

## Conservation Agriculture in AFRICA: Analysing and Forecasting its Impact - Comprehending its Adoption



**Title:** 2<sup>nd</sup> East Africa Regional Workshop Report

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CSA-SA project (Grant agreement n° 245347)  
Seventh Framework Programme  
KBBE –Biotechnology, Agriculture, Food  
Impact and development of Conservation Agriculture in developing countries –Mandatory  
ICPC (African ACP)

CA2Africa seeks to assess and learn jointly from past and on-going Conservation Agriculture (CA) experiences under which conditions and to what extent does CA strengthen the socio-economic position of landholders in Africa. This will enable the identification of knowledge gaps for future research, development and promotion of CA. The project is carried out by a consortium of 10 partners, led by CIRAD, France

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Disclaimer:

“This publication has been funded under the CA2Africa CSA-SA project, EU 7th Framework Programme, Theme 2 -KBBE –Biotechnology, Agriculture, Food; Topic addressed Impact and development of Conservation Agriculture in developing countries –Mandatory ICPC (African ACP); Grant agreement n° 245347.”

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## General information

**Task(s):** 2<sup>nd</sup> East Africa sub- regional workshop

**Activity code(s):**

**Related milestones:**

## Executive summary

This report summarizes the deliberations and findings of the **2<sup>nd</sup> East Africa Sub-regional workshop held at sportsman's arms hotel- Nanyuki, Kenya on March 28-30, 2011**. The event was attended by sixteen participants (as in Annex 2A ) representing various agricultural institutions and organizations in the East Africa Region and Europe which included: African Conservation Tillage Network (ACT), Tropical Soil Biology and Fertility Institute (TSBF/AFNET), Agricultural Research for Development (CIRAD), LEIBNIZ-Centre for Agricultural Landscape Research (ZALF), Agricultural Research Institute (ARI) UYOLE, SELIAN Agricultural Research Institute (SARI-MAFC), Conservation Agriculture for Sustainable Agricultural and Rural Development (CA SARD) and the Ministry of Agriculture (Kenya). The main objectives of the workshop included; Identification of case study specific questions that needed modeling, Critical analysis of the inventory data (field, farm, region) from the CA case studies, Presentation of the models and identification of the modeling approaches for each case study, exploring modalities of making a video documentary of the case study districts and deliberation on developing policy brief(s)

The CA2Africa data base was also revisited with a view to thrush out some of the pending hindrance in data collection, entry and analysis. Highlights on the identified modeling tools such as the QAToCA assessment tool and the Olympe model were presented to the participants and their comments/feedback incorporated.

At the end of the workshop, participants agreed on action plan or way forward in order to fast track the scheduled project activities.

## **1.0 INTRODUCTION**

### **1.1 Background of the project**

Conservation Agriculture (CA) is progressively viewed as a promising option for coping with the need to increase food production on the basis of more sustainable farming practices. CA specifically offers a window of opportunity to convert the degraded soils into productive soils and thereby improves crop yields, lower production costs and reduces land degradation. It has created a win-win system based on the integrated management of soil, water and agricultural resources. It has however been viewed over time that the rate of adoption of the CA technology remains at a constant low.

Therefore, CA2Africa, an EC funded project seeks to understand why Conservation Agriculture (CA) techniques have not been adopted widely throughout Africa, it is anchored on the overall objective to assess and learn jointly from past and on-going CA experiences under which conditions and to what extent does CA strengthen the socio-economic position of landholders in Africa. Therefore, the project examines the agro-ecological, socio-economic and institutional conditions that determine success or failure of CA. The results of the project are intended to be used to inform and guide policy- making as well as future investments in the efforts to promote adoption of CA in the continent.

### **1.2 Objectives, Deliverables ad Outcome of the Workshop**

**The prime objectives of the workshop were:**

1. Identification of case study specific questions that need modeling
2. Critical analysis of the inventory data (field, farm, region) from the CA case studies
3. Presentation of the models and identification of the modeling approaches for each case study
4. Modalities of making a video – capturing success stories and failures of CA in the region, as well as deliberation on developing policy brief(s)

**Workshop deliverables were:**

1. Sharing of the Case study progress through a presentation
2. Training and sensitization on the data base and model utilization
3. Ways to develop video and policy brief(s) on CA

**The main outcome of the workshop included the following;**

- Participants were updated on the progress of the project in the region specifically on case study profile descriptions reports.
- Participants were introduced to the final project database and trained on its utilization
- Case study specific questions that needed modeling and the appropriated model-based tools for assessing them were identified.
- The approach and mode of filling in QAToCA assessment tool was suggested and agreed upon
- Modalities and procedures for developing policy brief and making a video for successes and failures of CA were discussed ad integral approaches agreed upon.
- The action plan for the region's activities or the next step of actions were proposed and agreed upon by the participants

**2.0 Opening Remarks**

Through the facilitation of Tom Apina, Marietha Owenya opened the workshop by word of prayer then a welcome address from ACT's Executive Secretary Eng. Saidi Mkomwa who wished the participants fruitful and interactive sessions geared towards accomplishing the set objectives of the workshop. This was followed by self introduction of individual participants, their institutions/organizations and their current involvement in conservation agriculture.

**3.0 Summary of the presentations**

The workshop proceedings were guided by the workshop programme (as in Annex 3A) structured in such a way that after every presentation of event item, suggestions and discussions from the participants were considered as a review before an appropriate decision was made on the output. This was a guideline as to the progress in which the project has made within the last year.

**3.1. Presentation on ca2africa project overview**

The first presentation was given by Marc Corbeels from CIRAD, under the theme project overview, progress and objectives of the workshop. The focus of this presentation was to introduce the project and update the participants on the progress made so far. The core of the project fell under work package 3 which revolve around model analysis and identification of research questions. The main highlights of the presentation included:

- Brief history of the project which included revisiting the main driving call for the project: -“State-of-the art of Conservation agriculture in Africa for better understanding of impacts & adoption of CA through research & development needs”.
- The project concept which identify the project levels or scales of implementations
- The project strategy of implementation which dichotomize project work packages, related activities and the assigned implementing agencies or organization
- The project platforms and their case studies
- The objectives and expected outputs of the workshop as highlighted in the introduction

### **3.2 Presentations of East Africa platform progress reports**

The case study sites in East Africa platform comprised; Bungoma district in Kenya and Karatu district in Tanzania with the lead institution being the Africa Conservation Tillage Network (ACT). The Progress reports for these cases studies was presented by Tom Apina, the platform leader, who gave brief explanations and highlights based on baseline information describing the profile of these two case studies and capturing the following:

- Contextual information of project sites which included bio-physical, socio-economic and institutional characterization of the sites as well as the status of agriculture in these regions.
- History/trajectory of work related to CA in these project sites
- Recommended CA practices/technologies in the region which includes crop rotation / intercropping, use of cover crops and reduced tillage.
- Impact of CA at different levels such as at the field level, farm level and institutional level.
- Adaption and adoption of CA in the region which is characterize by domestication of CA principles to suit their locality and customize them to culture-friendly technology
- Present challenges facing adoption and scaling up of CA in the region.

Besides the case studies, he also shared the result of the assessment of the case studies using the QAToCA assessment tool. He pointed out that key challenges included; identifying the real data required and their entry to the online database noting that there was need for more clarity o the same.

### **3.3. Identification of case study specific questions that need modeling**

This was a discussion session where several questions that require modeling for better understanding and assessing the adoption of CA in the two case studies were identified at three different levels (field, farm and regional scale) and their modeling tools suggested together with the organizations deemed responsible and duration of delivery (*as in Annex A1*). These questions included the followings at each category/scale:

#### **Field scale**

- a) Does crop yield increase under CA?
- b) What is the minimum quantity of plant biomass/residues needed for CA?
- c) Is there an improvement of soil fertility / health under CA?
- d) Does CA decreases weed populations?
- e) Does CA increase soil water?

#### **Farm Scale**

- a) Does farm income increases under CA?
- b) Does CA need more capital/external inputs?
- c) Do farmers have access to capital to do on their farms?
- d) To which extent to farmers adopt CA on their farms?
- e) Does CA provide more stability to the farmers?
- f) Does CA decrease labour time and costs especially during farm preparation, planting and weeding?
- g) Is there a farm size threshold for adoption of CA and mechanizations?
- h) What factors trigger or entice farmers to adopt CA?

#### **Regional/ District scale or level**

- a) Are supply chains/ output markets in place to promote CA?
- b) Are institution arrangements or bylaws sufficient enough to promote CA?
- c) Are there windfall gains through promotion of CA?
- d) Are there informal institution/ cultural practices that hinder adoption of CA?
- e) Are demographic issues/ variables having influence on adoption/ rejection of CA?

### **3.4. Presentation of project online database structure ad questions**

This was a presentation made by Mr. Ivan Solomon of TSBF who started by giving a short introduction of, the database which has been developed using MySQL, a relational database

management system (RDBMS) that runs as a server providing multi-user access to a number of databases. He further pointed out that the database could only be easily access through the Mozilla Firefox browser which provides all the links related to the database. The internet explorer was discounted since it was not retrieving all the commands and links one could use to access the attributes of the database.

The overall structure, access procedure was demonstrated step by step, and the access protocol is <http://www.tabarinconsulting.com/projects> which provides a route to the home page of the database (Project concept). Following the menu “Resources” one could easily get to the links:

- Accessing ca2africa database;-
  - ✓ assessment toolkit
  - ✓ ca2africa-field level module
  - ✓ ca2africa-farm level module

Several other important highlights were presented here; the procedure for data entry into the database was demonstrated for each level module ad finally the TSBF representative was asked to develop spread sheets for capturing required data at all levels in the case study regions as per the requisites of the project database. The possibility of having spread sheets where data can be captured and uploaded to the database was discussed but only to a limited level to the administrator, since it could be done as back-end upload due to security reasons.

**{NB;** Currently the Project database can be accessed through <http://ca2africa.ciat.cgiar.org> }

### **3.5 Presentation of selected model-based tools for assessment of CA**

Having identified the questions to be modeled, then the next avenue was to understand the procedure for the appropriate model for these key questions of CA adoption. in light of this, a brief presentation of how to select appropriate models, reason for modeling, classifications of model and modeled the situation of CA was done by Dr. Schuler Johannes.

This presentation also provided a list of existing bio-physical ad bio-economics models and from which, based on their diverse functionalities and applications bio-economic model “OLYMPE” was selected as the most appropriate for modeling some of the identified questions because of its convenient applications to analyze various aspects at the farm level which still involves decision making process at the regional level. This was followed by a

brief presentation of this model in terms of its background formation, system concept, model functionalities, and applications of the model and how it works.

After the presentation there was a brief discussion which reached an agreement that some representative from both case studies will be nominated and be trained on using this model.

### **3.6 Presentation of QAToCA – a Qualitative expert Assessment Tool for CA Adoption**

This other presentation by Dr. schuler with the objective of having the participants learn how to utilize the tool. An example of how to fill it was demonstrated for each specified thematic classification. The significance of this assessment tool in enabling better comparison for different platforms adoption rate and provide guide in decision making was put forward during presentation. This presentation highlighted the integral components of this tool in terms: its origin and development, list of theories ad concepts, objectives of the tool usage, structure and evaluation scales for this tool.

After the presentation, participant discussed mode of filling this assessment tool and who was responsible for the delivery. It was agreed that assessment to be done at individual level before doing it as a group. Representatives from the following organizations were proposed for the group assessment of the tool:

- Farmer representative
- Africa Conservation Tillage Network (ACT)
- A researcher
- Extension officer

### **3.7 Presentation on developing policy brief(s) and video making**

The participant, after lengthy discussion on the issue of making CA video through the facilitation of Dr. Marc, found it necessary to develop a video covering successes and failures stories of conservation agriculture innovation, challenges facing the adopters' as well as adoption status and be uploaded to the website of CA2Africa project. They agreed to have the following in place towards realization of this:

- Have four farmers; adopter and non-adopter
- To be done in Kiswahili language
- Have an over-voice or background voice in English to introduce scripts

- Hellen Masika was selected as one of the CA adopter farmer to be interviewed
- The script should highlight when, how and when the adoption of CA was.
- Besides there should be sub-title in English to interpret what is expressed in Kiswahili

The participant also saw the need of producing a policy brief to advocate for and inform the decision makers in these regions on the need and importance of conservation agriculture technology, thus this might speed up adoption of this innovation. Therefore, Dr. Marc made brief presentation on policy brief development in terms of its rationale, prerequisites and its format. Later there was discussion that resolved that ACT together other platform leaders be responsible and guide the developing a policy brief for CA technology

#### 4.0 ACTION PLAN

At the end of the workshop, participants developed an action plan to guide the implementation of scheduled project activities. This was tabulated as shown in table 1.0

**Table 1.0:** Action plan

Activity	Who is responsible	When
Yield data (CA vs CT) (D 1.3)	National facilitators + interns	End of May
Data on adoption rates (FFS) (D 1.3)	National facilitators	End of May
Farm survey (CBA, Olympe) (D 1.3)	National facilitators + WUR students + Jan de Graaff	Aug - Dec
Olympe training (D4.1,2)	Delegates from each platform (trainer: Eric Penot)	During midterm-WS
QAToCA (D 3.1)	ACT + facilitators (lead farmers, extension)	Mid of June
Video (D 4.4) (script, interviews, footage, 1 adopter, 1 non-adopter)	ACT + facilitators	script: mid May Video: August
Policy brief (D.4.3)	ACT, other platform leaders + CIRAD; feedback from ministry	First version: June

Training materials (D 4.4)	ACT	ongoing
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## 5.0 CONCLUSION

Having successfully deliberated on all the workshop objectives the event came to a close with emphasis on the need on data collection as key ingredient for modeling, analysis and synthesis which are key outputs for the project.

## ANNEXES

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