



Sustainable Agriculture and Natural Resource Management Collaborative Research Support Program

SANREM CRSP
Office of International Research, Education, and Development
Virginia Tech (0378)
840 University City Blvd., Suite 5&7
Blacksburg, Virginia 24061

Phone: (540) 231-1230
Fax: (540) 231-1402
sanrem@vt.edu
www.oired.vt.edu/sanremcrsp

Trip Report: Senegal and Zimbabwe October 4-15, 2006

Dr. Paul Reed Hepperly and Dr. Amadou Makhtar Diop,
The Rodale Institute, Kutztown, Pennsylvania

Purpose of Trip: The trip had three main purposes: 1) to gather information for the SANREM knowledge base; 2) to contribute background to field systems analysis in our chapter; and 3) to provide information for case study.

Description of Activities:

We met with partners for the SANREM program, discussed in-country activities with USAID missions in Zimbabwe and Senegal, met with gardening and farmer groups in the two nations, and completed a background search on information in the targeted zones of study. Conditions in each country were also reviewed to provide materials for our case study which included NGO, USAID mission and farmer priorities. Agricultural production zones in both countries were visited and we met with representatives of Africare, USAID, the Regional Research Center for Adaptation to Drought (CERAAS), local NGOs and the government to strategize on where efforts are needed to confront the major in-country challenges. We also provided technical consultation to the groups we met in relation to soil improvement, cropping systems, carbon sequestration, and developing organic agriculture enterprises.

In Zimbabwe, we visited garden initiatives at six sites. At each, we met with about 30 gardener participants, about 80 percent of whom were women and girls. We also reviewed micro-enterprises based on village processing of products such as soybeans for oil extrusion and protein meal. We discussed with the gardeners the potential to increase both profits and nutritional benefits by selling not only extruded oil but also ready mixes of feed and food components. The cooperative contacted had no previous knowledge of the potential advantages of ready-mix feeds as a potential income source.

In Senegal, we met scientists at CERAAS. In all our visits, we emphasized the need to build up soil organic matter to combat the major limitation of insufficient water for crop production. We provided them with an update of The Rodale Institute's best management practices, which would have to be scaled up to achieve significant improvement of the farming systems in Senegal

In both Senegal and Zimbabwe, the erosion of soil and depletion of its organic levels are serious constraints to meeting local food needs and preventing further desertification in both regions. SANREM needs to put more emphasis on soil resources which have not been attended to, in the current portfolio of projects. The Rodale Institute's project in the village of Tatene (Department of Thies) helped communities to reclaim in three years more than 100 hectares of land that had been out of production for decades because of soil erosion.

We also met with the USAID Senegal mission, the director of Innovation, Environment, and Development (IED—a Senegalese NGO), and the regional director of Africare to review and discuss area-wide challenges and foster collaborative relationships.

While there is nothing inherently amiss in emphasizing profitable export markets, in two countries characterized by shortages of basic foodstuffs and high staple food prices, such emphasis is questionable as a sole priority. Given the reality, there should be greater emphasis on basic food production and conserving the natural resource base, especially soil.

Together with CERAAS and Innovation, Environment and Development (IED), The Rodale Institute could be instrumental in increasing the emphasis on food and diet in addition to the current focus on value-added export opportunities. With IED, we discussed the importance of integrating livestock and crop production, which we believe will be key in improving agricultural productivity in Senegal.

In West Africa, the principal problem for staple grain production is the proliferation of witch weed (*Striga hermetical*). Efforts to combat the weed have not been effective to date. We observed serious infestation when we visited millet crops in the peanut basin of Senegal. The Rodale Institute's program has tested *striga*-resistant cow pea varieties from IITA) and has found that intercropping with millet has significantly reduced *striga* infestation. More research needs to be done on this topic. Composting may also reduce *striga* infestation and provide a better environment for plant growth.

More importantly, though, may be teaching farmers how to renew their seed sources with the help of the research institutions. The area's farmers also must practice effective crop rotation, trap cropping, and stale seedbed strategies to halt the worsening effects of *striga*. Lack of biological control of endemic pests is a core issue for sustainable agriculture, and production shortages lead to more tillage of less productive marginal lands. Increased extension emphasis is needed in local, regional, and international food programs, while existing extension agents need better training on technical matters.

Dr. James Dean of Africare expressed his interest in collaborating with The Rodale Institute. Africare and OICI are examples of robust extension-based NGO agencies with insufficient technical backgrounds.

Suggestions and Recommendations:

The biggest limitation in Zimbabwe is a lack of a marketplace economy and no coordinated plan to deal with shortfalls in agricultural production. Both production and calorie-intake statistics

show alarming negative trends over the recent years. Further, there is good evidence that El Niño events coincide with rainfall shortages, which have increased in recent years. This suggests that diversification of the agricultural system must be based on an advisory system to notify farmers of prevailing drought predictions based on El Niño phenomenon, which would empower them to adjust crop patterns and plant more drought-tolerant varieties when there is a high risk of low rainfall. Also, crop rotations could be based on those predictions, potentially reducing the impact of drought on food security. These rotations also could be based on introduction of more drought-tolerant crops and more efficient methods of using scarce water resources.

In addition, gardens in Zimbabwe are based heavily on rape green (*Brasica napus*), which does not provide all the necessary vitamins and minerals for a sufficient diet. Planting a much more diverse variety of vegetables is needed to optimize the national diet.

Both countries sorely need to reduce desertification and sustain organic matter in soils. Management techniques such as proper crop rotations, tillage alternatives, windbreak establishment, integration of livestock and crop production, and biologically based pest controls are highly effective. We strongly recommend that our partners in Senegal build on the two-decade experience of The Rodale Institute in the peanut basin. Best management practices developed using participatory approaches pioneered and developed by the institute in partnership with farmers and the national research institute can significantly improve agriculture productivity if replicated and adapted the rest of the country.

List of Contacts Made:

Name	Title/Organization	Contact Info (address, phone, email)
Mr. Paul Chenizadwe	Regional Representative, Africare-Zimbabwe	
Dr. James Dean	Regional Representative, Africare-Senegal	Africare B.P. 2272 CP 18524 Villa Macina – Rue Pyrotechnique/Stele Mermoz Dakar, Senegal Phone: 221-869-74-01 Fax: 221-860-32-51 E-mail: africare@sentoo.sn
Dr. Dogo Seck	Director, CERAAS	ISRA-CERAAS/CORAF BP 3320 Thiès Escale Thiès (Sénégal) - Phone : (+221) 951 49 93/94 Fax : (+221) 951 49 95 – E-mail : info@ceraas.org
Dr. Modou Sene	CERAAS	ISRA-CERAAS/CORAF BP 3320 Thiès Escale Thiès (Sénégal) - Phone: (+221) 951 49 93/94 Fax : (+221) 951 49 95 – E-mail : info@ceraas.org
Mr. Peter Trenchard	Economic Growth Program Chief, USAID	B.P. 49 Dakar, Senegal Phone: (221) 869-6100 Fax: (221) 869-6101 E-mail: 'ptrenchard@usaid.gov'
Dr. Aminata D. Badiane	Natural Resources Management Specialist, USAID	B.P. 49 Dakar, Senegal Phone: (221) 869-6100 Fax: (221) 869-6101 E-mail: abadiane@usaid.gov
Mr. Bara Gueye	Innovation, Environment and Development-Afrique (IED)	24, Sacré Coeur 3, Dakar B.P 5579 Dakar Fann Phone: (221) 867-1058 Fax: (221)867-1059 E-mail: baragueye@sentoo.sn
Mr. John Heermans	ULANAFA (IRG)	BP. 25740, Dakar-Fann, Senegal. Phone: (221) 832-6357 Fax: (221) 832-3355 E-mail: jheermans@irgltd.com