Feeding *the* Future

One Stop Centres

The One Stop Centre (OSC) in Uganda is a community-based approach providing rural populations with access to agricultural services through farmer-owned and farmer-managed associations.

RAPTA General Assembly Meeting at the OSC in Iganga

The OSC approach helps farmers' organisations and their communities to concentrate their demand for services and thus reduce transaction costs. "The OSC aims to bridge the gap between the rural poor and rich by bringing services closer to everyone in the community," says Dr Abu Michael Foster, SG 2000 country director in Uganda. "It is rooted in community-based initiatives aimed at strengthening the institutional provisions for services such as input delivery, production, agroprocessing and marketing." Additional services may include rural finance,

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President Carter in Japan

Last September Jimmy Carter visited Japan to promote agricultural development in Africa and SG 2000's projects in this area. His visit was timed to precede the third Tokyo International Conference on African Development (TICAD III), held from 29 September to 1 October and attended by representatives from almost all the African member states of NEPAD – the New Partnership for Africa's Development (see page 5).

During his visit, President Carter gave an address at the United Nations University in Tokyo, which was particularly relevant to the forthcoming TICAD meeting. In his lecture, titled "Agriculture, development and human rights in the future of Africa", he emphasised food production as a priority and criticised crop subsidies in rich nations. "In Europe, America and Japan, the average farm family receives about US$ 20,000 in government price supports, amounting to a total of more than US$ 350 billion annually. OECD subsidies equal the total gross national product of (sub-Saharan) Africa, and are many times greater than the development assistance given to the people there…An alternative to subsidy reductions might be a special fund to compensate African and other developing countries for the adverse impact of subsidies on cotton, sugar beet and other products."

On The Carter Center's partnership with SAA, President Carter said, "I have been blessed by working

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Prime Minister Junichiro Koizumi welcomes President Carter

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Inside

The Nippon Foundation

literacy, health care and various social safety net interventions.

The two main components of a One Stop Centre are the social structure and the physical facilities. Development of the social structure involves helping individuals to organise themselves into groups and eventually into associations. The physical infrastructure (premises and equipment for rural enterprises) is established by groups through a secondary stage, and in partnership with sponsoring organisations and benefactors. "The first component is the more complex and the major determinant of the overall success of the process," says Dr Foster. "The latter provides a shelter and can only be put to full use if a strong and dynamic social structure has been established previously."

Why is a One Stop Centre approach needed?

"Resource-poor farmers find it difficult to organise themselves into bodies that can make effective decisions and obtain services," explains Dr Foster. "Even where groups exist, they often function ineffectively because their membership and management capacity is limited. Also, trans-action costs for services are high. Farmers in target communities cannot sustain the application of improved technologies to intensify production if they cannot access services to agricultural inputs, markets and technical advisory services."

Some agricultural services can be sustained independently within rural communities as private enterprises, whilst others may be supported through collective effort on a voluntary basis. Alternatively, they may be provided through donor supported government programmes. However, these invariably die out with the cessation of project funding or failure of government to sustain them as public services.

There is therefore a need to help communities develop a realistic strategy for providing access to the key services on which continued technology application is dependent. The OSC approach builds upon the principles of participatory approaches for self-reliance. It also complements the Government's National Agricultural Advisory Services (NAADS) programme. NAADS was designed to increase farmers' access to improved knowledge, technologies, information and private entrepreneurial services.

Maize shelling and cleaning at a service site associated with BAMTA in Mukono: service sites enable bulk produce to be accumulated for markets.

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President Carter in Japan *continued*

side-by-side with Dr Norman Borlaug…Working under the auspices of the Nippon Foundation's SG 2000 programme, we have conducted more than one million test plots on small family farms in Africa. SG 2000 has proven that farmers are eager and competent, and that with good seed, contour rows, conservation tillage, moderate chemical fertiliser, weed control and some guidance, they can triple production…but our experience in Ethiopia and other nations shows the still unmet need for farm storage, adequate transport, stable markets, micro credits and protection against punitive tariffs and the dumping of cheap, subsidised foreign products."

President Carter's visit was hosted by the Nippon Foundation, which gave a welcome reception for him on 3 September, attended by more than 600 people including diplomats, officials from the Ministry of Foreign Affairs, members of parliament and agricultural scientists.
The reception was co-sponsored by the Japan-African Union Parliamentary Amity Association, which was launched in July 2003 by former Prime Minister Yoshiro Mori and the Sasakawa Africa Association (SAA). Nippon Foundation Chairperson Mrs Ayako Sono welcomed Prime Minister Mori – the first Japanese Prime Minister to have visited sub-Saharan Africa – to the reception.

President Carter also visited Prime Minister Junichiro Koizumi at his official residence and attended a lunch meeting hosted by the Ministry of Foreign Affairs. At both meetings, he stressed that agricultural development should be the number one priority for foreign affairs policies concerning Africa.

From left to right: Ayako Sono, Rosalynn Carter, Jimmy Carter and former Prime Minister Yoshiro Mori

Tokyo International Conference on African Development (TICAD III)

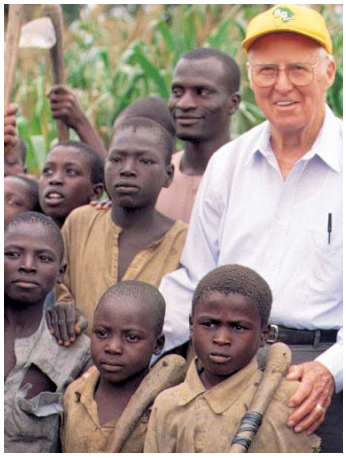
TICAD is an initiative started by Japan's Ministry of Foreign Affairs in 1993, when international interest in Africa was waning as a result of the end of the Cold War. During the last decade, TICAD has promoted African development from the standpoint of African peoples by assisting Africa to increase ownership of its development programmes and reviving international support for these programmes. It fully supports African initiatives such as NEPAD.

At TICAD III, SAA became the first Japanese NGO to give a presentation at an official TICAD session. SAA's Vice-President Akira Iriyama gave a short presentation about SAA/SG 2000 activities during the fifth Plenary Session, "Dialogue with Civil Society", which was chaired by HE Dr Frene Ginwala, co-Chair of the Global Coalition for Africa, and opened by Dr Wiseman Nkuhlu, Chairman of NEPAD's steering committee. During TICAD, Nippon Foundation President Yohei Sasakawa also took the opportunity of meeting with heads of state from Burkina Faso, Ethiopia, Guinea, Malawi, Mali, Mozambique and Nigeria.

Declarations and speeches made at TICAD III can be found at *www.mofa.go.jp/region/africa/ticad3/index.html*

Effective smallholder seed supply systems still widely lacking in sub-Saharan Africa

Over the past 15-20 years, most governments in sub-Saharan Africa have shut down their money-losing public seed companies. Private sector enterprises are expected to fill this void. For certain crops in a few countries, private seed organisations are serving some of the seed needs of smallholder farmers, especially those located in favoured environments with relatively good infrastructure, and for crops such as hybrid maize, where profit margins are the greatest.



Dr Norman E Borlaug, SAA President

While the private sector seeks to serve these emerging commercial markets efficiently, the publicly funded research system is focusing increasingly on serving farmers in non-commercial markets, where poor seed delivery systems prevail. Many outstanding varieties of staple food crops have been developed by National Agricultural Research Systems (NARS) and International Agricultural Research Centres (IARCs) over the past 20 years, but these are not reaching smallholder farmers with the regularity, quality and quantity desired.

Publicly funded research institutions retain responsibility for maintaining sufficient stocks of quality breeders' seed. However, foundation (basic) seed production is often not part of their brief. In some cases where it is, the quality of foundation seed production leaves much to be desired. Even when government foundation seed services begin well, it has been difficult to sustain these high standards over time.

IARCs and NARS are struggling to develop new seed supply models to deliver these improved varieties to their primary clients – smallholder producers who are often outside the non-commercial segment of the market. A growing number of non-governmental organisations (NGOs) and donors – including SG 2000 – are also interested in developing new, semi-commercial seed supply strategies that are more effective in getting public sector varieties into farmers' hands. In many cases, interested groups lack expertise in seed production and distribution.

Proposed here is the establishment of a private sector smallholder foundation seed service (SFSS), preferably by well-regarded, commercial private seed companies, to support semi-commercial seed production activities.

SFSS would produce quality foundation seed multiplication for profit, drawing on private sector seed expertise and production and conditioning facilities to support its activities. Non-traditional seed producers would include farmers' associations, NGOs, and small-scale private growers, each often producing less than ten tonnes of seed per season.

Foundation seed prices would include a royalty fee built into the pricing structure. When public sector varieties are multiplied, a royalty payment would be paid to the responsible institution. SFSS would also provide technical backstopping to registered small-scale seed producers. Such consulting/training costs could be partially financed by donors and also built into the foundation seed price schedule.

In each country where SFSS is put into operation, registration of client seed producers would be required, both to help maintain quality control and to facilitate planning of foundation seed requirements. Foundation seed would be produced on demand, based upon pre-paid orders by registered seed growers. Minimum threshold quantities would need to be set for foundation seed orders to ensure profitability and a reasonable management structure.

The establishment of privately operated smallholder foundation seed supply services could serve as an effective organisational model for public-private-NGO collaboration, one capable of delivering quality seed of improved varieties to a range of seed producers currently outside the reach of ordinary commercial seed supply channels. Such a service would be especially valuable for crops such as Quality Protein Maize, where the presence of a recessive gene demands high quality control in seed production, and especially in the early stages of the seed chain. This approach would allow access to a broader range of crops than handled by regular commercial seed companies. Thus, there would be little competition with commercial product lines or with the commercial segment of the market. Quality would be maintained and smallholder farmers would benefit.

About Sasakawa Global 2000

Agricultural projects of Sasakawa Global 2000 are operated as joint ventures of two organisations – Sasakawa Africa Association (SAA) and the Global 2000 programme of The Carter Center in Atlanta. SAA, whose president is Dr Norman E Borlaug, serves as the lead management organisation for the SG 2000 projects in Africa. Working through The Carter Center's Global 2000 programme, former US President Jimmy Carter and his advisers provide policy advice to national political leaders in support of programme objectives. Funding for SG 2000 projects comes from the Nippon Foundation of Japan whose chairperson is Ayako Sono and president is Yohei Sasakawa.

Establishing One Stop Centres

As a first step, farmers in a rural community are sensitised, mobilised and supported in organising themselves into functioning groups. The capacity of groups is progressively increased through training and developing a cohesive social structure that includes an assortment of common interest groups. A management structure is derived from collective leadership to achieve a secondary level organisation, formally registered as a Specialised Producer Association (SPA), that can enter into contractual obligations with rural intermediaries and other development agencies. SG 2000 collaborates with SPAs through partnership agreements that include institutional capacity building, enterprise development and investment loans for increasing technology application. Loans are usually in-kind, such as seed capital for equipment, production materials or installation of agroprocessing plants.

To enable SPAs to manage OSCs in a sustainable manner, training is provided in five steps. Firstly, farmers' organisations, with backstopping from SG 2000, conduct a registration process to ensure that the association attains legal status. This includes election of an executive, drafting a constitution and the registration and leasing of land. The executive governs the centre in collaboration with the facilitating organisation (in this case SG 2000).

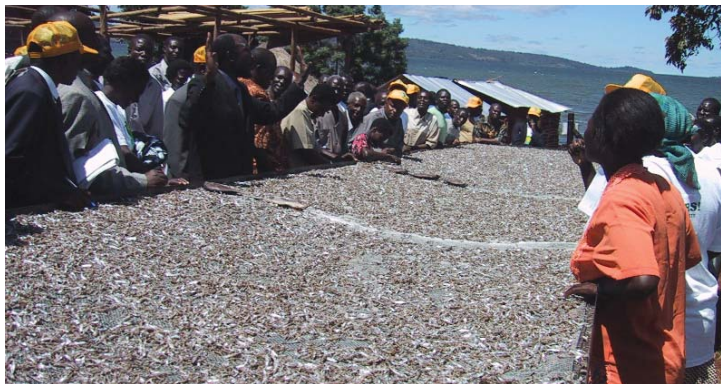
Next, the executive is built up to ensure strong leadership and management capacity. The initial capacity building process needed for the development of a registered association takes about a year and costs approximately US$ 18,000 for a catchment area covering four to five sub counties (15,000-25,000 farm families).

Needed services (e.g. input delivery and marketing) are developed as enterprises to ensure a sustainable income for the SPA and its member groups. Appropriate demonstrations are established with several common interest groups at service sites within the catchment area.

The next stage is the construction of the physical structure at a strategic location and the installation of small-scale equipment. "This serves as a focal point for co-ordinating the services – capacity building training, savings mobilisation and marketing – needed to increase the technology interventions that will make the enterprises commercially viable," says Dr Foster.

Finally, a management structure is established to include the recruitment of a centre manager who will run the daily operations of the OSC and manage the association. The centre manager plays a key role in mobilisation, co-ordination and communication between member groups through a chain of farmer trainers and, with consent from the association, also forms links with other organisations in accordance with the needs of the rural community.

The OSC provides mutually beneficial linkages between member groups at their service sites, rural intermediaries and urban markets for supply of inputs and procurement of produce. Through cumulative demand, costs for services are reduced. Training costs for establishing an OSC are estimated at US$ 32,000. Of the total start-up cost of US$ 50,000, the association contributes approximately 30 percent in materials, land and time.



BAMTA fish processing service site: the processing and packing of sun-dried fish provides a steady source of income for these rural women.

Progress to date

Two associations – the Rural Agroprocessors and Training Association (RAPTA) and Buwagajjo Agroprocessors and Marketers Training Association (BAMTA) – are fully registered and their centres operational. Five additional associations are at various stages of formalising their union in areas that are designated as OSC catchments. The current catchments comprise a total of 294 groups, with a membership of 7,901 farmers and agroprocessors – 4,755 women and 3,146 men (see table below). Thirty priority enterprises have been identified for development through participatory enterprise selection. Services include training for capacity building, supply of agricultural inputs and marketing of produce and are at various stages of development using a number of approaches depending on partner institutions.

"SG 2000 Uganda is using the OSC as an instrument to increase community ownership of programme activities and the farmer driven process for accessing technologies and services," says Dr Foster. SG 2000 plans to establish 20 OSCs by 2007. In future, an apex OSC organisation may evolve from the current networking between centres and experience sharing between centre managers.

District	Producer association	Farmer groups	Farmers targeted	Stage of development
Iganga	Rural Agroprocessors & Training Association (RAPTA)	30	1,151	Enterprise development Centre management
Mukono	Buwagajjo Agroprocessors & Marketers Training Association (BAMTA)	26	761	Enterprise development Centre management
Busia	Busia Agribusiness Training Association (BABTA)	47	998	Registration Institutional capacity building Enterprise development
Tororo	Tororo Multipurpose Agribusiness Training Association (TMATA)	60	1,300	Registration Institutional capacity building Enterprise development
Luweero	Zirobwe Agaliawamu Agribusiness Training Association (ZAABTA)	63	1,873	Registration Enterprise development
Mpigi	Nkozi Agribusiness Training Association (NABTA)	27	532	Registration Enterprise development
Pallisa	Pallisa Agribusiness Training Association (PATA)	41	1,286	Registration Institutional capacity building Enterprise development
Total	**7**	**294**	**7,901**	

SG 2000 works with NEPAD and the UN Millennium Development Project Hunger Task Force

SG 2000 continues to support the New Partnership for Africa's Development (NEPAD) Secretariat and the UN Millennium Development Project Hunger Task Force (HTF), through work co-ordinated by Chris Dowswell, Special Assistant to SAA President Norman Borlaug.

"NEPAD and HTF are collaborating on a number of initiatives supported by SG 2000," reports Dowswell. "One is to mobilise funding to improve the fertility of soils used in the production of staple food crops." An integrated soil fertility restoration strategy has been formulated and incorporated into NEPAD's Comprehensive African Agricultural Development Plan (CAADP). It calls for development of smallholder fertiliser delivery systems, diffusion of agroforestry and green manure/cover crops, food-for-work programmes to reclaim highly eroded watershed and rural landscapes and targeted fertiliser subsidy programmes, using vouchers for extremely vulnerable target groups.

"We are especially interested in reaching food-insecure female-headed households through subsidised fertiliser voucher programmes," notes Dowswell. SG 2000 already has experience of this in Uganda, where very poor female farmers received vouchers to purchase fertilisers from local private dealers. IFDC, a long-time SG 2000 collaborator, is now working with DFID and the Government of Uganda to provide vouchers to 30,000 food-insecure farmers engaged in part-time employment in rural road construction.

NEPAD is developing school feeding programmes based on nationally sourced food.

"NEPAD is also developing school feeding programmes based on locally or nationally sourced foodstuffs," reports Richard Mkandawire, NEPAD Agricultural Advisor. A pilot programme is underway in Ghana, headed by SG 2000's long-time QPM collaborator and HTF member, Mrs Abenaa Akuamoa-Boateng, Ministry of Health Head Nutritionist for the Ashanti region. "These programmes make three important contributions," says Dowswell. "Improving child nutrition, stimulating school attendance and increasing market demand for nationally produced foods."

NEPAD is working with the World Food Program (WFP) – with technical backstopping from HTF and SG 2000 – to develop funding proposals to bring this benefit to 50 million children in sub-Saharan Africa. NEPAD is developing a model called "Home Grown School Feeding Programmes", where participating governments will provide 50 percent of the funds and the WFP will play an important partnership role. The Government of Uganda has already indicated an interest and is in the process of developing a project document, in collaboration with WFP and NEPAD.

"There are significant synergies to be exploited between food crop intensification and such social investments," explains Dowswell. "Expanding commercial demand for food through these programmes will help stabilise grain prices, providing smallholder farmers with greater incentive to adopt productivity-enhancing technologies. This is a 'multiple-win' situation for Africa, which can lead to improved food production, income, nutrition, and environmental conservation."

Time of transition for SAA Tokyo

Masataka Minagawa – well known as "Masa" among SAA/SG 2000 staff – retired at the end of June 2003, after 12 years of service as SAA General Manager and Head of Administration and Finance.

Having worked for many years at one of the largest commercial banks in Japan, his first and foremost task when he joined SAA in 1991 was to consolidate the administrative headquarters in Tokyo. As well as managing financial resources, the Tokyo office offers support to field staff and Masa's prompt response to their requests made him immensely popular with SAA/SG 2000 staff, who can often feel isolated in the remote fields of Africa. "There is no doubt that the efficiency and professionalism he has brought to the administrative structure of the organisation has been of great significance," says SAA Administrative Officer, Michio Ito.

Masaaki "Aki" Miyamoto is Masa's successor as General Manager, but Aki is by no means a newcomer to the organisation. He worked behind the scenes of the first Workshop in Geneva in 1985, helping the late Ryoichi Sasakawa to start the SAA/SG 2000 project with President Jimmy Carter and Norman Borlaug and providing vital support in the early years.

After Masa joined the organisation, Aki continued to work for SAA/SG 2000 as a liaison officer, but left in 1997 to take the position of General Manager of the Sasakawa Peace Foundation. Returning six years on to the organisation he helped to launch, he says his "immediate challenge ahead is to build practical working relationships with other partners such as the Japanese government and NEPAD. These partnerships will be crucial for sustained agricultural development in Africa."

Masataka Minagawa (left) with a farmer in Nigeria

Michio Ito (left) and Masaaki Miyamoto (centre) meet President Obasanjo at TICAD III (see page 2).

SG 2000 Regional QPM/Seed Programme

The SG 2000 Regional QPM/Seed Programme was initiated in January 2003 to support ongoing efforts to replace normal maize with Quality Protein Maize (QPM) and to strengthen the seed systems in SG 2000 project countries. In addition to strong QPM interventions in all project countries, several partners are involved at the national and sub-regional level. "SG 2000 regional activities are aimed at complementing, strengthening and more fully exploiting these existing efforts," explains Dr Wayne Haag, Regional Co-ordinator of the programme.

The International Maize and Wheat Improvement Centre (CIMMYT) and the International Institute of Tropical Agriculture (IITA) are heavily involved, as are the National Agricultural Research Systems (NARS) in Ethiopia, Ghana and Mozambique. Several other NARS are also recommitting to QPM improvement and there are a number of private sector QPM improvement efforts underway in Zimbabwe and South Africa.

The SG 2000 regional effort has supported work in Ghana to improve the Open Pollinated Variety (OPV) Obatanpa and in Mozambique, improvement of the OPV Sussuma (developed from Obatanpa) and the development of a synthetic from Sussuma to serve as the male parent of Double Top-Cross QPM hybrids, especially with the female Single Cross (CML-144 x CML-159). Mozambique is also in the final stages of improvement, testing and release of a new, early, flint QPM-OPV, which should be of major importance for Mozambique and other sub-Saharan African (SSA) countries.

The Crops Research Institute (CRI) of Ghana has reached an agreement with CIMMYT regarding the use of CRI's elite QPM line, GQL5, making hybrids featuring this line available to the private sector and other commercial seed systems. The QPM hybrid QS-7705 – produced in Ghana and licensed for distribution to a South African company – will soon be released in Mozambique, where a regional private company has expressed interest in producing it. The first small-scale commercial production of QS-7705 was completed during 2003.

SG 2000 has been a strong advocate of investing in the conversion of elite normal hybrids to QPM. Advanced conversion work is being conducted for private companies by a QPM foundation seed company based in South Africa. A CIMMYT-Kenya-Rockefeller Foundation conversion project became operational during 2003, based at the Kenya Agriculture Research Institute (KARI). CIMMYT and IITA are also involved in converting elite normal material to QPM at major breeding sites.

Strengthening seed systems

To multiply and distribute high yielding QPM OPVs and hybrids to farmers, a functional "seed chain" must be present, which includes three major components: Breeder Seed (BS), Foundation Seed (FS) and certified (or commercial) seed. SG 2000 is strengthening the BS and FS systems in several countries, through training and consulting activities and by assisting with regional movement of BS and FS, especially from CRI Ghana and INIA Mozambique. Most of the current BS and FS systems are based in the public sector.

The production and distribution of certified/commercial seed is most likely to be done by the private sector. A noted exception to this is the Ethiopian Seed Company (ESC). SG 2000 is therefore encouraging a range of private sector companies – from the large multinationals through to small emerging companies – to expand their operations and become involved in QPM production and marketing.

There are also a myriad of community-based seed production projects existing in several countries. Some of these, supported by IITA, CIMMYT and ICRISAT, could be transformed into small-scale seed enterprises. SG 2000 is exploring ways with these partners and, in particular, the Rockefeller Foundation, to support this process.

Community-based projects could be transformed into small-scale seed enterprises.

During the last two years, SG 2000 has played a major role, in collaboration with its partners, in developing a two-week QPM/Seed course. During August 2002, the course took place at the Ethiopian Agricultural Research Organisation (EARO) to serve Eastern and Southern African countries. More than 40 technical staff members from public and private organisations were trained. During August 2003, more than 40 people were trained at CRI Ghana, serving 12 Western and Central African countries. These courses focused on QPM development, seed systems, quality control and nutritional benefits.

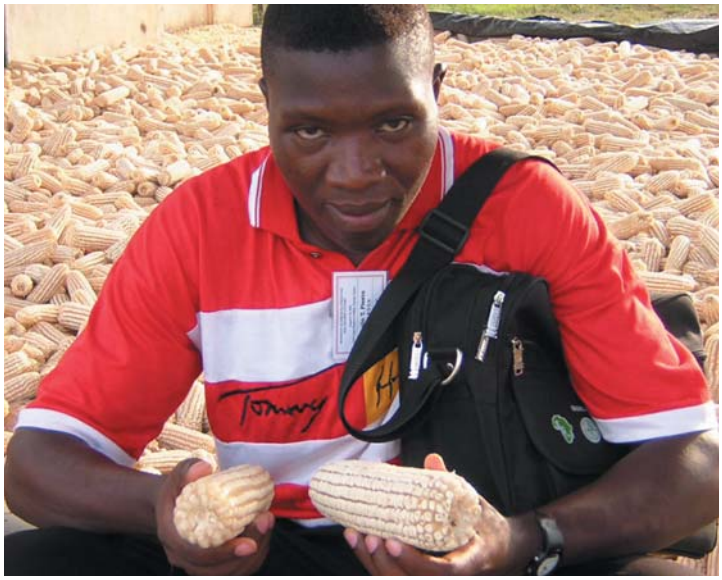
In 2003, Ghana was the only country that produced and marketed large amounts of QPM seed (over 1,000 t). Other SSA countries producing and marketing notable amounts (100-500 t) were Burkina Faso, Ethiopia, Mali, Mozambique, South Africa and Uganda, with Uganda topping the list.

Strengthening quality control mechanisms

"Quality control is central to ensure that the protein quality is maintained in QPM," says Haag. "With QPM seed, in addition to the normal precautions for maize seed multiplication, the protein quality character (opaque-2 gene) must be monitored." This is done through a combination of observing the QPM grains using a "light box" (some grains will show the presence of the o2 genotype) and laboratory analysis to quantify the levels of tryptophan and lysine in the protein.

SG 2000 has provided light boxes and training in their usage to scientists in several countries. The light box must be used in the selection of every seed to be planted in the production of BS. This is possible because very small quantities of seed are involved. "By following this procedure at the beginning of the seed chain, implementing the usual quality control procedures for FS and certified seed and monitoring routine lab analysis, the maintenance of protein quality throughout the seed production process is guaranteed," says Haag.

SG 2000 has actively supported the development of national tryptophan laboratories in Ghana and Uganda and worked closely with CIMMYT and IITA in their efforts to establish regional labs in Zimbabwe, Nigeria and Ethiopia. The current strategy to facilitate the availability of tryptophan analysis is not to establish tryptophan labs per se, but to identify well-functioning plant science labs and incorporate the tryptophan analysis capacity into them. "This is a much more sustainable approach and requires far less investment in equipment," explains Haag. "Investment in training is of course required. With the establishment of the tryptophan capacity at IITA, it will be possible to meet most of SSA's national training needs here in Africa."



A workshop participant at a foundation seed lot at the Grains and Legumes Development Board, Ghana.

Increasing the demand for QPM as food and feed

Appropriate information regarding the benefits of QPM must be available to decision makers, scientists, planners, technicians, private sector food and feed industries and consumers. Some of this information should be scientific in nature and some must be promotional and educational.

Mrs Abenaa Akuamoa-Boateng, a Ghanaian nutritionist, has conducted and published several studies demonstrating the benefits of QPM over normal maize in infant nutrition. Nutritional education materials have also been developed as a further result of her work. She has been working with SG 2000 staff in Ethiopia, Malawi, Guinea and Tanzania and a community-based nutrition study is currently underway in Ethiopia.

Haag stresses that "there is a need to move QPM into the existing institutional feeding and food relief efforts. SG 2000 Uganda has had some success in convincing the World Food Program (WFP) to use QPM in its food relief programme. This experience should be used to move QPM into the existing institutional feeding and food relief efforts in other countries."

Demonstrations on the superior nutritional value of QPM as feed for poultry and pigs have been conducted in various countries but QPM must be marketed more systematically to fully reach the feed industry. Some progress has been made in Ghana and attempts are underway elsewhere. Uganda has developed an exciting programme to promote small-scale pig production by providing the initial stock of pigs and supporting the production and feeding of QPM. During 2003, Dr Daniel Okai, a Ghanaian animal nutritionist, made a consultative visit to Uganda in support of this effort. Some small-scale poultry feeding activities were begun in Ghana at the end of 2003. Farmers who are already QPM producers can add value to their excess QPM production by producing poultry and pigs.

"QPM is the 'variety component' of a high-yield production package," explains Haag. "It requires a good agronomic production environment to realise its full genetic potential, just like any other improved crop variety. In addition to QPM, Conservation Tillage (CT) has also been added to the SG 2000 basic maize technology package in some project countries. The environmental and labour-saving advantages of CT, combined with the high yield and nutritional advantage of QPM, make for a highly effective intervention."

A participant at the QPM/Seed workshop learns how to use a "lightbox".

SAFE

Coupled with the continuing success of its existing programmes, the Sasakawa Africa Fund for Extension Education (SAFE) celebrated further expansion in 2003 with the launch of two new SAFE-style programmes in Burkina Faso and Benin and another planned for Malawi.

A SAFE-type diploma level programme was launched at the Polytechnic University of Bobo-Dioulasso (UPB) in Burkina Faso in October 2003, with assistance from the SAFE management. In Benin, the University of Abomey-Calavi (UAC) launched a SAFE-type diploma level programme in November 2003. It will be transferred from the AUC campus to the Medji Agricultural College in Sekou, about 40 km from UAC, following the renovation and expansion of infrastructural facilities. The Rector of UAC and the Dean of the Faculty of Agronomic Sciences (FSA) have pledged their full commitment to the new programme.

Inspired by the successes of other SAFE partners, Malawi's Ministry of Agriculture and Bunda College of Agriculture have requested SAFE assistance in developing a tailor-made programme for training of extension staff. A survey revealed a huge demand for upgrading training at both certificate and diploma levels and from diploma to degree level. "Prospective candidates were very clear about the training needed," reports SAFE Director Deola Naibakelao, "namely, practical courses that would improve performance at work and the participatory and facilitation skills required by a decentralised system of extension."

A stakeholder workshop to map out the modalities for launching a SAFE-type programme was held in November 2003.

The SAFE programme at the Rural Polytechnic Institute for Training and Applied Research (IPR/IFRA) in Katibougou, Mali, has made steady progress since its launch in October 2002. The 15 students have satisfactorily completed the first year of the four-year programme and another 16 students enrolled on the course last October. A SAFE Programme Management Committee has been formed to monitor and mobilise local resources to sustain the programme. For example, the Ministry of Agriculture and Rural Development has pledged financial support for the practical training components, such as the off-campus Supervised Enterprise Projects (SEPs) and the establishment of a technology village on campus.

The new BSc in Agricultural Extension at Ahmadu Bello University (ABU) in Nigeria admitted 30 students into the first class in July 2003. "Thanks to the assistance provided by the Vice-Chancellor and his team, the programme is running smoothly," says Deola Naibakelao. "However, as with the programme in Mali, students are selected from a wide geographical area, which makes it more difficult and costly to supervise them during their SEPs."

SAFE student Rahmet Yimer (pictured on the right with Dr Jeff Mutimba, SAFE Programme Co-ordinator for East Africa) graduated as the best overall student at Alemaya University in July 2003. Her success has inspired her husband to join the programme.

Meanwhile, the more established SAFE programmes are continuing to flourish. At Alemaya University (AU) in Ethiopia, SAFE celebrated its fifth graduation of mid-career extensionists in July 2003. The 33 students included 16 women – the highest number of female students to graduate from a SAFE programme. For the third time, the programme produced the best overall student in the AU graduation, with eight others receiving a 'distinction' and one a 'great distinction'.

In September 2003, the University of Cape Coast (UCC) in Ghana admitted 30 students on the tenth SAFE programme, including four foreign students (from Malawi, Mozambique and Nigeria) and five women. Even though direct financial assistance from SAFE to UCC ended in 2001, the partners continue to sustain the programme from local resources. Strong partnerships exist with the Ministry of Food and Agriculture and a number of bilateral agencies and NGOs in Ghana, including the German development agency GTZ and World Vision Ghana. GTZ, for example, has continued over the last four years to provide financial support to a number of students conducting SEPs in their project areas.

New staff member for SAFE programme

As a result of expanding activities, particularly in Francophone Africa, SAFE recruited Dr Mercy Akeredolu in June 2003 as SAFE Co-ordinator in Mali. Dr Akeredolu holds PhD and MSc degrees in Agricultural Extension from the University of Ibadan in Nigeria and an MBA from the University of Antwerp Management School in Belgium. Prior to joining the SAFE programme she lectured at the University of Agriculture in Abeokuta in Nigeria and consulted on several projects focusing on women in agriculture and rural development in Benin, Gambia, Ghana, Mali, Nigeria, Senegal and Togo.

SAFE statistics, September 2003

Mid-career BSc and Diploma Courses	Graduated	Current	Total
UCC, Ghana (BSc)	204	60	264
Alemaya, Ethiopia (BSc)	136	57	193
Makerere, Uganda (BSc)	32	88	120
Sokoine, Tanzania (BSc)	48	140	188
KAC, Ghana (Dip)	99	79	178
IPR/IFRA, Mali (Dip)	-	31	31
Ahmadu Bello, Nigeria (BSc)	-	30	30
Sub total	**519**	**485**	**1004**

Scholarships	Graduated	Current	Total
BSc	22	6	28
MSc	46	12	58
PhD	3	-	3
Sub total	**71**	**18**	**89**
TOTAL	**590**	**503**	**1093**

Agroprocessing programme

The agroprocessing programme, which is run in partnership with the International Institute of Tropical Agriculture (IITA), has brought improved postharvest and agroprocessing technologies to small-scale African farmers for over a decade. In Benin, SAA collaborates with a number of other stakeholders, including manufacturers, women's associations and *Direction de la Formation Operationnelle et de la Vulgarisation (DiFOV)* and *Conseiller Technique à l'Agriculture et à l'Alimentation (CTAA)* of the Ministry of Agriculture. Together they have formed a Manufacturers' Network to promote agroprocessing enterprises.

"Shea nut processing is one of the most popular small business activities in rural areas of Benin," says Antoine Aoga, the agroprocessing co-ordinator in Benin. "It provides an important source of income for women in the northern part of the country, especially during the dry season." Two years ago, the programme introduced an improved package of shea nut processing equipment called *"complese karite"*, which consists of a shea nut crusher and a wet-type grinder. The crusher is used to grind the nuts for roasting, which had previously been done using a pestle and mortar, taking a whole day to crush 50 kg. The improved equipment can crush more than 300 kg of shea nut in an hour.

The next stage is to mill the shea nut into a paste using an IITA-designed wet-type grinder, and then to knead the paste to extract the oil or "butter". With this method, 100 kg of shea nut can yield 49 kg of shea butter. "Using this package greatly reduces processing time and increases the quantity and improves the quality of the shea butter produced," says Aoga.

In Guinea, IITA has been training manufacturers in producing multi-crop threshers and rice polishers

The processed shea butter is then packed into a white plastic container (instead of the traditional calabash), thereby attracting a higher price both in the local and export markets. The packaging scheme is operated in collaboration with *Institut Régional de Coopération Développement (IRCOD)*, a French NGO based in Parakou. IRCOD first introduced the containers to women's groups so that they could export their products to France. IRCOD, UNICEF, UNIFEM and many other organisations in Benin have purchased more than 30 units of the *"complese karite"* package.

Participants from Benin, Ghana and Ethiopia at the Manufacturers' Network Meeting in Benin

Using a multi-crop thresher to process NERICA in Faranah, Guinea

In addition, SAA organised a Manufacturers Network Meeting in Benin from 2-4 September 2003. "These meetings are held periodically so that members from Benin and Ghana can catch up on each other's activities," says SAA's agroprocessing programme leader Toshiro Mado. "For the first time, Ethiopian members also attended. The Director of Benin's Agri-cultural Extension Department made an opening speech and during the meeting members discussed common issues such as production, quality control and marketing."

Meanwhile, in Guinea, IITA has been training manufacturers in producing multi-crop threshers and rice polishers. Following the training, which took place in May, technicians in Faranah have begun the manufacture of multi-crop threshers. As a result of SG 2000's promotion of NERICA (the new rice for Africa developed by WARDA from inter-specific crosses between African and Asian species) demand for rice threshing machines has greatly increased. Further training will be conducted to increase the number of qualified suppliers.

In Ghana, the programme is in the process of being restructured. It will now be managed by the Ghana Regional Appropriate Technology and Industry Service (GRATIS), which currently co-ordinates the Manufacturers' Network in Ghana. SAA will provide financial support to GRATIS in order for them to continue to disseminate improved agroprocessing technologies and equipment. GRATIS will train its technical staff in-house to improve their extension skills.

The Government of Ghana has been focusing on agricultural development in the Northern Sector and will be collaborating with GRATIS to conduct field demonstrations and regional exhibitions in this area of the country. GRATIS, together with members of the Manufacturers' Network, has already delivered 200 sets of cassava processing equipment, commissioned by the Ministry of Women and Children's Affairs. It is following this up with training for the farmers in the operation of the equipment.

SG 2000 country profiles

Burkina Faso

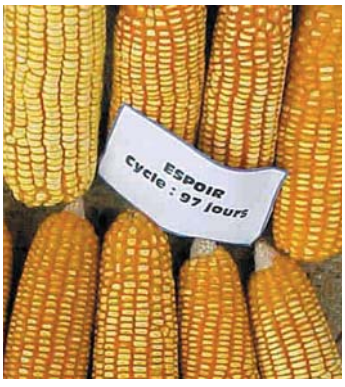
Maize is the third most important cereal in Burkina Faso, covering 337,000 hectares (ha), with a production of 606,000 tonnes in 2002. Year-round cropping of maize is now possible due to adapted varieties developed by the Institute for the Environment & Agricultural Research (INERA). The promotion of small-scale irrigation has also bolstered intensive maize farming.

"Maize is increasingly replacing sorghum and millet in the Burkinabé diet," says SG 2000 country director Marcel Galiba. "In order to ensure food security, the quality of the maize produced needs to be improved. The use of Quality Protein Maize (QPM) is by far the most effective and economical way of doing this." Following the success of the Obatanpa QPM from Ghana (a white maize variety known as Ma Songo in Burkina Faso), producers are eager to introduce a yellow QPM variety to Burkina Faso.

Dr Sanou Jacob is a plant breeder in charge of Research at INERA. He leads the Programme of Traditional Cereals and is a member of the maize network WECAMAN. Dr Jacob explains why INERA believes that the answer lies in "Espoir", an open-pollinated QPM variety (selected from Population 66 SR of CIMMYT/IITA) with a yellow to orange-yellow seed. "Rich in beta-carotene, a precursor of vitamin A, and also in the essential amino-acids, lysine and tryptophane, Espoir could play a significant role in the fight against child malnutrition (kwashiorkor) and adult malnutrition. It can also be roasted or boiled without losing its nutritional value and could help to compensate for the nitrogen deficit observed in normal maize."

Espoir's growth cycle from planting to harvest is 97 days and its potential yield of 6.5 t/ha is ideal for intensive farming. In addition, it has shown a strong resistance to common diseases, such as helminthosporium, rust, curvularia or streak. The cultivar is adapted for areas of 900 mm or under irrigation. Its "stay green" characteristic at maturity makes it good forage for livestock and the grain is perfectly adapted for animal feed.

In the 2002/03 season, Burkina Faso achieved a record production of 3,647,000 tonnes of cereals (millet, sorghum, maize, rice and fonio). This statistic was validated by experts from the FAO, the Famine Early Warning Systems Network (Fewsnet) and *Comité Inter Etats de Lutte contre la Sécheresse dans le Sahel* (CILSS).



Espoir could play a significant role in the fight against malnutrition.

In 2003/03, Burkina Faso achieved a record production of cereals.

The bumper harvest represents an increase of 17 percent compared to the previous year and 31 percent compared to average yields over the last five years, giving Burkina a cereal surplus of 1,008,600 t, or more than 43 percent of the population's consumption needs.

There are a number of factors that have contributed to this success, including a good rainfall, which was boosted by the programme of artificial rains, called "Programme Saaga"; the increased use of external inputs, such as improved organic matter and improved seeds and small-scale irrigation at village level.

Burkina Faso has produced more than a quarter (27 percent) of all cereals from the nine CILSS countries – Burkina Faso, Cape Verde, Chad, Gambia, Guinée Bissau, Mali, Mauritania, Niger and Senegal – and 65 percent of maize production. However, Marcel Galiba warns that, "there is an urgent need to manage this 'abundance' in order to avoid hunger periods. Adequate measures must be taken to buffer the cereal price drop we are currently experiencing."

Espoir makes good forage for livestock.

SG 2000 yields, Rainy Season, 2003

Crops	No. of villages	No. of plots	Yield (kg/ha) PTPs*	Yield (kg/ha) Check plots
Maize	86	244	7,400	3,392
Rice	22	42	5,650	2,095
Cowpea	75	160	2,240	805
Soybean	10	20	1,300	705
Total	**193**	**466**		

*Production Test Plots

Ethiopia

The water harvesting programme conducts demonstrations using small-scale irrigation projects.

As an indication of Ethiopia's determination to confront ongoing problems of food security, the Ethiopian Government has initiated a consultative process to strengthen the linkages between Government and its development partners. With the target of finding a lasting solution to the country's chronic food insecurity, a New Coalition for Food Security has been established and a technical group has drawn up a detailed programme for Ethiopian and donor support.

This programme states, "the extent of food insecurity has become alarming. As much as 45 percent of the population is affected in drought years. This chronic situation is frequently aggravated by unexpected shocks and, on average, over five million people have been enlisted for daily relief food year after year, even in years when weather and market conditions appear to be favourable."

Donor support from the US$ 3 billion programme is encouraging, according to Acting Agricultural Minister, Belay Ejigu. Commitments totalling US$ 695 million have been made by the World Bank, the International Fund for Agriculture (IFAD), the World Food Programme, Britain, the United Nations Development Programme (UNDP) and the Government of Ethiopia, following an International Conference on Food Security held in Ethiopia in December 2002.

"We fully support the objectives of the programme," says SG 2000 Project Co-ordinator Takele Gebre. However, Gebre points out that with a population growth of 1.8 million each year, an additional 340,000 mt of food grain is needed annually "just to maintain per capita food grain consumption at the present level."

Figures released by the Central Statistics Authority (CSA), Ethiopia's official statistics office, estimate that the 2003/04 crop production levels will be around 11.7 million mt. This is up 18 percent on production in 2001/02 and 59 percent on 2002/03. This increase is expected due to the favourable weather conditions and adequate rainfall received so far and the large increase in cultivated land area. However, Takele Gebre stresses that "Ethiopia requires urgent changes in its approach to rural and agricultural development, which must include improvements in crop yields and production techniques; restoration of the environment, including the restoration of depleted soil nutrients; the introduction of an efficient marketing system, and a reduction in population growth."

He strongly believes that the annual consumption of chemical fertiliser should be increased from its present level of 300,000 mt to 700,000 mt. While the use of improved seed increased in 2003 compared with 2002, fertiliser use was much lower mainly because of low supply levels.

SG 2000 in Ethiopia continues to support regional departments of agriculture in the high potential agricultural areas of the country by assisting farmers in maintaining a high level of food crop production. The project is also actively involved in the improvement of food crop production in moisture stress localities through the introduction of water harvesting technologies (see *Feeding the Future*, Issue 19). The water harvesting programme has included demonstration and development of these technologies by sponsoring 30 small-scale drip irrigation projects capable of irrigating up to 500 m^2 per household.

"Most of the water harvesting structures have been completed," comments Gebre, "and some farmers have already started vegetable production using drip irrigation facilities."

During the 2003 crop season SG 2000, in collaboration with the national research and extension systems and regional bureaus of agriculture, sponsored the establishment of some 803 on-farm demonstration plots in 34 *woredas* (administration districts) in three regions of the country – Oromiya, Amhara and Southern Region.

Major activities included demonstrating conservation tillage with teff, maize and wheat; the reintroduction of a very small number of one-half hectare Extension Management Training Plots (EMTPs) in areas where former project participants had stopped using part of the extension technology package due to deteriorating farm-gate grain prices (see table); the promotion of Quality Protein Maize (QPM); the development of rice and extension work in water harvesting technology in moisture stress localities. Postharvest technologies were also promoted and a fertiliser study on wheat in the Arsi Zone of Oromiya Region was undertaken.

The Deputy Prime Minister, Ato Adisu Legese, accompanied by the Acting Minister of Agriculture, visited two of the five SG 2000-sponsored water harvesting on-farm demonstration sites in the Rift Valley area of central Ethiopia, where participating farmers have started to grow vegetables and fruit trees by using simple and inexpensive drip irrigation. The aim is to replicate this experience in other areas where the Government is introducing water harvesting extension programmes.

SG 2000's president, Dr Norman Borlaug, visited Ethiopia in late August last year and held talks with Prime Minister Meles Zenawi on strengthening the national agricultural extension campaign.

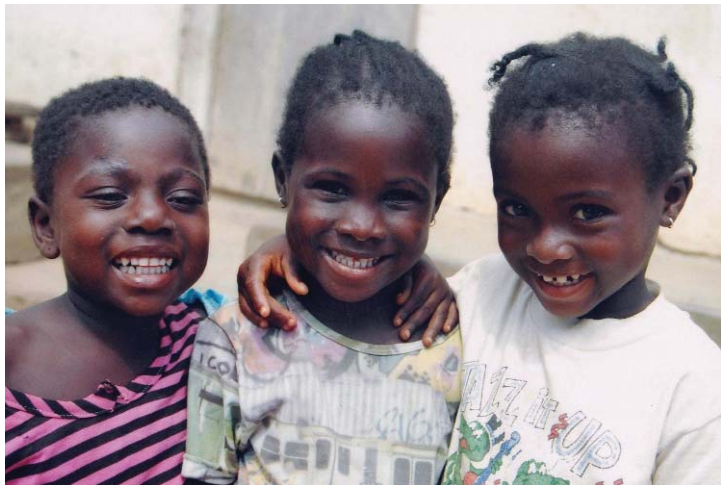
Standard EMTP yields, 2002

Woreda (District)	No. of plots	Crop	Yield (t/ha) EMTP	Yield (t/ha) NEIP*
Awassa	6	Maize	6.8	4.7
Bedewatcho	5	Maize	7.0	4.7
Kerssa	5	Maize	7.2	5.5
Ada'a	5	Tef	1.6	1.4

*national extension intervention programme

Ghana

During the second half of 2003, weather conditions varied considerably in the three regions of Ghana where SG 2000 is active (Ashanti, Central and Upper West), but there was adequate rainfall to support crop production levels in all three regions. Although the country's food supply situation in general was good, prices for various staple foods varied across the three SG 2000 regions. Prices in Ashanti compared favourably to those of the other two regions, and other areas of Ghana on the whole. There was sufficient supply of maize seed in all three regions, while groundnut and cowpea seeds were still in short supply in the Upper West region. Fertilisers were also in ready supply outside of the Upper West Region, where prices of inputs are now relatively high.



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In the past few months, SG 2000 Ghana has continued to focus on strengthening farmers' groups – particularly the old Farmers' Production Plot (FPP) farmers – and developing self-sustaining business-oriented Farmer-Based Organisations (FBOs). This is also a major component of the Government's Agricultural Services Sector Investment Programme (AgSSIP). Agribusiness skills development training for farmers' groups was therefore the main activity in 2003. From April to June 2003, 238 new farmers (involving 23 farmers' groups) undertook three modules of agribusiness training (see table).

"The positive effects of these activities are already in evidence," says SG 2000 Project Co-ordinator, Benedicta Appiah Asante. "Farmers have shown increased commitment to their groups and repayment of loans has improved. The groups themselves have become more formalised, as have their constitutions, and they are demonstrating an increased appreciation and application of basic business principles in their farming. This new emphasis on agribusiness has increased profits for smallholder farmers and is ultimately expected to have an impact on their uptake of improved technologies."

In 2003, SG 2000 organised postharvest technology demonstrations for farmers in all three regions. A total of 192 farmers from 11 districts attended demonstrations on various postharvest management practices, including the use of Actellic Super in treating grain.

In Central Region, where many farmers' groups own oil palm plantations, SG 2000 Ghana joined forces with SG 2000's Agroprocessing programme (see page 9) to demonstrate value added agroprocessing techniques. Sixteen demonstrations were organised for farmers and other members of the community in Assin and Twifo Praso districts. Oil palm digesters and cassava graters were introduced to the farming communities of Assin Kwaata, Dawumako, Dominase, Senchem, Aworoso and Twifo Hemang. In Twifo Hemang and Dawumako, farmers have secured a loan to purchase palm fruit processors.

As the Ghana programme draws to a close (selected activities will continue through regional initiatives), SG 2000 has been collaborating with other NGOs working locally to increase the sustainability of its work. Together with the Adventist Development and Relief Agency (ADRA), SG 2000 has trained 160 farmers' groups from 40 farming communities in zero tillage farming methods, team building and management and other areas. Partner for Humanity, an NGO that aims to facilitate marketing for farmers, has acquired silos from the defunct Food Distribution Corporation and intends to assist smallholder farmers by purchasing their grain. SG 2000 is assisting in identifying farmers' groups that might benefit from such a programme.

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Regional summary of agribusiness training

Region	No. of districts	No. of groups	No. of farmers
Ashanti	6	7	105
Central	4	7	33
Upper West	3	9	100
Total	**13**	**23**	**238**

Guinea

In 2003, SG 2000 Guinea focused on four key areas of activity: assisting farmers in the production and distribution of improved seeds; supporting research centres in generating improved soil fertility management techniques; strengthening human capacity through continuous training and, finally, developing and reinforcing partnerships both with national and international institutions. "The main objective of these activities was to consolidate the achievements of the programme to date," says SG 2000 country director Tareke Berhe, "and to transfer ownership of the projects to Guinean farmers and institutions."

In terms of production, SG 2000 facilitated access to 183 metric tonnes (mt) of fertiliser and 23 tonnes of improved seed to farmers, farmers' groups, agricultural colleges and research centres. The programme continued its field activities focusing on the promotion of NERICA, the new rice for Africa, developed by the West African Rice Development Association (WARDA). This included facilitation of the export of 12 tonnes of NERICA rice and one tonne of Quality Protein Maize (QPM) seed to Gambia, Mali and Ethiopia.

SG 2000 joined with the Government of Japan, through its Embassy in Conakry, to launch a pilot project to develop an agro-industry based on NERICA. The project tackles a number of issues, such as gender (over 80 percent of the participants are women) and the environment, and covers several areas, including seed production, soil fertility management, farm management and postharvest technologies.

Guinean women, representing a number of organisations, sponsored by SG 2000 to receive training in Ghana.

"Working with farmers' organisations, the project aims to significantly increase productivity in upland rice from the low levels currently obtained from traditional systems," says Tareke Berhe.

SG 2000 also supported 15 experiments on fertiliser dosage (mostly on NERICA) and studies on soil fertility amendment with rock phosphates from Senegal and Mali. The studies were conducted at four research centres and the College of Agriculture at the University of Faranah. It was shown that NERICA varieties respond well to higher levels of fertiliser in a similar manner to lowland varieties. In addition, the programme financed cereal (rice and maize) and legume (cowpea, soybean and mucuna) rotation studies. Results from these studies confirm that rice and maize yields can double simply through rotation with either cowpeas or soybeans. SG 2000 sponsored the training of 63 Guineans of both genders in QPM seed, agroprocessing and the manufacture of postharvest machinery. Training was conducted both in Guinea and the sub-region (Ghana, Ethiopia and Uganda).

At the national level, SG 2000 continues to collaborate and also to develop new partnerships with the Research and Extension department of the Ministry of Agriculture, with agricultural schools and colleges of the Ministry of Higher Education and with the Ministry of Health. Other collaborators include international organisations, such as FAO, UNDP, UNICEF, AFRICARE (an American NGO), Hellen Keller International and the Embassy of Japan. On a sub-regional level, SG 2000 Guinea has been working with other SG 2000 country programmes, with SAA (under the SAFE and agroprocessing projects – see pages 8 and 9), the International Institute of Tropical Agriculture (IITA) and WARDA.

New Project Co-ordinator for Guinea

In order to ensure the smooth transfer and continuation of the productivity enhancing activities promoted by SG 2000, a new Project Co-ordinator has been nominated by Ministerial Decree. El Hadj Mody Sidy Diallo graduated from Ohio State University, USA, with an MSc in Agricultural Economics and has substantial experience as an agriculturist at the Department of Extension and Rural Development, where he was Head of Research and Development. He has an excellent command of French, English and other local languages, has teaching experience and has worked with the National Research Programme. In addition, he has participated in many World Bank and other donor financed agricultural projects. Mr Diallo has been involved with SG 2000 Guinea since its establishment and had previously worked for the programme as a consultant.

Buyers from Gambia purchase NERICA rice seed in Guinea.

Field activities, 2003

Crop	No of villages	No of farmers	No of plots	Area (ha)	Average Yield (t/ha)*
Upland rice (NERICA)	536	3,590	2,457	521	2.7
Lowland rice	1,024	6,327	4,854	528	3.3
Maize (QPM)	600	2,577	2,213	411	3.6
Cowpeas	186	757	657	13	1.3
Soybeans	18	22	5	10	1.8
Irish potatoes and Fonio				462	n/a
Total	**2,364**	**13,273**	**10,186**	**1,945**	

* National averages for rice and maize are 0.8-1.2 t/ha and for cowpeas around 0.5 t/ha.

Malawi

Local currency devaluation was a major problem for farmers in Malawi in 2003. As a result, there was an increase in the cost of urea and compound fertilisers – in the case of urea from 1,200 kwacha in 2002 to 1,700 one year later. Similarly, the price of a kilogram of maize to farmers in 2002 was over 13 kwacha – whereas in 2003, farmers were being paid prices ranging from 4 to, at best, 13 kwacha.

Last season, maize technologies were successfully demonstrated to 4,451 farmers.

"Unstable markets and unstable prices will continue to contribute to a scarcity of maize in Malawi," says SG 2000 country director José Antonio Valencia. "Many farmers have been storing their harvest in their local granaries expecting to get better prices, only to find that donors are distributing their own reserves of maize, decreasing prices still further. At the end of the day, the farmers are the losers – and many were not prepared to invest in the necessary inputs for the 2003/04 season."

Similarly, the country has failed to benefit fully from last year's improved weather conditions. Most of the land dedicated to maize production in 2002/03 received little or no fertiliser. Although the national average production per unit area was increased by 149 kg per hectare, this was mainly due to an increase in the total area of land planted. The national average of 1.7 t/ha obtained in 1998/99 and 1999/2000 actually decreased to 1.2 t/ha in 2002/03. Malawi, one of the largest consumers of maize in the world, remains an importer of this food staple.

SG 2000, in collaboration with the Ministry of Agriculture, Irrigation and Food Security, is now working in six out of eight of the country's Agricultural Development Divisions (ADDs) – with the main objective of promoting the dissemination of improved agricultural technologies to smallholder farmers. By 2002/03 some 16,523 maize Management Training Plots (MTPs) had been planted in the four years since the project started.

One key area of the project is to promote the improved technologies to small-scale farmers through the Farm Field Schools (FFS), working closely with the ADDs' field assistants and facilitators. These are ideal opportunities for discussing and explaining the technological package, the importance of land preparation and conservation tillage, the planting dates for different regions, and the recommendations for maize from Malawi's National Research Institute for Agriculture (NRIA). Training also covers soybeans, pigeon peas, rice and wheat production technologies as part of promoting crop diversification.

Table 1. Maize MTP yield averages, 2002/03

ADD	Area (ha)	No. of farmers	Total production RDP* (kg)	Range per RDP (t/ha)	Yield per RDP (kg/ha)
Blantyre	92.80	928	626,113	4.5 – 9.0	6,747
Machinga	82.8	828	420,496	8.5 – 8.6	5,078
Lilongwe	100.5	1,005	508,562	8.5 – 8.6	5,060
Salima	43.0	430	213,995	2.4 – 7.4	4,977
Kasungu	0.0	0	0	0.0 – 0.0	0
Mzuzu	126.4	1260	845,641	4.0 – 5.5	6,690
Total/Average		**4,451**	**2,614,808**		**5,874**

* Rural Development Programme

"Early in 2003, we organised a series of field days across the country, and supervision at the Farm Field School, where facilitators, field workers and farmers compared normal, traditional technology with conservation agriculture technology for maize production," says Valencia. "The facilitators encourage farmers to participate in the discussion so that they can also propose solutions to the problem of inputs."

In 2002/03, maize technologies were successfully demonstrated to 4,451 farmers. The yields obtained ranged from 4.5 t/ha to 8.6 t/ha across the country with the average obtained in the ADDs varying from 4.9 t/ha to 5.8 t/ha (see Table 1).

An additional 1,307 plots were established for Quality Protein Maize (QPM) with yields ranging from 4.1 t/ha to 5.8 t/ha, with an average yield for all demonstrations of 4.7 t/ha. The Open Pollinated Variety (OPV) for the QPM Sussuma from Mozambique was grown on four hectares on a farmer's field in Salima ADD. After grading and treating, 7.9 t of seed will be available to the QPM farm field school in 2003/04.

Results from 21 soybean plots showed yields as high as 3.1 t/ha – or, at lowest, 160 kg/ha. The postharvest programme produced 25 granaries and drying cribs as well as 15 mini maize shellers, ten cassava chip processors and an agreement for making one fertiliser briquette machine.

Conservation agriculture, which addresses problems of soil fertility and water conservation, is also proving increasingly popular with Malawi's farmers. Some 150 MTPs were established with average yields ranging from 3.8 to 8.5 t/ha.

Loan recovery from MTPs set up in 2002/03 has reached around 90 percent, "an excellent result considering the pressures on farmers," comments Valencia (see Table 2).

Table 2. ADD loan recovery, 2002/03

ADD	No. of farmers	Total loan to farmers Kwacha (MK)*	Total recovery from farmers	% of recovery per ADD
Blantyre	1,088	868,865.00	829,815.44	95.51
Machinga	968	776,485.00	739,739.82	95.27
Lilongwe	1,076	897,060.00	861,956.00	96.09
Salima	789	680,611.68	492,236.56	72.32
Kasungu	266	227,076.84	154,602.48	68.08
Mzuzu	1,115	964,518.67	865,550.34	89.74
Total	**5,302**	**4,414,617.19**	**3,943,900.64**	**89.34**

* US$ 1 = MK 97

Mali

The Millet and Sorghum Initiative (MSI) is a region-wide project to develop market outlets for local cereals in semi-arid West and Central Africa. Scheduled for 39 months, the project covers Burkina Faso, Chad, Mali, Niger and Senegal. It is being co-financed by the International Fund for Agricultural Development (IFAD), the French Ministry of Foreign Affairs and SG 2000, which is also the implementing agency.

"Demand for staple foodstuffs is rapidly increasing in the region's cities and towns," explains SG 2000 country director Dr Marcel Galiba, who is also Director of the MSI. "By helping local cereal sectors respond to this demand, the initiative will contribute to regional food security, rural income generation and the transition to more sustainable farming systems. In particular, expanding the markets for these cereals, which are traditionally oriented towards fulfilling the subsistence needs of farm families, should encourage farmers to invest in more productive technologies."

At the regional level, the project is being geared by a Steering Committee of ten members composed of the three major donors, two representatives of agroprocessing operators, a representative of French CIRAD (International Centre for Agronomic Research for Development), two co-ordinators from the West and Central African Sorghum Research (WCASRN) and West and Central African Millet Research (WCAMRN) Networks, the Millet and Sorghum Initiative Regional Co-ordinator and the co-ordinator of PROCELOS, a specialised institution affiliated to the CILSS (Interstate Committee for Drought Control in the Sahel), focusing on the promotion of local cereals and, more generally, on market products.

An Alpine grinding mill – one of the new pieces of equipment tested by MSI

"In Mali, the project will be implemented in two phases," explains Galiba. "The first phase involves mobilisation of stakeholders through National Stakeholders' Focus Groups (NSFGs). These will conduct stocktaking exercises, national workshops and regional forums to identify market development opportunities. In the second phase, development projects will be implemented through the NSFGs, market surveys, testing of technologies, training of stakeholders, a Regional Information Service and scientific and technical backstopping."

MSI activities in 2002/03 have included the testing of equipment such as a multi-use thresher, a new generation of stone expeller and an Alpine-brand grinding mill in order to improve the performance of food processing enterprises. The programme has compiled a Directory of Food Processors, listing 1,441 processing units, which is available on its website: *www.milsorgho.info*. In order to share experiences in processing techniques, technologies and packaging, a member from the Mali NSFG visited South Africa from 3-10 June 2003. Similar visits are planned at a sub-regional level, e.g. to Ghana and Nigeria.

Three foodstuffs in Mali are being targeted for improvement in traditional processing methods: enriched sorghum couscous, ready-to-cook sorghum flour and pearl millet flour used for porridge (monikuru). Five food processing enterprises – ITRAC, *la Sahélienne de l'Alimentation*, COGETRAM, UCODAL and *la Maraîchère* – are identifying the constraints related to these foodstuffs.

A demonstration in best practice and hygiene in the preparation of couscous

The Steering Committee identified management and quality control of processed products as the two focus areas in the training of stakeholders. From 24-26 June 2003, 22 processing enterprise and production managers were trained in hygiene and manufacture best practice at APCAM in Bamako, and another 18 received management training from 2-4 July.

MSI also aims to create loyalty between producers and processors in order to increase the availability of quality commodities. UCODAL and 32 farmers from Kondogola village in the Ségou region participated in an MSI project in 2002. The two parties contracted a purchase price of CFA 175 per kg for 8.8 tonnes of pearl millet produced over an area of 4.25 ha. SG 2000 organised a workshop for Malienne stakeholders in Ougadougou, Burkina Faso, on 28 April 2003, to examine the project.

"It is hoped that MSI's activities will be transferred to the stakeholders themselves," says Galiba. To this aim, a national meeting organised by the NSFG was held on 16 November 2002, to bring together stakeholders from around the country, and explain to them the project's Plan of Action. An internal mid-term evaluation of project accomplishments in Mali was also carried out at a workshop on 19 August 2003.

Production Test Plot (PTP) average yields, 2003

Crop	No. of villages	No. of plots	PTP (kg/ha)	Check plot (kg/ha)
Maize (QPM)	28	32	2,898	1,216
Maize (QPM) using Zero Tillage	7	26	3,185	1,085
Sorghum	5	11	1,379	681
Millet	5	12	1,482	783
Groundnut	4	7	1,750	1,125
Rice (NERICA)	44	143	1,219	835

Mozambique

Intense rainfall in the southern regions of Inhambane and Gaza in October 2003 led farmers to start sowing. "However, the rest of the country has remained dry and preliminary evaluations indicate a relatively dry year in 2004," reports Carlos Zandamela, SG 2000 Project Co-ordinator for Mozambique. "As a result, most of the southern districts and central Mozambique are experiencing a poor growing season and food insecurity is predicted over the next twelve months."

A rice demonstration plot in Matutuine, Maputo Province

The Government recognises that agriculture is the primary engine of economic growth and has increased its agricultural development budget from three to six percent since 1999. "The SG 2000 experience, which has demonstrated triplication of yields using Science Based Crop Production Technology (SBCPR), has proved that small-scale farmers can successfully adopt modern technologies," says Zandamela. "The Government has embraced SBCPT as an essential component of agricultural development."

The focal point of Mozambique's agricultural policy is the National Agricultural Development Programme (PROAGRI), which plans, co-ordinates and finances research, extension and investments relating to market-orientated agricultural development. PROAGRI is the product of a participatory process involving donors and government agencies.

In its first stage (1998-2004), PROAGRI dealt mostly with capacity building in human resources and institutional reforms within the Ministry of Agriculture and Rural Development (MADER). In December 2003, an evaluation of the process took place involving government officials (Ministers and Provincial Governors) and representatives from donor agencies, including the World Bank, IFAD, USAID, DANIDA and ADB.

A cassava processing field day at the Umbeluzi Research Station (INIA)

As the evaluation found Stage I of PROAGRI to have been satisfactory, the partners set about appraising the proposed policies and strategies for PROAGRI II (2005-09). These will focus on infrastructural development, such as small- and medium-sized irrigation schemes, agro-industry for small- and medium-level farmers and credit for inputs and commercialisation. A key component of PROAGRI II, which was not part of Stage I, is rural finance. IFAD and ADB have already committed approximately US$ 290 million over the period of Stage II.

Rice is an important commodity for both rural and urban populations in Mozambique. However, Mozambique relies on imports for two thirds of the 300,000 metric tonnes (mt) of rice required annually. "In addition to commercial imports, this includes food aid spending of US$ 60-80 million, representing 60-70 percent of total food imports per year," explains Zandamela. To address the situation, the government has launched a programme aimed at attaining self-sufficiency in rice production and promoting exports of rice.

As part of the initiative, a Consultative Group on Rice (CGR) was established in August 2003. The CGR consists of rice producers, milling factories and traders (exporters, importers and distributors), input suppliers, service providers, government and NGOs. Carlos Zandamela, who has more than 20 years' experience in rice research and technology transfer, has been appointed to the executive secretariat of CGR. "CGR will focus on reducing production costs and creating a more competitive national production industry," says Zandamela. "There will be particular emphasis on access to inputs and equipment, credit for inputs, technical assistance, farmers' organisations and the establishment of linkages with national and regional markets."

This year, SG 2000 will establish field demonstration plots with Sussuma-Quality Protein Maize (QPM) and ITA 312 rice varieties as the major crops, using Minimum Tillage technology. Dr Rafael Massinga, a scientist recently recruited by SG 2000 collaborator *Instituto Nacional de Investigación Agropecuaria (INIA)*, is now working full time on Conservation Tillage research.

The International Institute of Tropical Agriculture (IITA) has also assigned one of their scientists, Dr Sicco Kolijn, to work full-time on the design of agroprocessing equipment and marketing of processed products. He will co-ordinate his efforts with the Southern Africa Root Crops Research Network (SARRNET), INIA, the Directorate for Rural Extension (DNER) and local manufacturers. His contribution is expected to particularly assist in moving processed products into formal markets.

Average demonstration plot yields, 2002/03

Crop	No. of plots	Area (ha)	Demonstration plots (0.1 - 1.0 ha) (kg/ha)	Traditional plots (kg/ha)
Maize	2,571	473.5	4.0	0.8
Rice	604	208.7	3.0	1.0
Cowpea	113	17.3	1.2	0.5
Cotton	260	24.9	1.3	0.4
Sorghum	3	0.3	1.5	0.3
Groundnut	101	10.1	1.0	0.4
Sesame	15	3.8	0.8	n/a
Total	**3,667**	**738.6**		

Nigeria

When the 2003 wet season arrived in Nigeria, farmers were faced with an acute shortage of fertiliser due to poor planning by both the Federal and State Governments. This was compounded by "import discouragement" from private sector fertiliser companies, who were struggling to recover unpaid debts from State Governments that distributed or sold all their stocks at subsidised rates during the election campaigns. Bauchi was the only state that procured its fertiliser requirement ahead of the season. Having predicted the impending shortage, SG 2000 forewarned its farmers who purchased sufficient fertiliser in time for the wet season.

Governor Ahmadu Adamu Mu'azu (left) presents an extension agent with a motorcycle as an award for his excellent field supervision.

"As if that was not enough," says SG 2000 Project Co-ordinator Ahmed Falaki, "the season came with the heaviest rains recorded in more than three decades. In several areas, the rainstorms caused havoc in terms of flooding, which washed away several hundred thousand hectares of cropped farmland, houses and livestock."

"On the positive side," Dr Falaki continues, "the external evaluation of SG 2000 Nigeria, conducted in August 2002 (see issues 18 and 19), seems to have rekindled interest in the project. We are receiving increased support for the consolidation and expansion of our activities and also in laying a foundation for sustainability."

A prime example is Bauchi State, where some 10,000 frontline extension agents (EAs) and farmers were trained and provided with loan packages for inputs during the 2003 season. The Governor, Ahmadu Adamu Mu'azu, provided three Nissan vehicles and 80 motorcycles to assist in the supervision of farmers' management training plots (MTPs) across the state. He also distributed cash and fertiliser to the best Conservation Tillage (CT) and MTP farmers and motorcycles to the three EAs who excelled most in field supervision. The Governor intends to sponsor a further 20,000 MTPs during the 2004 wet season. Having set the ball rolling, the governments of Kano, Zamfara and Gombe States have invited SG 2000 representatives for discussions on support and expansion of the project in their states for the benefit of small-scale poor resource farmers.

During the 2002/03 dry season, the establishment of wheat MTPs decreased by 12 percent compared to the previous season due to the lack of market interest and low market prices. Despite the poor weather experienced during the season, over 600 wheat farmers obtained an average yield of 3.7 t/ha, which was lower than the previous season (4.1 t/ha) but still higher than the national average yield of 2.1t/ha (see table). The average net income received by farmers ranged from $431 to $634/ha compared to $253/ha using traditional wheat production practices.

Wheat MTPs, dry season 2002/03

State	No. of farmers	Area (ha)	Yield range (t/ha)	Average yield (t/ha)
Bauchi	25	8.50	2,700-3,410	2.9
Jigawa	435	108.75	3,210-5,410	4.2
Kano	121	34.75	2,770-5,620	4.3
Katsina	18	6.75	3,190	3.2
Kaduna (Lere Zone)	4	1.00	3,840	3.8
Total	**603**	**159.06**	**-**	**3.7**

SG 2000 also introduced other crops to increase farmers' profits, such as cowpea, maize (green), tomato, pepper, onion and leafy vegetables. "Farmers were particularly happy with the introduction of green maize and vegetable MTPs, which provide them with a good income," says Dr Falaki.

SG 2000 plans to consolidate its work in transferring crop-based technologies to farmers by focusing on the promotion of Conservation Tillage, Quality Protein Maize (QPM), NERICAs (the new rice for Africa, developed by WARDA), postharvest and agroprocessing technologies and marketing.

"SG 2000 has been strengthening its partnerships with relevant stakeholders to improve the productivity of small-scale farmers," reports Dr Falaki. "Besides expanding its conservation tillage work with Monsato/Candel in Bauchi and Kaduna States, which has been very effective, it will be working with USAID in the coming season, focusing on conservation tillage for rice production, in Federal Capital Territory, Bauchi and Niger States."

Other ongoing collaborations include Ahmadu Bello University in QPM and SAFE (see page 8); IITA in soil fertility management and postharvest technologies; IFDC in the introduction of efficient and sustainable input marketing systems; Abdulson in purchase and export of sesame from SG 2000 farmers and the Raw Materials Research and Development Council (RMRDC) in the production of sesame and soybean for local industries and export.

SG 2000 has been strengthening partnerships with stakeholders to improve the productivity of small-scale farmers.

Tanzania

On 28 August 2003, the Participatory Agricultural Development and Empowerment Project (PADEP), was declared operational. The five-year project is run by the Ministry of Agriculture and Food Security (MAFS) and financed by a credit fund from the World Bank. "PADEP will support a wide range of agricultural activities in the form of investment subprojects," says Jiro Aikawa, SG 2000's Representative in Tanzania. "The project aims to improve food production and income generation without damaging the environment. SG 2000 is assisting MAFS in identifying new productivity enhancing and resource conserving technologies."

PADEP will be implemented in 26 districts of mainland Tanzania and on the islands of Zanzibar, known locally as Unguja and Pemba, (equivalent to two mainland districts). The project's target is to reach an estimated 500,000 smallholder farmers in about 840 villages, which will be implemented in phases. In each village there will be at least one community (village) based investment subproject and at least four farmers' group investment subprojects. A farmers' group subproject will comprise 10-40 households in the same village.

The subprojects will be identified, prepared, implemented, monitored and evaluated by the beneficiaries themselves, through participatory approaches with facilitation from ward/village, district and national levels. The estimated total project cost, including contributions from the beneficiaries, is around US$ 70 million.

In the 2002/03 crop season, SG 2000 continued to demonstrate soil fertility restoration technologies and began demonstrations of Quality Protein Maize (QPM) in farming communities located in districts where PADEP will operate. In addition to two QPM workshops, SG 2000 conducted field days at regular intervals to demonstrate technologies to farmers, researchers and other agricultural development stakeholders. "The farmers' response to the demonstrations has been extremely positive," says Aikawa.

Dr Wayne Haag, SAA QPM Co-ordinator for Africa, is assisting with QPM dissemination in Tanzania. Here, he is pictured with a QPM farmer from Mshewe in Mbeya.

During PADEP implementation, SG 2000 will continue to collaborate with MAFS in demonstrating resource conserving and income generating agricultural technologies to farming communities. Facilitators will assist farmers in adopting a range of technologies, including QPM, soil fertility restoration/ maintenance and rainwater harvesting.

Lishe H1 (QPM) yields in Mbeya Rural, 2003

Village	Yield (kg/ha)
Izyra	2,150
Iwala	2,778
Songwe	3,000
Mshewe	3,550

Promoting QPM

Mr Yuya Iizuka and Mr H Gowel interview Ms A Mariki, a farmer and teacher.

The Tanzania Food and Nutrition Centre (NFNC) and SG 2000 are producing a promotional video on QPM. The video is being shot by NFNC audio-cameramen, Mr H Gowell and Mr Yuya Iizuka. Mr Iizuka is a Japanese Overseas Cooperation Volunteer (JOCV), posted to NFNC as an audiovisual technician. For this video, they have shot more than 50 scenes, including interviews with farmers, researchers and government officials during field visits, field days and workshops.

In one interview, Mrs Eshimedhi A Lema, a farmer who had experimented with feeding QPM to her pigs, commented, "I am surprised at the big differences in pig growth between normal maize and QPM. QPM can help us to increase our income through breeding livestock."

The video is expected to be completed by the end of February 2004. SG 2000 and the Ministry of Agriculture and Food Security hope to use it to increase demand for QPM. So that it is accessible, the video will be in Swahili, which is Tanzania's national language and is understood by most of the population.

Uganda

The Uganda Government's strategy for developing agriculture – with the support of the donor community – is beginning to bear fruit. The Plan for the Modernisation of Agriculture (PMA), which embraces the National Agricultural Advisory Services Programme (NAADS) launched in 2001, has helped to develop institutional arrangements that integrate and support production, agroprocessing and marketing more effectively than projects working in isolation.

Uganda's overall production of maize in 2003 was encouraging with over 550,000 mt for the first season and between 250,000 to 300,000 mt for the second season of harvests – with Kapchorwa in Eastern Uganda contributing an additional 40,000 to 50,000 mt after the harvesting of its long crop cycle. National bean production was around 100,000 mt for the first season harvest.

"QPM moved rapidly forward in Uganda in 2003, with total national QPM sales nearly doubling," says country director Abu Michael Foster (see chart). A more formal QPM working group has been set up and a Regional Co-ordinator for the promotion of QPM appointed (see page 6). One key constraint to the dissemination of QPM has been a lack of capacity to assure the quality of protein in QPM seeds and grain.

Farmers have been impressed with the high yields of upland rice.

The group is now building local capacity for QPM screening, reviewing existing capacity at two protein laboratories – the National Agricultural Research Organisation's (NARO) Research Institute, Namalonge, and Makerere University's Crop Science Department.

Two upland rice varieties (Superica 1 and Superica 2-P91) were released in collaboration with Nalweyo Seed Company (NASECO) in 2002 – and were increased in a farmer-to-farmer seed production campaign in 2003. SG 2000 has extended the campaign to seven new districts using 10 mt of seed recovered through the One Stop Centre (OSC) network in Iganga District (see page 1). In the areas where seed production was successfully completed – Iganga, Bugiri, Pallisa and Tororo districts – farmers rapidly expanded production. "Over 130 mt of upland rice variety has been produced and sold in partnership with commercial seed companies," reports Foster, "and that has also propelled expansion of upland rice production in some Western and Northern districts of Uganda outside the project area."

"Farmers were encouraged by the high yields, shorter duration and desirable aroma of these improved varieties and a relatively stable and high price translated into much bigger profit incentives compared to maize cultivation. Momentum for upland rice is gaining in Uganda and SG 2000 has spearheaded this effort."

A recent study revealed that, "only five percent of cultivated land in Uganda is planted with improved seeds and less than eight kg/ha in total mineral nutrients is added to the soil." SG 2000 has continued to create substantive seed banks of legume crops to encourage rotations or intercropping of cereals with legumes on a more extensive scale. The lack of legume seed and its high cost continue to limit the acreage of land under cultivation to legumes, thereby reducing opportunities to build soil fertility.

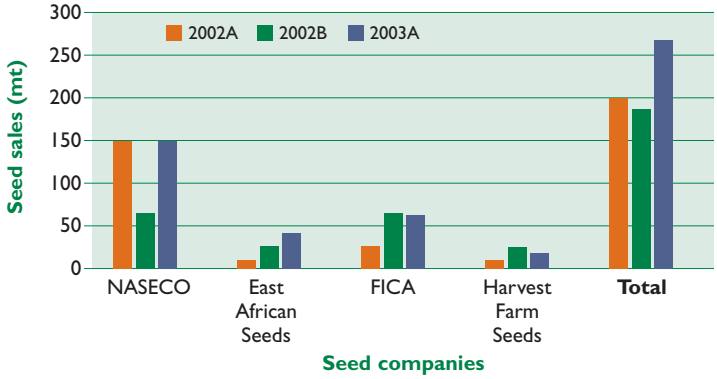
QPM maize will help alleviate food shortages in the refugee areas of Adjumani.

SG 2000 is co-ordinating the Uganda chapter of a regional consortium for promoting pigeon pea production involving ICRISTAT, NAADS, Catholic Relief Services, Techoserve and other rural NGO networks. An estimated 677 ha of pigeon pea were planted using seed supplied by SG 2000. The ICRISAT regional office promoted the intercropping of pigeon pea with maize and provided funds to purchase, clean and pack over 4 mt of pigeon pea seed, which was sold to stockists with a buffer stock of 3 mt held in case of problems of varietal purity.

A contract for this work was issued to the Rural Agroprocessors Association (RAPTA) at Iganga. Over 2,000 posters were distributed to farmers in districts involved in the campaign. Farmers are expecting to harvest a total of 514 mt, providing enough seed to launch a pigeon pea/maize intercropping campaign and promote production for specialised producers.

Also in collaboration with ICRISAT, SG 2000 obtained from researchers' fields nearly 2 mt of Serenut III (SR3), another sought after variety of groundnut that is high yielding and tolerant to rosette virus. The seed was planted in the second cropping cycle last September.

QPM seed sales



SG 2000 publications and videos

For copies please contact Raitt Orr & Associates Ltd in London

Publications

1. SAA Annual Report 2002/03
2. SAA Annual Report 2001/02
3. Proceedings of Workshop 2001: Food Security in a Changing Africa
4. Proceedings of Workshop 2000: Extension Education – Reshaping African Universities and Colleges for the 21st Century
5. Proceedings of Workshop 1999: The Food Chain in Sub-Saharan Africa
6. Proceedings of Workshop 1999: Innovative Extension Education in Africa
7. Proceedings of Workshop 1998: Partnerships for Rural Development in Sub-Saharan Africa
8. This is SAA: An introduction to the work of the Sasakawa Africa Association

Other publications available:

- SG 2000 in Nigeria – The First Seven Years (1999)
- The Earth and the Sky – the change and challenges in African agriculture (1998)
- Proceedings of Workshop 1998: Enhancing Postharvest Technology Generation and Dissemination in Africa
- Proceedings of Workshop 1998: Microfinance in Africa
- Proceedings of Workshop 1997: Agricultural Intensification in Sub-Saharan Africa

Videos

1. Setting the Grassroots on Fire – Norman Borlaug and Africa's Green Revolution (1999)
2. Ethiopia, My Hope . . . My Future . . . The 'Green Revolution' in Ethiopia (1998)
3. Breaking the Mould. Bringing African Universities into Development (1997)
4. Fulfilling the Promise. How nutritionally-improved maize can alleviate malnutrition in maize-dependent countries (1997)
5. Facing the Future. The SG 2000 Programme for Agricultural Development in Africa (1996)
6. You Can't Eat Potential. Breaking Africa's Cycle of Poverty (1996)

All videos are available in English, French and Japanese. Video formats are PAL, Secam and NTSC.

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