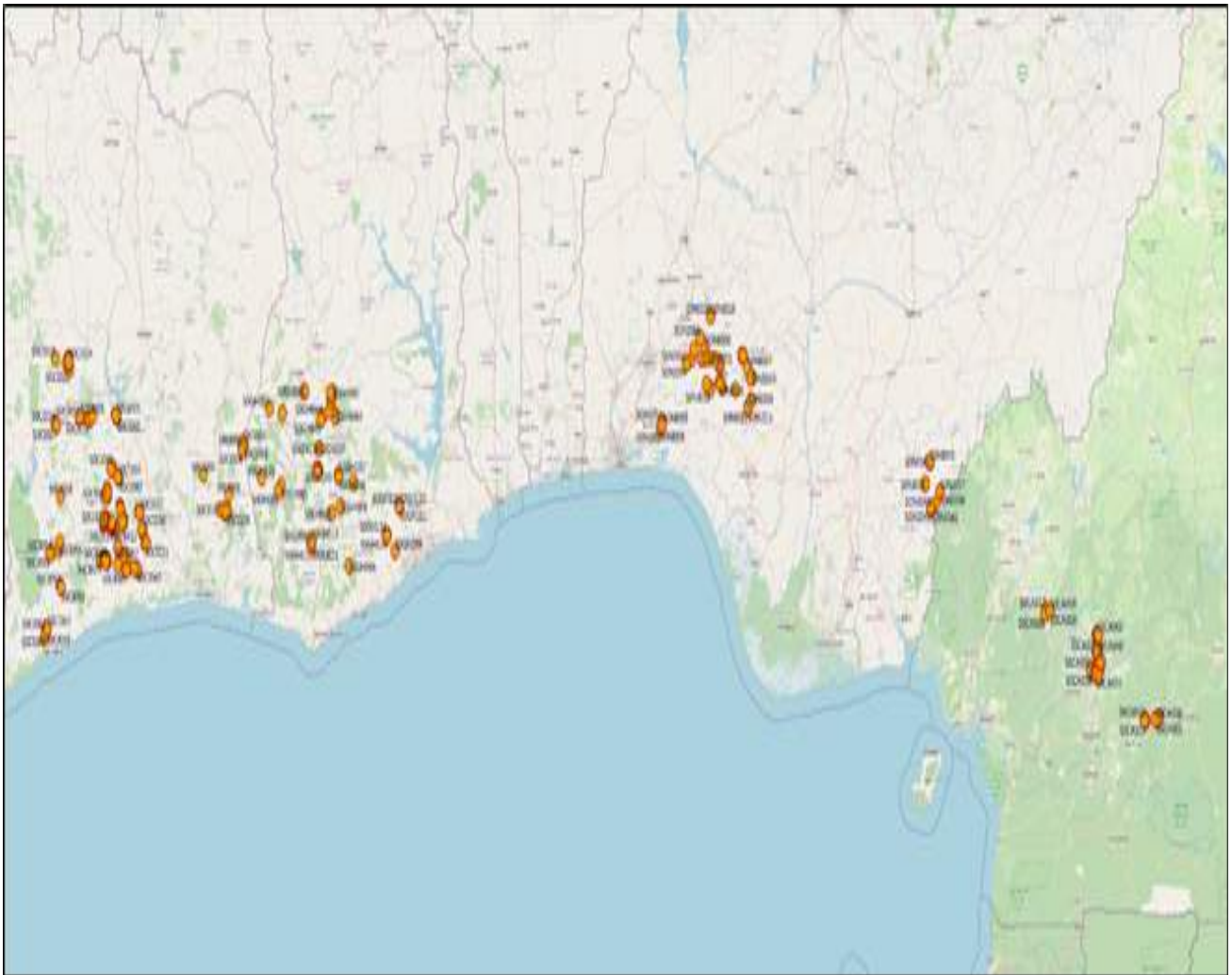


Key outputs generated

ISFM Options developed

Target:

To generate a first set of ISFM recommendations ready for integration into partner scaling.



Locations of Satellite trial sites in Cameroon, Cote d'Ivoire, Ghana, and Nigeria.

Achieved:

- Engaged 12 private sector Cocoa companies in the implementation of Trials using agreed protocols.
- Nine Core Trials established to determine nutrient requirements.
- 389 Satellite Trial sites established across the 4 countries.
- Database infrastructure developed to make data accessible.
- First set of data analyzed, showing yield improvements.

Cocoa Physiology understood and documented/Students engaged

Target:

At least 6 papers on cocoa ISFM/physiology accepted and at least 4 PhD theses approved. At least 6 MSc theses approved.

- Four PhD and 13 MSc students have been recruited and at various levels of theses chapters.
- A manuscript entitled 'Unravelling drivers of high variability of on-farm cocoa yields across environmental gradients' in Ghana' was submitted to the Agricultural Systems Journal and accepted in June 2022. Open Access: <https://doi.org/10.1016/j.agsy.2021.103214>
- Work on recycling of nutrients in cocoa pods in Nigeria has been published in the Plant and Soil Journal in March 2021 as 'How nutrients rich are decaying cocoa pod husks? The kinetics of nutrient leaching'. Open Access: <https://doi.org/10.1007/s11104-021-04885-1>
- A paper on "Farmers' perceptions as a driver of agricultural practices: Understanding soil fertility management practices in cocoa agroforestry systems in Cameroon" has been published in Human Ecology: <https://link.springer.com/article/10.1007/s10745-020-00190-0>



Decision support tools developed

Target:

Adapt tools for farmer segmentation and stepwise intensification for cocoa producing areas, with a “draft 2” of segmentation and stepwise investment tools made available.

The screenshot shows a mobile application interface titled "CSC Dashboard". At the top, there is a status bar with signal strength, battery level (71%), and time (9:08). Below the title bar, there is a section for "Best Management Practices Q/A" with a circular icon. The main form contains several input fields: "Do you apply fertilizer??" with radio buttons for "Yes" and "No" (where "No" is selected); "Amount of fertilizer(kg) applied per acre/hectare" with a text input field containing "kg"; "Type of Fertilizer applied?" with a text input field containing "Granular"; "Amount of Calcium(Ca) applied?" with a text input field containing "Ca"; "Amount of Magnesium (Mg) applied?" with a text input field containing "number"; and "Amount of Sulphur (S) applied?" with a text input field containing "Size (Ha)". Below these fields is a large button labeled "GENERATE ASSESSMENT". At the bottom, there is a navigation bar with three icons: a house icon labeled "CSC Dashboard", a calendar icon labeled "Calendar", and a bell icon labeled "Forecast".

A mobile application tool with:

- farmer segmentation (clustering) module to understand farm diversity, adapted to include:
- stepwise investment pathways in best management practices module.
- activity calendar providing an optimum date range.
- Awaiting testing and validation by the Research committee.

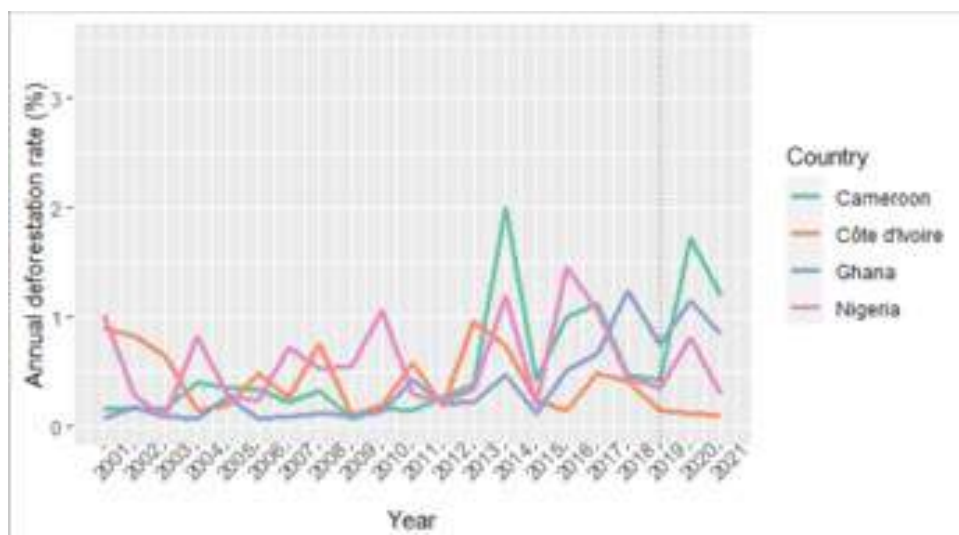
Near real time deforestation monitoring

Target:

Quantify the Impact of sustainable intensification deforestation and REDD+ schemes.

Achieved:

- **Guiding principles developed**, as decision-making steps for improved land-use planning.
- Developed approach to estimate cocoa yields to quantify adaptation potential of Climate-Smart Agriculture (CSA) packages.
- Developed historical deforestation baseline using Terra-I for the four countries.



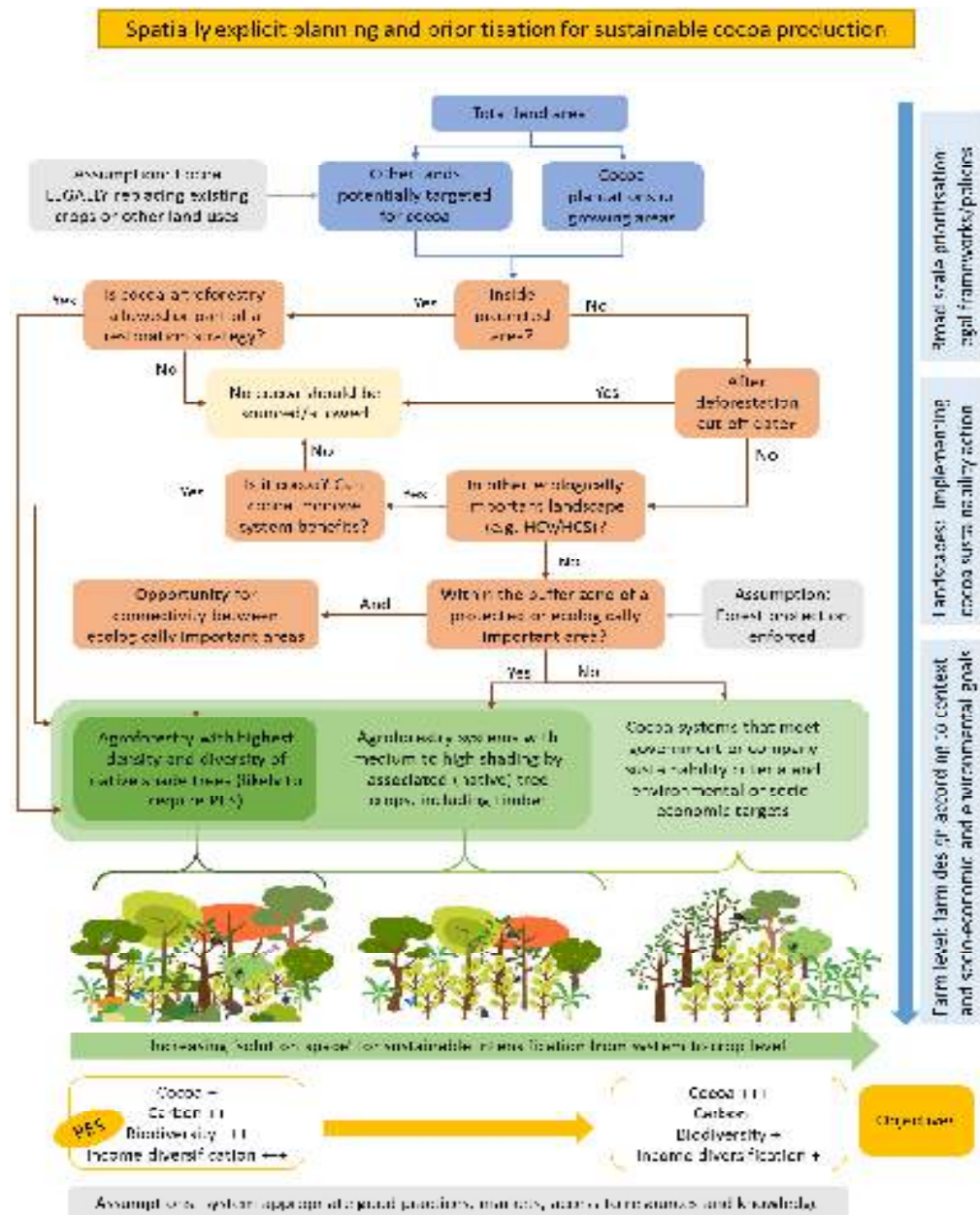
Deforestation rate in cocoa growing areas and surrounding landscapes of STs

	Entire cocoa area (%)				4 km radius around STs (%)			
	2018	2019	2020	2021	2018	2019	2020	2021
Côte d'Ivoire	2.42	1.11	1.26	0.65	0.41	0.15	0.11	0.09
Ghana	1.28	0.60	1.48	1.11	1.23	0.74	1.14	0.83
Nigeria	1.14	0.91	1.11	0.84	0.44	0.35	0.80	0.28
Cameroon	0.41	0.33	0.75	0.51	0.47	0.42	1.72	1.18

Sustainability assessment tools developed and validated

Target:

Produce the second draft of sustainability assessment tools.



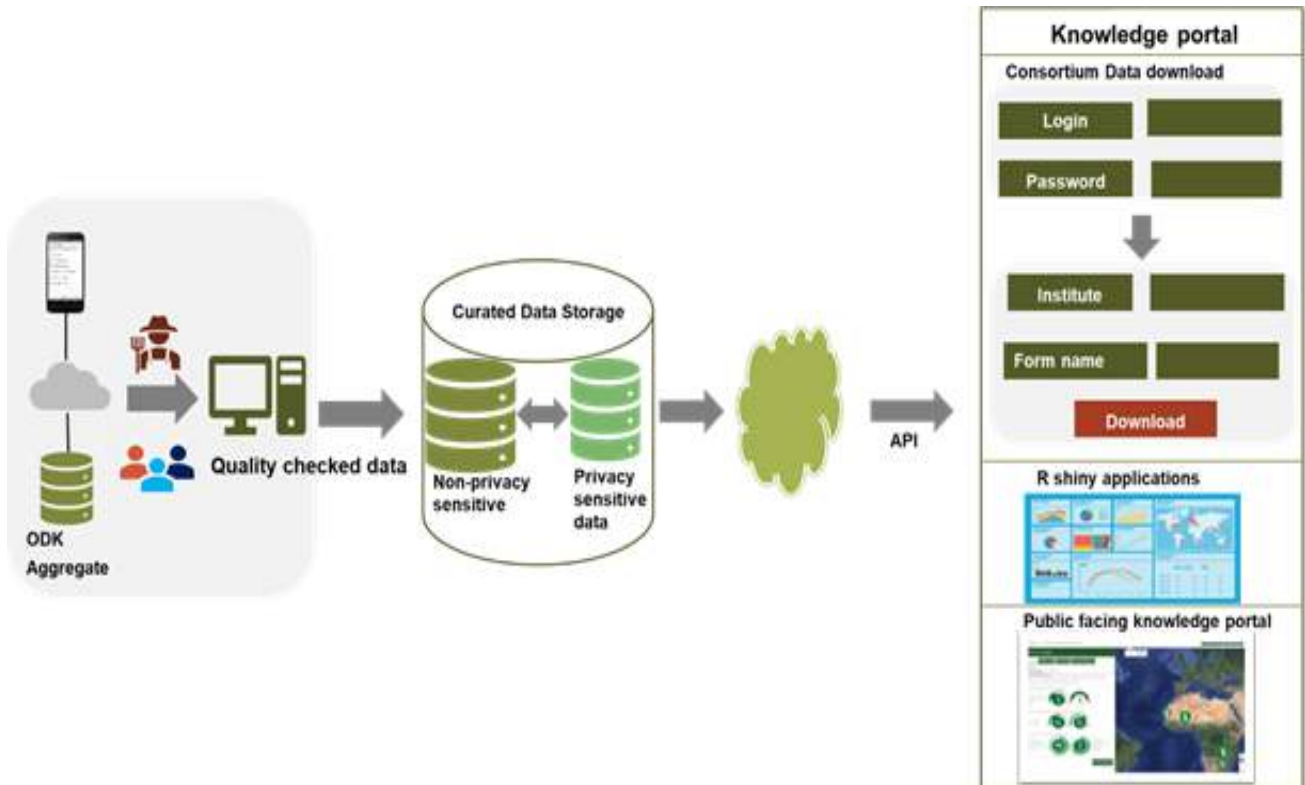
Achieved:

- Draft guidance tree developed to support spatially explicit and integrated decision-making to increase.
 - productivity,
 - farmer resilience,
 - support biodiversity,
 - protect forests.

Data portal developed

Target:

A final version of the data portal will be available and a minimum of 50 percent of all datasets submitted.



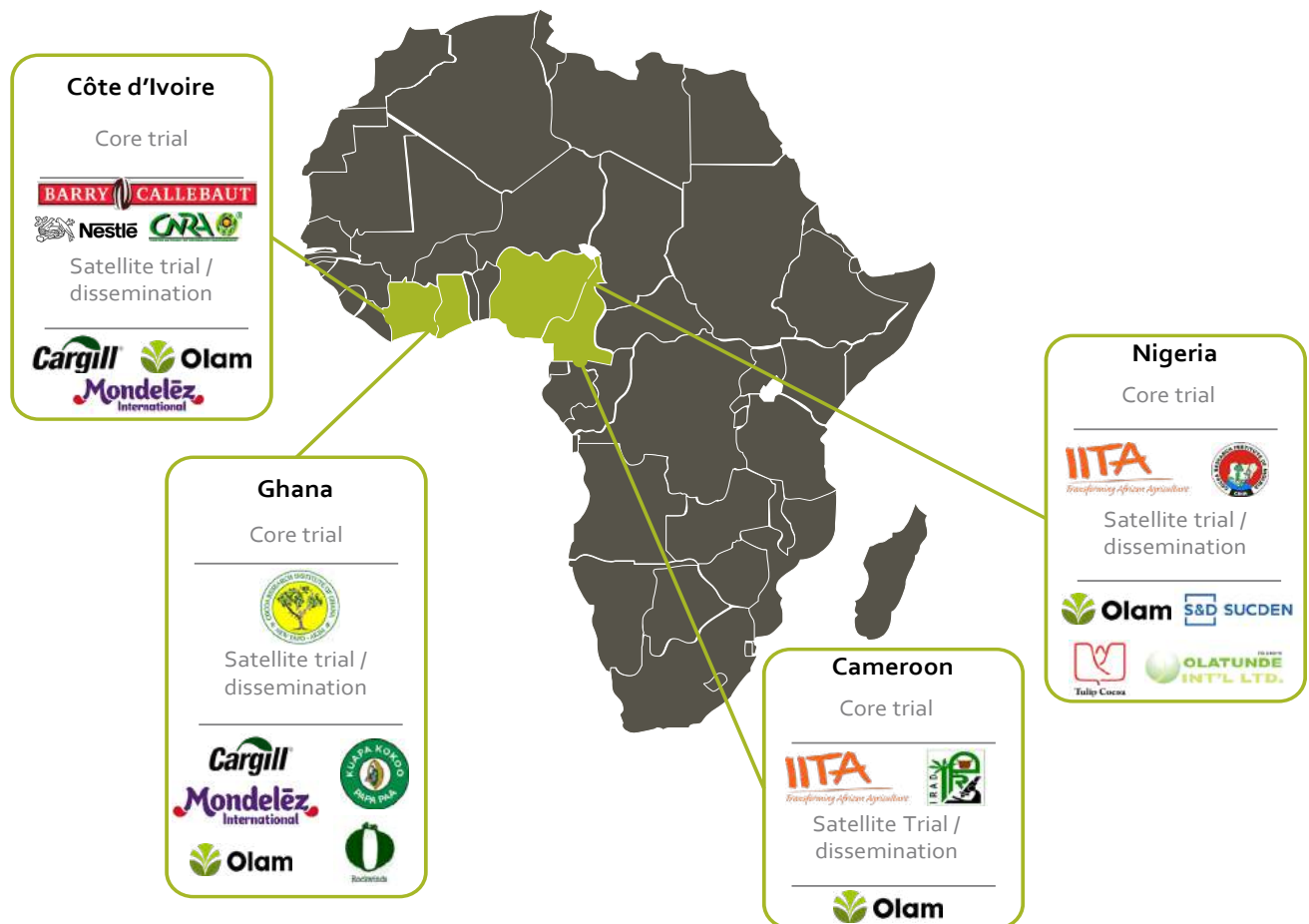
Achieved:

- ODK server developed with related database structure and being used as the sole data capture application.
- Cocoa-specific ontology developed.
- A PostgreSQL database has been set up where data is currently being processed to support publication of data in the 'Public-Facing Knowledge Portal'.
- Partner specific data access credentials are being developed.
- Over 70% of all datasets submitted.

Agreements with scaling partners

Target:

10 Agreements signed with scaling partners.



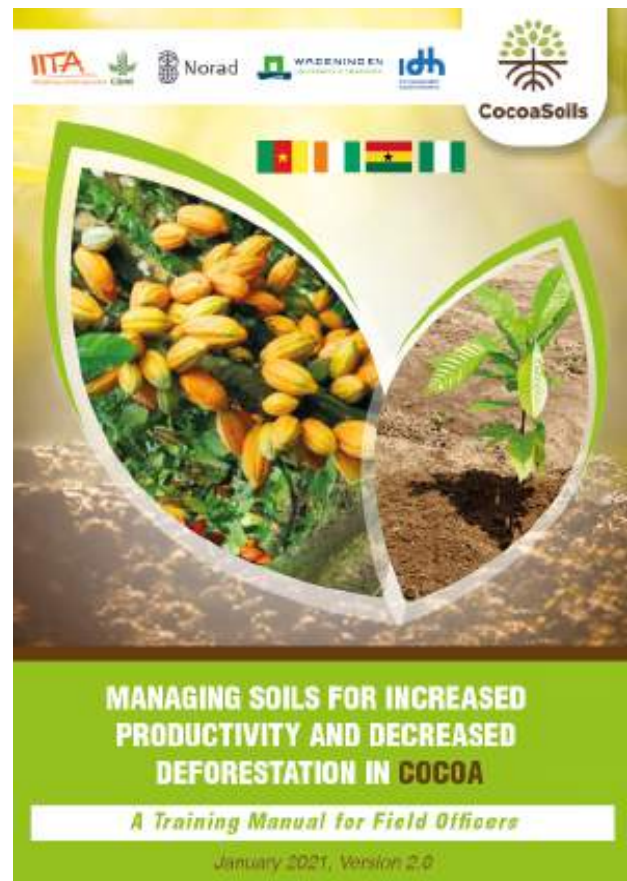
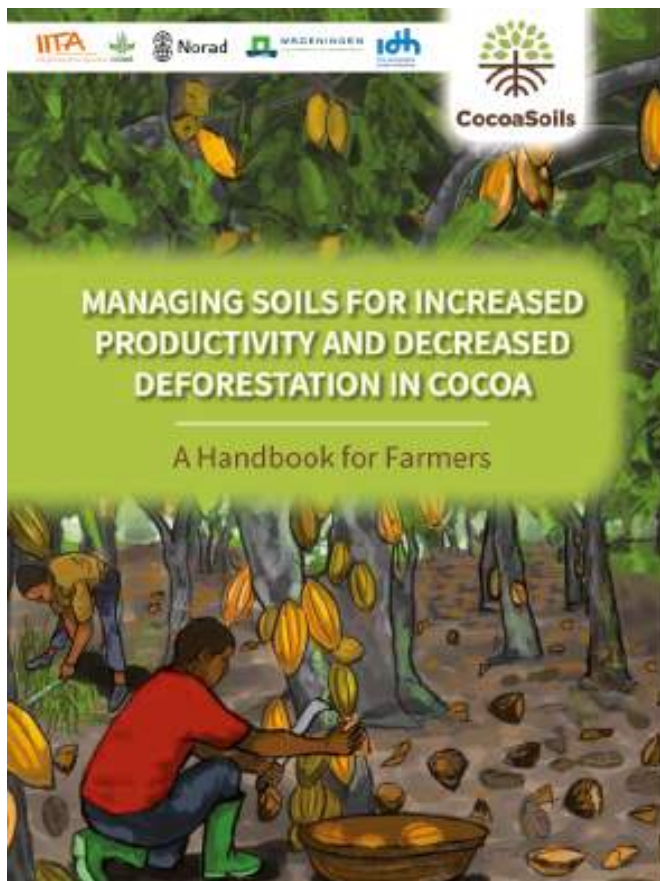
Achieved:

11 agreements signed with scaling partners in Côte d'Ivoire, Cameroon, Ghana, and Nigeria.

Extension tools for partner-led scaling developed

Target:

Version 2 of adapted tools/manuals with MEL feedback and new information.

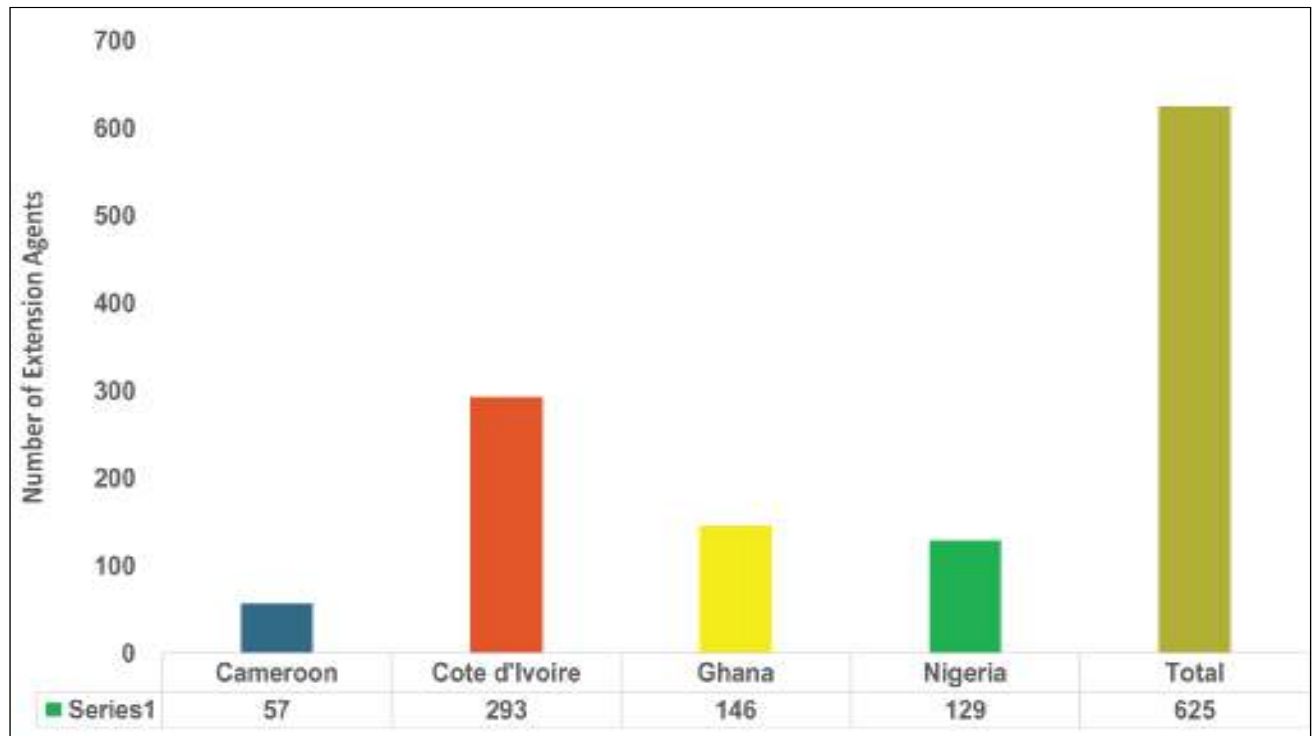


- Version 1- training Manuals and farmer handbook developed and handed over to Ministries.
- Manual and handbook being used by partner Extension networks.
- Version 1 of adapted digital platforms available (VIAMO and ANADER).
- Feedback through various channels will be used for revision of version 1.

Number of Extension Agents Trained

Target:

25 training-of-trainer sessions organized and 625 extension agents trained.



Achieved:

92% of training sessions organized (23).

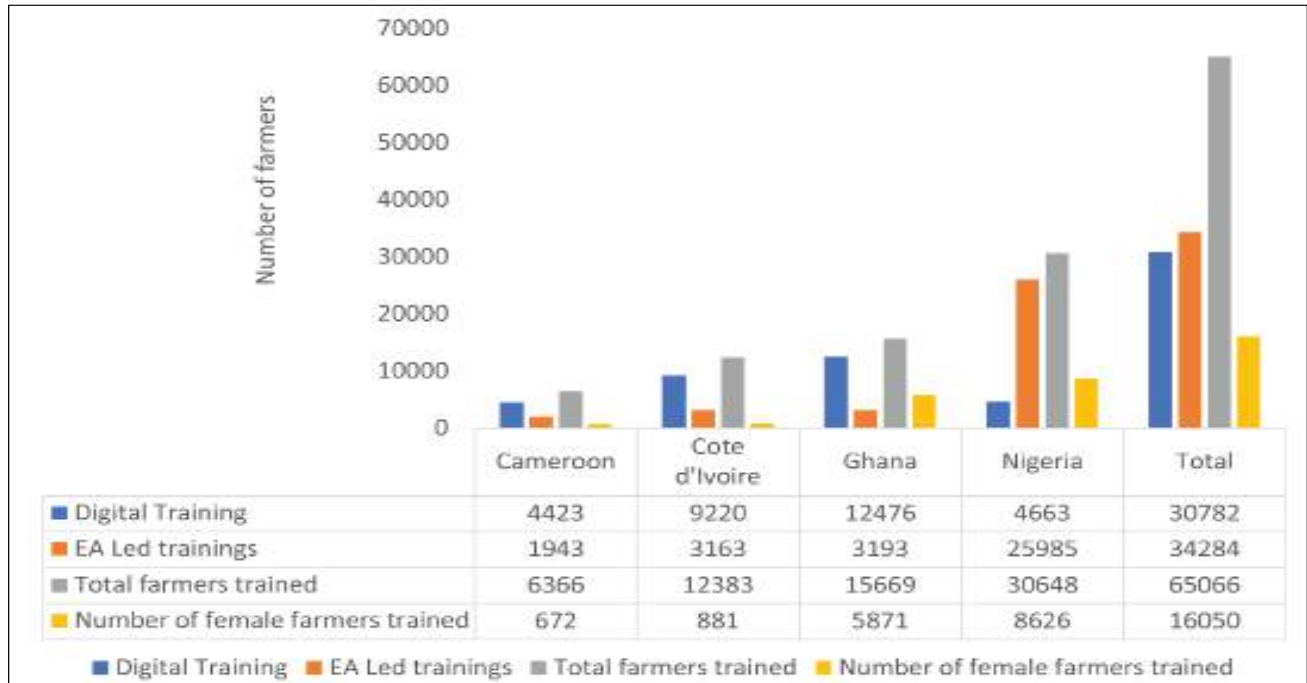
100% (625) of extension agents trained.



Training of extension agents in Cameroon

Farmers reached

65066 cocoa farmers have received training on Integrated Soil Fertility Management (ISFM) and Good Agricultural Practices (GAPS).



Content of farmer training:

- Pruning to enhance soil fertility.
- Productivity and soil fertility.
- Mulch and compost.
- Productivity and deforestation.
- Use of Pesticide.
- Weeding.
- Use of Inorganic Fertilizer.



Training of farmers in Ghana.

Policymakers engaged in policy action

Target:

At least 6 extra interactions with policy makers in all 4 target countries; at least 20 public and private sector partners trained to use the developed tools and knowledge.

Achieved:

- Completed the documentation and validation of cocoa-related policies with the support of government agencies and other relevant stakeholders (Partnership Committees).
- Handed over training manuals to relevant public authorities in Cameroon, Ghana, and Nigeria.
- 15 interactions with policymakers held through various meetings organized by the Partnership Committees.

Outcome 1: ISFM related research products used by partners Extension networks.

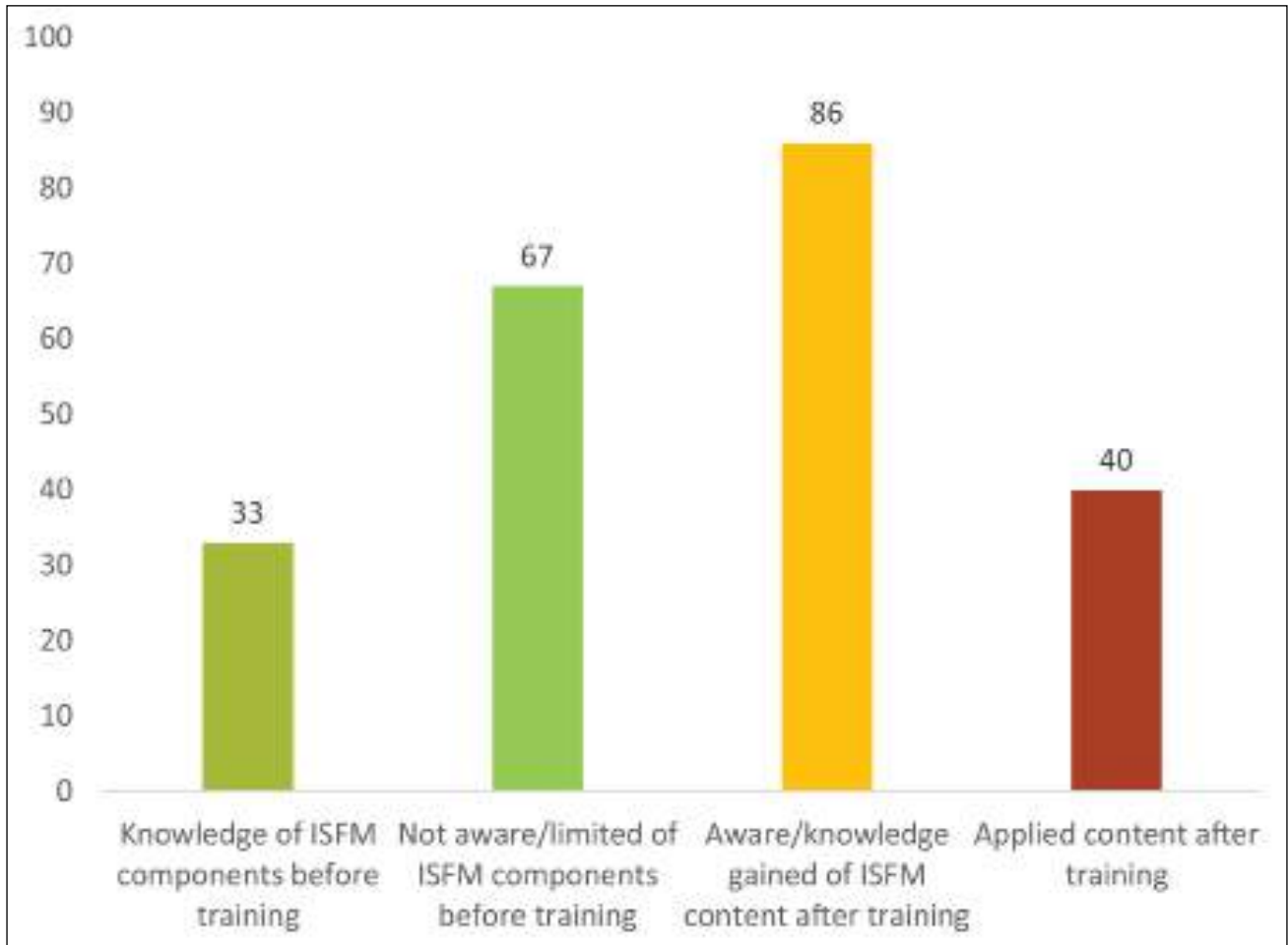
Outcome 2: Recommendations generated through research products are used by target households.

- A baseline survey was conducted before the digital dissemination.
- A sample of 250 farmers was used for the baseline in each country.
- A follow-up farmer survey was conducted (termed as endline) after digital dissemination of content.
- 250 farmers were randomly sampled in each country for the survey (30% overlap with baseline). A survey was conducted through VIAMO platform.



Nigeria's Minister of Agriculture and Rural Development receives CocoaSoils training manual.

Knowledge gained and applied by Extension Agents



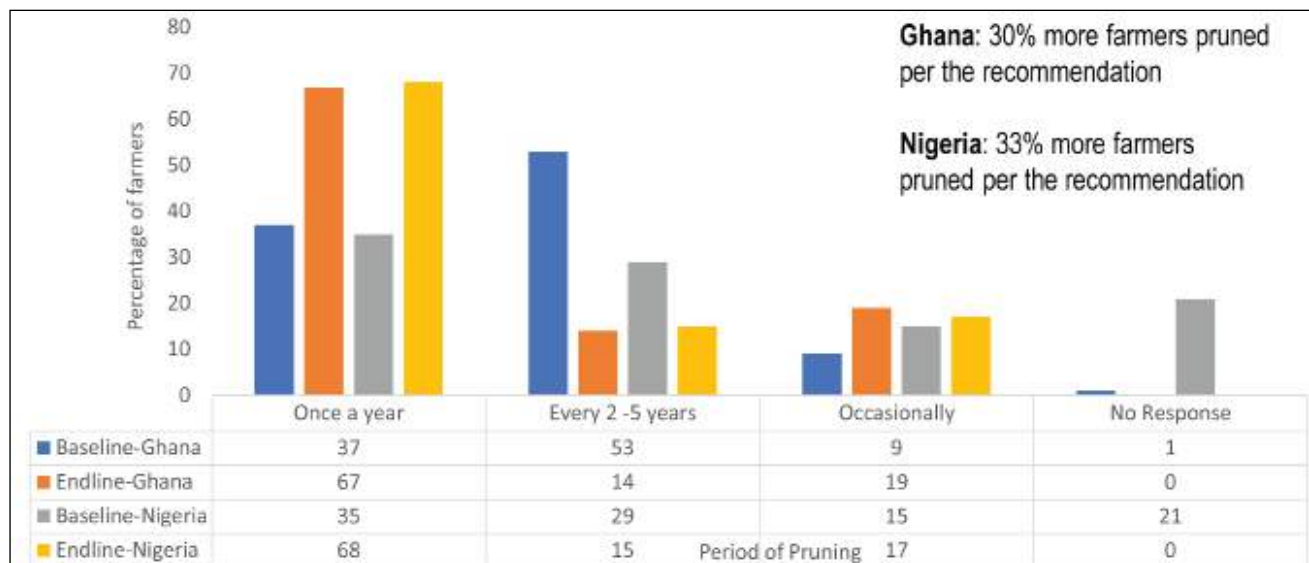
**% of Extension agents applied content is based on those uploading farmer training data as evidence*

Extension agents follow up survey and Focus Group Discussions (FGDs) planned for further feedback on:

- Awareness and knowledge gained.
- Integration and application of knowledge.
- Bottlenecks for integration.

Knowledge applied-target household

Number of times farmers had already done structural pruning.

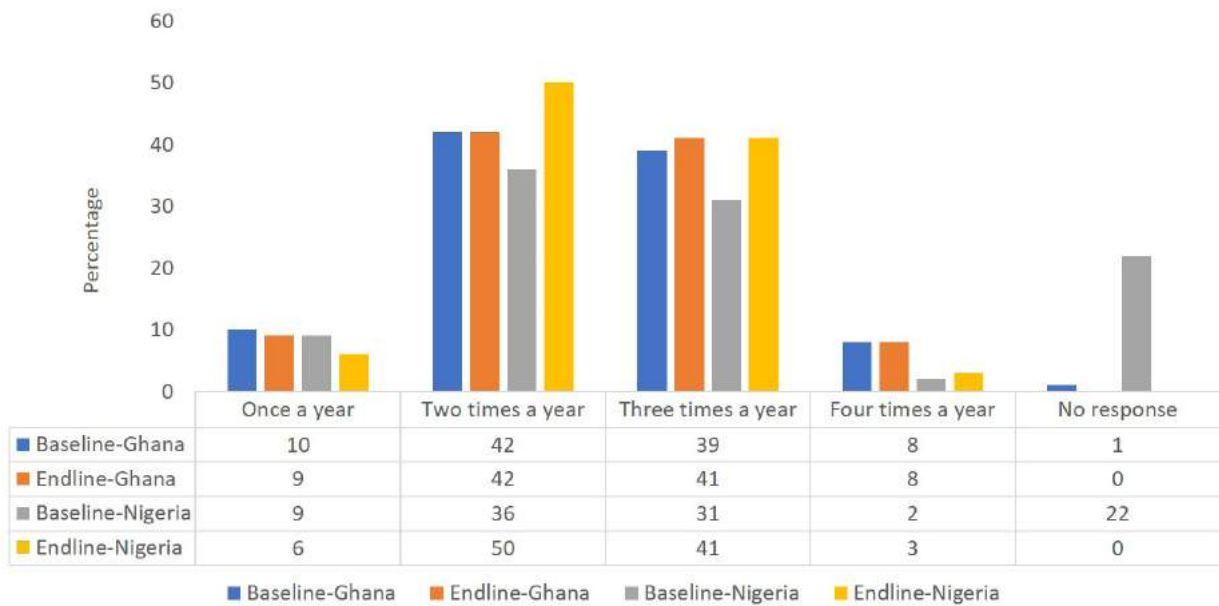


(Recommendation: Structural pruning is done ideally once a year before the start of the rainy season and Sanitary pruning can be carried out throughout the year in both Ghana and Nigeria).

- **Ghana:** 30% more farmers pruned per the recommendation
- **Nigeria:** 33% more farmers pruned per the recommendation
- 32% of farmers reached through digital in Nigeria/Ghana (14,821)

Knowledge applied-target household

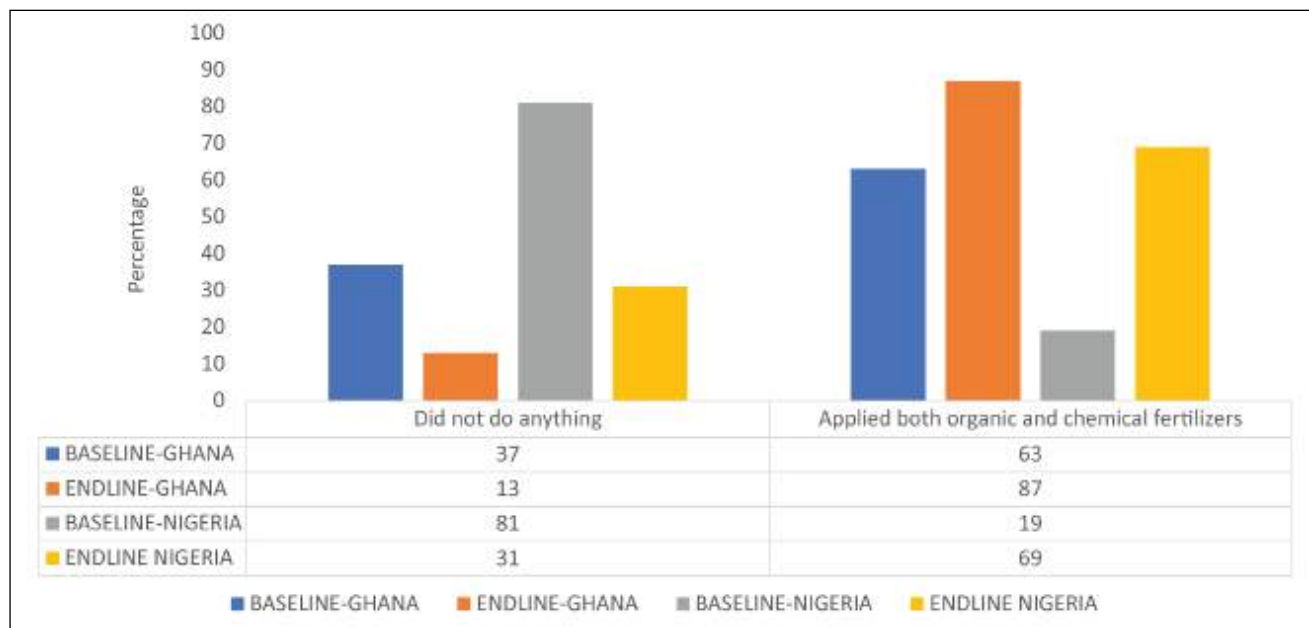
Number of times farmers had already weeded



Recommendation-(3 times in a year across all countries)

Knowledge applied-target household

What farmers did to improve soil fertility.



Outcome:

Decision-makers (public and private) are using tools and knowledge to avoid increased deforestation and child labour while promoting cocoa intensification.

- Acceptance of Training Manuals and Farmer Handbooks at national level by the responsible organizations
 - Cameroon Ministry of Agriculture.
 - Ghana COCOBOD.
 - Nigeria Ministry of Agriculture.
 - Yet to handover in Cote d'Ivoire.
- Validation and acceptance of Manual by private sector and the integration of content by 40% of extension agents.

Outcome 3:

Decision-makers (public and private) are using tools and knowledge to avoid increased deforestation and child labour while promoting cocoa intensification.

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- Validation and acceptance of Manual by private sector and the integration of content by 40% of extension agents.

Key learnings

Platforms established

1. The **multi-stakeholder and multiple-country approaches** provide a convening platform to address the challenges faced by the cocoa industry.
2. A deliberate link between Research for Development and Partnership for Delivery provides a useful platform for country-level alignment, development, validation, and integration of research recommendations.

Partnerships

1. The **partnerships** with the private sector serve as an excellent avenue for data sharing and sustain the dissemination of both existing and new research recommendations.
2. **Private sector engagement and commitment** (personnel and funds) to research process, help to obtain direct feedback on research outputs and processes to ensure acceptance and **augment various governments efforts**.
3. **Use of partner existing scaling platforms/networks** for integration of research outputs promotes uptake.



Farmer poses with CocoaSoils Handbook for Farmers.



CocoaSoils

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