



Strengthening Innovations and Technology Dissemination for Sustainable Development in Cereals, Cocoa and Coffee Value Chains in Western and Eastern Africa

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**REPORT ON
STAKEHOLDER WORKSHOPS ON EXISTING AND EXPLOITABLE KNOWLEDGE
AND TECHNOLOGIES ON MAIZE AND COCOA PRODUCTION IN GHANA**



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Executive Summary

The “Strengthening Innovations and Technology Dissemination for Sustainable Development in Cereals, Cocoa and Coffee Value Chains in Western and Eastern Africa” is a project aimed at building capacity in science, technology and innovation in these regions to boost food security and socio-economic development. In Ghana, the project is being implemented in several communities in the Brong Ahafo and Ashanti Regions. The Ministry of Food and Agriculture, cocoa and maize farmers, artisans, processors and other practitioners in the cocoa and maize value chain have been identified as key stakeholders to participate in the research and as beneficiaries of training and the research outcomes of this project.

As a foundation of the project, a baseline study was conducted in June 2014 to provide an inventory of existing and potentially exploitable knowledge and technologies on the production of cocoa and maize in Ghana. Subsequently, two stakeholder workshops were organized to share the results of the inventory with key stakeholders and to select appropriate ones for dissemination in the maize and cocoa production value chains. It was also aimed at building the human resource capacity of beneficiaries and strengthening networking and collaboration among the relevant stakeholders.

The maize stakeholder workshop was conducted on 21st July 2014, at the Nkoranza Municipal Assembly Hall. Thirty (30) Participants drawn from Nkoranza, Sunyani, Wenchi, Ejura, Techiman and Attebubu attended. These were made up of farmers, agricultural extension officers, and Officers from the Ministry of Food and Agriculture. The cocoa workshop on the other hand was conducted at the Church of Pentecost Chapel at Goaso on July 24th 2014. Twenty (20) participants from Sunyani, Goaso, Maabang, and Bechem attended. The participants were cocoa farmers, agricultural extension officers, cocoa research institute scientists, and technicians from the seed production unit of COCOBOD. The workshops were extremely useful because the stakeholders participated in the selection of potential technologies and innovations based on the baseline report. This has helped to create greater awareness and willingness among farmers to explore the use of successfully proven appropriate technologies for sustainable maize and cocoa production to improve food security.

Introduction

This project is on Strengthening Innovations and Technology Dissemination for Sustainable Development in Cereals, Cocoa and Coffee Value Chains in Western and Eastern Africa. It aims at building capacity in science, technology, and innovation in the production of maize and cocoa within the study regions and to boost food security and socio-economic development. This is to be achieved through effective dissemination of proven and appropriate technologies in cocoa and maize production systems in Ghana. The project is being implemented in several communities in the BrongAhafo and Ashanti Regions of Ghana namely Techiman, Wenchi, Atebubu, Goaso, Maaban and Ejura. The Ministry of Food and Agriculture, cocoa and maize farmers, and other practitioners in the cocoa and maize value chain have been identified as key stakeholders to benefit from training and the research outcomes of this project.

A baseline information on the existing technologies was collected from key stakeholders in the maize and cocoa production value chains. Two stakeholder Workshops were organized to disseminate the report on the results of the base line survey and to select those that could be disseminated to farmers to increase the productivity of the two crops as well as facilitating joint learning and knowledge sharing among participants.

Objectives

The main objective of the workshops was to introduce the baseline report to the stakeholders on the available technologies that have been developed and deployed in maize and cocoa production in Ghana.

Specifically, the objectives were:

1. To share the results of the inventory of the existing and potential exploitable knowledge and technologies in maize and cocoa production.
2. To facilitate the selection of the proven technologies and innovations by the key stakeholders based on the base line report.
3. To raise awareness on the promotion of successful proven and appropriate technologies for sustainable maize and cocoa production to improve food security.
4. To strengthen networking and collaboration among the key stakeholders in the cocoa and maize production value chains.

Part One: Maize Workshop

Methodology

This workshop was held on 21st July 2014 at the Nkoranza District Assembly Hall. Thirty (30) participants were drawn from Nkoranza, Sunyani, Wenchi, Ejura, Techiman and Atebubu. These were made up of farmers, agricultural extension officers, and Ministry of Food and Agriculture officers (**Appendix 1**) After the opening prayer, the Unit Coordinator, Prof. Obeng-Ofori presented an overview of the project concept, objectives, key activities to be undertaken during the project cycle and principal outcomes. He emphasized that a number of technologies were available but their adoption by farmers has been rather low. It was envisaged that after the project cycle more farmers would be encouraged through demonstrations and farmer field schools to use some of the proven technologies in their farming enterprises. After his presentation, participants were given the opportunity to ask questions and seek clarifications on the project and its implementation.

Dr. Phyllis Opare, the Operational Unit Assistant, presented the baseline report to the participants. She discussed the key technologies that have been developed and enquired from the stakeholders the reasons why these technologies were available but they were not using them. After questions and clarifications, the participants also outlined additional technologies and innovations that were being practiced to increase maize productivity in their respective areas. Thereafter, the participants were divided into five groups (Plate 1) to discuss and suggest technologies and innovations for dissemination. The following questions were used to guide the group discussion sessions:

1. Which of the technologies discussed are widely available to farmers in your area and which ones are not?
2. What are some of the factors that influence farmers' decision to adapt certain technologies?
3. What are the obstacles to quick adaptation of technologies by farmers?
4. What do you consider the most significant technologies to the production of maize to date and why?
5. Which technologies will you recommend for demonstration studies and why?



Plate 1: Some of the participants engaged in group discussions

Key technologies in maize production discussed were:

- Land preparation using manual weeding, chemical application, slash and burn, and in some cases ploughing the field before planting.
- Planting patterns especially row planting and mechanized planting.
- Weed control by chemical application and the use of hoe/cutlass. (Plate 2).



Plate 2: Farmers weeding maize field with hoes to control weeds.

- Disease and pest control by early planting, intercropping with cassava, crop rotation with a legume such as cowpea and application of pesticides.

- Fertilizer application using organic manures before planting and chemical fertilizers after sprouting (Plate 3).



Plate 3: Farmers applying fertilizers on maize.

- Harvesting, dehusking, threshing and shelling technologies applicable to farmers
- Storage technologies such as the use of improved narrow cribs and hermetic bags,
- Drying technologies such as sun drying and mechanized dryers (Plate 4) such solar dryers use.



Plate 4: Mechanized drying of maize at Wenchi

Findings and Observations

Factors that Influence Technology Adoption

According to the participants, there were positive factors and obstacles that ultimately influenced the adoption of technologies by farmers (Table 1)

Table 1: Factors that influence adoption of technologies by farmers

Positive factors	Obstacles
<ul style="list-style-type: none"> • High yielding varieties • Low cost of the technology • Availability or access to expert advice • Availability of labour at reasonable cost • Large farm size • Influence from other farmers • Favourable climatic factors • Promotion by NGOs, Government • Access to market • Awareness creation through demonstration farms 	<ul style="list-style-type: none"> • Tedious and labour intensive • High cost • Influence from other farmers • Physical obstacles • Access to finance • Fear of the unknown • Poor climatic factors • Reluctance to innovations • Cultural/traditional practices • Lack of access to technology • Depleted farming lands-loss of nutrients • Pests and disease infestation • Urbanization

Key Technologies in Maize Value Chain

According to the participants some of the significant technologies available include:

- Improved seeds
- Row planting and correct spacing
- Correct use of weedicides
- Timely farming operations
- Monitoring and adaptation to changing weather
- Correct fertilizer application
- Tractor ploughing, and
- Supplementary irrigation.

Technologies Selected for Dissemination

- Appropriate land preparation
- Improved seed stock
- Row planting/proper spacing between crops
- Soil testing
- Fertilizer application
- Storage using Narrow cribs and hermetic storage technology (Plates 5 & 6)



Plate 5: Narrow cribs depicting maize arranged for storage



Plate 6: Hermetic bags being used to store maize

Conclusion

CITED office at UENR has established a demonstration farm for some selected farmers in Techiman and Wenchi for joint learning of appropriate technologies involved in maize production.

Part Two: Cocoa Workshop

Methodology

Twenty Participants were drawn from Sunyani, Goaso, Maabang, and Bechem. These were made up of cocoa farmers, agricultural extension officers, cocoa research scientists, and technicians from the seed production unit. The workshop was held at Goaso on the 28th July 2014 (Plate 7). The methodology used for the maize workshop was adopted. The Unit Coordinator presented an overview of the project concept, objectives, key activities to be undertaken during the project cycle and principal outcomes. The Operational Unit Assistant presented the baseline report to the participants and discussed the key technologies that have been developed in cocoa value chain. The participants also outlined additional technologies and innovations that were being practiced to increase cocoa productivity in their respective areas.

The following questions were used to guide the participants at a plenary session facilitated by the Unit Coordinator, the Operational Unit Assistant and the Field Officer:

1. Which of the technologies discussed are widely available to farmers in your area and which ones are not?
2. What are some of the factors that influence farmers' decision to adapt certain technologies?
3. What are the obstacles to quick adaptation of technologies by farmers?
4. What do you consider the most significant technologies to the production of cocoa to date and why?
5. Which technologies will you recommend for demonstration studies and why?



Plate 7: Participants at the Cocoa workshop in Goaso

Findings and Observations

In the area of cocoa production not many farmers were establishing new farms but rather rehabilitating old farms. Key technologies discussed were:

- Improved seed varieties which were in limited supply and the annual production of seeds from the Seed Production Unit of COCOBOD were not sufficient to meet the demand by prospective farmers even though the cost was very minimal. Farmers were therefore advised to look for seedlings early from approved sources.
- Improved nursery practices: Nursing of seedlings occurs between October-December every year. The lack of field stations and institutional issues like unauthorized or substandard nurseries significantly affected cocoa yields. This encourages farmers to use unproductive pods from their own farms or other farmers for propagation.
- Cocoa rehabilitation: Cocoa farmers were reluctant to cut old and unproductive trees to replace them with new improved varieties. Farmers were advised to contact extension officers to assist in that direction since rehabilitation would help improve the yield per acre.
- Pest and disease control using cultural practices and pesticides.
- Dissemination of improved technologies: The COCOBOD is helping in the extension of technologies to farmers but it was deemed limited in scope such that most farmers could not access extension services.

Factors Influencing Adoption of Technologies

Invariably the positive factors and obstacles were similar to those identified by participants at the Maize Workshop, as such the project should establish a protocol for all farmers to follow and make it applicable for future use. Such a system must generally meet these challenges to improve cocoa production for the achievement of food security. The Participants identified some positive and obstacles that affect adoption of technologies by cocoa farmers. These were similar to those identified in the maize production (Table 2).

Table 2: Factors that influence adoption of technologies in cocoa value chain

Positive factors	Obstacles
<ul style="list-style-type: none"> • Higher yielding varieties. • Low cost of technologies e.g. improved seeds • Access to free expert advice from COCOBOD Extension Officers • Easy availability of labour • Large farm size • Influence from other farmers • Suitable climatic factors for production. • Promotion by COCOBOD and its agencies. • Promotion by Government and NGOs • Awareness creation through demonstration farms 	<ul style="list-style-type: none"> • Tedious and labour intensive production practices • High cost of technologies • Influence from other farmers, • Physical obstacles • Poor credit facilities to farmers • Fear of the unknown from new technologies and reluctance to innovations • Cultural/traditional practices of production

Technologies Selected for Dissemination

- Improved seeds
- **Good nursery practices**
- Row planting and shade management
- Rehabilitation of old cocoa farms
- Proper application of approved fertilizers

Conclusion

A demonstration farm is needed for joint learning with key stakeholders especially farmers to influence decisions on adoption of technologies. Through the project, CITED will facilitate the establishment of a cocoa nursery in Goaso to train farmers and distribute seedlings to farmers who are ready to plant new improved variety of cocoa and rehabilitation of old farms for those ready to cut down the old unproductive trees. Technologies such as improved nursery/seedling

establishment should be made readily available to farmers, in addition to information on nursing of their own seeds and rehabilitation of old farms.

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