



**Digitization of climate-smart practices in vegetable crops  
to support sustainability of production and improve  
livelihood of smallholder's farmers (Digit\_Crops)**

**Annexe 1**  
**Digit\_Crops-AGriDI Project Technical Narrative Report**

<b>Quarterly Report   Period:</b> January 10 to April 10 2025	
<b>Name of reporting entity:</b> WASCAL_CEACCBAD-UFHB	
<b>Editor (s)</b>	Technical team of the Digit_Crops -AGriDI project



## Introduction

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Indigenous populations in Côte d'Ivoire have cultivated tomatoes, peppers, and eggplants around their homes for household consumption. Once a marginal farming activity, market gardening has, since the 1980s–1990s, become a significant commercial production in agricultural systems, leading to real regional and seasonal specialization. The production of these crops involves a large segment of the population, consisting of nearly 60% women and youth in urban and peri-urban areas.

Vegetable production in Côte d'Ivoire is expanding rapidly, amounting to approximately 678,000 tons over 161,000 hectares of irrigated and rainfed fields. However, the country still imports about 100,000 tons per year to meet the production deficit. Despite this agro-economic dynamism, the sector remains under threat:

(i) From declining soil fertility, which calls for mitigation through integrated agroecological management; (ii) From increasing pest pressure, requiring effective control of diseases and harmful organisms, as well as updated pest mapping; (iii) From climate change, which necessitates the revision of technical itineraries and the promotion of climate-smart adaptation practices based on local knowledge and endogenous innovations; (iv) From inadequate support structures, requiring renewed support strategies for stakeholders through better access to information and technological knowledge via digital advisory services.

Aware of the sector's weaknesses, the Ivorian government has undertaken efforts to organize farmers into cooperatives and value chain actors into inter-professional platforms to increase efficiency and better respond to the needs of agricultural stakeholders. Agricultural professional organizations (OPA), the private sector, and universities are all mobilized to play a central role in achieving the goal of increasing production.

In response to this situation, the African Center of Excellence WASCAL-CCBAD has received funding from the AGriDI initiative, coordinated by ICIPE, to implement the Digit\_Crops Project: Digitalization of Climate-Smart Practices in Vegetable Crops to Support Sustainable Production and Improve the Livelihoods of Smallholder Farmers.

The **Digit\_Crops** project aims to sustainably transform agriculture in Côte d'Ivoire by promoting climate-smart agricultural practices in vegetable production. Its objective is to strengthen the resilience of agricultural systems, increase productivity, and improve the livelihoods of smallholder farmers through digital innovations and sustainable farming approaches. The project will also rely on pest mapping and identification to optimize their management. The data collected for this purpose will be integrated into an interactive digital database accessible via a mobile application designed for vegetable producers.

As part of this project, activities will be carried out to improve the livelihoods of smallholder vegetable farmers in the regions of Yamoussoukro, Abidjan, and Korhogo

in Côte d'Ivoire by promoting the adoption of various sustainable production systems. By the end of the project, the main expected results are as follows:

1. **R1**: Increased use of climate-smart agricultural practices by smallholder vegetable farmers.
2. **R2**: Strengthened capacities of smallholder vegetable farmers in applying climate-smart agricultural practices.
3. **R3**: Operationalization of the Digit\_Crops platform.
4. **R4**: Development of entrepreneurial skills among young rural vegetable farmers around the cultivation of biopesticide-producing plants.

This report covers activities conducted between January 10 and April 10, 2025. It provides an update on the development of the **Digit\_Crops** web platform and mobile user interface, the implementation of the baseline study focused on adaptation practices and income from vegetable production, as well as interviews aimed at promoting entrepreneurship around biopesticide plants.

## 1-Digit\_Crops platform operational developpemnt

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During the second quarter of the Digit\_Crops project implementation, we initiated the structured development of digital applications—a strategic step that remains actively underway. The first phase focused on setting up the web version, designed to ensure the visibility of the project and enable the integration of services through APIs (Application Programming Interfaces). These APIs will play a central role in also supporting the future mobile application, thereby ensuring harmonized service delivery.

The web version consists of two main components:

- A public interface accessible at <https://digitcrops.wascal-ci.org/>, allowing visitors to explore the project's objectives, activities, and news.
- A management dashboard (see annex) intended for administrators to manage content, the database, and the integrated services.

At the same time, development of the mobile version has also begun (see annex). Designed to rely on the same API architecture, it will ensure coherence, interoperability, and seamless functionality between the two platforms. This technological approach ensures functional continuity between tools while enhancing accessibility and user experience (Annex 1) .

## **2- Baseline study on vegetable farming income and the adoption of climate-smart agricultural practices in vegetable crop production in the localities of Korhogo, Yamoussoukro et Abidjan**

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As part of the baseline study conducted with vegetable farmers, a structured survey form was developed to collect essential data on farming practices, income generation, and the impact of climate change on vegetable production.

The first section of the form gathers general information about vegetable farming and farmers' sources of income. It identifies the main crops grown (tomato, eggplant, pepper, cucumber, cabbage, etc.), the land area cultivated, and the yields obtained. It also assesses the income from vegetable farming and other economic activities such as livestock farming, trade, or salaried employment, providing insight into the significance of vegetable farming in the farmers' income.

The second section explores the farmers' perceptions of climate change and the adoption of climate-smart practices. The survey collects their observations on climate change (irregular rainfall, rising temperatures, the emergence of new diseases and pests) and the impacts on their production. It also analyzes the adoption of adapted practices, such as mulching, optimized irrigation, compost use, and agroforestry, identifying the factors influencing this adoption (financial, technical constraints, or lack of awareness).

Pest and disease management is another key area of the questionnaire. It aims to identify the main phytosanitary threats and the control methods used (chemical pesticides, biopesticides, crop rotation, use of repellent plants). The survey also assesses access to agricultural advisory services and phytosanitary inputs, as well as the challenges faced by farmers.

Finally, the last section explores the future of vegetable farming in the face of climate challenges. It analyzes farmers' perceptions of climate risks and their adaptation strategies. The farmers' recommendations on training needs, access to resilient seeds, irrigation infrastructure, and financing will help guide the project's actions toward a sustainable and resilient vegetable sector.

In total, 515 farmers were surveyed: 251 in Korhogo, 116 in Yamoussoukro, and 149 in Abidjan. The expected results include an assessment of yields, income estimation, identification of endogenous adaptation practices, and the collection of information on pest control, in order to guide the project's actions toward resilient and sustainable agriculture. The collected data is currently being processed and analyzed (Annex 2).

### **3-Entrepreneurship development in rural communities for young women and men around the production of pesticidal plants for biopesticide production**

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From January 17 to 27, 2025, a mission was conducted to identify entrepreneurship needs and share the agribusiness plan centered on pesticide-effect plants used by WASCAL/CEA-CCBAD for biopesticide formulation. This mission took place in Korhogo (January 17–20), Yamoussoukro (January 20–23), and Songon (January 23–27), and aimed to collect farmers' entrepreneurial ideas and expectations for support.

The needs expressed mainly focused on the production and marketing of vegetable crop seeds, the manufacturing and sale of organic fertilizers, the collection and distribution of vegetables, the promotion of skills in organic product application, and water management.

A strong interest from women and youth in cultivating pesticide-effect plants was observed during the workshops held in all three locations. Out of 181 participants, 124 women expressed a desire to engage in the cultivation of these plants and to participate in value chain segments—103 in Korhogo, 18 in Yamoussoukro, and 3 in Songon.

Additionally, 57 men received training in agribusiness related to pesticide plants: 25 in Korhogo, 12 in Yamoussoukro, and 20 in Songon. These results reflect growing interest in integrating pesticide-effect plants into local farming systems and value chains, opening promising pathways for the development of sustainable and resilient agriculture (Annex 3).

### **4- - Establishment of farms for the production of biopesticide plants**

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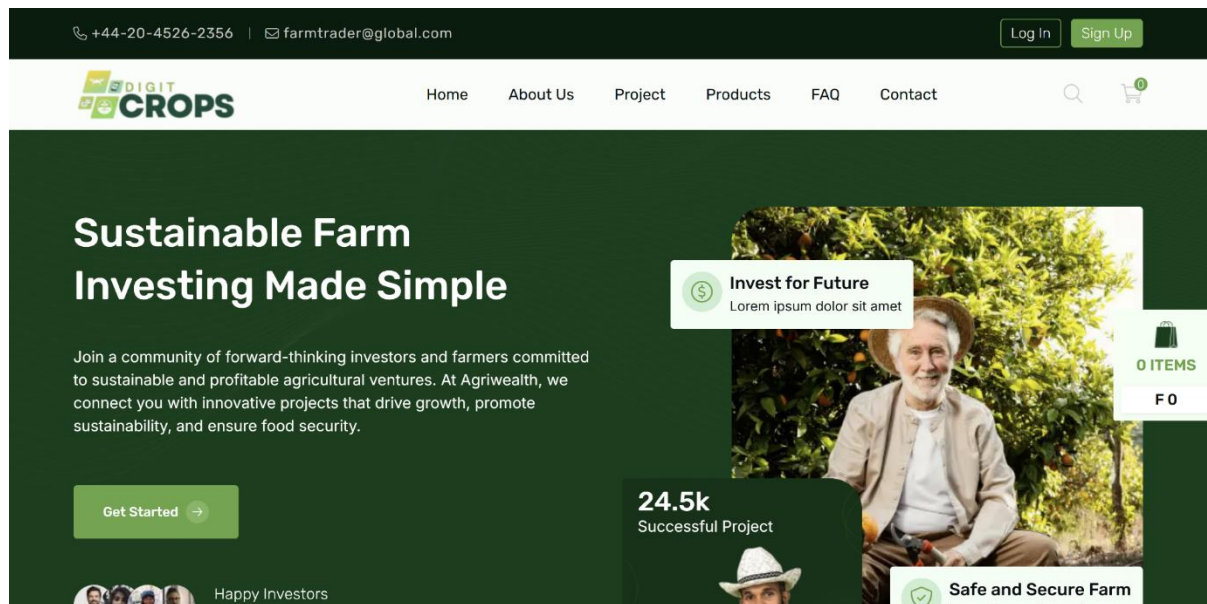
Between February 28 and March 8, 2025, a mission was carried out to identify volunteer farmers interested in cultivating pesticide-effect plants in the three project zones. This mission followed the development of an agribusiness plan focused on these plants and aimed to select motivated producers, transfer knowledge on technical practices, assess economic profitability, and promote the integration of such plants into an agroecological pest management system.

As part of this effort, material support was provided, including seeds, boots, hoes, watering cans, and technical factsheets. A total of 98 producers were identified and equipped with production kits. Among them, 49 women (41 in Korhogo, 3 in Yamoussoukro, and 5 in Songon) established nurseries using the provided seeds. Similarly, 49 men (19 in Korhogo, 12 in Yamoussoukro, and 18 in Songon) also set up nurseries in preparation for the establishment of plots at the start of the rainy season.

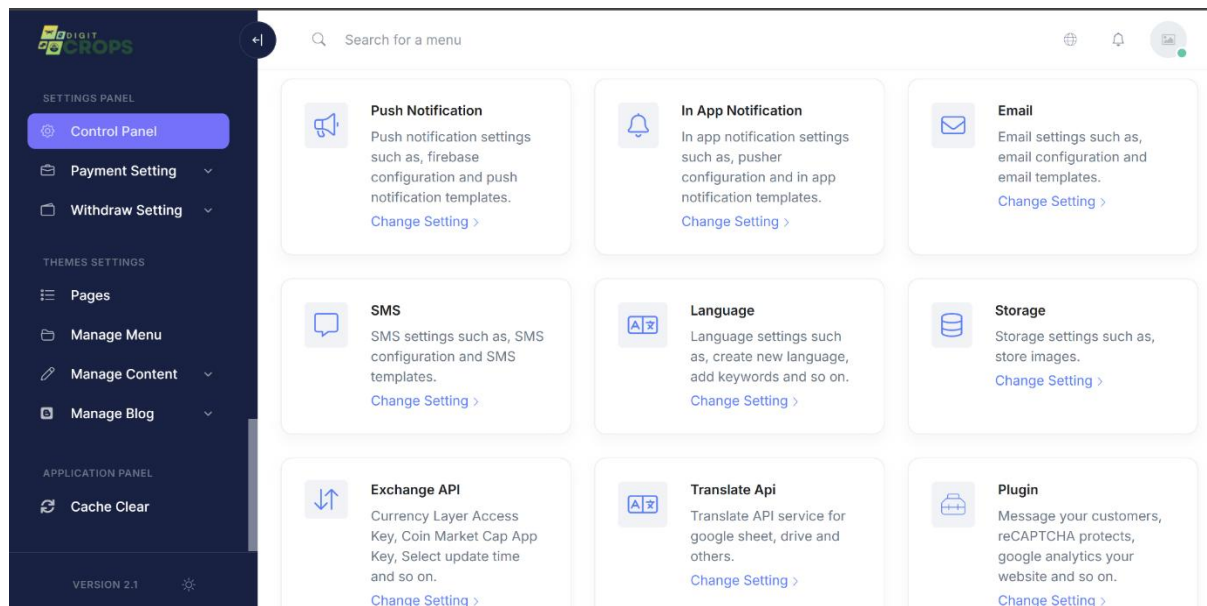
This initiative marks a significant step forward in promoting the adoption of pesticide-effect plants within local farming systems, contributing to more sustainable and effective pest management practices (Annex 4).

## Appendix 1 Digit\_Crops software developpemt

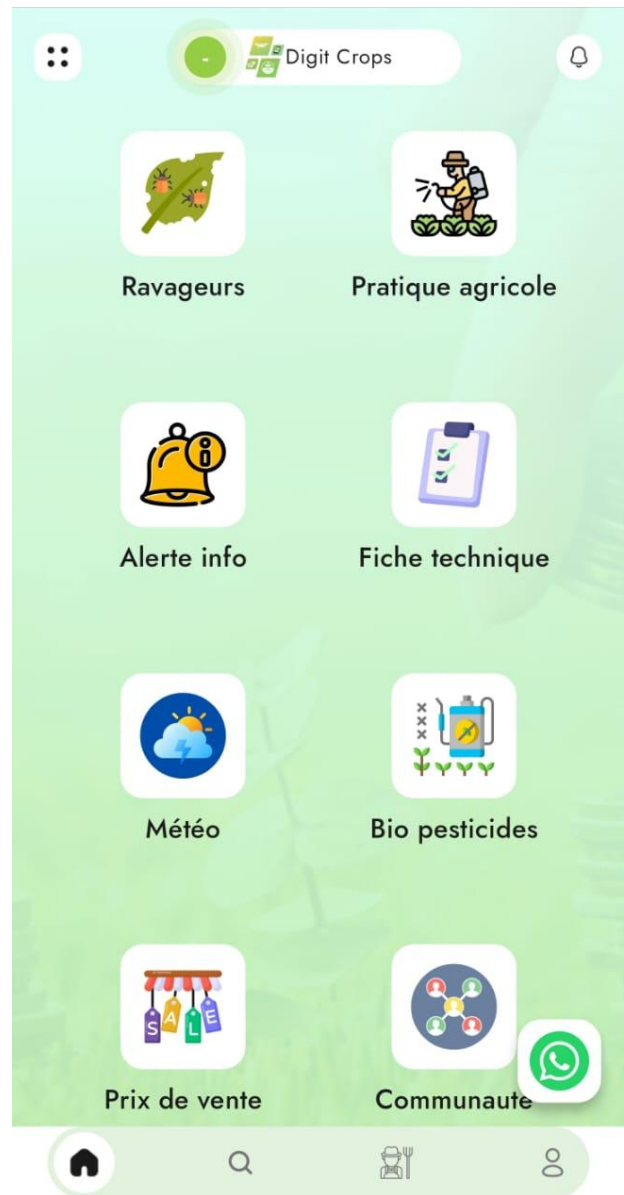
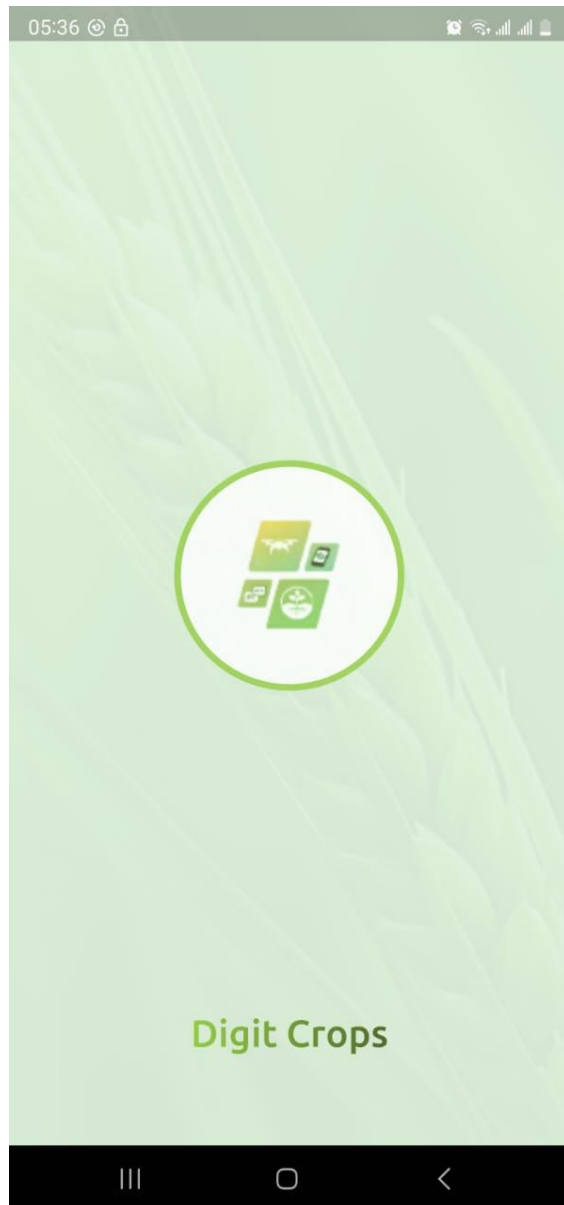
### Web version under construction



### Digit\_Crops Dashboard



## Phone user interface





## Appendix 2: Follow-up mission for field activities



Focus group dans le village de Toto-kouassikro / Yamoussoukro



Focus group avec les responsables de communautés de Kôko / Korhogo



Focus group avec les femmes de Korhogokaha / Korhogo



Entretien individuel en présence d'un interprète à Gbonzoro / Korhogo



Entretien individuel au champ à Gbonzoro / Korhogo



Entretien individuel au champ à Assouindé / Abidjan



### Appendix 3 Entrepreneurship development in rural communities



A



B



C

A : Nadanakaha, B : Gbonzoro, C : Koko

Échange avec les communautés de Korhogo sur les idées entrepreneuriales autour des plantes pesticides



## Appendix 4 Demoplot establishment



**Remise des semences et des kits de production dans la zone centre (Yamoussoukro, Zatta, N'guessankro, Tiebissou et Kimoukro)**





**Remise des semences et des kits de production dans la zone sud (Songon, Grand-lahou, Anyama, Agboville)**