SCAP newsletter

02
August

ACT Africa Conservation Tillage Network

A newsletter of the Small Holder Conservation Agriculture Promotion project published by Africa Conservation Tillage Network

Small Holder Conservation Agriculture Promotion (SCAP) in West and Central Africa

SCAP Major achievements/outcomes:

The Small holder Conservation Agriculture Promotion (SCAP) in Western and Central Africa Project has stimulate and facilitate community base processes in which the target rural communities are empowered to innovate and sustain conservation agriculture farming practices. Hereafter is an overview of the main achievement of the project.

Output 1: Building locally adapted CA-based cropping and farming systems

CA principles are well known but their performance and modalities of their application in the context of SCAP study area were still to be identified and assessed. Furthermore, the area covered by SCAP is diversified both regarding the agroecological and socioeconomic conditions. This diversity and the existing farming practices were considered when building CA-based cropping systems, it was also that farmers can adopt CA systems only if these systems are efficient but also adapted to their environment. Main achievements of this Component of the project include the following:

- **35 CA-Farmer field school (FFS) supported in setting-up and running on-farm experiments.** SCAP operated in 31 pilot villages selected in the three countries (20 in Burkina Faso, 5 in Guinea and 6 in Niger) using six criteria. Rapid rural appraisal activities focused on farmers' farming, livestock and agroforestry practices were carried out to identify entry point for the development of locally-adapted CA-based cropping systems. 35 FFS groups for a total of about 900 farmers were established. Demonstrations and research protocols adapted to each

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Enhancing food production and security

Population projections predict that the world population will increase to nine billion people by 2050. Developing countries (DCs) concentrate most of this growth. This trend raises serious concerns, especially on the capacity of agriculture of these countries to ensure food security and, implicitly contribute to the economic development of population.

Will these agriculture meet the challenge of an ever increasing demand? Can they play more fully their role of leverage economic development of populations? Food insecurity is frequent, the cost of agricultural inputs is increasing becoming difficult to access for farmers who are already poor. Natural resources are being degraded due to inappropriate agricultural practices. This degradation of natural resources limits the development of agriculture.

Climate change is a reality.

Despite these facts, there is reason to hope. Agriculture is coming back on the agenda of international institutions who are reconsidering their views, and begin to recognize that agriculture could play a strategic role in the socioeconomic development of developing countries. The governments of developing countries, sometimes under pressure from civil society, are increasingly recognize that the massive importations and the use of international aid to address the structural deficit of the national food production, cannot be an efficient and sustainable solution. Time has come to be more proactive. The potential of the agricultural sector must be recognized and valued the most, especially since it is now widely acknowledged that famers have the ability to innovate to adapt their production systems to changes in their production environments. The challenge is twofold: firstly to ensure the sustainability of agriculture, and secondly, make them more productive, better connected into the market system to ensure coverage of an ever-growing demand and increasingly more demanding.

Among other production techniques, conservation agriculture (CA) in recent years emerged as an alternative that can enable farmers to meet the

Project Facts

Project partners and donors:

The SCAP is a regional multi-stakeholder programme whose key implementation players, ACT, CIRAD, ICRAF and representatives of the four national IFAD financed projects, share collective responsibility in the overall programme implementation. SCAP Project is funded by IFAD and AFD with inkind contribution of ACT, CIRAD, ICRAF and IFAD loan projects.

Project goals and objectives:

The development objective of the project is to be achieved through four general objectives:

1. *Building cropping systems:* Strengthen the capacity of poor rural communities to identify, assess and further adapt crop, livestock and resource management practices and cropping systems that are in accordance with the principles of conservation agriculture; that are compatible with local environmental, social and economic conditions; and that build on indigenous knowledge and skills.
2. *Farmer-innovators:* Foster networking among farmer-innovators as a means of adapting and accelerating the widespread use of suitable new practices.
3. *Knowledge sharing and management:* Expand the range of technical options from which communities and farmer innovators can choose, through sharing knowledge on NRM and conservation agriculture practices, including practices used in other communities and even in other regions.
4. *Capacity building:* Strengthen institutional mechanisms, including the consolidation of ACT, as a means of fostering knowledge-sharing and community-led assessment of conservation agriculture practices in the region.

challenges of the sustainability of their practices and the fight against poverty. CA has been proven in various parts of the world including South America, North America and Australia where agriculture is dominated by large mechanized farms. But there is still very little CA experience in West and Central Africa (WCA) where farmers are mostly smallholders family farms. The Small holder Conservation Agriculture Promotion (SCAP) implemented in Burkina Faso, Guinea and Niger explored the potential of CA and patterns of its application in WCA. Preliminary results obtained from Phase I of SCAP confirm the interest of the CA. Four categories of locally-based CA practices have been developed and validated with farmers. Economic performances of CA systems were 50 to 100% higher than that of conventional farming, Cereal yield in CA fields is up by 15 - 40% higher than in conventional agriculture fields. 80% of farmers involved in SCAP are implementing one or all CA principles on their plots. Area under CA has increased from 0 to 15.4% (0.6 ha) in farms during the project lifetime. Governments of Burkina Faso and Niger are empowered and promoting CA through IFAD loan projects (fourth coming phase of PDRD and PICOFA in Burkina Faso; PPILDA/PASADEM in Niger) and pilot experiences being implemented by field extension staff.

SCAP Phase I results tend to confirm the usefulness of CA not as a panacea, but as interesting alternative with smooth and successful implementation will enhance food security in WCA if adequate measures to further CA benefits and overcome eventual challenges that might hinder its implementation. ■

From the Editor and Project Coordinator

Small Holder Conservation Agriculture Promotion (SCAP) in West and Central Africa

◀ *From page 1*

SCAP site were designed and validated experiments and demonstration protocols with farmers. Seeds of cereal, leguminous crops, cover crops, agroforestry species, fertilizers and herbicides were procured and delivered to farmers according to their needs. Diverse types of CA equipments including Jab planter (Matraca); Single row No-till planter – Animal drawn; Animal drawn ripper; Dibble stick steel point were procured; training and demonstrations session were organized on their correct use. 24 facilitators were identified and empowered to run FFS groups.

- **Action research operations on locally adapted CA-based cropping systems were conducted in partnerships with NARS.** Three research contracts were signed with research institutions and 19 research contracts signed for students' attachment to SCAP. An international training session on the analysis of root systems in intercropping cropping systems was organized

- **Four categories of CA-systems developed and validated with farmers. :** CA-based CS using crop residue and edible cover crop (sorghum intercropped with cowpea grown under mulch of millet); CA featuring native shrubs (soil cover is ensured by biomass of native woody shrubs such as *Piliostigma reticulatum* or *Guiera senegalensis*; CA-based cropping systems with fodder crops intercropped or in rotation (maize or sorghum intercropped or grown in rotation with brachiaria sp., dolichos etc.); CA with crop rotation or improved fallow (rice / maize grown or former fallow improved with pigeon pea, mucuna etc.).

- **Specific and combined effects of CA principles were assessed / highlighted.** (i) Mulching significantly improved the yield and economic results in general up to 41 – 76 % higher than in conventional farming, and depending to the density of mulch, but mulching tends also to increase labour requirement for planting and weeding as most farmers are using hand hoe which is not very suitable to operate under mulch; (ii) minimum tillage without soil cover has resulted in a decrease of the production of the main crop. The reduction rate varies from 17 to 22% and is more severe when the soil is not covered; when the soil is covered, minimum tillage can lead to labour saving and increase of crop production for up to 30%; (iii) Intercropping tend to lead to the decline of cereal yield, however the gap which is about 10,5% is not significant statistically; the decrease of cereal yield in intercropped systems is higher when there is no soil cover. Intercropping increases labour requirement for about 36% because of the additional time needed for planting and harvesting of the cover crop. Nevertheless intercropping also increases the overall economic results of the plot thanks to the diversification of the

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Figure 1 SCAP management team shares project findings with IFAD in Rome, Italy

production. The combined effects of the three CA principles were higher than their specific effects. Famers really appreciate CA systems where the three principles are implement simultaneously, but they adopt these principles rather gradually.

Output 2: Farmer innovation network

SCAP considered Farmers' innovators and their networks were considered as key partners in the testing and assessment of CA options, but also in the preliminary dissemination of results and evolving knowledge from the tests carried out. Once trained and empowered they can train and backstop new and future CA adopters hence contributing to sustain and pursue the dynamics even when the project will end.

- **A survey was conducted on SLM innovations** managed by community based organizations (CBOs), Non-Governmental organizations (GOs) and Governmental organizations. Innovations identified can be ranked into three main domains: (i) agroforestry techniques; (ii) water and soil conservation and (iii) good agricultural practices. These technologies have been developed by farmers either alone and on their own initiative or with the support of external stakeholders (development projects, NGOs, research).
- **215 farmers' innovator practicing CA on their own plots and sharing experience with other farmers.** They constitute a nucleus of CA-farmers network that will grow gradually as farmers will be more knowledgeable of the benefits but also challenges of CA.
- **Farmer innovator networks linked to regional and Continental Networks.** The SCAP dedicated portal http://scap.act-africa.org/ for knowledge and information sharing has been developed. The portal does also host generated documents for wider sharing with stakeholders..
- **The efficiency and sustainability of farmers' innovator networks as a mean of knowledge dissemination were assessed.** Farmers' innovators (FI) often act as farmers trainers; hence their services are sometimes hired for the dissemination of innovative farming practices in their communities. Their service offer consists in the training of other farmers on techniques of water and soil conservation, post harvests, production of organic manure and agroforestry. FI/ trainers networks seemed efficient and competitive, in comparison to existing approaches, for the out-scaling of some technologies that do not require a high level of education; but they are not yet sustainable. FI networks are facing difficulty to adapt themselves their service offer because of their wait-and-see attitude, their low level of education, the unilateralism of their relations with SO and the unwillingness of their customers to pay for the services they seek. Hence the following measures were suggested for the improvement of the efficiency and sustainability of farmers' innovators network: increase sensitization for development organizations and the State so that they better recognize the potential of farmers innovators network and find means to facilitate capacity building and wider access of FI to knowledge; development of suitable strategy and modalities for the integration of FI network in a pluralistic advisory framework. Furthermore, it is necessary to monitor and conduct a follow-up of early adopters of CA systems to better understand and bring appropriate to strategies they are developing to manage the integration of CA in their farming practices, and incidentally how they use CA principles to transform their practices and design new cropping systems.

Output 3: Knowledge management and sharing:

Acknowledging the multidimensional nature of CA, SCAP took into account as much as possible specific contributions of different actors so as to insure the suitability of the innovation. Stakeholders' assessments and perceptions were captured and

harnessed to finalized CA-based cropping systems being developed. In this framework possibility was given to stakeholded to be more knowledgeable on CA but also to express themselves on the added value of the technology as compared to their usual farming practices.

- **Institutional mechanisms to sustain knowledge sharing, foster innovation and scaling up in the region were built.** Existing networking and knowledge sharing mechanisms among stakeholders were assessed resulting in the necessity to set an innovation platform for knowledge management CA. Primary activities achieved in this framework included mainly the strengthening and partnering with institutions to foster knowledge management and sharing on CA practices and techniques. Further meetings were conducted with the global objective to identify and assess existing networking mechanisms and to foster knowledge sharing and collaboration among stakeholders.
- **Knowledge management and sharing on CA practices and techniques was foster trhough partnerships with institutions.** Contractual arrangement for the development partnership about the promotion of CA were made first of all with IFAD loan projects which are the primary implementation partners of SCAP, but also progressively with other stakeholders who were interested in SCAP experience. Eight MoUs and partnerships agreements were signed. Eight participants from SCAP and its four IFAD loan projects partners attended a Training of trainer course on CA, FFS and PPM&E[1] was organized in Karatu Tanzania.

1 Participatory Planning, Monitoring and Evaluation

The collaboration with IFAD projects enabled the creation of a CA momentum in their specific area so that presently, at the end of SCAP phase I CA activities are still ongoing on the field supported directly by these projects or by the Ministry of Agriculture who have renew or even expand the experience via the forth coming phase of IFAD projects (PDRD and PICOFA in Burkina Faso; PPILDA/PASADEM2 in Niger) or through activities in some pilot villages as in Burkina Faso.

Furthermore, partnerships for the promotion of CA were developed with farmers' organizations, research institutions, NGOs and Communities based organizations for partnerships for the promotion of CA. Research activities were carried out with NARS (University of Niamey-Niger; INERA-Burkina Faso). Also, partnerhips resulted in the engagement of ACT to bring technical backstopping to new CA initiatives in the region namely with Catholic Relief Services (CRS) and with UGCPA/BM3 a farmer organization supported by FARM[4].

- **Participation at Conservation agriculture learning events.** Members of the SCAP team participate to several meetings or workshops related to SCAP objectives. It was the occasion to present SCAP activities, to bring the contribution on the topic of the meeting and to share experience with other professionals working on the same topic.
- **Participatory learning processes with farmers other stakeholders.** FFS-group facilitators have been trained on the Agro-ecological System Analysis (AESA) which includes three main steps: observation, analysis and synthesis and discussion. During the cropping season, FFS members were meeting weekly on the communal plots for the follow-up of the crops but also for a progressive analysis using AESA of each treatment.

2 Projet d'appui à la Sécurité alimentaire et au Développement de la région de Maradi
3 Union des Groupements pour la Commercialisation des Produits agricoles de la Boucle du Mouhoun (UGCPA/BM)
4 FARM : Fondation pour l'Agriculture et la Ruralité dans le Monde

At the end of the cropping season all data collected were processed and used for further analysis and synthesis of CA-systems tested. Results of these assessments were completed with surveys conducted to individual farmers both for members and non members of FFS groups. Participatory learning and assessment sessions were conducted throughout the cropping season and after harvesting. Furthermore, inter and intra -village exchange visits were organised. Inter-village exchange visits were organized to sensitize more farmers about CA and also to enable those already testing CA in different villages to share their experiences and assessments. The objective of intra-village visit was to enable CA-FFS group members to present and share their experience from what they are doing with their colleague farmers living in the same village but not yet member of the FFS-groups. Intra-village visits were also a good opportunity to discuss some CA-related decisions which need a collective commitment such as the redefinition of rules for access and management of natural resources and more specifically of crop residues.

Output 4: Capacity building

Capacity building is a core condition to ensure a smooth and efficient implementation of the project and also the further dissemination of SCAP results and more generally of the scaling of CA in WCA. Capacity building activities were conducted both for individuals and organizations.

- **ACT capacitated to function as a CA – NRM networking platform in West, Central and rest of Africa.** ACT is registered in Burkina Faso as an international for non-profit NGO

with all the required means for the the smooth implementation of SCAP, and beyond the expansion of its activies in WCA hence building the East and West Africa linkage. Further to SCAP project ACT is now participating in the implementation of several other CA related project in Africa. The four main projects include : (i) Agro-ecology based aggradation-conservation agriculture (ABACO): Targeting innovations to combat soil degradation and food insecurity in semi-arid Africa: East (Kenya, Tanzania), West (Mali, Burkina Faso) and Southern (Zimbabwe, Mozambique, Madagascar) Africa; (ii) Conservation Agriculture in AFRICA: Analyzing and Foreseeing its Impact -Comprehending its Adoption (CA2Africa): Burkina Faso is hosting the WCA platform; (iii) Monitoring Carbon and Environmental and Socio-Economic Co-Benefits of BioCF projects in Sub-Sahara (Niger, Madagascar, DRC, Ethiopia and Kenya) and; (iv) Conservation agriculture with trees (CAWT): Ghana, Kenya, Tanzania and Malawi.

- **Students engaged and trained.** 19 students including 1 PhD, 11 MSc and 7 BSc were engaged and trained in the framework of SCAP. Engaging student was a strategy to implement project activities and to generate and/ or document and analyze CA-related knowledge in SCAP area. Researches they conducted cover three main areas which encompass the three primary components of SCAP: cropping systems, innovator farmers' networks and knowledge management and sharing. Their researches and studies help to have a better understanding of both technology and process issue, hence allowing to carry out necessary adjustment in the technology and to prepare forth coming phase of up scaling of results. Students who did their internships in SCAP have enriched the existing local human resources and expertise on CA. This expertise can be mobilized for further research activities and/ or the dissemination of CA both at national and sub-regional level. Furthermore, some graduated students are eager to continue and complete their researches through a PhD research.

- **Conduct refresher training for SCAP staff on key intervention areas.** Eight members of SCAP Staff participated in training course organised on CA; FFS approach; and Participatory Planning, Monitoring, Evaluation and Learning. The training took place in Karatu (Tanzania). Furthermore, the SCAP implementation participated in a study visit in North Cameroon. The tour was also intended to allow SCAP farmers and field technicians involved in the implementation of operations to be more knowledgeable of benefits and challenges of CA practices in an area with characteristics fairly similar to those of SCAP site.

Exchange Visit: East and West Linkage tour

ACT Network represents Africa in the 5th World Congress Brisbane, Australia

ACT participated in the Brisbane fifth world congress on conservation agriculture held from 25 – 29th September 2011. The Grains Research and Development Corporation (GRDC) and the Australian Centre for International Agricultural Research (ACIAR) joined forces to propose that the 5th WCCA and 3rd FSD be held in Australia in September 2011.

Other members were: John Dixon ACIAR - Chair; Mahmoud Sohl (ICARDA); Ivo Melo (CAAPAS); Theodor Friedrick (FAO); Amir Kassam (FAO Consultant);Saidi Mkomwa(ACT); Li Hongwen (China); Gottlieb Basch (ECAF); Lyudmilla V Orlova (Russian Movement of CA).

The combination of 5th WCCA and 3rd FSD effort brought a unique opportunity to discuss the application of conservation agriculture principles from a farming systems perspective. At this meeting discussions on conservation agriculture principles in both large-scale, high-tech commercial farms, and small-scale low-cost smallholder farms from developing regions in the world in the context of food security concerns, increasing food demand and climate change.

The Congress attracted 526 participants from 67countries including scientists, students, farm managers, policy makers, conservationists and others interested in sustainability, conservation and

farming systems. The broad regional distribution was as below:

%	REGION
38	Australia and New Zealand
11	EU & USA
9	East & SE Asia
9	South Asia
7	Middle East North Africa
22	Sub Saharan Africa
4	Latin America

What this meant is that Sub Saharan Africa had the largest foreign representation (22%), despite cultivating Africa having less than 1% of the global area under CA. It is worth noting however, that some analysts prefer to treat North Africa separate from Sub Saharan Africa (as above).From Africa, the quick check is we had participants from: Kenya, Tanzania, Uganda, Rwanda, Ethiopia, Cameroon, Nigeria, Mozambique, Madagascar, Zimbabwe, Malawi, South Africa and Botswana.

The 5WCCA programme featured Africa and ACT Network prominently through its many involvements including: Membership in the International Steering Committee (represented by ACT Executive secretary Eng. Saidi Mkomwa); Two paper presentations; two workshops on smallholder farming; booth exhibition (one of a total not exceeding ten) and participation in the 'so what' international congress closing panel of four session where the ACT Executive Secretary represented Africa.

Lessons Learned

i. The issue of documenting successful CA case studies, from wherever they are available in Africa, was raised in many sessions and we need to strategize on how best to do so

ii. Conservation Agriculture (CA) should be promoted under protocols that capture the nature of goods and services it generates, and as the preferred and integrated component of sustainable production, if it is to be accepted by all stakeholders.

iii. CA needs a global think tank; one to foster and solidify the mechanisms for ongoing multi-stakeholder dialogue processes including multi-media to propel formation of Communities of Practice.

iv. Under a system integration approach, there is need to formalise the documentation of CA experiences and to concretise and facilitate the sharing of these experiences across various fora, including the World Congresses.

v. There is need to re-evaluate environmental benefits of CA coming clear on tradeoffs and limits to residue retention and management into the long-term.

vi. For large-scale farmers, controlled traffic may be viewed as one other principle of promoting CA. Value-chain approaches will remain important at all scales of farming.

vii. Supportive influences in school curricula need to be fast tracked

viii. Key constraints to CA adoption remain in i) risk management and ii) inputs availability. These can be mitigated through use of participatory approaches and knowledge networks to understand and exploit change drivers, over and above the science.

ix. CA practices and interventions must be mainstreamed under well-grounded, publicly approved, guiding national policies, particularly so in the cases of developing nations. This must be backed by capacity to remain adaptive by exploiting long term research and applicable ground level innovations.

x. Farmer to farmer learning and exchange propel ground level action and true change. Change does not have to wait for policy to take root but a balance between top-down and bottom-up approaches will remain vital.

xi. At the next Congress conscious effort should be made to have Ministers of Agriculture and key private sector players participating. This will, among other aspects lead to resilient policy development and improved access to affordable technology.

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IN THE NEWS

Lessons for West Africa from the Cerrados of Brazil - Agricultural Advancement of a Once 'Worthless' Environment –*by Herbert Mwanza ACT Southern Africa Coordinator*

The Cerrados of Brazil, having similar agro-ecological conditions to our Savannah environment, is characterized by a hot and semi-humid climate of a seasonally-marked dry winter from May to October, and a rainy summer from October to April. Some 85% of the rains fall between October and February ranging from 800mm to 1600mm.

The **11th Cerrados No-Till Meeting on Low Carbon Emission Agriculture w**hich was also the **2nd International Symposium on No-Till and the Environment** from 23 to 25 August 2011 at Uberlandia, in Brazil's, Minas Gerais State. A one day field trip (26th August) to the Monsanto Seed plant and a Crop-Livestock Farm in Uberlandia was also organised under the auspices of FEBRAPDP and APDC.

The two organisations (the Associação de Plantio Direto no Cerrado (APDC), and the Federação Brasileira de Plantio Directo na Palha

Photo 1: Conference Banner also Showing Names of Various Sponsors

(FEBRAPDP)) hosted the conference with additional support from 9 other interested organisations to discuss ways of achieving viable sustainable alternatives for farmers of how to promote land use intensification in the region without having to clear new land by harmonizing the different technical potentials, and as part of a preparatory event for the 5th WCCA in Brisbane Australia.

The conference exemplified the need to build up a critical mass of an informed and well organized tranche of farmers that are empowered not just to be 'demand-driving' but mutually-yielding to the expectation of the business houses. ACT and its network or communities of practice are therefore challenged to be pro-active in its already identified need to build a farming fraternity that would be able to effectively influence policy, research, development and business.

Some lessons point that in addition to accommodating the maintenance of minimum soil disturbance practices, different sequences of **spatial** or **temporal** crop rotation combinations are possible under CA provided the intentions are **well understood**. Our scientists need to divulge and diversify

Photo Set 2: Brachiaria and Livestock Sorghum as Important Constituents of Livestock/Crop Integration

Photo Set 3: Host Mr. Arismar, Ingbert of APDC, and Luiz Philipe (Field visit Interpreter); and Part of No Till equipment at Visited Farm.

Photo set 4: Mixed 1-year old bulls ready for sale, and Neroles as part of crop/livestock integration

this research to demonstrate various possibilities. Farmers themselves too should be encouraged to 'trial' such approaches that would empower them make 'choice' decisions.

The need for soil cover under CA is well documented by many, yet for Africa appears a big challenge that demands discipline like any other CA principle/practice. While there exists many practices/species associations under 'green' soil cover, Africa is challenged to find suitable 'dry' soil cover. Farmers in the Savannahs of Brazil are using brachiaria and relay sorghum to keep the soil cover in part of the dry season, both familiar crops on Africa's lands!

Besides the crop/livestock conflict-ridden crop residue, what can else can Africa find to subdue that long April to November dry spell that demands our soil to be under cover? The search continues but perhaps with pointers!

In order to find solutions to these pertinent matters, conceited effort is required: (1) political will to transfer/adapt technologies; (2) lobbying/advocacy; (3) desire to address problems; (4) exchange visits; (5) on-farm demos; (6) a shared research agenda; (7) increase/improve of techniques/precision; (8) support of smallholder practices; and (9) good information dissemination.

During the conference at Uberlandia, a visit to a farm integrating crops and livestock was organised.

The Farm located some 20 km out of Uberlandia on the road to Uberaba grows arable crops such as livestock sorghum, maize and soya but also raises beef cattle, a mix of Neroles (bulls) and 'Hegenian' or Senepols (cows). The beef animals are ready for sale at 11-12 months.

The farmer, Mr. Arismar, reported that before no till maize yields used to be less than 30 x 60 kg bags per ha. Under no till, yields stand at about 70 x 60 kg bags per ha. No till farming started after exposure at

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IN THE NEWS

Photo Set 5: Farm-based Storage and After-harvest Brachiaria Crop

a conference organized by APDC. Part of the success was attributed to use of glyphosate herbicide for weed control and certified seed. At the time of visit, the farm had 1300 cattle, 400 ha soya, 200 ha sorghum and 112 ha maize. Total land area is 1 300 ha of which 50% is pasture land.

Drivers of success on the farm were said to be (1) increased income, (2) doing what is of interest, and (3) satisfaction with activity because of good results. A two-year soya crop is followed by a 1-year grass/corn crop. Sorghum is planted towards the end of the rainy season as a 'relay' crop before the dry season, and before the next wet season crop. These systems keep the soil under cover most of the time, thus reducing potential temperatures on the soil surface and inhibiting other undesirable effects.

In the Cerrados of Brazil, minimum tillage + liming + crop rotation + herbicide use over a 3-4 year period aims to build soil as part of foundation to no till practice, the challenge to the CA in the Savannahs of Africa!

Farmers Voice

Academic Internships in SCAP Project

During his lifetime SCAP has engaged 19 students including one PhD, 11 MSc and seven BSc. Most of them were coming from Burkina Faso and Niger. They were coming from five universities: (i) Abdou Moumini University of Niamey / Niger (1 MSc I and 1 MSc II); (ii) University of Ouagadougou, Burkina Faso (2 MSc II); (iii) University of Montpellier, France (1 PhD); (iv) University of Bobo Dioulasso / Burkina Faso (6 MSc I and 7 BSc) and, (v) 2IE Ouagadougou /IAMM Montpellier France (1 MSc II). To date almost all the students' researches have been terminated except the PhD which is still ongoing and will be terminated in 2014, also two MSc II are not yet defended. Engaging students was a strategy to implement project activities and to generate, document and analyze CA-related knowledge in SCAP area, but is was also a mean of enriching the locally available expertise on CA that can be mobilize for further CA-related research or development activities.

	Student's Name	University	Diploma prepared	Research topic
	Mahamane Adamou	University of Ouagadougou/ Burkina Faso	MSc II	Analysis of farming practices in Aguié (Niger): opportunities and constraints for development of CA systems
	Haoua Belem (Ms)	University of Bobo Dioulasso/ Burkina Faso	Msc I (2011)	Innovator famers and their networks: reliability and role in the scaling up of NRM/CA in Burkina Faso
			BSc (2009)	Characterization of farming systems of Gori (province of Gnagna) : opportunities and challenges for the promotion of CA
	Florentin Bondé	University of Bobo Dioulasso / Burkina Faso	Msc I	Diversity and sustainability of NRM stakeholders networks in Burkina Faso
	Harouna Bougoum	University of Bobo Dioulasso/ Burkina Faso	MSc I	Analysis of specific and cumulative effects of CA principle on sorghum production
	Jules Da Sansan	University of Bobo Dioulasso/ Burkina Faso	Msc I	Farmers indicators of assessments of CA systems in Northern and Eastern Burkina Faso
	Tidiane Diarisso	University of Montpellier/ France	PhD (ongoing)	Analysis of biomass flows and fertility transfers at village level : opportunities for a functional crop-livestock integration
	Guillaume Essecofy	2IE Ouagadougou /IAMM Montpellier/ France	Msc II	Potential of Conservation Agriculture of WCA small holders farms

	Student's Name	University	Diploma prepared	Research topic
	Serge Ganou	University of Ouagadougou/ Burkina Faso	Msc II	Adoption of conservation agriculture systems in the Eastern region of Burkina Faso
	Fanebeuri Khagne (Ms)	University of Bobo Dioulasso / Burkina Faso	BSc	Cattle fattening in the Gnagna Province (Burkina Faso) : Possibilities for the introduction of CA practices
	Ado Maman Nassirou	Université Abdou Moumini, Niamey / Niger	Msc II	Influence of native shrubs *Hyphaene t.* on soil fertility and production of millet in Niger: perspectives for integration of shrubs in CA-systems
	Somnoma Nougtara	University of Bobo Dioulasso / Burkina Faso	BSc	Characterization of farming systems of Kompienbiga (province of Kompienga) : opportunities and challenges for the promotion of CA
	Abdou Matsalabi	Université Abdou Moumini, Niamey / Niger	Msc I	Influence of native shrubs *Guiera s.* on soil fertility and production of millet in Niger: perspectives for integration of shrubs in CA-systems
	Abou Sanou	University of Bobo Dioulasso / Burkina Faso	BSc	Cattle fattening in the Gnagna Province (Burkina Faso) : Possibilities for the introduction of CA practices
	Flore Somé (Ms)	University of Bobo Dioulasso / Burkina Faso	BSc	Participation of women in CA related demonstration and action research
	Dieudonné Zerbo	University of Bobo Dioulasso / Burkina Faso	Msc I	Farmers' management of shrubs biomass (*Piliostigma reticulatum)*
	Ibrahima Zerbo	University of Bobo Dioulasso / Burkina Faso	MSc I (2012)	Ex-ante evaluation of the effects of the adoption of CA on the functioning, technical and economic performance of farms
			BSc (2010)	Integrated crop-livestock farming systems in Kompienbiga (Burkina Faso): perspectives for the introduction of CA

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