Feeding *the* Future

New expanded programme

The Sasakawa Africa Association (SAA) is to embark on a significant scaling up of its work in its four focus countries of Ethiopia, Mali, Nigeria and Uganda, which include more than a quarter of Sub-Saharan Africa's 400 million rural poor. At least half these people are food insecure and endure periods of severe hunger each year. Most of the remainder have yet to achieve significant improvements in either the productivity of their farming operations or their livelihoods.

The new expanded programme is a response to the changing needs of extension and the constraints to improving smallholder productivity in Africa. Government extension efforts have tended to favour smallholder farmers who, under normal weather conditions, are food secure and, as a result, better able to adopt new productivity enhancing technologies. With their efforts diminished by limited budgets, these public organisations have reached no more than 10 to 15 percent of the smallholders in the countries they serve.

Changing circumstances

As circumstances have changed, the national extension service systems have evolved. They have responded to the need for farmers to organise themselves into co-operative groups. They have become more engaged in marketing issues and they now partner with a broader range of service providers and agencies, often from the private sector.

However, in all four focus countries government and non-government extension service providers operate independently and suffer from weak inter-organisation co-ordination. Essential linkages between public research and extension are also weak. Virtually no services are provided to the extremely poor, who face serious resource constraints – financial, physical, environmental, health and educational. Moreover, government extension services are ill-equipped to support market-led smallholder agricultural development, which requires effective farmer associations, market intelligence information systems, and advisory services in post-production technology and quality control.

New objectives

To deliver on its mission in this more complex operating environment, SAA has developed a new operational strategy as well as a new organisational structure.

Operational objectives now include:

- The establishment of extensive hands-on crop technology learning platforms designed to directly involve 1 million smallholder households – some 6 million people – including about 300,000 women farmers. Productivity enhancing food crop technologies will be introduced, such as improved seed, better agronomic practices and relevant knowledge and information. Women and very poor smallholders, who have been largely excluded from extension support in the past, will provide a central focus in this process.

continued on page 3

Meeting the challenges

The new Managing Director of SAA, Dr Juliana Rwelamira from Tanzania, seen with smallholder farmers and their families on a recent visit to Nigeria.
Dr Rwelamira was appointed in June to oversee SAA's Africa-based operations from Addis Ababa, the rapidly developing Africa headquarters of the organisation, as it re-organises to meet the new challenges for Africa's smallholder farmers. She is an agricultural economist with over 31 years of experience in agricultural and agribusiness development in Sub-Saharan Africa.
For further information see 'new SAA structure', page 20.

Issue 25

Dr Norman E Borlaug
1914 – 2009
The death of Dr Norman Borlaug, President Emeritus of the Sasakawa Africa Association, in Dallas, Texas, was announced on Saturday, 12 September 2009 (see insert)

Inside

September 2009

Newsletter of the Sasakawa Africa Association

The Nippon Foundation

The need for better policies

Agricultural sector development is unparalleled in its pro-poor economic growth qualities. Research done by the International Food Policy Research Institute (IFPRI) shows that doubling the productivity of food staples across Africa by 2015 would raise average GDP growth to 5.5 percent a year, lifting over 70 million people out of poverty. These gains would work to ensure viable employment options for the estimated 80 percent of Africans who depend on agriculture in one way or another, and turn Africa from a food deficit area to a surplus region with 20 to 40 percent lower food prices.

Recognising this, the goal for the Alliance for a Green Revolution in Africa (AGRA) is to create a food-secure and prosperous Africa, based on improving the productivity, profitability and sustainability of Africa's millions of smallholder farmers, most of whom are women.

AGRA was founded two and a half years ago, created through the collaboration of The Rockefeller Foundation and the Bill & Melinda Gates Foundation. The UK's Department for International Development (DFIDD) has since joined as a core donor to AGRA and many others are looking to provide support. Since our founding, Mr Kofi Annan joined as chair of our Board of Directors, and we have launched four integrated programmes in seeds, soils, market access and policies and partnerships, along with a cross-cutting initiative on innovative finance.

Francis Kazibwe, a farmer in Mukono district, Uganda, looks forward to his green revolution

Our mission is ambitious: we work with our partners to catalyse a uniquely African Green Revolution, one which promotes equity, protects the environment and promotes change across the agricultural system. Our new strategy calls for focusing this work where it will make the biggest difference – in Africa's high-potential breadbasket areas.

To achieve these goals we support the development and delivery to farmers of high-yielding crop varieties that are adapted to local agricultural ecosystems. We work to replenish the depleted soils afflicting much of Africa's agricultural land. And we strive to create better market opportunities for smallholder producers while encouraging more responsive agricultural policies.

At AGRA we believe that achieving sustainable and systemic growth in the agricultural sector will require knowledge-based policies that create an enabling environment for private and public advancement in agricultural development. A paradigm shift is needed in Africa today from the old policies of abandonment to comprehensive policies promoting growth, sustainability and equity. Enlightened public policies are needed to improve incentives for the adoption of new technologies by smallholder farmers, build markets, facilitate trade, encourage private sector investments, and promote equity and sustainability.

The goal of AGRA's Policy and Partnerships work is to transform the current national agricultural policy environments that severely constrain the modernisation of African agriculture. This work engages governments and donors to promote smallholder-friendly policy changes that will help trigger an African Green Revolution. Some of the cross-cutting initiatives in policy include:

- **Promoting "smart subsidies"** AGRA has been instrumental in promoting and encouraging the adoption of "smart subsidies" (vouchers targeted to resource-poor farmers) to increase farmers' access to modern farm inputs in Kenya, Malawi, Nigeria, Tanzania and Rwanda. AGRA has helped to design effective country-specific systems and worked to ensure that governments are comfortable with this approach. In most cases, this work has been in parallel with efforts to build input markets by strengthening national networks of agro-dealers.
- **Developing seed and fertiliser policies** To enhance smallholder farmers' access to improved seeds and fertilisers, AGRA is playing a key role in the design and implementation of sectoral policies aimed at harmonising regional seed and fertiliser laws and regulations, eliminating tariffs and non-tariff seed and fertiliser trade barriers, reducing the time for crop variety release, and liberalising foundation seed production.
- **Developing the next generation of agricultural policy analysts** Through the Collaborative Master of Science in Agricultural and Applied Economics, AGRA will support the further development of advanced study programmes for training the next generation of policy analysts in agriculture and applied economics. These programmes will operate at 16 universities in 12 countries. Graduates will provide national and regional leadership in creating an enabling policy environment for Africa's Green Revolution.

- **Unlocking credit for smallholder farmers and agricultural entrepreneurs** AGRA's work has lead to a fundamental shift in thinking regarding innovative financing options to free up essential credit for agriculture. This includes credit for smallholder farmers, agro-dealers and agricultural enterprises across the value chain. With its partners, AGRA has used US$17 million in "loan guarantee funds" to leverage US$160 million in market-based and affordable loans through four major lending programmes initiated over the past 18 months.

AGRA also works to harmonise these efforts with national development frameworks and regional bodies, most notably New Partnership for Africa's Development (NEPAD)'s Comprehensive African Agricultural Development Programme (CAADP). AGRA's work is a collaborative effort with African governments and regional development frameworks.

A Green Revolution in Africa is achievable, but only if smallholder farmers are full partners in the effort to transform the continent's agriculture. They need to impact on policy decision making at national and regional levels – and we will work to give them the voice and influence that they need.

Dr Akinwumi Adesina,
AGRA Vice-President,
Policy and Partnerships

"Despite significant progress in the realm of economic development, most Africans remain mired in poverty. We must begin to address this problem at its core. In Africa, this means enabling small-scale farmers to grow and sell Africa's food. AGRA's goal is therefore to increase dramatically the productivity, food security and incomes of small-scale farmers, many of whom are women."

Kofi Annan, Chairman
Alliance for a Green Revolution in Africa (AGRA)

Editorial

Dr Norman Borlaug died as we were going to press. We reproduce his final editorial.

New priorities, new strategies

Over the past 23 years, it has been a great source of pride for me that SAA, in partnership with the Global 2000 programme of The Carter Center, has reached out to tens of thousands of frontline extension workers and several million farmers in 14 Sub-Saharan African countries to promote the use of higher yielding technologies for maize, wheat, rice, grain legumes and roots and tubers on farmers' fields.

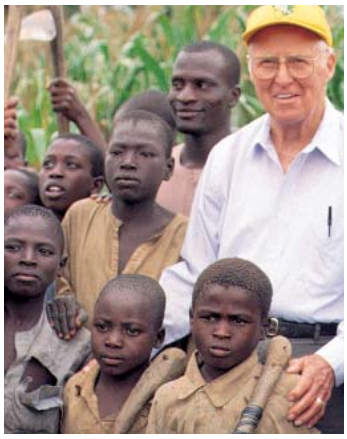
During these two decades, much has been accomplished by our SG 2000 country programmes and their many partners. And much has been learned. We have shown that there are many modern food crop technologies developed and available in Africa that can double, even triple, yields of these food crops. It is clear, too, that farmers are not only willing and able to intensify staple food production – they are eager to do so.

Yet there are formidable constraints to the broad-based adoption of improved technologies that must be overcome if Africa is to achieve its Green Revolution. Inputs are increasingly expensive and difficult for many farmers to obtain in the quantities they need, and when they need them. Prices for farm outputs are unpredictable, increasing the risk of using expensive inputs. Access to credit is limited. And most small-scale farmers are at the mercy of highly irregular rainfall.

If a vibrant, smallholder commercial agricultural sector is going to emerge in Africa, food supply chains must become more integrated. Local, national and regional markets must be more fully developed. The production and post-production quality standards of smallholders must rise to meet consumer expectations. And smallholder producers must become more attuned to market demands.

All these factors and more have contributed to decisions about the future of our operations and the challenges that we are best suited to address.

Fundamentally we remain committed to working with public and private extension providers to ensure the efficient and effective delivery of much needed technologies, knowledge and information to Africa's resource-poor smallholder farmers. But there are now new priorities and new goals for us to attain.



Dr Norman E Borlaug, SAA President

I commend our new strategy and objectives as we strive for that elusive Green Revolution in Africa.

Sasakawa Africa Association

The Sasakawa Africa Association (SAA) is the lead management organisation for Sasakawa-Global 2000 (SG 2000) projects and programmes in Africa. The Carter Center's Global 2000 programme, through former US President Jimmy Carter and his advisors, provides policy advice to national policy leaders in support of programme objectives. Funding for SAA and SG 2000 comes from The Nippon Foundation of Japan, whose Chairperson is Yohei Sasakawa and President Takeju Ogata.

New expanded programme *continued from page 1*

- The establishment of farmer learning platforms to demonstrate the economic viability of selected post-production technologies to improve smallholder commercial competitiveness. This will assist farmers in identifying promising value chains in targeted crops around which post-harvest and agroprocessing activities can be established. The capacity of extension service providers will also be strengthened to enable high-quality training and demonstration of post-production technologies for farmer groups. Potential new types of post-harvest equipment will be identified, and local manufacturers will be trained in how to properly produce the equipment.
- The creation of partnerships between government extension, private agribusinesses and non-governmental organisations to broaden the scope and impact of extension service provision. These partnerships will help farmer groups in dealing with marketing issues, build the capacity of private agribusinesses to engage with extension providers, and support community-based seed production activities and linkages with formal seed industry systems. A strengthening of the capacity for collective action of farmer associations in commercial markets is an important part of this objective.
- The expansion of SAFE (Sasakawa Africa Fund for Extension Education) with the overall objective of strengthening agricultural extension systems by building the capacity of extension professionals to serve a broader range of smallholder farmers. University training programmes will be expanded and greater gender balance achieved.

Lessons learned

The new SAA strategy and programme activities have been launched, funded by The Nippon Foundation. To reach the targets envisaged in the strategy, however, additional financial support will be needed, and SAA is presently working to augment its current funding. Over time, and to the extent that resource availability will allow, the plan is to capitalise on lessons learned in the four current SAA focus countries and re-establish Sasakawa-Global 2000 (SG 2000) programmes in a number of former project countries.

"We will be giving much greater emphasis than in the past to reaching women farmers and the very poor producers who have been bypassed by traditional extension systems," says Chris Dowswell, SAA's Executive Director for Programmes. "We will also be giving emphasis to value-adding post-harvest and agroprocessing enterprise development, and linking farmers more effectively to markets. We will strive to strengthen the critical linkages between agricultural researchers, extension professionals, farmers and input supply dealers.

"Finally, we will be investing heavily in monitoring, evaluation and learning. The work we are undertaking has never been done on this scale in Africa and we will need constant feedback on what is working and what is not."

Regional Rice

The two following sections, covering Regional Rice and Regional QPM / Seed represent a final report of activities for these programmes. They will now be included in a new thematic structure embracing productivity-enhancing food crop technologies available to all SAA focus countries. For further information, see page 20.

"Much has been achieved since the programme was started in 2005" says former rice director Dr Tareke Berhe.

"On one hand the change will appear to mean that SAA will dedicate fewer funds and less attention to rice. However, there will be more investment from individual countries due to the importance of the crop in all of them. With a reinvigorated extension system and a much greater number of farmers participating in improved crop demonstrations, rice will be given considerably greater impetus in our focus countries. And this will be a positive development."

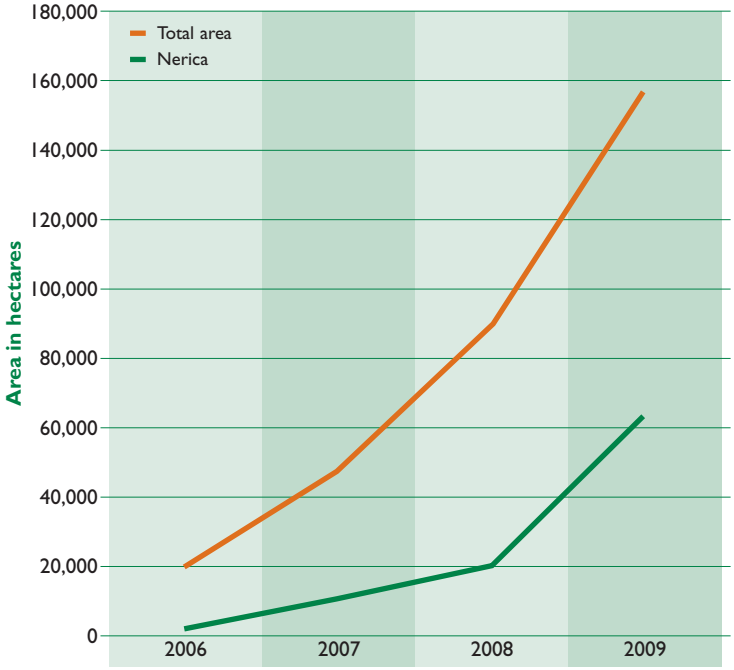
Now is the time to invest in rice, Tareke Berhe believes. The Africa Rice Centre's 2007 Brief on Rice Trends points to several disturbing developments. Consumption of rice in Sub-Saharan Africa is rapidly increasing, and while local production is also rising, the gap between local consumption and production is getting wider. Local producers, who have increased production mainly by expanding the area under rice, are not keeping pace with growing demand. Average rice yields have increased only marginally in Africa, and in many countries rice self-sufficiency is declining.

Still, in 2008 farmers in the four focus countries, encouraged by high prices and favourable policy environments, allocated more land, inputs and efforts to rice production. Governments and donors added their support in the form of subsidised agricultural inputs and assured accessibility. As a result, good harvests were reported in all four focus countries.

High yield NERICAs

In Ethiopia, the area under rice increased from 48,000 ha in 2007 to 90,000 ha in 2008, and plans for 2009 are to expand to 155,000 ha. The area under NERICA expanded from 11,000 ha to 18,000 ha over the same period. In Uganda, total rice production increased from 105,000 mt in 2007 to 140,000 mt in 2008. The increase was attributed to the high yielding NERICA varieties. This is particularly true in Ethiopia where increases both in total and NERICA areas have been quite dramatic (see chart). In the same period, Mali expected to harvest 1,000 mt of NERICA 4 seed to be used for producing an additional 4,000 mt of seed off-season, giving a total of 5,000 mt of seed for use in 2009. While no figures are available for northern Nigeria the situation is equally good, or even better, than in the other three countries, according to Berhe.

Trends in rice area expansion in Ethiopia



Rice threshing in Kano, Nigeria

Berhe is pleased by the interest, commitment and initiative taken by the governments of the four focus countries to promote rice production. "Apart from subsidising inputs," he says, "private manufacturers, processors and traders have all been encouraged to play their part."

The US $33 million African Rice Initiative, now in its fourth year, was created to serve as a single, focused channel for NERICA dissemination in Africa. Seven pilot countries were selected for the extensive dissemination of NERICA – Guinea, Ghana, Benin, Mali, Nigeria, Sierra Leone and Côte d'Ivoire, "and progress has been good," says Berhe. The donor, the African Development Bank (AfDB), is satisfied with the results and is helping to scale-up NERICA production in each country. Foundation seed has been made available to the pilot countries and is being multiplied in Benin, Guinea, Mali, Ghana, Burkina Faso, Nigeria and neighbouring countries, with funds provided by The Rockefeller Foundation, the Japan International Cooperation Agency (JICA), AfDB and the United Nations Development Programme (UNDP).

The Guinean representatives at the 2008 African Rice Initiative Executive Committee Meeting reported that Guinea had received US $5 million from the World Bank for NERICA rice promotion.

Berhe looks back on a year that saw the Regional Rice Programme involved in promotional activities such as the production of 200 mt of improved seed and its distribution to farmers, and the dissemination in the focus countries of over 200 improved germplasm varieties and improved lines from the Africa Rice Centre, the International Rice Research Institute (IRRI) and Madagascar. Four varieties have since been released and 93 pieces of post-harvest and agroprocessing equipment demonstrated in the four countries. More than 2,200 farmers and frontline staff were trained on various improved rice production technologies.

Challenges

While demand for rice in Sub-Saharan Africa continues to rise, many Asian countries have banned the export of rice to protect their stocks and prevent shortages in their own countries. The obvious answer for African countries is self-sufficiency, but this produces its own problems such as the spiralling cost of

Eunice, a rice trader, buys her stock from a mill in Palissa, Uganda

chemical fertilisers, which are now beyond the reach of resource-poor farmers.

"To face this first challenge, we must come up with alternative productivity enhancing technologies that are affordable for farmers," says Berhe. "We need to look closely at technologies such as rotations with legumes – soybeans, cowpeas and mucuna – which can result in half a ton to one ton yield increases or can reduce the N fertiliser requirement by half. Rotations can also be done with high-value, high-input crops such as Irish potatoes, tobacco and vegetables with very good results."

Berhe also points out the potential use of mineral rock phosphates. Countries such as Mali, Senegal and Uganda are rich in deposits and could make them available to other countries.

"Other possibilities are to be found in agroforestry and alley cropping, where International Institute of Tropical Agriculture (IITA) and World Agroforestry Centre (ICRAF) are good sources of technology," he adds. "N-efficiency can be increased by micro-dosing and pelleting, and by soil and water conservation measures, such as erosion control, conservation tillage and supplementary irrigation. And, of course, there is the use of compost."

Berhe points out that all the necessary information exists for the use of these different technologies, which does not mean that the use of chemical fertilisers should be abandoned. In fact, the results are even more dramatic when these technologies are used in combination with chemical fertilisers – increasing the efficiency and productivity of the fertilisers, adding plant food to the soil and improving the soil structure.

The second big challenge according to Berhe is the need to increase seed production and make it available to farmers. There is a serious shortage of rice seed in many countries, particularly in Ethiopia and Mali. "Ways must be found to encourage, support and, where necessary, finance the establishment of rice seed enterprises."

Challenge number three is how to increase small-scale mechanisation. "Soil preparation with the use of a hoe, harvesting with a sickle, and threshing using sticks and fuel drums will not lead to a green revolution. These centuries-old practices must go. It is time for a major increase in small-scale mechanisation."

Next on Tareke Berhe's list is challenge number four, which is how to bring about better gender balance in rice production. "More and more women are getting involved in rice production and benefiting from it. But more favourable circumstances need to be created for them for the figures to rise significantly." Berhe believes that the restructuring of SAA, with its increased emphasis on women farmers and strengthening extension, will have a major impact.

The important fifth challenge is that effective partnerships will need to be forged with national and international stakeholders involved in rice research, extension, production, processing and marketing. "This", says Berhe, "will be the only way of moving Sub-Saharan Africa from heavy reliance on food imports towards self-sufficiency – and possibly even further towards becoming a net exporter."

Coalition for Rice Development

SAA supports the objectives of the Coalition for Rice Development (CARD) which was launched at the Fourth Tokyo Conference on African Development (TICAD IV) in May 2008. SAA works closely with the Japan International Cooperation Agency (JICA), which co-ordinates CARD activities on rice development and NERICA dissemination in Africa. The overall goal of CARD is to double African rice production within ten years. CARD is a consultative group of major donors, rice research organisations and a number of other development entities.

At its first General Meeting in June last year, 12 African countries were selected from among those that had expressed an interest in the initiative, based on their potential as rice-producing nations.

By the time of the second General Meeting, in Tokyo in June, all 12 countries had produced a National Rice Development Strategy (NRDS) with technical support from CARD. These strategy documents will provide a common reference point for all countries involved as they strive to meet CARD's goals. The second meeting brought the selected CARD countries together with donors and technical organisations to discuss and define the strategies needed to expand their rice programmes. It was also joined by seven rice-producing South countries offering assistance and experience.

Opening the meeting the Chairman of AGRA (Alliance for a Green Revolution in Africa), Kofi Annan, said "the potential for increased rice production in Africa is huge. NERICA is high-yielding and has enormous potential to be adopted and grown in a wide range of rice-growing environments, not just paddies, but also in highlands – in places with no irrigation that no one before thought possible."

CARD's next stage will be to translate this progress into tangible outcomes on the ground to improve all aspects of rice production, and to strengthen the rice value chain. A mapping of all ongoing rice projects among the selected countries has now been completed, and a capacity building programme involving rice scientists, researchers and extension staff will soon be underway.

Dr I Akintayo, Director of the Africa Rice Initiative (left), and SAA's Dr Tareke Berhe in a NERICA 4 rice field in Loutana, Mali

Regional QPM/Seed

Commenting on the expansion of Quality Protein Maize (QPM) in recent years, the former director of the Regional QPM/Seed Programme, Wayne Haag, describes QPM as the first significant attempt at bio-fortification. "The nutritional value of maize has been enhanced through conventional plant breeding by raising the levels of lysine and tryptophan in the endosperm", says Haag. "This pioneering attempt at bio-fortification has led to the development of numerous viable agronomically acceptable products – both Open-Pollinated Varieties (OPVs) and hybrids."

Haag also points out that progress has been made to broaden the germplasm base of QPM and to reduce, gradually but consistently, the yield gap between QPM and common maize. Competitive QPM, OPVs and hybrids are now under production in 16 Sub-Saharan African countries and more are in the pipeline. This investment in QPM improvement is driven strongly by the International Maize and Wheat Improvement Center (CIMMYT), with strategic inputs from the International Institute of Tropical Agriculture (IITA) and national agricultural research services (NARS). Haag mentions the Crops Research Institute (CRI) in Ghana and the Ethiopian Institute of Agricultural Research (EIAR) as being most notable among the NARS.

Haag estimates that the area under QPM production in SSA is rapidly approaching 1 million ha. "Although significant, it still remains a small proportion of the total area cultivated for maize – with the exception of Ghana and Uganda, where major areas are covered with QPM."

In many countries, QPM promotional efforts involve the public sector extension services, ministries of health, and such seed enterprises as the Ethiopian Seed Enterprise (ESE) in Ethiopia and Tanseed in Tanzania. Production and promotional efforts are supported in Eastern and Central Africa through the Canadian International Development Agency (CIDA)'s QPM Development (QPMD) Project and Forum for Agricultural Research in Africa (FARA), Dissemination of New Agricultural Technologies in Africa (DONATA) and Association for Strengthening Agricultural Research in East and Central Africa (ASARECA), financed by the African Development Bank.

"Less has been done," comments Haag "on processing, value addition, utilisation and marketing. However efforts are being made through the ASARECA and QPMD projects. Opportunities do exist and producers should be organised to supply QPM for food relief efforts, and for animal and poultry feed producers and food processors."

Nutritional advantage

The relevance of QPM lies in its nutritional value. Immediately following the discovery of the effect of the Opaque-2 gene on increasing the levels of lysine and triptophan in the endosperm, nutrition studies were conducted to determine the potential of QPM in alleviating malnutrition.

In the 1990s, a Ghanaian nutritionist, Abenna Akuamoa-Boateng, was able to demonstrate that children weaned on porridge koko made from QPM gained significantly more weight and height than children given common maize porridge.

More recent studies have added to the growing body of evidence on the potential impact of QPM on human nutrition in Africa.

Last October, Dr Anthony Edusei of the Kwame Nkrumah University of Science and Technology, presented a paper at the Third African Nutritional Epidemiology Conference in Cairo recommending the widespread use of QPM, claiming that it holds great potential for preventing nutritional anaemia and protection against infections.

A paper delivered at the same conference by Dr Nilupa Gunaratna of the International Nutrition Foundation, called for a better understanding of food insecurity at the household level to enable a better targeting of QPM toward the most vulnerable in Ethiopia, Kenya, Tanzania and Uganda.

A further paper, published by Dr Hugo de Groote of CIMMYT, examined the contribution of maize to the diets of Kenyans, Ethiopians, Tanzanians and Ugandans, and identifies the sources of protein in their diets. The findings were that maize constituted the major source of protein in Tanzania (70 percent) and Ethiopia (64 percent), with lower levels in Kenya (38 percent) and Uganda (18 percent). Legumes accounted for 19 percent of the total protein intake in Tanzania, 24 percent in Uganda, and 35 percent in Kenya, but only 5 percent in Ethiopia. He concluded that QPM was likely to have more of an impact in areas where maize was the main source of protein.

"There is a moral imperative for investing in the development of bio-fortified crops such as QPM, the Golden Sweet Potato and Yellow Rice," says Haag. "QPM makes a valuable contribution to alleviating malnutrition among the most vulnerable."

Dr Mosisa Worku, Head of the Ethiopian Maize Programme, at Bako Research Station

Dr Godfrey Asea (centre), head of the cereals programme, which includes maize and rice, at Uganda's National Agriculture Research Organisation (NARO), inspecting a seed field with local farmers in Najja sub-country in Mukono District

Reversing decline

With respect to seed production, Haag has seen a dramatic change in recent years. "There is now a consensus that the way forward is to provide a sustainable flow of high quality seed to farmers through the development of effective public and private sector institutions."

He notes that various donors have made major commitments to the development of Africa's seed industry, including AGRA (Alliance for a Green Revolution in Africa) and the Seed Alliance. Haag also sees an "ever more active AFSTA (African Seed Trade Association)" as a significant development.

However years of decline in Africa's public sector plant improvement institutions will not be easy to reverse – even if there are notable exceptions, such as EIAR in Ethiopia. The seed market, too, is largely undeveloped and the risk faced by the industry high. Public-private partnerships are therefore essential to reduce risks to the private sector. The need to develop local private seed enterprises is fundamental – and they, in turn, should be free to form partnerships with foreign companies.

Quality control remains a problem. "Many seed companies and their outgrowers practice extensive seed production, which is meant to reduce production-related costs," says Haag. "But the result is often the employment of poor agronomic practice in the seed production fields. The answers are usually straightforward, such as proper plant spacing and stand, good weed control, clear labelling of the seed fields and building a walking path around the seed field to demarcate its boundaries. These actions could facilitate field inspection by seed certification staff, reduce costs and enable the fields to be used for educational and promotional purposes."

Quality control

Haag points to the example of the small quality control unit in the Uganda Seed Trade Association (USTA) and its team of independent inspectors who in turn monitor the work of the quality controllers employed by the seed companies. This industry complements the national quality control system.

"The effectiveness of USTA reinforces the importance of promoting more seed trade associations of this kind in Africa," he says. "The better, most technically oriented farmers – those able to invest in intensive production – should be chosen as seed producers. There should also be a relatively small number of growers. This will contribute to better seed quality and a reduction in the costs of quality control."

Farmers often blur the line between seed and grain, and Haag is keen to see them better educated on the importance of good seed. Seed enterprises should invite farmers to visit their seed fields and their processing and packaging facilities. Extension services and seed companies should set out field demonstration plots to exhibit their materials. Farmers who wish to produce and keep their own seed should be shown the correct production procedures, as well as improved procedures for drying, processing and storage.

Finally, he emphasises that seed storage from the breeder through the seed chain and retailing outlets, is a gigantic problem and a major contributor to seed insecurity in Africa.

Ambient Temperature Storage Technology can compensate for cold rooms that can sometimes turn into saunas, due to undependable electricity supply. This technology dries the seed to moisture percentages below what can be accomplished by the sun or forced air drying – usually accomplished with silica gel. Once dried, the seed must be sealed in containers that do not allow the re-absorption of moisture. The seed can be stored without the use of cold rooms, thereby providing an answer to many of Africa's seed storage problems.

QPM area estimates in Africa comparing 2008 with 2005

Estimates for 2008 were made by Dr Wayne L. Haag, December 2008

Countries of Africa	No. of ha 2008	No. of ha 2005	Increase No. of ha 2005-2008
Ghana	350,000	300,000	50,000
Mali	60,000	50,000	10,000
Benin	45,000	45,000	0
Burkina Faso	50,000	50,000	0
Uganda	125,000	100,000	25,000
Nigeria	40,000	30,000	10,000
Mozambique	30,000	25,000	5,000
Malawi	50,000	50,000	0
Tanzania	15,000	5,000	10,000
South Africa	10,000	10,000	0
Ethiopia	9,000	3,000	6,000
Guinea	10,000	10,000	0
Togo	30,000	30,000	0
Sudan	25,000	25,000	0
Cote d'Ivoire	20,000	20,000	0
Cameroon	20,000	20,000	0
Zambia	3,000	0	3,000
Senegal	28,000	0	28,000
Zimbabwe	6,000	0	6,000
Kenya	1,000	0	1,000
Total	**927,000**	**773,000**	**154,000**

Most of the area is covered by OPVs, hence all figures presented take into account estimates of new seed distributed during the year, farmer produced and kept seed and farmer-to-farmer movement of seed. Hybrids, currently only cover a small percentage of the area in Ghana, Tanzania, Uganda, Zimbabwe and Kenya, but are becoming increasingly important. In Ethiopia and RSA, all the area is covered with hybrids. The figures presented represent conservative estimates obtained from reliable sources.

Agroprocessing

Establishing farmer learning platforms to demonstrate the economic viability of selected post-production technologies to improve smallholder commercial competitiveness and livelihoods is a key part of the new SAA strategy as it scales up its work in its four focus countries.

Members of the Leye Agroprocessing Businesswomen's Group at Becho, Ethiopia

The agroprocessing sub-sector has expanded rapidly in these countries in the last few years and is now playing a crucial economic role in most African nations. The new SAA strategy reflects this changing reality.

"It is a reflection, too, that agricultural value-adding activities are making an increasing impact on agricultural GDP. Such activities now contribute about 35 percent of agricultural GDP in Ethiopia, Mali and Uganda and around 25 percent in Nigeria," says Toshiro Mado, Director of SAA's agroprocessing programme, "hence the need to decentralise and broaden our SAA programme as circumstances change and sector activities increase."

Mado points out that a close look at domestic value-adding activities reveals the special features of the food industry, and that an important factor underlying growth is market co-ordination of the food chain.

A survey of food and beverage companies in Ethiopia in 2006 showed that the number of bakery businesses is much larger than other food companies. Although most of them are small in size, the number of bakeries is increasing. The grain milling business of course supports the bakery business by supplying flour as raw material to bakers. These businesses are vertically integrated and the quality of the flour provided is a major factor in the quality of the bread produced.

Increased bakery sales stimulate the production of the grain milling business and, in turn, this increases demand for wheat from local farmers. "This is how the wheat value chain is developed," says Mado, "and further development will come as the bakery industry grows and its quality improves."

Expert help

In response, SAA in Ethiopia recently asked the Nippon Skilled Volunteer Association (NISVA), a Japanese NGO, to send a bread-baking expert to improve the bread-making skills of the technical staff who would then organise technical training for local bakeries. Kazuo Seki, who had just retired after many years of work in a bread-baking factory in Japan, accepted NISVA's invitation to visit Ethiopia and conduct a three-month technical training course. His key contact was Lidya Worku, home agent of the SAA/Selam VTV collaborative project. Home agents provide technical support to rural women farmers. Seki taught Worku how to improve bread quality and make several different types of bread.

"The most important factor in baking bread," says Seki, "is the balance of ingredients and complete control of the baking process".

He baked quality bread from locally available flour and other ingredients and impressed his Ethiopian colleagues with his rich experience and knowledge. He also demonstrated how other available products, such as potatoes and onions, could be used in the bread-baking process.

Lidya Worku is now taking her new skills to the Arsi Negele Farmers' Co-operative Union (ANFCU), which purchases wheat from member farmers. The bread produced is sold in their shop and delivered to restaurants and coffee houses in the town. ANFCU has demonstrated that the wheat value chain can be extended to wheat-based product marketing.

"ANFCU is finding that the margins of profitability in bread production are quite slim due to increased grain prices," says Mado. "Low profitability is perhaps one of the reasons why there is not much variety of bread in Ethiopia, apart from a few shops in the main street in Addis Ababa."

He suggests that there are two possibilities for improving the profit margins in the bakery business. "Firstly, production could be increased for a low but quick return. Secondly, new products could be made for a higher – and hence more profitable – unit result."

"What is certain is that new products can be developed by using a greater range of produce from neighbouring farms – and this, in turn, will open up new markets for locally grown products. Locally branded bread can also be made using such cereals as maize, rice and barley, as the main ingredients."

Women's groups

The increasing enthusiasm of women's groups for the agroprocessing sector was demonstrated recently at Becho, in Ethiopia, where Amina Mohammed, a local home agent, persuaded a women's group to start a local agroprocessing business to generate income. The group originally came together as a savings and credit co-operative.

At first the group was cautious about venturing into agroprocessing, believing that they could not process and sell their products in the town. However, Ayelech Lemma, senior home agent with SG 2000, Ethiopia, organised agroprocessing training for the group and, with Amina Mohammed, negotiated with the

nearby Farmers' Co-operative Union, to allow them to use some old offices as a sales shop.

Ayelech Lemma discussed with group members how they might improve the quality of their products. They agreed that this could be done by preparing tasting samples, which would then be offered to customers and shopkeepers to try.

"This helped the group to become market conscious," says Mado, "and emphasised the message that better quality brings better sales and income. The group members whose products were not so popular received technical advice from the home agent to improve quality. But, essentially, this quality control and marketing strategy was developed in discussion with the members of the women's group. This has improved the competitiveness of the products as well as meeting the requirements of the customers." Now market information is provided for all agroprocessing group members by the sales shop.

According to Toshiro Mado, this women's group in Becho shows how resource-poor rural farmers can improve market access through innovative institutional change. With the help of home agents, the group was transformed and is now going to open another small sales shop in the centre of town. Rural women's enterprises can be scaled up like this if home agents can be effectively mobilised. It is disappointing that the important role played by home agents goes unrecognised by policy makers – with the result that the number of home agents is decreasing across Africa. Says Mado, "we believe they fulfil a very useful role in rural communities and we work closely with them."

New maize sheller

As part of a regular process to improve the design and capabilities of agroprocessing equipment, a new maize sheller has been developed with Selam Awassa, collaborative manufacturers, in Ethiopia. The new sheller has increased its shelling capacity from 1.2 mt/hour to 2 mt/hour. Major improvements include the feeding hopper, body length and clearance adjustment system. Field testing of the sheller has demonstrated good shelling performance and negligible grain breakage at the moisture content level of 11 percent.

Work on design improvements of a prototype grain cleaner is also underway. "With an improved maize sheller and grain cleaner, farmer groups can produce first grade grain, which attracts a better price," says Toshiro Mado. "And they can become regular suppliers to the food industry which needs good quality raw materials. Many food industry companies import grain from outside the countries in which they are located because of the quality of the grain and its stable supply. Improving local agricultural products to meet food industry standards will help open opportunities for local producers."

Increased shelling capacity and first grade grain

New booklet

Toshiro Mado and Kyoko Saio, former Deputy Director of the Agricultural Research Centre of the Ministry of Agriculture, Forestry and Fisheries, Japan, have co-authored a booklet on agroprocessing technology for innovative value chain development.

Toshiro Mado describes the SAA/SG 2000 experience based on the premise that the further down the market channel agricultural products go, the less control producers have over quality and price. Conversely, the closer to the consumers the product gets, the more quality control is needed. The challenge for producers (farmers) is how to apply quality control down to the end of the long, complex channel from rural farms to major city markets.

Kyoko Saio draws on the Japanese and western experience where rapid industrialisation of the food industry since the 1950s, changes in distribution channels, developments in food preservation and distribution technologies, as well as changes in people's lifestyles have radically altered the flow from production to consumption.

He points out that rural production, rural consumption (RPRC) is the Japanese Ministry of Agriculture, Forestry and Fisheries response to the critical situation in rural areas and problems in the food system. The RPRC movement helps support nascent efforts of rural communities to help themselves. Farmers sell their products and value-added processed items through farmers' markets in towns, or through direct marketing schemes in schools, factories, offices and restaurants in local areas.

The philosophy behind the scheme is that local products are consumed in local areas. The size of the local markets is enlarged through the interaction of producers and consumers, and by the establishment of direct sales outlets for agricultural products, such as to schools or local restaurants. This reduces the gap between producers (farmers) and consumers.

For copies of the booklet contact Patrick Orr at Raitt Orr and Associates (details on back page).

SAFE

The Sasakawa Fund for Extension Education (SAFE) continued to expand its programme of academic training and development qualifications for mid-career extension staff in 2008/09. It now involves a total of 2,626 students, representing an increase of nearly 15 percent on 2007/08 figures. SAFE now operates 13 programmes in nine countries, all of which are making steady progress. The number of graduates and the demand for the programme is growing every year.

A farmer, Daniel Kasekani, showing his finger millet to Bunda students

SAFE Student Statistics, as of August 2009

SAFE Program Universities/ Colleges and Countries	Graduated	Current	Total
University of Cape Coast, Ghana (BSc)	301	52	353
Kawadaso Agric. College, Ghana (Diploma)	265	138	403
Haramaya, Ethiopia (BSc)	312	57	369
Hawasa, Ethiopia (BSc)	20	60	80
Makerere, Uganda (BSc)	171	17	188
Sokoine, Tanzania (BSc)	353	253	606
IPR/IFRA, Mali (Maîtrise)	62	90	152
Samanko Centre, Mali (Diploma)	50	25	75
Ahmadu Bello, Nigeria (BSc)	53	57	110
Bayero University-Kano, Nigeria	0	35	35
Abomey-Calavi, Benin (Licence)	9	45	54
Bobo-Dioulasso, Burkina Faso (Licence)	18	36	54
Bunda College, Malawi (BSc)	4	38	42
Sub total	**1,618**	**903**	**2,521**

Scholarships	Graduated	Current	Total
Diploma	6	0	6
BSc	32	0	32
MSc	58	3	61
PhD	3	3	6
Sub total	**99**	**6**	**105**
TOTAL	**1,717**	**909**	**2,626**

"We are encouraged once again to see significant improvement in stakeholder participation in the programme in some of our countries," says Dr Deola Naibakelao, Managing Director of SAFE. "We are also striving to recruit more women to our programmes."

Ahmadu Bello University (ABU), Nigeria, has seen increasing demand for places on its programme, but limited capacity restricted admittance to 22 students in the 2007/2008 academic year. The SAFE programme at ABU was fully accredited by the National University Commission (NUC) in May 2008, and so far a total of 37 students have graduated from the course. Students' Supervised Enterprise Projects (SEPs), which covered a wide range of technologies, were particularly successful and were widely accepted by farmers.

Unfortunately, however, the low level of female participation in the programme remains a challenge in Nigeria, as in most of the countries where SAFE operates.

The first group of 35 SAFE students began its studies at Bayero University-Kano (BUK) in Nigeria in February 2008. The 32 men and three women came from the Agricultural Development Projects (ADPs) in northern Nigeria, where SG 2000 is involved in partnership projects. Here, BUK and SAFE have decided to establish a stakeholders' forum to share ideas and move the programme forward. Major participants will include the Ministry of Agriculture, ADPs, NGOs and local government and private sector representatives. The SAFE programme at BUK was approved by the National University Commission (NUC) in early May 2008, with full programme accreditation expected in early 2009. "We have been delighted to work with BUK this year," says Dr Naibakelao. "The University's leadership is truly committed to the SAFE programme, through the personal effort and attention of the Vice-Chancellor."

In Mali, the third batch of mid-career students at the Polytechnic Institute for Training and Applied Research (IPR/IFRA) graduated in December 2008. There are currently 90 students in the programme. Meanwhile, Samanko College produced its first group of diploma holders in October 2008. The Mali government continues to give full support to the SAFE programmes both at IPR/IFRA and Samanko College through the Ministry of Agriculture (MoA) and the Ministry of Education (MoE), having created a specific budget line for this purpose. The MoA takes charge of SEP supervision every year, as well as providing technical training materials for the two programmes.

Although SAFE funding at Haramaya University in Ethiopia has ended, the University has made tremendous efforts to ensure the sustainability of the programme. The programme completed ten full cycles with the graduation of 34 students in July 2008, of whom six achieved "great distinction" and a further six, including one woman, were given a "distinction". Demand for the SAFE programme remains high in Ethiopia, as in other countries. The country currently offers two courses, but there are around 60,000 diploma holders who hope to get the opportunity to undertake degree programmes in extension.

Mobile communications

The Department of extension at Hawassa University in Ethiopia successfully conducted two SEP field supervision trips in March and July and for the first time supervisors were able to make follow-up contact with the students to bridge the long gap between field visits by mobile phone. Most students now have their own mobile phones and are easily contactable.

Hawassa University has accepted its second intake of 32 men and 6 women students. The first intake group is making progress and is currently conducting SEPs in the field. The Department of Extension organised a very successful workshop on SEPs at which third-year students reported on their SEPs, while second-year students presented proposals for their eight-month projects. Students received combined feedback from their fellow students, as well as from employer representatives and university staff, all of whom benefitted from the opportunity to learn more about the SEP concept and examine some of the implementation challenges.

Makerere University in Uganda has recently decided to admit students without experience into its mid-career programme. SAFE is mandated only to invest in training for people who already have effective working relationships with farmers, rather than for school-leavers, so henceforth SAFE assistance will focus on the distance version of the mid-career programme which is currently developed by the university.

SAFE successes

A tracer study of SAFE graduates in Ghana was conducted in 2008, and the findings were encouraging. Most of the graduates have been promoted, attained higher supervisory positions and received increments in salaries and other benefits. Dr Naibakelao concludes that the graduates constitute a true pool of change agents in the agricultural sector in Ghana, given their increased responsibilities and the high and sound competencies that they have acquired.

Ghana's University of Cape Coast (UCC) continues to be considered a reference institution by all SAFE participating universities and colleges. It has developed and signed Memoranda of Understanding (MOUs) with several other universities in West Africa, and plans are underway to set up similar collaborations with universities in East Africa. SAFE/UCC graduates continue to achieve good grades, and 26 students were admitted into the programme in the 2008/2009 academic year, including two students from the Ghana Coco Board and one student from Mozambique. Under the UCC's leadership, the diploma programme at Kwadaso Agricultural College (KAC) is making significant progress. The course had a huge number of applicants for 2008/09, admitting 60 students, the largest number so far. The success of the KAC programme has prompted the Human Resources Directorate of the MoA to start a Diploma in General Agriculture based on the SAFE model at three institutions in Ghana.

Following lengthy discussions, Sokoine University of Agriculture (SUA) in Tanzania has stopped recruiting high school graduates into its mid-career programme. All 106 students recruited into the programme last year are diploma mid-career professionals, and fifteen of them are women. Bunda College in Malawi held its first SEP workshop at which the final year students presented their project proposals. As well as providing combined feedback and advice to the students, the workshop also afforded an opportunity for Bunda College to showcase the strengths of the programme, which was very helpful in the face of recent changes to senior management staff in the Ministry of Agriculture and Food Security.

Martha Bvumbwe (right), a mid-career student at Bunda in Malawi, discussing her vetiver conservation project with a group of farmers

Regional activities

Ahmadu Bello University in Nigeria hosted a regional technical workshop in April 2008 for all the SAFE-participating institutions in West Africa to share experiences and discuss ways of sustaining the various SAFE programmes in the sub-region. The major conclusions for ensuring sustainability included mainstreaming of the SAFE programmes into the overall university system, sustained advocacy activities by Vice-Chancellors and Principals, use of mass media to sensitise stakeholders and the general public, publicising successful SEP projects through mass media, and engaging in projects and activities that can generate income internally.

Gender workshops were organised in the four SG 2000 countries to identify ways of reaching more rural women farmers and increasing female enrolment in the SAFE programmes and faculties. The workshop discussions produced several practical recommendations for ways of improving the gender balance across SG 2000 and SAFE staff and students.

The SAFE alumni association in Mali has very active members, who often participate in overseeing students' SEPs all over the country. The association has also produced its first newsletter, and has increased the publicity of the programme through its publications and various meetings with the general public. In December 2008, it organised its first conference, which aimed to review the agricultural extension system in Mali and suggest ways to co-ordinate the various agricultural service providers.

"The participation of graduates in the training of their fellows, as we have seen in Mali, is laudable," says Dr Naibakelao. "We now need to engage all the existing alumni associations in similar meaningful activities, so they can demonstrate their worth."

Staff changes

Dr Moses Zinnah, co-ordinator for West Africa, left SAFE at the end of June 2008 after fifteen years of committed service. Dr Zinnah has taken a position at the Ministry of Agriculture in his home country, Liberia.
Dr Mercy Akeredolu, former co-ordinator for Mali and Burkina Faso, has taken over as co-ordinator for West Africa with residence in Nigeria, and Dr Moctar Kone has been appointed co-ordinator for Mali.

SAA country profiles

Ethiopia

The country has two rainy seasons per year: the shorter 'belg' season between February and April, followed by the main 'meher' rainy season from May to September. Up to 20 percent of the country's total annual grain production comes from areas that depend on the belg season – but last year, and again this year, the short rains failed, leading to a drop of between 15 and 20 percent in productivity.

In both years, too, the late onset of the meher rainy season led to a delay in the planting of long season crops, such as maize and sorghum. In 2008, these late-sown crops benefited from the unexpected extension of the meher season into late-September and October, but unfortunately this also had a negative impact on the quality of the early-maturing crops.

Other factors that exacerbated food insecurity last year included water-logging of soils, the high price of fertilisers, which discouraged their use, infestations of pests and diseases, and high grain prices. The combined effect of these factors caused problems for the areas that depend most on short rainy seasons.

New crop production technologies

SG 2000's Ethiopia Project continues to conduct demonstrations of improved crop production technologies on farmers' fields in the major crop production areas of the country, in collaboration with Departments of Agricultural Extension at the federal, zonal and Woreda district levels, National Research Institutes and other key stakeholders. Some of these technologies – most notably, the Broad Bed Furrow (BBF), the improved Broad Bed Maker (BBM), and conservation/ minimum tillage agronomic practices – have been used for on-farm demonstrations for quite some time. These technologies are now being promoted by the government and are being scaled up by farmers in areas where they have been found most beneficial.

The Broad Bed Maker has great potential for improving Ethiopian agriculture. There are about 13 million ha of vertisol areas in Ethiopia, of which only about 2.5 million ha are currently cultivated. The rest are used for natural grazing or left as flooded wasteland and used as communal grazing areas for livestock in the community. Vertisols are heavy black clay soils that are difficult to work with: they get sticky when wet, crack badly when dry, and remain water-logged during the rainy season. Most Ethiopian farmers therefore consider vertisols to be inferior; however, with improved drainage, such soils have great potential for crop production.

Wheat grown on raised beds using the Broad Bed Maker

In vertisol areas, crops such as tef (Eragrostis tef), the major cereal in the country, Noug and Guizotia abyssinica (an oil crop) are generally planted during the rainy season, since they are not seriously affected by water-logging. By contrast other crops, such as chickpeas and wheat (especially durum wheat), are planted towards the end of the rainy season when the rains start tapering off.

SAA's project co-ordinator for Ethiopia, Dr Aberra Debelo, explains, "in order to overcome the adverse effects of water-logging, Ethiopian farmers have been practicing different methods for draining excess water from their croplands. Until recently, the primary approach was to make raised beds by hand, requiring intensive family labour, or narrow

Impact of BBM technology

Thanks to BBM technology, wheat is now widely grown in the Becho area. Farmers have witnessed dramatic increases in yields, which averaged as much as 28 quintals per hectare. Wheat has now become the second main crop next to tef. Prior to the introduction of BBM in Becho, wheat production was contained by water-logging and muddy soil, and farmers were forced to delay planting wheat until the end of August in order to avoid these pitfalls. But today farmers plant wheat earlier in June and harvest a crop by the beginning of October, a post-harvest time when cereals fetch high prices.

The BBM technology has been improved significantly through farmer-based research. Originally two ploughs and two men were used, but today only a single plough is needed. Also farmers have invented a wooden BBM known as 'shaga', which has helped to solve the problem of heaviness of BBM technology.

From CIMMYT / SG 2000 Monitoring and Impact Analysis, December 2007

Partial budget analysis and profitability of BBM technology

Cost/ income	Without BBM technology	With the use of BBM technology
BBM purchase	0	90 birr
Labour cost for planting	(4 days x 15 birr) = 60 birr	(1 days x 15) = 15 birr
Average yield of wheat/q	5 quintal	28 quintal
Price of wheat/q	349 birr	340 birr
Other costs/ha	400 birr	400 birr
Net income/ha	**1,240 birr**	**9,015 birr**

The use of BBM technology has a net benefit of 7,775 birr per hectare. This does not include the benefit from a second harvest, now possible after the use of the technology.

One US dollar = 11.3 birr

beds called 'shurrubes' or 'dirdaro' made with a local plough, which make more furrows than are necessary and lead to land wastage. These methods proved inefficient so many producers in vertisol areas tried a different approach: they delayed the planting of crops such as wheat until the meher rains end in early September. The problem with this practice is that it often exposes the crop to moisture stress during the grain filling part of its life cycle, thereby resulting in low grain yield."

A solution pioneered by SG 2000 Ethiopia is the use of the Broad Bed Maker, a simple and locally manufactured farm implement that is attached to the usual, locally produced ploughs used by farmers. The implement is pulled by a pair of oxen through the soil, and the plough makes furrows while its two wings scoop the soil towards the middle to make a raised bed that is about 80 cm wide and about 15 cm high. The two furrows located on either side of the bed serve as outlets for excess water, thereby improving the drainage of the soil. This system allows early planting of wheat, followed by planting of a second crop of legumes on the residual moisture immediately after harvesting the wheat. Normally there is rainfall soon after planting, which helps the crops complete their life cycles. This practice, in addition to enabling the farmers to increase their annual farm income from the same plot, also provides an opportunity to improve the fertility of the soil for the next crop.

Following a series of demonstrations of the BBM conducted by SG 2000 and scaling-up efforts of the Extension Departments at federal, regional state, zonal and Woreda level, a large number of farmers quickly embraced the new technology and scaled up the equipment for use over a total of 132,841.5 ha of plots of wheat during the 2008 season. Each plot is 0.5 ha in size, and the project spans 15 zones and 68 districts of the regional states of Amhara and Oromiya.

In Oromiya Regional State alone, the BBM was used by farmers on 37,283.5 ha in seven zones and 57 districts, and in Amhara Regional State, 8 zones and 12 districts scaled up BBM use on 94,275 plots of wheat. The average grain yield of wheat grown on the BBM plots was over 2.8 tons, compared to 0.8 tons produced on the flat beds traditionally established by farmers.

Conservation tillage/minimum tillage

The primary function of conservation tillage (CT) is to reduce soil erosion and conserve soil moisture. Farmers in Ethiopia tend to plough frequently, between three and eight times before planting to kill weeds and prepare smooth seedbeds for good germination and plant growth. However, this approach also pulverizes the soil and destroys its physical structure. With each ploughing, the topsoil and soil organic matter are exposed to erosion by rain and wind. This causes fertility to decline and reduces the water-holding capacity of the soil, rendering it unproductive over time. Furthermore, it allows soil moisture to evaporate, making crops more vulnerable to moisture stress later in the season and reducing yields. In order to arrest the loss of the topsoil, build organic matter, improve soil structure, and enhance water and nutrient capacity, the traditional system must be exchanged for a conservation/ minimum tillage approach.

In conservation tillage the only disturbance to the soil is to dig a small hole or narrow trench to apply fertiliser and plant seeds. Crop residues are left on the farm plots as long as possible after harvest to protect the soil and the crop against erosion and water runoff, reduce soil moisture evaporation and inhibit weed germination. Conventional weeding is replaced by a non-selective glyphosate herbicide called Roundup, which is applied to actively growing weeds seven to ten days before planting. This creates good conditions for seed germination, plant growth and effective weed control, as the dried up weeds become part of the crop residue. For long-term sustainability, crop rotations are still needed to minimise the build-up of pests or diseases and optimise plant nutrient use at different soil depths through synergy between different crop types.

"Here in Ethiopia, 89,030 farmers have scaled up CT technology on maize in six zones and 17 districts, on a total of 44,515 plots of 0.5 ha in size," reports Dr Debelo. "This was in the regional states of Oromiya and Amhara where we have already demonstrated the technology to farmers, who found it suitable. In Oromiya the average grain yield of maize under CT was estimated at 5.5 tons/ha, and 5 tons/ha in the Amhara Region."

Similarly, tef CT was scaled up by farmers on a total of 2,458 plots of 0.25-1.00 ha each, in four zones and five districts of the same states. In Ada'a and Lume districts in the East Shewa Zone of Oromiya, an average grain yield of 1.5 tons/ha was estimated for some 400 ha, while in the Dejen districts of East Gojam zone in Amhara, the yield estimate on 200 ha was 1.7 tons/ha.

Prior to the implementation of the programme, training on maize and tef CT was provided to development agents and farmers of the Woredas or districts of the regional states where scaling up was to be carried out, as indicated below.

Unfortunately, Ethiopian farmers do not often reap the long-term benefits of the CT technology because they are reluctant to leave the required 20 to 30 percent of crop residue on their plots after harvest. Often they have no alternative but to use the crop residue as fuel for cooking and as livestock feed. As a result, farmers in most parts of the country apply CT technology only for its advantages in terms of savings in labour, time, oxen power and its profitability over the conventional tillage. Only in the East and West Wollegga zones of Oromiya regional state have farmers begun to get the full benefits of CT.

Scaling up CT technology

Technology to be scaled up	Region	Zone	No. of participants by category		
			DA	Agric. experts	Farmers
Maize CT	Oromiya	West Wollegga	105	31	2,048
		East Wollegga	15	9	125
		Jimma	28	5	100
		West Shewa	36	6	626
	Amhara	West Gojam	90	28	1,456
	Total Maize CT		**274**	**79**	**4,355**
Tef CT	Oromiya	West Wollegga	-	-	46
		West Wollegga	-	-	217
		Jimma	-	-	100
		S/West Shewa	46	11	284
		East Shewa	60	7	1,411
	Amhara	East Gojam			400
	Total Tef CT		**106**	**18**	**2,458**

Mali

While the previous year's rains in Mali were erratic, rainfall in 2008 exceeded expectations and was generally well distributed. By mid-July last year, Mopti had received 110 percent more rainfall than in 2007 – with Bamako registering a 72 percent increase and Kayes 55 percent.

Country Director Marcel Galiba was therefore able to report with confidence that "the 2008 growing season showed an unusually good pattern of rainfall, good runoff from flooding, limited pest and disease pressure on crops, and continued progress of farming activities."

Results from the agricultural sector were "extremely encouraging". The 2008/9 production of cereals in Mali was the highest since the country started collecting data in 1964. A major objective of increasing rice production by 50 percent was reached. This record-breaking achievement allowed Mali to attain a gross surplus of 48,000 mt. Grain availability per capita reached 290 kg, 35 percent above the official minimum consumption standard of 214 kg per person per year.

"The food outlook for 2009 is good", says Galiba, "and for all parts of the country."

This success partly compensates for a serious reduction in cotton production – with the 2008/9 season producing 240,237 mt compared with 480,474 mt in 2007, which in turn was about 40 percent less than in 2006. The cotton industry employs some 3.5 million people and is a crucial part of Mali's economy.

Rice initiative

The dramatic rise in rice production was triggered by the decision of the government to launch an initiative with the objective of making Mali self-sufficient in the crop by 2009. A two-pronged strategy was put forward: to increase the productivity of the different production systems in the country through intensification; and to add value to the crop by establishing adapted and viable rice processing units. Water, of course, was needed, as well as seed and fertiliser. Mechanisation also had to be introduced and equipment provided for small-scale farmers.

Between 2007 and 2008, Mali produced 1,082,384 mt of paddy.

Africa Rice Initiative Committee Members: Dr Yacouba Doumbia, Mali (left), Dr I Akintayo, ARI/WARDA (centre) and Ali Conde, Guinea (right) in a NERICA-4 seed production field in Koulikoro, Mali

The target for the rice initiative was 1,618,232 mt of paddy – a near 50 percent increase. The planned production target is enough to cover the country's needs of 900,000 mt of decorticated rice and allow a surplus of 100,000 mt for export to neighbouring countries. A total of 602,923 ha was earmarked for production; with an average yield of 2,684 kg/ha for all five of the rice production systems in Mali – including a targeted 138,000 ha for upland NERICA, making it the second largest rice production system in the country. Seven donors provided a total of nearly 10 billion CFA – the rough equivalent of US$ 5 million – in support of the rice initiative.

For this major operation, the government subsidised the cost of seed by 60 percent and fertilisers by 50 percent. To improve field monitoring, 102 community-based extension agents were recruited, trained and given motorbikes.

Paddy production reached 1,624,436 mt. "To the great satisfaction of the entire country," says Galiba, "the target of a 50 percent increase in production was achieved with flying colours. It was a national success story."

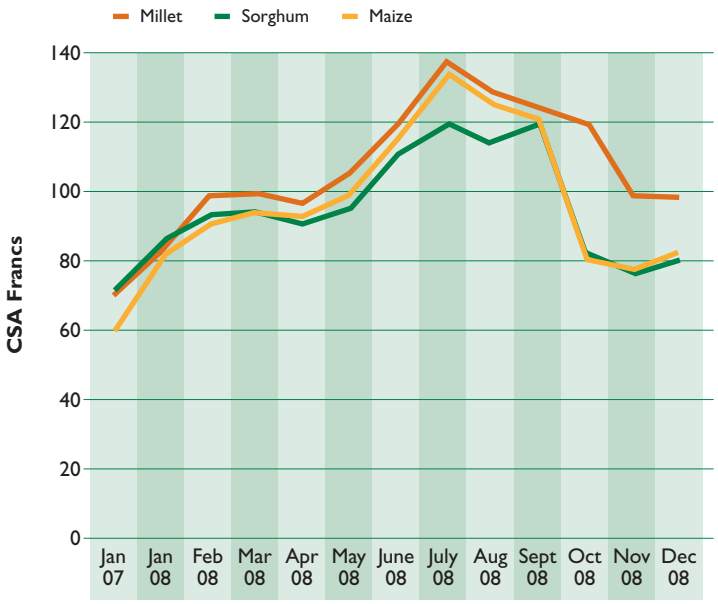
Cereal production as a whole rose by 26.7 percent – with 33 percent attributable to rice, 30 percent to millet, 22 percent to sorghum and 15 percent to maize.

"As we have said for many years, intensification through good seed and fertiliser is the prime mover for agriculture," says Galiba. "In this case we had the commitment of a government determined to achieve its target."

Price Fluctuations

The year 2008 was a special one in terms of commodity price fluctuations. Rice, as the first choice among staples, mainly among urban dwellers, always attracts the highest price per kilo, followed by millet and sorghum, with maize being the cheapest. In November 2008, rice reached 351 CFA francs per kilo compared to an average of 209 CFA for the period from January 2001 to December 2007. Historically, maize has experienced a collapse in price between October and November each year, usually ending up a poor third behind millet and sorghum. But in 2008, the price of maize did not collapse. It was on a par with millet and ahead of sorghum. The good returns from maize prompted many farmers to sell quickly and not wait for payments through the warrantage system. With the rice initiative persuading many farmers to grow upland rice, maize is no longer flooding the market with the resultant drop in price. Instead, maize now competes favourably with millet.

Millet, sorghum and maize price fluctuation in 2008



Seed Stock Exchange

Minister of Agriculture Tiemoko Sangare launched Mali's new National Seed Stock Exchange (NSSE) at a two-day event in Sikasso in May 2008, partly in response to the lack of profile given to seed on the National Cereal Stock Exchange. The Minister used the opportunity to stress the importance of improved seed for successful agricultural production.

The event was repeated at the end of April this year in Ségou with seven organisations contributing to the cost, among them the Syngenta Foundation, the West African Seed Alliance and PDRN (NERICA Rice Development Project).

Eleven commodities were offered amounting to over 2,433 mt of certified seed – with maize seed ranking first in terms of supply, followed by rice, millet and sorghum.

"It is worth stressing the high average price of millet and sorghum compared with maize and rice," says Galiba. "Last year, rice seed – mainly NERICA 4 – was in great demand but the government failed to obtain two million dollars' worth of NERICA 4 seed from Uganda due to export barriers. One of the impacts of the 2008 rice initiative has been to increase seed stock among rice growers, so demand has not been such a problem."

Galiba also points out that pulses, mainly groundnuts and cowpea, are attracting good prices. Groundnut seed is also a hot commodity in the West African sub-region.

The 2009 NSSE was even better than 2008 for seed growers, with purchases amounting to 145.4 million CFA. SEDAB Ltd (Senegalese AgroBusiness Enterprise) signed contracts with three Sikasso co-operatives for 50.4 million CFA. There are plans to produce hybrid seed for maize and sorghum during the 2009 growing season.

Mali has benefitted, too, from the Millet and Sorghum Initiative, with phase two being launched in Burkina Faso, Niger, Senegal, Chad and Mali in January last year with the support of IFAD (International Fund for Agricultural Development), CIRAD (Centre de Coopération Internationale en Recherce Agronomique pour le Développement) and SG 2000. Among selected activities, Mali has validated tests for millet threshers – with three threshers being made by Malian manufacturers and one imported from Senegal. The Malian threshers were cheaper than the Senegalese version and single crop threshers were found to be more efficient than multiple crop threshers.

"A further innovation," says Galiba, "is to add a grain cleaner to the thresher, which can be used in three ways – manually, with an engine or with an engine and a blower. The technology is being shared with other countries involved in the initiative."

Meanwhile a further initiative, Purchase for Progress (P4P), supported by the Bill and Melinda Gates Foundation, was launched in Mali last May. P4P Mali will buy 1,500 mt of millet/sorghum this year from about 2,700 small-scale Malian producers, of which at least 30 percent are women. These farmers will gain by improving their production and access to markets, and in so doing increase their incomes.

SG 2000 will be involved in the delivery of the millet/sorghum, with some 300 mt being bought from farmers' groups that SG 2000 helped organise. "With over five years of contract farming with co-operatives in Ségou and Sikasso, we are ready for the challenge," says Galiba.

Mali is now set to benefit from the scaling up of SG 2000 activities (page 1). Four regions of the country will be involved – Koulikoro, Ségou, Sikasso and Mopti – with some 1,500 villages targeted over a five year period. This effort will ultimately benefit a rural population of more than a million people.

The focus will be on learning and demonstration with the emphasis on the poorest farmers and women. Millet, sorghum, rice, maize, wheat, fonio, groundnuts, cowpea, sesame and vegetables (onions, tomatoes and shallots) will be the key crops involved.

Galiba reports that the Niet@kene – the development centres established with SG 2000 assistance to provide a range of facilities and services for local farmers – have been handed over to local stakeholders, as have all CREPs, the rural savings and loan schemes set up by the programme over a decade ago.

Promoting QPM

A nutritionist from Benin, Madode Michelle Glidja, has been working with the QPM programme in Mali for three months. During her stay, she was able to demonstrate 15 different ways of preparing maize to women from six villages in Sikasso Region – staying for a week in each village.

She also gave a special food demonstration at the two-day National Seed Stock Exchange, during which participants were able to test six different maize meals. Three special products were also demonstrated – fufu, maize yogurt and maize (slightly fermented) soft drinks. The national television station made a documentary film of her work, which was shown several times. Plans are now underway for a school feeding programme and the marketing of products demonstrated by Madode Glidja.

Maize promotion: women are trained on maize dishes at Selinkegny

Rice production systems in Mali and acreage for 2008-2009

Production System	Acreage (ha)	%
Free Submersion	251,310	42
Upland (NERICA)	138,000	23
Irrigation Complete Control	125,048	21
Controlled submersion	74,365	12
Lowland	14,200	2
Total	**602,923**	**100**

Source: Ministry of Agriculture, General Secretariat, November 2008

Nigeria

The Government of Nigeria has reaffirmed its commitment to supporting agriculture, as enshrined in its seven-point political agenda. The lingering crisis in the Niger Delta area has motivated the federal, state and local governments to allocate more funds to agricultural development in case oil production dwindles.

Average temperatures in 2008 were low, ranging from 12-15ºc at night and 18-25ºc in the daytime, with the dusty 'harmattan' wind blowing in from the Sahara Desert. Good yields of tomato, onion, pepper and garlic were recorded for vegetables. Following the droughts and poor harvests of the 2007 season, many farmers went into production of maize, rice and wheat under irrigation. The arrival of the rains was followed by the usual dry spell, which raised concerns about a possible recurrence of drought, but the rains gradually established themselves and fell uniformly throughout the season. While the total rainfall of 782 mm was lower than the previous year, the even distribution of water led to a good crop harvest.

Agrochemicals were in reasonable supply in 2008 and supplies of fertiliser were fair to good, although quality seed was less abundant, with a particular shortage of quality hybrid maize. Besides the 650,000 mt of fertiliser imported by the Government of Nigeria, private sector companies also imported some 200,000 mt, and this, combined with rainfall, resulted in good harvests of maize, rice, sorghum, millet, cowpea and soybean.

During the 2008 cropping season, states continued to scale up their support for farmers involved in Production Test Plots (PTPs) through capacity building and provision of input loan packages. Capacity building support for community-based extension agents (CBEAs) and farmers by states and the private sector agribusiness companies was strengthened, with more CBEAs acquiring new knowledge and information for dissemination to farmers. Some 2,436 CBEAs and 74,950 farmers benefited from the training during the year.

The crops that received the most support under PTPs during the year were maize and rice. Although the total area put under sorghum and millet was higher, maize – especially the early, extra-early and drought-tolerant Open Pollinated Varieties of Quality Protein Maize – continued to dominate and expand into traditional millet and sorghum areas. SG 2000 sustained its support for maize breeding and the foundation seed production system of the Institute for Agricultural Research (IAR) Zaria, which has the mandate for maize germplasm development and maintenance. The project also brought together research and private sector companies to ensure continuous production of good quality foundation and certified seed.

Members of a women's rice processing cooperative at Kasuwar Magani, Kaduna State, present their high-quality processed rice

Number of CBEAs and farmers trained with the support of State government and private sector agribusiness companies in 2008

State	Number of CBEAs	Number of Farmers
Bauchi	250	10,000
Gombe	136	6,500
Jigawa	150	5,300
Kaduna	120	4,850
Kano	580	23,000
Zamfara	1,200	25,200
Total	**2,436**	**74,950**

Improved rice

Under the Rice Seed Multiplication and Dissemination Support scheme, two ha of lowland NERICA varieties and one ha of NERICA 1 were planted under irrigation. SG 2000 provided some financial support for the testing and evaluation of 15 and 25 NERICA lowland lines, obtained from WARDA Benin and Mali and Senegal, respectively. Rice seed dissemination was successful, with some seven tons of lowland NERICA buyback seed being supplied to farmers. Zamfara State purchased 25 tons of SIPI – FARO44 and WITA4 – FARO54 seed from SG 2000 community-based rice seed producers in Kano and Jigawa states, for sale to farmers during the season.

In the field of post-harvest and agroprocessing (PHAP), emphasis was placed on those areas identified by farmers as requiring intervention. These included training for manufacturers and PHAP technology dissemination, especially in threshing cereals and legumes, processing rice, QPM and groundnuts, storage for cowpea, and recipe preparation from rice and soybean. Eighteen carpenters selected from nine states were trained in the manufacture of standard wooden grain winnowers, while the Dandago Fabrication Enterprise received support to produce a standard multi-crop thresher prototype acquired from the Salem Technical and Vocational Center in Ethiopia. The thresher was successfully field-tested with rice, wheat and maize farmers.

"This year we have worked with PrOpCom (DFID) to train 20 CBEAs and 40 farmers on improved rice parboiling, cleaning, drying and de-stoning techniques", says Ahmed Falaki, SG 2000 Project Co-ordinator for Nigeria. "In collaboration with TADCO Rice Processing Company, the project selected and trained 30 women rice parboilers in the technique of processing and packaging quality rice for market. SG 2000 also partnered with IFAD programmes in the states to train 15 women's groups in the use of improved groundnut oil extraction, using the extractor developed by SAFE programme graduate Nasir Ado from Ahmadu Bello University, Zaria. Recipe preparation and dissemination for rice, QPM and soybean is being scaled up with the support of the Women-in-Agriculture departments of the ADPs. In particular, soybean cheese has been popularized in both urban and rural areas due to its easy preparation and nutritional value."

In anticipation of the scaling-up of SG 2000 operations in Nigeria (see page 1), SG 2000 started a pilot phase by establishing 20 demonstrations in ten crops made up of eight Technology Option Plots (TOPs) and 12 Voucher-Assisted Demonstrations (VADs) in five SG 2000 operational states. In each state, farmer leaders were selected using a participatory approach to establish the TOPs,

Ms H T Bello, Head of Nutrition at the Kano Agricultural Authority, displays a variety of soybean recipes

while poor farmers, of whom 67-75 percent were women, established the VADs.

In preparation for the scaling up process, SG 2000 has trained 338 Co-ordinators, CBEAs and farmer leaders, of whom 200 CBEAs are to oversee the conduct of TOPs, VADs and PTPs. Each CBEA will conduct three TOPs, three VADs and 20 PTPs. SG 2000 is to provide all the required inputs, including seed and fertiliser, for TOPs and VADs, with PTP farmers taking responsibility for their required inputs. The CBEAs will be providing the necessary technical backup, field extension advice and supervision.

Significant developments

"This year SG 2000 has continued to collaborate with other stakeholders involved in agricultural development," says Dr Falaki. "In the area of research we have partnered with IITA, WARDA, ICRISAT, the Institute for Agricultural Research (IAR) at Zaria, the National Cereals Research Institute (NCRI) at Baddegi and the Lake Chad Research Institute (LCRI) at Maiduguri, and we have worked on extension projects alongside the National Agricultural Extension and Research Liaison Service (NAERLS) and the National Food Reserve Agency (NFRA)."

Some particularly successful collaborations include a rice value chain project with PrOpCom (DFID); an initiative on value addition and marketing of sorghum and rice with USAID-MARKETS; work with ILRI on crop residue fodder production and utilisation; and a partnership with the West African Seed Alliance (WASA) which aimed to strengthen seed sector development through the demonstration and testing of new hybrids, sourcing foundation seed from research and linking seed companies with smallholder farmers in order to access quality seed of improved varieties.

A number of private sector organisations partnered with SG 2000 during the year, including seed and agrochemical companies and a range of fertilizer companies.

The major challenges faced by the project include inadequate numbers of PHAP machines and equipment for threshing cereals and legumes, and a lack of improved small- to medium-scale storage technology to help farmers reduce grain losses. There are also promising opportunities, however. These include the resuscitation of the National Fertilizer Company (NAFCON), now called Notore, which should ensure the availability of adequate fertiliser, both in terms of quantity and quality; the withdrawal of the Government of Nigeria from importing, distributing and selling fertiliser with effect from 2009; and the government directive to all commercial banks and financial institutions to channel 75 percent of their agricultural lending to smallholder resource-poor farmers at single digit interest rates.

"These are significant developments," says Dr Falaki, "and smallholder farmers will reap the benefits."

See page 20 for more information on the new Country Director for Nigeria.

Types of TOPs to be established in Nigeria in 2009

Type of TOP	Kano	Jigawa	Bauchi	Gombe	Adamawa	Zamfara	Totals
Maize Hybrid-2 Fert Levels	10		5	5	7	12	39
Maize Hybrid-2 Varieties			6				6
Maize OPV-2 Varieties	1			4	6		11
Rice-2 Varieties	7		5	1	12	3	28
Sorghum-2 Varieties	6		2	1	8	11	28
Millet-2 Varieties	10	7	6	2	1	11	37
Millet-2 Fert Levels		2					2
Cowpea-2 Varieties	6	2	3				11
Cowpea-Spraying Regime		1					1
Groundnut-2 Varieties		3	2	4	6	2	17
Sesame-2 Varieties		5	3	1			9
Soybean-2 Varieties			8	2		1	11
Totals	**40**	**20**	**40**	**20**	**40**	**40**	**200**

Uganda

Production of food and staple crops was normal in most parts of Uganda last year. This fuelled significant cross-border trade within the Great Lakes Region, which had the unfortunate side effect of increasing domestic food prices and threatening household food security in parts of the country. Uganda began to feel the pinch of the global economic recession and price hikes, as major farming inputs such as fertilisers and agro-chemicals were in short supply and at high cost.

Minister Bright Rwamirama (centre) inspects the SG 2000 agroprocessing stall at the launch of a One Stop Centre in Tororo district

The persistent increase in commodity prices brought Uganda's underlying inflation rate to an average of 8.6 percent, while the real GDP rose from 7.9 percent to 8.9 percent. Meanwhile, the shilling drastically weakened against the US dollar (by about 400 Shs, or 25 percent) by the end of 2008. All of this affected the overall targets of the SG 2000 work plan.

Furthermore, the post-election violence in Kenya gravely affected Uganda's eastern border, causing the prices of fuel and essential commodities to soar. This was worsened by the civil war in eastern Congo later in the year, which led to an influx of refugees, especially into Kanungu district in the south-western region.

Weather conditions were good, and there was better rainfall than usual in the first season, which meant that enough food was produced to sustain the national demand for food and also provide surplus for the market. Harvesting of second-season crops started in November 2008 and the availability of perennial crops further improved the food security situation.

The Ugandan government intensified its efforts to increase farm household food and income security by investing in agriculture through programmes such as the National Agricultural Advisory Services (NAADS), and the presidential initiative on Prosperity for All (PFA), which was commissioned in 2007. These, along with other projects, help to disseminate productivity-enhancing technologies. SG 2000 continued to complement government efforts to empower farmers by partnering with the NAADS programme, using its 'One Stop Centre' approach.

"At the present time, Ugandan farmers are striving to reduce their dependence on external funding, and the building of farmers' organisations helps to encourage investment in agriculture," says Emmanuel Kayaayo, SG 2000's Project Co-ordinator in Uganda. "SG 2000 Uganda's Farmer Institutional Capacity Building (FICB) aims to aggregate and strengthen farmers' demand for access to advisory services and markets, and to enable farmers to select, develop and sustain viable enterprises."

This year FICB activities concentrated on mobilisation, organisation and capacity building, working with farmers across 15 One Stop Centre Associations (OSCAs) in 13 districts, which now service nearly 55,000 farmers. Total OSCA membership currently stands at 441 member groups and 9,839 individual members, of whom 57.2 percent are women. There are currently 11 physical facilities, comprising eight centres and three agroprocessing service sites, that support both institutional and enterprise development. The table provides a summary of the achievements in this area. This year the OSCAs sponsored themselves to hold Annual General Meetings (AGMs) and file returns, thus moving closer to self-sustainability in terms of management.

The OSCA approach has been tested over the last five years and some of the early results show encouraging trends. The number of OSCAs established rose from two in 2003 to 14 in 2008 and now 15, eight of which are equipped with physical facilities which include produce equipment and stores, offices, input supply shops, training rooms and processing facilities. Similarly, there has been a significant increase in the number of member groups and individual farmers subscribing to the OSCAs. A number of value chains have been developed, particularly for maize and rice, and some OSCAs have conducted collective marketing, albeit in small volumes.

Among other FICB activities carried out was the strengthening of the management capacity of farmer's institutions by training 9 Centre managers, 19 technical service providers, 68 community-based facilitators and 217 farmer groups. Two English-language farmer guidebooks on group and enterprise development were translated into one local language so that the text might reach a wider audience.

Under the partnership with NAADS, the capacity-building project was scaled-up in Mukono, Luwero, Iganga, Busia and Tororo districts. The main goal of the partnership was to enhance the formation and development of Higher Level Farmers Organisations (HLFOs), in order to scale out and sustain farmer empowerment skills, farm enterprise productivity and profitability.

Using the Grassroots Grant Facility, the Embassy of Japan donated a farmers' centre in Kamuli and a rice mill facility in Nakisunga-Mukono. The private Sector Foundation Centres (SEPSPEL and EPSEDEC) assisted the farmers with savings and credit in Pallisa and Busia districts.

Holistic

"We are committed to enterprise development, which encompasses a holistic approach to the selection and development of viable farming enterprises," says Kayaayo. "This component of SG 2000's Uganda project involves on-farm research, seed and stock multiplication, technology demonstration, production, post-harvest, agroprocessing and marketing." In 2008, enterprise development activities took a value chain approach to generate income for households and the OSCAs. Targets included training staff and farmers on enterprise selection, varietal selection, seed multiplication, demonstration and training for crop production, value addition through post-harvest improvement, collective marketing and use of crop produce for different food products.

Last year saw a number of enterprise development successes, including the completion of two on-farm trials of QPM and rice, which were followed by the release of the first QPM hybrid. Vulnerable groups, especially women, were targeted with 455 voucher-assisted demonstration kits to increase OSCA membership and technology adoption.

SG 2000 increased seed production by helping three OSCAs to produce 25 ha of recently released NERICA 1 and 10, and four OSCAs to produce 32 ha of legume seed. Most of this was bought by private seed companies. Similarly, grain production was boosted by linking OSCA farmers, via block farming schemes, to input and output markets for 15 ha of NERICA, 16 ha of ground nuts and 87 ha of QPM. Thirty-eight farmer leaders were trained in seed quality standards and 21 members of the marketing committees received training in product development, promotion and marketing.

Thirteen districts participated in farmer field days. A total of 1,860 members, as well as the NABTA and MRFA OSCAs, took part in the National Agricultural Trade fair in July 2008, with two representatives attending from each OSCA. MRFA's exhibit demonstrated the rice value chain, from production to marketing, and NABTA's exhibit focused on agroprocessing and value addition in maize, cassava and juice extraction. The SG 2000 exhibit caught the attention of HE Yoweri Museveni, President of Uganda, who was guest of honour at the opening of the show.

Elsewhere, 24 grain collective marketing bulking sites were created through upgrading and training 60 groups of 148 members, of whom only 17 were men. Finally, 26 pieces of machinery were constructed and placed with the help of the existing 20 operators and the eight trained artisans. These consisted of 8 shellers, 12 threshers, a grain and seed cleaner, a groundnut sheller, a feed mill and mixer, a paste grinder and a cassava chipper.

Participating farmers at a training session on NERICA in Iganga district

Partnerships

"Involving outside partners thought the creative use of limited project resources has been one of our central techniques for scaling up impact," says Kayaayo. Several partners joined with SG 2000 in projects on technology application and the integration of new innovations with the national agricultural service systems. These included the Japan International Cooperation Agency (JICA), Japan Overseas Volunteers Agency (JOCV), the National Agricultural Advisory Services (NAADS), the Embassy of Japan (through the GGP facility), the Africa Rice Centre for NERICA promotion (WARDA), CIMMYT-QPMD for the promotion of Quality Protein Maize, private sector foundation centres (SEPSPEL and EPSEDEC) and CABI Bioscience UK, which worked on plant health services through Mobile Plant Clinics (MPCs)"

Under the partnership with JOCV, SG 2000 hosted four Japanese volunteers. Three were placed with OSCAs for nine months up to June 2008, and one took on a longer term placement of two years. The volunteers worked with village communities on NERICA dissemination initiatives across various aspects of agronomy, in collaboration with SG 2000 technical staff. The new mobile rice mill introduced under the JICA partnership also provided an assignment for volunteers, who assessed its performance and provided reports for further research and for the JICA office.

SG 2000 completed a one-year partnership with NAADS to enhance the formation and development of Higher Level Farmers Organisations in five districts.

Yield data (t/ha) for 'full package'* maize crop demonstrations, 2007-2008

		2007		2008	
Region	**District**	**0.1ha planted**	**Av.Yield**	**0.1ha planted**	**Av. yield**
Eastern	Pallisa	40	2.9	50	2.3
	Iganga	30	2.6	31	1.5
	Busia	50	1.6	35	3.5
	Mukono 1	30	4.1	0	0
	Kamuli	50	1.4	32	0.9
	Bugiri	40	2.1	40	2.5
Central	Mukono 2	40	3.8	40	2.7
	Mpigi	70	2.6	45	3.1
	Nakasongola	40	1.8	40	0.8
	Wakiso	40	3.3	32	2.6
Western	Ibanda	40	3.2	30	2.0
	Kyenjojo	40	2.4	40	2.3
	Kamwenge	50	3.3	40	2.5
	Total	**560**	**2.7**	**455**	**2.1**

Full package comprises: 2 kg of improved seed of OPV maize, 10 kg DAP/ 10 kg of urea, 1 litre of herbicides / pesticides

New SAA structure

The former regional programmes have been absorbed into the new operational structure. Now team leaders working across the four focus countries are responsible for five thematic areas which support SAA objectives. These are:

- **Productivity improvement**
- **Post-production technology**
- **Public/private partnerships**
- **Human resource development**
- **Monitoring and evaluation**

Agroprocessing (post-production technology) and SAFE (human resource development) remain from the previous structure.

SAA is headed by two Executive Directors, Masaaki Miyamoto (management) and Chris Dowswell (programmes).

The **Managing Director of SAA, Dr Juliana Rwelamira**, was appointed in June. She was previously a senior manager at the National Agricultural Marketing Council (NAMC), a statutory body based in Pretoria which advises South Africa's Ministry of Agriculture and its agricultural industry on the marketing of agricultural products.

Career highlights include extensive work on socio-economic and gender analysis-related issues, training rural women leaders in Lesotho, Swaziland and South Africa and, for UNICEF, advising the Basotho Rural Women in Development programme, which helped to establish income-generating economic activities to alleviate poverty among women and children in Lesotho.

Other SAA appointments include:

Dr Aberra Debelo, Country Director, Ethiopia: previously SAA's Project Co-ordinator in Ethiopia, he worked as Co-ordinator of the Eastern and Central Africa Regional Sorghum and Millet (ECARSAM) research network, based in Nairobi, and as Deputy Director General of the Ethiopian Agriculture Research Organisation (EARO).

Dr Sani Miko, Country Director, Nigeria: Dr Miko was reader and previously senior lecturer in irrigation agronomy at Bayero University – Kano (BUK), gaining his doctorate in this subject at Ahmadu Bello University (ABU) in 1999, where he later taught.

Leony Halos-Kim, Programme Officer, Post-Production Technology: Ms Halos-Kim has previously worked as a consultant for the SAA on programme impact assessment and designing and implementing training programmes. She specialised in Post-harvest Engineering during 13 years at the International Institute of Tropical Agriculture (IITA) in Ibadan, Nigeria.

Archive material

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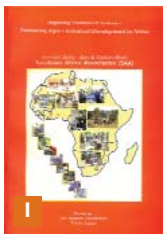

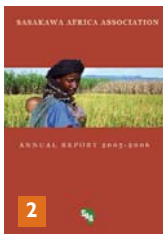

1. Improving Post-harvest Systems – Promoting Agro-Industrial Development in Africa
2. SAA Annual Report 2005/06
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Videos

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- Ethiopia, My Hope . . . My Future . . . The 'Green Revolution' in Ethiopia (1998)
- Breaking the Mould. Bringing African Universities into Development (1997)
- Fulfilling the Promise. How nutritionally-improved maize can alleviate malnutrition in maize-dependent countries (1997)
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- You Can't Eat Potential. Breaking Africa's Cycle of Poverty (1996)

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