

**Sub Saharan Africa Challenge Programme (SSA CP)
for Integrated Agricultural Research for Development
(IAR4D)**

**Project Title
Sustainable Agricultural Intensification and Integrated Natural
Resource Management to Improve Rural Livelihoods in
Sudan Savannah of West Africa**



Sudan Savannah Task Force of the KKM PLs

Report of the implementation, July 1st to September 30th 2008.

SUMMARY

Most of the planned activities were initiated in the July-September quarter of the 2008 work plan. Following the completion of community and livelihood analysis, community plans related to agriculture were developed in collaboration with all stakeholders. Several production related activities were launched aimed at evaluating crop and soil management technologies in the targeted project communities. To drive production, market studies were initiated. The study helped identify market gaps in the project communities. Further activities have been initiated to link farmers to input and output dealers. To foster interaction between IP members, several monitoring meetings were organised at IITA Station in Kano and at the project sites in Kano and Katsina States. A mega field day was held in Shanono Local Government Area to scale up project activities to policy makers and also to showcase the potential of production improving technologies to farmers. Two agrochemical companies (CZARD and JUBAILLI) graced the occasion. They were able to exhibit their products to the farmers. The chairman of the seed company, Project Seed Co also participated in the field day where he initiated contacts with community seed producers for eventual purchase of seeds of various crop varieties from them. In this quarter, the remaining village description questionnaires were filled for both IAR4D sites and counter factual villages.

Introduction

The productivity of the farming systems in the Sudan Savannah of the Kano Katsina Maradi Pilot Learning Sites (KKM PLS) is low. Results from the validation exercise conducted in the KKM PLS indicated limited adoption of improved technologies. Land degradation, diseases, insect pests, *Striga* infestation, lack of labour-saving technologies for field operations and processing, and inadequate supply of yield enhancing inputs are serious constraints to intensification of

farming systems. Market related constraints include limited access to credit, low farm gate prices, high cost and low quality of inputs, poor access to output markets, and weak linkages between producers, agroindustry and markets. Policy related constraints include conflicts arising from access to community resources and utilisation especially between farmers and pastoralists. Ineffective extension systems and lack of policy incentives also constrain agricultural intensification. Clearly, these constraints reinforce each other, necessitating integrated approaches for sustainably intensifying agricultural production in the Sudan Savannah of the KKM PLS. The project will demonstrate the effectiveness of innovation systems in supporting the development and adoption of market driven crop and livestock productivity enhancing technology options. In order to influence development through widespread adoption of technologies and improve incomes of stakeholders, enabling conditions in the realms of markets and policies need to be fostered, along with harmonisation of distinct institutional agendas and practices among a diversity of actors (eg, farmer associations, entrepreneurs, NGOs, CBOs, development orientated organisations, Government Ministries, and research and extension agencies). The objective of the Sudan Savannah Taskforce is to use innovation platforms to enhance agricultural productivity and income of rural farmers along the value chain without degrading the natural resource base. This report highlights the activities carried out during the last quarter (July-September 2008).

I. Activities planned and results expected at the end of the reporting period

- Assess and prioritise capacity building needs of partners
- Monitor IP activities and document lessons learnt
- Conduct a stakeholders analysis to determine project partners and their contribution to the IP
- Evaluate performance of high yielding end user preferred varieties with tolerance or resistance to biotic and abiotic stresses in cropping systems
- Evaluate ISFM strategies and develop fertiliser recommendations for crop livestock cropping systems

- Evaluate conservation tillage options for improving soil cover, soil water retention, soil organic matter, soil quality, and crop productivity
- Identify, strengthen and promote appropriate seed production and distribution mechanisms
- Assess farm level feed resource potential for increasing livestock production
- Provide tools for validation which aid in assessing feed scarcity in smallholder systems
- Assess farm level feed resource potential for increasing livestock production
- Evaluate methodologies for testing feeding interventions in smallholder crop and livestock systems
- Provide research methodologies for input and output market studies for livestock
- Identify and document reliable input and output dealers in IP commodities
- Identify market linkage gaps
- Forge linkages between IPs and existing commodity alliances

II. Research and project management activities carried out during the period of reporting

1. Organised a meeting of IP members on September 18 to review progress on project implementation

2. Organised field monitoring visits from 1st to 7th of September 2008. Farmer's fields as well as seed producer's field were visited, discussions were held with farmer groups about the improved technologies demonstrated and the overall project strategies. Farmers were encouraged to demonstrate the improved technologies to group members and other farmers in their communities. The visits included platform members from IAR and NAERLS of ABU, Zaria, Bayero University, Kano, Katsina State (KTARDA) and Kano State (KNARDA) ADP. All the 20 communities were covered.

III. Results achieved during the period of reporting

Models for implementing IAR4D

Assess and prioritize capacity building needs of partners

TORS has been developed and a consultant identified to carry out assessment of capacity building needs of partners in the platform.

IRNS carried out a capacity assessment exercise of CBOs in 20 communities with one hundred (100) groups in Kano and Katsina States respectively. The aim of the mapping exercise was to assess the strengths and weaknesses of the selected CBOs in the four LGAs mentioned towards community mobilisation and advocacy. The exercise was carried out to identify, build and strengthen the capacity needs of farmers and other community alliances identified institutionally that would participate in community project programme intervention using the community defined coalition tools; to assess the selected CBOs' institutional capacity in the areas of Governance, Management Practices, Financial Management, Technical & Service Delivery and Sustainability; and to strengthen and promote appropriate input and output distribution mechanisms within the FBOs and community cycle. During the capacity assessment exercise, Community Resource Mapping was also done to assess the availability of health and educational facilities, community infrastructure, institutional resources, and major community stakeholders. It also set out to build up the capacity of identified farmer groups and other informal groups in effective community engagement methods so as to increase the knowledge of community members on how to tackle community problems using community resources and through partnership with other community alliances;

- To develop a mechanism for supervising and mentoring the trained FBOs and informal groups for sustained community engagement processes and mechanisms
- To strengthen the capacity of targeted communities to demand quality social services through the FBOs and other community alliance and plan through the Community Action Cycle (CAC) and Partnership Defined Quality (PDQ) processes
- To introduce the Quality Improvement Teams (QITs) per community in order to maximise the opportunity for local voices to be heard through the use of drama, interviews, testimonies, songs, feedback from community members

Monitor IP activities and document lessons learnt

The International Institute for Tropical Agriculture (**IITA**) in partnership with Information Resources & Network Services (**IRNS**) Kano organised an Advocacy and CBOs mapping exercise in Musawa and Safana Local Government Areas (LGAs) of Katsina State; and Bunkure & Shanono Local Government Areas (LGAs) of Kano State. The advocacy and mapping exercise took place in July, 2008. The aim of the mapping exercise was to assess the strength and weakness of the selected CBOs in the four LGAs. The objective of the exercise was to seek the support and collaboration of Local Government Authority, Traditional and Religious leaders to channel information, policies, procedures, and resources in order to increase demand for, access to, and improve the quality of services to create an enabling environment for social change in the constituent communities.

Conduct a stakeholders analysis to determine project partners and their contribution to the IP

TOR's have been developed and a consultant identified to carry out stakeholder analysis of IP member institutions. The result from this analysis will provide useful information on the comparative advantage of each of the IP institutions in carrying out specific tasks that will enhance the timely implementation of the project.

Build and strengthen capacity of IAR4D actors in five priority areas

The following training events were conducted for Extension Agents (EAs) and lead farmers:

1. Training on weather data collection and plot layout, soil sampling and improved crop production technologies; this training was conducted from the 5th to 9th June in Kano State and 10th to 12th of June in Katsina State for the EAs in the Local Government Areas in the ADP Headquarters and then for all the lead and seed farmers and also EAs at the Local Government Offices. The EAs and trained farmers also demonstrated the

improved methods during planting and during strategic agronomic activities to the farmer groups. The training included improved agronomic practices for Maize, sorghum, rice, cowpeas, soyabeans and groundnut production. The training of the EAs includes how to collect read and set the minimum Maximum Thermometer, rain guage, soil sampling and plot measurements. Eleven EAs and 106 farmers were trained in Katsina State while 20 EAs and 114 farmers were trained in Kano State. All of those trained participated in the demonstration of the activities at community level to other farmers.

2. Crop Management and Data Collection; this training was conducted in the middle of the season (11th to 14th of August) first for the participating EAs and also for the farmer representatives. The training which was refresher training on the improved agronomic practices with emphasis on crop management like top dressing fertiliser on cereals, spraying of cowpeas and weed management, safe use of pesticides, improved drying as well as storage methods, identification of important constraints like *Striga* and other parasitic weeds, diseases and insect pest. The training of the EAs includes important data collections.
3. Midseason evaluation; Midseason evaluations were conducted from 22nd to 24th of September in Kano State and 25th to 27th of September in Katsina State. A total of 18 fields, nine each in Kano and Katsina States, were visited and evaluated during this exercise. The midseason evaluation was an interactive session between the researchers and farmers. The farmer groups were invited to the demonstration plots where the difference (advantages and disadvantages) between the improved technologies and farmer practices were discussed, farmers experience practicing the new technologies were also shared, pair wise ranking of technologies was done. During the midseason evaluation demonstrations were made of improved storage techniques and drying of grains using

solar energy. The interactive sections also demonstrated the different aspects of the improved technologies to farmers.

Market driven, integrated production practices promoted, innovative policy options identified and promoted to enhance cereal and legume system productivity

Biophysical analysis for major soil nutrient availability; soil structure, soil biology, prevalent pests and diseases

Soil samples were collected from 50 farmer fields in Katsina and 50 in Kano State in July 2008 to provide information on soil quality indicators prior to project intervention. The samples have been prepared and sent to IITA Ibadan for analysis. Reports will be ready in the next quarter.

Evaluate and promote sustainable management practices for controlling parasitic weeds and evaluate performance of high yielding end user preferred varieties with tolerance or resistance to biotic and abiotic stresses in cropping systems

A total of 57 demonstrations of cereal and legume rotation, nine demonstrations for maize evaluation, nine demonstrations for cowpea evaluation, nine demonstrations for rice evaluation, 13 demonstrations for groundnut evaluation, 15 demonstrations for sorghum evaluation and three demonstrations for soyabean have been established in Kano and Katsina State

to showcase the potential of these varieties in fields infested with *Striga*. Data are being collected on crop performance and *Striga* infestation of the fields. Twelve midseason evaluations were organised from 24th to 27th September, 2008 to enable the farmers provide feedback on the performance of crop technologies. This was done through the identification of farmers criteria for assessment of technologies and pair wise ranking of technologies. A mega field day was held on the 18th September in Goron Dutse, Shanono Local Government Area of Kano State to show off improved agricultural technologies to local dignitaries and policy makers. The field day was attended by a large number of people and was graced by the Chairman of Shanono LGA, the District Head of Shanono LGA and

representatives of the Kano State Ministry of Agriculture. During the field day, two agrochemical companies, CZARD and JUBAILI were able to exhibit their various products while a seed company (PROJECT SEED) initiated arrangements with community seed producers for possible purchase of seeds of various improved varieties being promoted in the project communities.

Fourteen improved sorghum varieties were evaluated with two popular local varieties as checks on farm in one participating community. The best varieties would be selected for demonstration in the coming years.

A maize and cowpeas relay cropping system for intensification is also demonstrated in one community. The trial which consists of planting of Extra Early maturing maize variety and under sowing with either a dual purpose indeterminate or early maturing determinate cowpea variety planted four or six weeks after the maize. Data collection is in progress and farmer groups are routinely taken to these fields to understand the trials.

Evaluate ISFM strategies and develop fertiliser recommendations for crop livestock cropping systems

A fertiliser response trial has been established for early and extra early maturing maize varieties in Bunkure and Musawa Local Government Areas of Kano and Katsina States respectively. The aim of this trial is to identify appropriate Nitrogen fertiliser rates for the new early and extra early maturing varieties currently being promoted in the Sudan Savannahs of Nigeria. Agronomic data are being collected and will be used to assess the performance of the varieties under a range of N fertilisation rates. Trials that have been set up to demonstrate management technologies for *Striga* control are also being used to evaluate the impact of these technologies on soil fertility. Improvement in soil fertility in the cereal and legume rotation trials are being monitored during the growing season Socioeconomic information related to ISFM is being collected from reports of the

baseline survey and community analysis as well as discussions and interaction with participating farmers. Information on crop residue management by farmers will be collected at the end of the season.

Evaluate conservation tillage options for improving soil cover, soil water retention, soil organic matter, soil quality, and crop productivity

Tillage operations are not only expensive but negatively affect soil conditions. A long term trial has been established in Minjibr, Kano State to study and demonstrate the effects of three tillage treatments on cowpea growth and yield. Five improved cowpea varieties were planted in three tillage regimes (zero tillage with crop residue, flat tilled and tilled with rigging). The tillage treatments were set up in three separate blocks and the varieties were arranged in RCBD in each tillage block. Data is being collected on cowpea growth parameters and yield components. During the second year of the trial, farmers from Shanono and Bunkure LGA will be taken to the trial to see the performance of the cowpea varieties in the tillage treatments.

Strengthen and promote community seed production

Participating farmers were trained in community seed production. About 23 farmers in Kano State and eight farmers in Katsina State were given improved drought and *Striga* tolerant early and extra early maturing maize varieties to multiply and sell in their communities. Similarly improved cowpea seeds (13 farmers in Kano and 15 in Katsina), groundnuts (seven farmers in Kano and 13 farmers in Katsina), rice (five farmers in Kano and six farmers in Katsina), and sorghum (three farmers in Kano and nine farmers in Katsina). About 169 kg of cowpeas, 262 kg of maize, 114 kg of soyabeans, 177 kg of groundnuts, 69 kg of rice, and 39 kg of sorghum seeds were distributed among farmers in the 10 project communities in Kano and Katsina to evaluate on their farms. The seeds have been planted and fertiliser applied. Furthermore 300 kg of different varieties of early maturing *Striga* and drought tolerant maize, 660 kg of two

varieties of cowpeas and 150 kg of NERICA rice varieties were given to other farmers to try on their farms. Midseason evaluations and farmer field days were organised to enable the communities to assess the performance of the crops in the seed farms. Arrangements are being put in place for the Nigerian seed service to certify the seed fields.

- **Assess farm level feed resource potential for increasing livestock production**

This activity will be carried out in the next quarter.

- **Provide tools for validation which aid in assessing feed scarcity in smallholder systems**

Research methodologies are being developed by ILRI. A workshop to disseminate the survey tool and train partners in its use is planned tentatively for December. This workshop will focus on value chain analysis and participatory marketing survey techniques.

- **Evaluate methodologies for testing feeding interventions in smallholder crop and livestock systems**

Initial discussions between NAPRI and ILRI have been held to begin planning toward research protocols for on farm testing of feed interventions

- **Assess input and output market situation in project communities**

A market assessment survey was conducted in all the IPs in Kano and Katsina States. The main objective of the survey is to work together with community members in assessing the current input output market situation and the challenges to efficient marketing system in the Sudan savannah project sites. The analysis of the current input and output marketing in the project site revealed gross inefficiency in the systems. Farmers in the project sites source their inputs mainly from the open market (within or without the communities) where they are exposed to incessant misconduct of traders, high cost, adulteration, and poor access roads). Efforts by the state and local government to subsidise inputs to farmers in the two states are commendable. However, the quantities supplied by both organisations are

grossly inadequate and rarely meet one tenth of farmer requirements. Although the level of awareness of yield enhancing farm inputs is higher, the use to these inputs was observed to be low due to high cost, adulteration, farmers' poor purchasing power, and lack of access to low cost credit facilities. The assessment also revealed that farmers are not getting appropriate remuneration from their production efforts. The bulk of the activities of output marketing are in the hands of middlemen who buy the bulk of the farm produce from the farmers at harvest, store or sell to agroprocessors and, most of the time, resell to farmers when prices are higher. The ability to present farm produce in forms to attract agroprocessors is still lacking among most farmers, particularly in Fariruwa, coupled with the fact that most farmers sell in bits to meet their immediate cash needs. This makes it difficult to bulk enough farm produce at a time to supply the quantity that might be required by the processors. Farmers in the sites have also not taken advantage of group marketing to ensure bulk sales to attract higher prices. The current input and output marketing system does not favour commercialisation of agriculture as most farmers rarely break even or make a meaningful margin from their investment.

- **Identify and document reliable input and output dealers in IP commodities**

The States (Kano and Katsina) ADPS have been contacted to assist in collating a list of reputable input and output market dealers in the state. Messrs George Ucheibe and Aminu Bichi (Kano), Drs. Damisa and Ilu (Katsina) will visit the States to discuss with these dealers. The discussion will focus on sensitisation of the dealers about the project, solicit their willingness to participate and conduct SWOT analysis to identify their reliability. Mr Musa Abubakar (ILRI) is to discuss with dealers involved in livestock input and output marketing in both states. This activity will be completed in the next quarter.

- **Identify market linkage gaps**

A meeting of partners involved in market activities was held in IAR, Zaria on September 25, 2008 with the following agenda;

- Review input and output market activities
- Present highlights of input and output market situation in project communities and discuss
- Plan for subsequent activities
- Share roles and responsibilities among partners
- Identify training needs (for ILRI Workshop)

The findings of the last two activities will provide the basis for identifying input and output market linkage gaps. This activity will be rounded off in the next quarter.

Forge linkages between IPs and existing commodity alliances

This activity will commence in the next quarter. We intend to identify and discuss with existing commodity alliances, based on the outcome of the ILRI workshop, and agree on appropriate strategies to forge workable and sustainable linkages with IPs.

Effect of IAR4D on development impact relative to conventional ARD approaches established

In this quarter, the remaining village description questionnaires were filled for both IAR4D sites and counter factual villages. Data entry was supposed to start but the entry form was only received at the end of August. Due to technical problems, the technician was not able to open the form received from the CRST member in charge of data management, thus preventing data entry from starting. The technical problems were finally solved and data entry should be done in the next quarter. In addition, socioeconomic description of the IP site

(the 3rd component of the baseline) will be conducted in the next quarter to complete the baseline exercise.

In addition, NRS position candidates were identified and their ToR's and CV's forwarded to FARA during this quarter. It is expected that these two professionals will help with the IP monitoring and the database management for the taskforce.

IV. Challenges and lessons learned during the period and risks that may affect future implementation of the project

None of the IP partners have submitted financial reports to enable IITA to release further funds to them. This may delay implementation of other activities planned by next quarter. The taskforce coordinating unit plans to pay visits to the heads of institutions participating in the taskforce to facilitate speedy submission of financial reports. The concept of IP is new to most institutions participating in the project. Some still regard IITA to be playing the role of strengthening NARs using the linear approach to implanting project activities. A lot of time is, therefore, spent by the taskforce coordination office to let partners carry out their activities on time.

V. Actions taken or to be taken to resolve the challenges and risks

A lot of effort is being put in place on the sensitisation of the IP partners to carry out activities assigned to their institutions. Personal visits to heads of member institutions are being planned to facilitate speedy submission of financial reports. More dialogue and frequent visits to these institutions are ongoing.

VI. Resources used during the period of reporting

See financial report

A Toyota 4WD car has been ordered for use by the taskforce coordination office. One laptop has been bought for the taskforce leader to facilitate his work. Three desktops have been procured for use by the impact assessment group for data entry and analysis. Plans are underway to provide computers to three of the IP institutions that most need them after consultations with platform members.

VII. Activities planned for the next quarter

- Assess and prioritise capacity building needs of partners
- Complete IP formal setting up in all sites
- Monitor IP activities and document lessons learnt
- Conduct a stakeholder analysis to determine project partners and their contribution to the IP
- Evaluate performance of high yielding end user preferred varieties with tolerance or resistance to biotic and abiotic stresses in cropping systems
- Evaluate ISFM strategies and develop fertiliser recommendations for crop and livestock cropping systems

- Evaluate conservation tillage options for improving soil cover, soil water retention, soil organic matter, soil quality, and crop productivity
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- Assess farm level feed resource potential for increasing livestock production
- Evaluate methodologies for testing feeding interventions in smallholder crop and livestock systems
- Provide research methodologies for input and output market studies for livestock
- Identify market linkage gaps
- Forge linkages between IPs and existing commodity alliances
- Demonstrate and promote best-bet post-harvest technologies at field levels

- Train artisans on use and maintenance of post harvest technologies

- Train stakeholders in food processing technologies

- Enter and analyse baseline data

- Conduct IP description baselines for the four IP sites.

VIII. Acknowledgement of SSA CP donors and FARA

The contribution of FARA and its donors including the EU, DFID, the Italian government, and Norway are acknowledged here.