

# **SANREM CRSP LTRA-10:**

## **Development and transfer of conservation agriculture production systems (CAPS) for smallholder farms in eastern Uganda and western Kenya**

D. N. Sikuku, E.C. Omondi, J.B. Norton, J.R. Okalebo



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# EAST AFRICA SANREM Partners

<b><u>Host country universities:</u></b> Moi University and Makerere University	<b>2</b>
<b><u>Host country NGOs:</u></b> Manor House Agricultural Center (MHAC), SACRED-Africa and Appropriate Technology-Uganda	<b>3</b>
<b><u>U.S. universities:</u></b> University of Wyoming Virginia Tech	<b>2</b>



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# SANREM CRSP LTRA-10 Objectives

- **Objective 1:** Compile information for prototype CAPS development. Assemble stakeholder advisory groups for each area.
- **Objective 2:** Define the traditional system and develop prototype CAPS for each area that build upon local knowledge, traditional practices, and address agronomic and socio-economic constraints.
- **Objective 3:** Evaluate agronomic, ecological and economic sustainability of CAPS compared to traditional practices.



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# CAPS Experimental Design

## Tillage and Cropping System

- Being a multidisciplinary study, tillage and cropping system and design established for a soil-based CAPs study was adopted.
- The tillage system include traditional farmer practice, no-till using herbicides to control weeds, and minimum till using herbicides and/or shallow tillage to control weeds.
- Traditional cropping system and two additional alternatives that utilize cover crops are used.

## Farmer collaboration and cross-cutting research activities



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**Figure 1: On-station design for one treatment block.**

		10-m width, 30 m total			10-m width, 30 m total
		Current Practices	Rotation 1	Rotation 2	
<b>Current Tillage Practice</b>	+N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans mucuna	
	-N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans mucuna	
<b>No-till</b>	+N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans Green manure	
	-N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans mucuna	
<b>Minimum till</b>	+N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans mucuna	
	-N fertilizer	Maize-bean intercrop	Maize-bean intercrop with mucuna relay	Maize, 4 rows Beans mucuna	



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# Main Challenges

- Challenges cited at reflection workshops, including lack of adequate and/or appropriate tools needed to perform CAPS
- inadequate participation of host farmers in planning, establishment and maintenance of on-farm research plots and
- insufficient information on correct herbicides to control weeds



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## Multifunctional Implement on test in Tanzania

This implement can be used for many purposes including planting, weeding, fertilizing under minimum till. It can be used by both donkeys and oxen.



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# Examples of Training Activities at one site (Tororo, July 2012)

- Conservation Agriculture practices
- Farming as a business
- Financial management
- Collective planning and marketing
- Soil fertility management
- Safe use of agrochemicals
- Gender mainstreaming



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## Mucuna Cover Crop Under ROT 2



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# SANREM CRSP Impact

- The project has improved how farmers address issues of productivity with climate smart farming
- The findings also show that tillage can be reduced to a minimum with optimal production
- Use of the MFI is developing precision farming and freeing labour for other productive activities
- The capacity of farmers has been enhanced in participatory technology development and practice
- Farmers are building their own innovative capacity through collaboration with SANREM researchers



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# Conclusions

The SANREM CRSP project has created a good platform for various stakeholders in the agricultural sector to come together and share their concerns and chart the way forward for agriculture. It is achieving capacity building across the board for climate smart agriculture.



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**Thank You**



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