



SARD-SC

Support to Agricultural Research for
Development of Strategic Crops in Africa

Newsletter

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SARD-SC holds country and component launches in project areas

SARD-SC launches cassava and rice component in Tanzania

Key stakeholders in the cassava and rice commodity sector in Tanzania met in Zanzibar, 4-5 April, to officially launch and plan for the implementation of the SARD-SC cassava and rice components of the project.

The project was officially launched by Dr Khalid S. Mohammed, Principal Secretary, Ministry of State, Second Vice President Office, Zanzibar, United Republic of Tanzania, who assured the participants of his government's support to the initiative. He said this was in line with his government's efforts to develop the agriculture sector, one of the key drivers of the country's economic growth.

At the launch, IITA Director General, Dr Nteranya Sanginga, said that this partnership-project holds great potential to improve the livelihoods of smallholders through improving the value chains of the four priority crops in Africa--cassava, maize, rice, and wheat.

IITA hosts SARD-SC steering committee meeting in Ibadan



Members of the SARD-SC Project Steering Committee in IITA, Ibadan, Nigeria

The Project Steering Committee (PSC) of the SARD-SC project held their first meeting in March at IITA, in Ibadan, Nigeria.

Members discussed annual work plans, the procurement plan, and the overall management and implementation of the project.

They expressed great satisfaction at the progress made so far on project implementation considering the short period the project has been fully operational. The annual work plan and budget for 2013 were

reviewed and approved by the committee.

PSC members who attended the meeting included Dr Mahmoud Solh, Director General, ICARDA; Dr Gloria Elemo, Director General, Federal Institute of Industrial Research, Oshodi, Lagos; Dr Ramadjita Tabo, Deputy Executive Director, FARA; Dr Oliver Samson, Director, Partnerships and Capacity Building, Africa Rice Center; Dr Catherine Mungoma, Director of Crops Research Zambia; and Dr Chrys Akem, Project Coordinator, SARD-SC.



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AfDB

IITA
Research to Nourish Africa



SARD–SC launches maize component in Nigeria

In March, Scientist and implementation partners working under the Support for Agricultural Research for Development for Strategic Crops (SARD-SC) launched the maize commodity component in Nigeria. The cassava component was launched in DR Congo in February. Declaring the event open, Dr Ylva Hillbur, Deputy Director General for Research urged participants to think differently and do things differently to create impact.

Though the maize commodity component would be implemented in four countries—Nigeria, Ghana, Mali, and Zambia, Dr Akem said other African countries could benefit from these countries.

He called on stakeholders to put in their best to make the project a success.

Participants from Nigeria, Ghana, and Mali welcomed the project, saying that it would help in improving the livelihoods of maize farmers in their countries.

Zambia launches regional chapter of SARD–SC

In April, Zambia launched its Chapter of the SARD –SC project after which it had its implementation planning meeting. Speaking at the event, Honourable Robert Sichinga, Zambia’s Minister of Agriculture and Cooperatives stated that “If we are going to make a real difference in farmers’ lives, agricultural research must not only be responsive to the needs of the times but more importantly it should be able to find its way into farmers’ fields and their families’ homes. Research should never stay on the shelves – it should result in concrete outputs that would benefit farmers in Africa wherever they may be. This is my vision and sincere hope for this project.”

Chrysantus Akem, IITA scientist and SARD-SC Project Coordinator, indicated that the planning workshop for the Southern Africa partners of the project aimed to familiarize participants with SARDSC’s activities, implementation arrangement, and plan of work, budget, and coordination arrangements. Based on these, the crop working groups developed work plans for the region to be undertaken at the initial stages of the project.



Honorable Robert Sichinga, Zambia’s Minister of Agriculture and Cooperatives Minister of Zambia addressing the stakeholders during the launching workshop in Lusaka, Zambia.



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Project implementation

Maize

Maize, the most important cereal in Africa is being planned to be the commodity of choice for farmers through the intervention of the SARD-SC Project. Strategies being employed to enhance levels of competitiveness of the crop are the use of Innovation Platforms in each of the four target countries – Ghana, Mali, Nigeria and Zambia, building on successes of past endeavors and synergizing with existing maize projects for mutual benefits. The Innovation Platforms (IPs) approach that serves as the platform for diagnosing problems, exploring opportunities and investigating solutions will bring together principal actors of the value chain to enhance maize activities in designated areas but with spill-over to neighboring areas. It is in the light of this approach that stakeholder meetings were held across the four countries to primarily create joint ownership of the project.

Engaging partners in technology development

The Innovation Platform approach delivers technologies on demand. Therefore, the hitherto linear researcher-extension-farmer transfer of technology approach is being changed to the non-linear collective and collaborative interaction among IP actors to enhance continuous interaction, communication and knowledge sharing including quick feedback from farmers at every stage of the research for development continuum. This was emphasized during each of the country and IP launches in April and May for stakeholders in the maize value chain.



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Engaging partners in technology dissemination

The country launches provided opportunities to meet with stakeholders in the maize value chain in each country and assign activities for implementation.

Putting it all together

The stage is now set for the execution of the project. Enthusiasm is high so also is expectation. On-farm trials, critical for the success of the project at farm levels

are starting and recruitment process for graduate training is on. Relevant personnel to help the project are being recruited and important facilities to assist in the implementation of the project are being purchased. A very strong collegiate, cordial relationship is being built between project team members and the AfDB. Thus all the essential elements needed for the successful execution of the project are gradually falling in place.



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Wheat

Wheat consumption is on a rapid rise in all sub-Saharan Africa, with imports covering over 70% of the needs. The SARD-SC project aims to raise wheat productivity in low-income sub-Saharan Africa countries and contribute both to curbing wheat imports and improving food security and livelihoods in those countries. The 12 project-target countries (Eritrea, Ethiopia, Kenya, Lesotho, Mali, Mauritania, Niger, Nigeria, Sudan, Tanzania, Zambia, and Zimbabwe) are grouped into 3 regions, representing the wheat growing agro-ecologies in SSA, namely: (a) the East Africa Highlands, with Ethiopia, as a focal or “hub” country, (b) the East Africa Lowlands, with Sudan as a hub country, and (c) the West Africa Lowlands, represented by the Nigeria hub. Innovation platforms bringing together all stakeholders of the wheat value chain will serve as a vehicle for generation and dissemination of improved technologies and innovations and for exchanging experiences and information.

Meeting with partners

An inception workshop for the SARD-SC Wheat Project was held at Addis Ababa on 27-28 February 2013, with an attendance of 58 participants, including 26 from NARES (of Ethiopia, Kenya, Mali, Mauritania, Niger, Nigeria, Sudan, Tanzania, Zambia and Zimbabwe) , 18 from ICARDA , 6 from regional fora (ASARECA, FARA) and 8 from partner institutions (IITA and CIMMYT) and AfDB. The project activities will involve the participation of and serve the interest of all stakeholders in the wheat value chain, encompassing crop improvement, soil-water-crop management, seed production, post harvest management, grain transportation, processing, marketing, favorable pro-smallholder policies for credit and for input acquisition and delivery. AfDB presentations focused on procurement and financial procedures required for an efficient management of the SARD-SC project. NARES presented the challenges



Participants at the SARD-SC Wheat Inception Workshop, 27-28 February 2013, Addis Ababa, Ethiopia



A working session of the SARD-SC Wheat launching workshop for West Africa Lowlands hub, 20-23 March 2013, ARCN, Abuja, Nigeria.

and opportunities of wheat production in their respective countries. Several constraints to wheat production were enumerated by the participants, with the lack of proper technology being the most frequent challenge, followed by access to machinery, inputs and credit, ineffective extension systems, small farm holdings, and insufficient research capacity. Discussions centered on the optimal approach and mechanism to address these challenges through an efficient use of resources and expertise made available through the SARD-SC Project. The project will address these challenges through the confirmation of research-proven improved technology and its dissemination for rapid farmer uptake, through strengthening the capacity of both the technology

developers and adopters, and by promoting policies that make of wheat a competitive and profitable crop in the target countries.

Following the inception meeting for the overall SARD-SC Wheat Project, separate project launching workshops were held at each of the three hubs in Nigeria, the Sudan, and Ethiopia to discuss the specific priorities at each agroecological region.

Promising results

Despite the late start of the SARD-SC Project, it was possible to plan and carry out a number of activities in the East Africa Lowlands and the West Africa Lowlands hubs during the 2012–2013 cool season.



Participants at the SARD-SC Wheat Inception Workshop for the East Africa Lowlands hub, 13-15 April 2013, Khartoum, Sudan.



Farmers Field day at Kano, 11 March 2013, Nigeria

Rice

Rice is rapidly becoming one of the main staples for many countries in sub-Saharan Africa. As such, the rice sector can be considered one of the main engines for economic growth, especially as the rate of consumption is steadily increasing. However, the domestic production rate of rice is not increasing in tandem with consumption rate. Domestic value chains need to be made competitive with foreign ones, and this is exactly the aim of the rice component of the SARD-SC project.

Eleven countries are included in the project: Benin, Côte d'Ivoire, Ethiopia, Ghana, Madagascar, Niger, Nigeria, Senegal, Sierra Leone, Tanzania, and Uganda. At AfricaRice, research is spearheaded through "Taskforces", which comprise NARS collaborators from participating countries. At present, five Africa-wide taskforces, which meet once a year, are implemented, : Breeding, Agronomy, Gender, Processing/Value Addition, and Policy. Through these taskforces, new technologies and innovations are developed and introduced as baskets of good agricultural practices (GAPs) in "Rice Sector Development Hubs". Each country has a couple of such hubs, where all value-chain players work together, through multi-stakeholder platforms (MSPs), to focus efforts and achieve maximum impact.

Novel tools for baseline surveys: from smartphones to NVivo

An essential primary activity is the baseline study. At AfricaRice, comprehensive surveys, including yield gap, diagnostic, and baseline surveys, started in 2012. Protocols were developed, harmonized, and shared with NARS, and are currently being implemented by the NARS through the Africa-wide Rice Agronomy Taskforce in the hubs. Results from these surveys will guide us on identifying the determinants of rice productivity, and help us determine which technologies and innovations should be tested in the hubs. New technologies and innovations will first be tested as a single component, to be packaged later on as GAP baskets.

The yield gap surveys aim to characterize rice production systems in each hub, and quantify yield gaps and their causes. Various constraints to crop production in individual farmer's fields are being quantified, such as soil and water constraints; pests and diseases; yield-limiting factors related to crop management (fertilizer application, pest management, mechanization); and socioeconomic factors (farmer's status, family size, household

Table 1. Status of rice yield gap surveys in Africa.

| Countries | Number of hubs surveyed | Farmers surveyed | Samples collected |
|---------------|-------------------------|------------------|--------------------------------------|
| Benin | 1 | 100 | Soil (100), Straw (86), Grain (64) |
| Cameroon | 1 | 100 | Soil (87), Straw (32), Grain (32) |
| Ethiopia | 1 | – | Soil (32), Straw (32), Grain (32) |
| The Gambia | 2 | 101 | Soil (100), Straw (100), Grain (100) |
| Ghana | 3 | 88 | Soil (105), Straw (59), Grain (61) |
| Côte d'Ivoire | 1 | Not yet reported | Soil (49), Straw (21), Grain (7) |
| Madagascar | 1 | 19 | Not Yet Sent |
| Mali | 2 | 97 | Soil (79), Straw (75), Grain (75) |
| Niger | 1 | 50 | Soil (49), Straw (45), Grain (46) |
| Nigeria | 1 | 36 | Soil (36), Straw (13), Grain (16) |
| Senegal | 1 | 49 | Soil (50), Grain (49) |
| Sierra Leone | 2 | 111 | Soil (100), Straw (100), Grain (100) |
| Tanzania | 1 | 50 | Soil (50) |
| Togo | 2 | 55 | Soil (55), Straw (42), Grain (55) |
| Uganda | 1 | Not yet reported | Soil (49) |

income, expenses, and investments). Comprehensive data are collected in four stages: on the first visit; during the rice growing season; just before harvest; and at harvest. In addition, soil, straw, and grain samples are taken from farmers' fields, and will be analyzed at AfricaRice, Benin (Table 1.).

AfricaRice, together with its NARS partners, are abandoning the "classic" methodology of collecting data with pen and paper, and are now fully committed to using smartphones and tablets. Through the Agronomy Taskforce, NARS partners have been trained in collecting digital data using specially developed software, and these data are uploaded in real-time to a Google cloud from where scientists can easily download them in a database format for further analysis.

Through a diagnostic survey, we capture qualitative information in a novel way via two means. In each village, 10 individual "key informants" are selected and interviewed at length. These key informants can be farmers, extension agents, local researchers, or traditional elected leaders. Secondly, through

facilitated "discussion groups", additional qualitative information is gathered and discussions are focused on understanding the "how" and "why" of a particular issue. Thus far, eight countries have conducted the diagnostic survey in one hub while seven countries conducted it in two hubs. Ten countries (Benin, Cameroon, Côte d'Ivoire, Gambia, Ethiopia, Mali, Nigeria, Senegal, Tanzania, and Togo) were able to complete data transcription for all interviews. Data transcriptions will be analyzed using NVivo, a qualitative data analysis computer software package produced by QSR International (UK). Using NVivo, researchers can analyze unstructured or semi-structured data like interviews, surveys, field notes, web pages, and audio clips; NVivo has been specifically designed for qualitative researchers working with very rich text-based multimedia information, where deep levels of analysis are required. The software does not favor a particular methodology but is designed to facilitate common qualitative techniques for organizing,



Smartphone displaying software for yield gap survey (left); extension agents in Ghana displaying tablets for yield gap survey (right).



Training course on advanced qualitative data analysis using NVivo (29 April–3 May 2013, AfricaRice, Benin).

analyzing, and sharing data, no matter the method used. AfricaRice organized a group training course on advanced qualitative data analysis for NARS taskforce members from 15 countries at AfricaRice, Benin from 29 April to 3 May 2013, where the use of NVivo was explained in detail using diagnostic survey data gathered in the project.

Nutrient Manager for Rice: an innovation for fertilizer application

During preliminary data analysis of yield gap data, various constraints have already been quantified. The solutions to these constraints will require collaboration among taskforces, and several technologies and innovations are being readied for introduction into the hubs. One such innovation is “Nutrient Manager”, a simple software package developed by IRRI and AfricaRice that gives farmers or extension workers pre-season and location-specific fertilizer recommendations, and that can be run on a smartphone. In a nutshell, farmers start the application, fill out a couple of detailed questions, and the program tells them exactly how much fertilizer they have to apply, what kind, and at what time.

The whole process only takes a couple of minutes. Calibration of the Nutrient Manager for specific rice growing areas is a rather time-consuming process, and entails the collection of nutrient-omission and fertilizer-response data in farmers’ fields; calibration of the underlying model; development of location-specific questionnaires with up to 20 simple questions; programming of location-specific software versions; and finally development of user-friendly ICT applications in several languages, including local languages. Nutrient Manager has been calibrated for Senegal, and the application is currently being developed for other project countries. In small-scale evaluations of Nutrient Manager

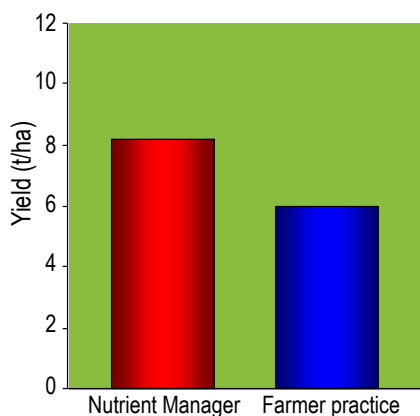


Figure 1. Comparison of yield (in t/ha) between Nutrient Manager (red bars) and farmer practice (blue bars) in 16 farmer’s fields in Senegal. Data source: AfricaRice, unpublished data.

recommendations versus farmers’ practice in Senegal, farmers that follow the recommendations of Nutrient Manager registered a yield increase of 1.9 t/ha or 30% compared to farmers’ own practices, translating into an increase in net profitability of ~490 €/ha/year (Fig. 1). Although smartphone penetration might not be high among farmers at the moment, it will be in a couple of years when Nutrient Manager will be an essential tool in the farmers’ GAP basket.

Multi-stakeholder platforms: motors for agribusinesses

In the project, best-fit technologies and innovations will be selected

and disseminated across the rice value chain in the hubs. Value-chain stakeholders need to be fully participatory during this process, which is easier said than done. Researchers often unknowingly push their technologies into the value chain rather than engaging in a two-way interaction with all stakeholders. AfricaRice, together with its NARS partners, is introducing multi-stakeholder platforms (MSPs) into the hubs, which aim to bring together all stakeholders in a new form of communication, thereby facilitating decision-finding and decision-making on a particular issue. Several multi-stakeholder platforms will be introduced per hub. An in-depth brainstorming session was organized during 17–19 April 2013 at AfricaRice, Benin to clearly delineate the MSP concept. The meeting was attended by NARS representatives from some taskforces and MSP experts, including MSP experts from the International Centre for Development-Oriented Research in Agriculture (ICRA). MSPs were defined at several levels (from national to community), but it was clear that the community-level MSPs are very critical and should be focused around agrobusinesses. MSPs will also function as the ideal conduit to provide feedback on and discuss the diagnostic and yield gap surveys. Concretely, two MSPs will be introduced at the community level in the hubs of eight countries (Benin, Côte d’Ivoire, Ghana, Madagascar, Mali, Liberia, Sierra Leone, Uganda) in 2013, and NARS representatives from these countries will meet in September 2013 at AfricaRice, Benin to agree on procedures.

Training of accountants: money matters

Proper management of the SARD-SC project is of paramount importance, not only among the executing and implementing partners, but also among the NARS partners. Therefore, especially under impetus from the SARD-SC project, AfricaRice gathered accountants from all 26 countries that receive grants at AfricaRice, Benin



Training of NARS Administration and Finance Officers (29–31 May 2013, AfricaRice, Cotonou, Benin).

Cassava

Cassava is crucial crop to the food security of millions of people in sub-Saharan Africa, being a major source of income for the farmers and a raw material for local industries. But historically it hasn't had quite the same level of attention or research that maize, rice and wheat have. Through SARD-SC, the cassava situation is now starting to change, with new varieties of the crop addressing some of its nutritional and physiological shortcomings and helping to transform cassava status into an African cash crop with a more versatile role to play in development.

The cassava component subproject of SARD-SC aims to improve on food security and contribute to poverty reduction of target countries through a value chain approach. Four countries are designated to implement the project: DR Congo, Tanzania, Zambia, and Sierra Leone.

New technologies and innovations will be developed and promoted through platforms comprising stakeholders from participating countries and focusing on one of five main intervention areas: breeding, agronomy, agribusiness, gender, and postharvest, and policy and gender issues will be considered through all areas. SARD-SC is aligned with national agricultural development plans and processes as smallholder cassava businesses in each country are already primed to boost productivity through their prior participation with other cassava projects.

The SARD-SC cassava workshop was held in Kinshasa, DR Congo on 12-13 February 2013 with the aim of bringing all the cassava stakeholders from the four participating countries to familiarize themselves with the project activities, implementation arrangements, M&E framework, finance management,



Participants at the SARD-SC Cassava Workshop, 12-13 February 2013, Kinshasa, DR Congo.



Participants at the SARD-SC Cassava and Maize Workshop, 16-17 April, Lusaka, Zambia.

capacity building, and networking. This workshop also helped to identify some challenges that can delay progress.

The SARD-SC cassava actors in participating countries agreed that in line with their experiences with agricultural development projects addressing the needs of national Smallholder Commercialization Programme, the cassava project will be implemented via Innovation Platforms (IPs), each with a purpose built, equipped smallholder cassava factory (e.g., as in photo) as its hub in target communities.

Through a network of cassava IPs, the implementation strategy of the SARD-

SC cassava component will develop and strengthen capacities of primary value chain actors along the value chain so that they are better able to engage in competitive commercial production of cassava products (roots, stems, food, and livestock products).

Community awareness activities have included consultative and sensitization visits backed by an initial series of radio spots on community radio stations.



Participants at the SARD-SC cassava launching 22-23 March 2013 at Freetown, Sierra Leone.



A cross section of the group discussions during the SARD-SC at Matadi and Bukavu, DR Congo.