Feeding the Future

First SAFE group graduates from Ethiopia's Alemaya University

Mid-career student Alemu Foche (left), with joint co-ordinator Dr Jeff Mutimba (centre), was the top agricultural graduate in 1999.

Alemaya University, 10 July:

At a packed ceremony at Ethiopia's Alemaya University of Agriculture (AUA), Dr Norman Borlaug, President of the Sasakawa Africa Association (SAA), presented degrees to some 600 of the graduating class of 1999, including the first group of mid-career agricultural extension students to successfully complete their BSc extension degree course. Norman Borlaug was especially effusive about the mid-career graduates, saying in his address, "I congratulate you all. It is of tremendous significance to Ethiopia to see frontline extensionists such as yourselves graduate from an Ethiopian university for the first time."

The mid-career extension course was launched in February 1997 under the Sasakawa Africa Fund for Extension Education (SAFE) initiative. This programme, operated jointly with Winrock International, seeks to bring universities, extension workers, and communities into more productive modes of rural development. The initiative, established to upgrade the skill-levels of Africa's agricultural extension practitioners, recognises the value of in-field training.

Of the 28 mid-career extension graduates at Alemaya, four passed with distinction—with Alemu Foche named top student for the whole Faculty of Agriculture. Presented with a gold medal at graduation, Alemu stated afterwards, "I feel that I have proved that a degree course can be completed in two years and that experience from the field is of great value."

Alemu, 37, has now returned to the Hadiya zone in Ethiopia's Southern Nations Nationalities People's Region (SNNPR). Originally from a farming village, and a father of three, Alemu obtained a Diploma in Forestry in 1984 and worked as an extension officer before starting the AUA BSc course in February 1997. Working for the Bureau of Agriculture as a zonal inspector, Alemu said, "I found the course was an important step in my career. More importantly, it was designed to change rural life and rural poverty."

A key feature of the mid-career programme is the off-campus supervised enterprise projects (SEPs). Lasting for eight months, the students are visited by university staff in the field to provide on-the-job instruction.

At AUA, the second intake of 18 students is currently working on their off-campus SEPs and will be returning to the campus soon to complete their final semester of course work. The third admission group of 25 students have now completed two semesters of course work and are currently working on their SEPs.

Ghana's gold medal winner

The SAFE programme at the University of Cape Coast in Ghana also produced the top graduating student in 1999 within the entire university. Graduating with First Class Honours, Robert Tetteh Andrews was named gold medal winner on 19 April.

In his mid-40s, Robert has over 20 years of field experience in agricultural extension in Ghana and holds a Diploma in Agricultural Administration.

He has now returned to his work with the Ministry of Food and Agriculture in Dodowa, Greater Accra Region, as District Development Officer.

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Inside

October 1999

GLOBAL 2000's Rural AIDS Education Initiative

AIDS has overtaken malaria as the number one cause of death in Africa. HIV/AIDS prevalence in Malawi, the most recent nation to host an SG 2000 project, is one of the highest in sub-Saharan Africa, with more than one million of its 11 million people (approximately 12 per cent of the population) HIV positive. HIV/AIDS has severely affected the economically productive segment of the population—including the skilled and trained agricultural work force—which greatly exacerbates poverty.

In response to this growing epidemic, the World Bank has called on various organisations to help deliver HIV/AIDS related services to the rural poor in Africa. Global 2000, the health arm of The Carter Center, is involved in this initiative, with voluntary help from Emory University and the Centers for Disease Control and Prevention (CDC). Global 2000 agreed to work with the Bank and the Malawi Government to develop and test some rural HIV/AIDS education programmes, first with the many extension agents who are posted in rural areas, and then with the farmer groups served by the frontline staff.

Emory University graduate student Jennifer Hegle, who is pursuing a masters degree in public health, is using the three years of Peace Corps experience she gained working in rural AIDS control in the successful programme in Thailand to help launch Global 2000's Malawi programme. Working with Dr Grace Malindi, Associate Director of the Malawi Extension Service and co-ordinator of the rural AIDS initiative, Jennifer is helping with knowledge, attitude, and practices (KAP) studies to determine the appropriate approaches to HIV/AIDS information and education dissemination.

AIDS directly affects agricultural production and productivity in Malawi. Labour shortage is often the first effect of HIV/AIDS, forcing farmers to reduce the amount of land under cultivation and pushing them towards the edge of survival. Over the longer-term, HIV/AIDS destroys rural household food security, the traditional social safety net, and draws down family and community resources due to medical and funeral expenses.

Jennifer Hegle (centre) is teaming with Norias Msisha, Senior Agriculture Extension Officer in Blantyre (left) and Dr Grace Malindi, Associate Director of Extension, MOA, to develop Global 2000's rural AIDS education programme.

Andy Agle leaves Global 2000

Andy Agle, formerly Global 2000 Director of Operations, left the Carter Center at the end of August to become the Associate Executive Director for the Task Force for Child Survival and Development. Andy will work with Dr Bill Foege, Task Force Executive Director and SAA Board member, in managing a range of child survival health initiatives.

Andy joined Global 2000 in 1990 after 27 years as a health care professional with the Centers for Disease Control and Prevention. As Director of Operations, Andy was central in expanding The Carter Center health programmes to more than 35 nations, including the extremely successful Guinea Worm eradication programme in all the endemic countries.

Agle has represented The Carter Center in the SG 2000 agricultural programme. He has paid particular attention to promoting quality protein maize in Africa and, more recently, to ways to increase AIDS education for extension workers and farmers in endemic countries.

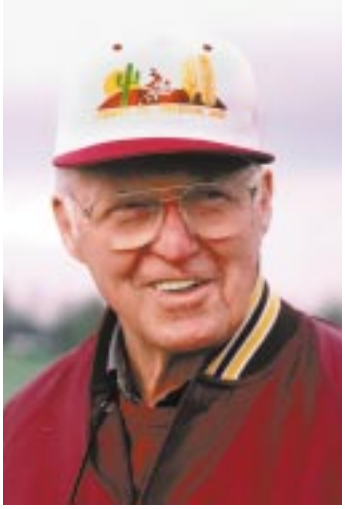
"We will greatly miss Andy," commented SAA's President Norman Borlaug, "not only for his wise counsel, but also for the skills and dedication he brought to bear to improve health and nutrition for millions of disadvantaged people."

Fourth Agribusiness Forum meeting held at Carter Center

On May 12, 1999, President Carter, G. Edward Schuh, and Norman Borlaug co-chaired a fourth meeting of the Agribusiness Forum, which was attended by senior representatives from Monsanto, Norsk Hydro, Novartis, Pioneer Hi-Bred, the World Bank, and SG 2000. Cargill was unable to send a representative although they have confirmed their continued interest in the Forum.

In the context of sub-Saharan Africa smallholder agricultural development, the major issues discussed were the potential role of biotechnology, prospects for increased private investment in agricultural research and extension, and ways to develop stronger public-private partnerships. Considerable time was spent on recent criticisms against agricultural biotechnology and the need to mount effective science education programmes to educate policymakers and the influential public. All acknowledged that important social equity issues must be addressed to allow smallholder farmers access to biotechnology innovations. Forum members recommended holding additional meetings between public and private sector decision-makers, to help clarify what each sector can and cannot do. In addition, Forum members recommended holding a special educational seminar about genetically modified organisms for public sector, donor, and NGO leaders.

Editorial



Dr Norman E Borlaug, SAA President

We can't turn the clock back

The population bomb has had one of the greatest human and ecological impacts of the 20th century. When I was born, 85 years ago, the world population stood at 1.6 billion. Today we are 6 billion in number, and growing by 100 million each year.

If we tried to produce the 1997 world cereal harvest using the prevailing 1960 technology, we would have needed 1.7 billion ha of land, instead of the 700 million ha currently in use today. Where would the additional 1 billion ha come from? How many forests would have had to be felled? How many grasslands and hillsides would have had to been ploughed up?

Africa's farmers are eager, willing, and able to double and triple yields. We have seen this clearly over the past 13 years in SG 2000

We cannot turn the clock back to the pre-1960s, and re-adopt the so-called "organic" approaches to crop production which were followed in an earlier day. Why? Because these lower yielding agricultural systems—albeit relatively stable—can only support three billion people. What would we do with the remaining three billion? It has only been advances in agricultural productivity that have allowed us to avoid human catastrophes of unimaginable dimensions.

The current backlash against science and technology, evident in some industrialised countries, is hard for me to comprehend. How quickly humankind becomes detached from the soil and agricultural production! Less than four per cent of society in industrialised countries is engaged in agriculture. With low-cost food supplies and urban bias, it is no wonder that consumers do not understand the complexities of re-producing the world food supply each year in its entirety and expanding it, at a minimum, for the nearly 100 million new mouths that are born into this world annually.

The widespread "anti-science" campaign being orchestrated by extremist environmental groups is well-financed and frightening. They seem to want to stop the natural forces of evolution in its tracks, and to put our planet in the hands of a privileged well-fed elite. Although lacking in scientific credentials, their media skills are highly effective in preying on people's fears.

Consumers from these privileged nations are concerned about the safety of foods, despite generally living longer and healthier lives with each successive generation. If some consumers are prepared to pay the higher prices associated with the so-called "organically" grown crops and, if they can afford it, this is their choice to make.

However, in sub-Saharan Africa (SSA), getting enough to eat can call on 70-80 per cent of a family's human and financial resources. Can these farmers afford "organically" grown food? And could they even use this method if they wanted to, especially when there is not enough manure, crop residues and farm power available to do high-yield organic farming.

SSA should adopt an "Agricultural Intensification Bill of Rights" stating that, by 2010, all farmers will have access to technologies that can (1) increase their incomes, (2) feed the population at the lowest possible cost, (3) integrate rural dwellers into the national market economy; and (4) encourage investments in rural resource conservation.

Africa's farmers are eager, willing, and able to double and triple yields. We have seen this clearly over the past 13 years in SG 2000. Moreover, with 60-80 per cent of the population engaged in farming, productivity-led agricultural development will do much to stimulate their economies and reduce poverty, which in the end is the root cause of food insecurity.

Do not, I say to Africa's leaders, close your doors to the future benefits that biotechnology can bring your nations. Get your laws and regulatory procedures in order. Finally, continue to strive for strong publicly funded agricultural research systems which can provide farmers with continuing streams of new technology and can be made available with no royalties or patent charges.

I urge African policymakers not to be misled by the current prophesies of doom coming from extremist environmental groups, whose elitist leaders neither understand agricultural science nor the need to raise farmers' incomes substantially, as a precursor to increased investments in environmental conservation. As Richard Leakey likes to remind us, "You have to be well-fed to be a conservationist." Indeed, modern agricultural technology-improved seed, moderate amounts of fertiliser, and crop protection chemicals—is Africa's salvation, not its damnation!

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 whose chairperson is Ayako Sono and president is Yohei Sasakawa.

SG 2000 raises priority for rice

Rice is grown in 30 sub-Saharan African (SSA) nations. In 1997, farmers planted 7.3 million ha and produced 1.7 million t of grain. Rice is a major food in a number of African countries, including in the SG 2000 project countries of Ghana, Guinea, Mali, Nigeria, Tanzania, and Mozambique.

Rice consumption in SSA has been growing at about 5-6 per cent a year during the 1990s. FAO projects African rice imports to increase from 3 to 4 million tonnes by the year 2000 (WARDA 1997 Annual Report).

Some African nations have achieved notable advances in irrigated rice production. In Egypt the average yield of irrigated rice is around 8.5 t/ha. In some irrigation districts of the *Office du Niger*, 5-6 t/ha yields are commonplace. Still, in most of SSA, irrigated rice yields are far below their potential.

Productivity of upland rainfed rice is extremely low (often under 1t/ha). Low soil fertility, low—yielding varieties, poor weed control and other management problems are the main difficulties. With improved technology, yields can easily be doubled and tripled.

Thousands of farmers, who have grown and tasted the new rices, give them high ratings

Kanayo Nwanze, Director General of the West African Rice Development Association (WARDA) says, "If yield increases still play a relatively small role in raising production, it is not because of the failure to develop new and appropriate technology. Rather it is because the conventional systems for delivering technology to producers are, with few exceptions, unequal to their task."

SG 2000's experience adds support to Dr Nwanze's contention. SG 2000 country directors in Guinea and Mozambique both come back with a resounding "yes!" when asked if there are improved varieties and technological packages available to greatly increase rice yields.

WARDA has developed new crosses of African and Asian rices that offer enormous potential to transform many rice-growing areas of Africa.

WARDA has developed interspecific crosses between two distinct types of rice—Oryza Glaberrima (African type) and O. sativa (Asian type). These are adapted to upland conditions (rainfed). These new materials combine hardiness of the African type with the higher yield potential from the Asian type. Under a programme assisted by the World Bank, the Special Programme for African Agricultural Research (SPAAR), WARDA scientists are working with Guinean researchers (IRAG) and extension workers (SNPRV) in a rapid evaluation/seed multiplication for the elite new interspecific crosses. Thousands of farmers, who have grown and tasted the new rices, give them high ratings. New institutional partnerships, including organisations like SG 2000, have been put into place to accelerate seed production and diffusion among smallholder farmers.

Rice production and imports in SG 2000 project countries

	Production, mt		Average Yield, t/ha		1997 Imports, mt	1988 Estimated consumption, mt
	1990	1998	1990	1998		
Benin	10,940	26,815	1.4	1.9	56,000	82,815
Burkina Faso	47,800	89,516	2.1	1.6	50,000	139,516
Eritrea	-	-			2,003	2,003
Ethiopia	-	-			20,100	20,100
Ghana	80,900	281,100	1.7	2.1	50,017	331,117
Guinea	423,280	763,955	1.0	1.5	205,318	969,273
Malawi	43,280	66,634	1.5	1.6	2,000	68,634
Mali	303,884	613,965	1.5	1.9	30,000	643,965
Mozambique	96,355	191,000	0.9	1.1	26,000	217,000
Nigeria	2,500,000	3,268,000	2.1	1.6	731,000	3,999,000
Tanzania	740,000	810,000	1.9	1.6	65,000	875,000
Uganda	54,000	77,000	1.4	1.4	7,600	84,600
Sub-totals	**4,300,439**	**6,187,985**	**1.7**	**1.6**	**1,245,038**	**7,433,023**
SSA	**9,198,307**	**11,703,313**	**1.6**	**1.6**	**3,423,772**	**15,127,085**

Source: FAO AGROSTAT (1999)

SAFE

The Sasakawa Africa Fund for Extension Education (SAFE) was launched in 1992 to create university training opportunities for frontline extension staff. Within the SAFE programme, SAA works directly with ministries of agriculture and the Winrock International Institute for Agricultural Development. Now operating in four countries—Ghana, Ethiopia, Tanzania and Uganda—the SAFE programme is being launched in francophone Africa in September in Burkina Faso.

Ghana

Kwadaso College to complement UCC's degree programme

A two-year diploma programme in agricultural extension will start in October at Kwadaso Agricultural College in Kumasi. The programme will be affiliated with the University of Cape Coast (UCC), complementing its post-diploma BSc Agricultural Extension degree programme. This will allow the UCC to increase its annual intake of students.

Anthony Appiah, Principal of Kwadaso Agricultural College, commented, "The programme is based on the same training principle as the BSc course at UCC. Graduates of this diploma course, after working for at least two years in the field, could then go to UCC to continue their career development."

Approximately 30 students will be enrolled on Kwadaso's SAFE diploma course this year, a third of whom will be women. Three places will be offered to each of Ghana's ten regions, thereby avoiding a vacuum in the field. "The curriculum is in place, the laboratories and classrooms are ready and recruitment of students is well underway," says SAFE Director, Deola Naibakelao.

A total of 76 students (24 per cent female) have graduated from the UCC programme, including two students from Nigeria, Othman Yahaya and Usman Sabo Umaru, who successfully completed their degree course. Othman Yahaya has returned to his former post as liaison officer between the Kano State Agricultural and Rural Development Authority (KNARDA) and SG 2000, but with additional responsibilities. Usman Sabo Umaru co-ordinates SG 2000 activities in Jigawa, Bauchi and Gombe States.

Students and graduates of BSc and diploma mid-career extension programme, supported by SAFE, 1994-99

	No. of students currently studying	No. of graduates
University of Cape Coast, Ghana	52	76
Alemaya University, Ethiopia	45	28
Makerere University, Uganda	19	-
Sokoine University, Tanzania	25	-
Kwadoso Agricultural College, Ghana	33	-
Total	**174**	**104**

The first 'foreign' graduates of the UCC BSc course in extension are Nigerians Othman Yahaya and Usman Sabo Umaru—with Norman Borlaug.

Tanzania and Uganda

Both Sokoine University in Tanzania and Makerere University in Uganda continue to develop their BSc mid-career programmes. Makerere University launched its BSc programme in 1997/8 and currently has 19 students enrolled on the course. Sokoine University, starting its programme in October 1998 with support from Winrock, has 25 students registered on the programme.

SAFE programme spreads to francophone Africa

The SAFE programme is to be launched in francophone Africa in September this year: the *Université Polytechnique Bobo Dioulasso* in Burkina Faso will be setting up an extension degree programme in partnership with MOA, Winrock International and SAA. "The extension programme will come under the *Institut de développement rural* (IDR), one of the three schools which forms the *Université Polytechnique*," notes Georges-Anicet Ouedraogo, *Directeur de l'IDR* at *Université Polytechnique Bobo Dioulasso*.

SAFE's Deola Naibakelao moved to Burkina Faso in September and will be followed by Dr Moses Zinnah by the end of the year. "The National University of Benin has also expressed interest in a SAFE programme," says Naibakelao.

UCC mid-career students visit CRI/MOFA/SG 2000/Monsanto no-till plots in Ashanti, Ghana.

Building partnerships

The World Bank and SG 2000

Collaboration between the World Bank and SG 2000 has been strengthened following a three day joint retreat and field trip held in Ethiopia in July. Chaired by SAA Board member, Bob Havener, the meeting included a seven-person World Bank delegation led by economist David Nielson, who manages World Bank funded extension projects in Uganda and Mozambique. Dr Norman Borlaug led the SG 2000 team and Andy Agle represented the Global 2000 programme of The Carter Center.

Accompanied by Vice-Minister for Agriculture, Belay Ejigu, the group travelled 250km west of Addis Ababa to the Bako Research Station, where quality protein maize varieties and hybrids are being developed. The group talked to farmers participating in the Ethiopian Government's agricultural intensification programme, both in the field and at the home site, where improved grain storage structures are being promoted. The group also visited a rural technology promotion centre at Bako, which supports small-scale machinery and equipment manufacture services for farmers.

The World Bank/SAA partnership was announced in November 1994 by Dr Borlaug and the Bank's then Vice-President for Africa, Edward (Kim) Jaycox. The two organisations agreed to provide operational support to national agriculture extension services; to work together to improve the access of small-scale farmers to inputs and credit; and to develop agricultural training and education programmes targeting mid-career extension workers.

A clear sign of this collaboration has been in Uganda where SG 2000 is working with the Government of Uganda and the World Bank in the design of a national extension programme that will have key elements of a focused grassroots approach. The joint retreat ended with agreement to broaden the partnership across a greater range of SG 2000 countries.

World Bank, SG 2000, and Ministry of Agriculture staff visiting a farmer's field near Bako, Ethiopia.

SAFE workshop in Addis Ababa

Dr Olivia Muchena, Zimbabwe's Deputy Minister of Lands and Agriculture, with FAO's Dr Michelle Owens, Africa Regional Officer for Extension and Education, and Dr William Lindley, Senior Officer, Agricultural Education, from FAO headquarters in Rome.

The SAFE workshop, held last July, attracted representatives from over 15 African countries. Bringing together over 60 senior government and academic officials, including university deans and ministers of agriculture, the workshop focused on the development of training programmes for mid-career agricultural extension professionals—as well as capacity building in African universities.

Discussing the need for a responsible training programme for extensionists, speakers presented case studies on existing extension training programmes; roles and challenges of agricultural extension in Africa; and the implications of training mid-career agricultural extension staff. These themes were discussed further within small working groups before the workshop was closed by Dr Mengistu Hulluka, Ethiopia's Minister of Agriculture.

The workshop was addressed by representatives from Ethiopia's Alemaya University, Cameroon's University of Dschang, and the University of Cape Coast (UCC) in Ghana. "The majority of an estimated 150,000 agricultural extension staff in Africa lack training opportunities beyond secondary level,' noted Professor A G Carson, Dean of the School of Agriculture at UCC. "This is affecting the efforts of governments, NGOs and other agencies in addressing the needs of farmers and improving the effectiveness of extension work."

Professor Joseph M A Opio-Odongo, Sustainable Development Adviser for the United Nations Development Programme in Uganda, said that "there is a need for agricultural extension to remain sensitive to a country's macro-economic, political and agrarian development". Similarly, the importance of changing the perception of extension and agriculture, as well as achieving programme sustainability, was identified by Dr Olivia Muchena, Zimbabwe's Deputy Minister of Lands and Agriculture.

Adding value to agricultural production

The expansion of the agroprocessing programme from Ghana and Benin across the continent to Ethiopia has highlighted differences in Africa's agricultural marketplace, says agroprocessing programme leader Toshiro Mado. "For example, in West Africa, there is more food in the marketplace, while in Ethiopia it is grown and prepared at home. In Ghana and Benin, small private agroprocessing businesses have taken root; but this is not yet so in Ethiopia."

SAA has completed its fourth year of a collaborative project with the Postharvest Engineering Unit, International Institute of Tropical Agriculture (IITA), to extend improved postharvest and agroprocessing technology to farmers.

"Before a prototype of the multicrop threshing machine was bought into Ethiopia last year," says Mado, "there was no engine-driven thresher for teff, Ethiopia's preferred staple. Threshing is normally done by cattle—with teff spread on a platform of dung and clay after harvest. As a result, there are considerable postharvest losses and grain quality is reduced by being mixed with dirt and dung."

With the collaboration of the Ethiopian Agricultural Research Organisation (EARO), 15 multicrop threshers have now been produced—with a further 20 being made by private manufacturers. "These are proving extremely popular," adds Mado.

Mado believes that there is great potential for diversifying the ways in which maize is used and consumed. "In Ethiopia, injera made from teff is expensive—almost a luxury food. Teff can be double the price of maize. But injera could be made by mixing teff and maize and selling it in packets."

He believes, too, that roller mills for processing good texture flour from maize, wheat and barley should be introduced and, with the inclusion of quality protein maize (QPM), would make a considerable nutritional impact, particularly in the Ethiopian highlands. "A prototype roller mill is currently being developed at IITA," he says.

This year Mado expects to see an expansion of the wet grinder in northern Ghana and elsewhere for processing oil crops such as groundnuts, shea nuts and soybeans. He is confident, too, of increased interest in agroprocessing in Guinea following the surprise visit of President Lansana Conté to a graduation ceremony of trainees from a postharvest and agroprocessing technology demonstration course in Kindia. In Guinea the development of a new rice polisher is eagerly awaited.

The IITA cassava grater is proving popular in Ghana and Benin, where 169 units have now been sold (July 1999). Mado is confident that the cassava grater will prove equally popular in other SG 2000 countries. In Mozambique, manufacturers' training in the fabrication of the cassava grater took place in early August: previously, too, in Guinea.

The grater is powered by a 3.5 horsepower petrol engine. Yamaha has donated two units through their local suppliers in Ghana and Benin for demonstration purposes. "People tend to like diesel engines," he says, "but petrol engines are small, light and mobile. Maintenance costs are also less than diesel. Women, too, find these machines easier to operate."

In Guinea the development of a new rice polisher is eagerly awaited

Sales of selected agroprocessing equipment in Ghana and Benin

Type of items	1997	1998	1999*	Total
Cassava grater	63	49	32	144
Double Screw Press	37	36	29	102
Palm Digester	8	21	5	34
Multi Thresher	15	11	0	26
Wet Grinder	2	3	0	5
Total	**125**	**120**	**66**	**311**

*Sales until April 1999.

The cassava grater in action in Benin.

SG 2000 country profiles

Benin

SG 2000 no longer has an office in Benin, although a close relationship is maintained with the *Federation Nationale des Caisses Rurales d'Epargne et de Pret* (FENACREP), the recently established national association for the CREP movement that SG 2000 and the Ministry of Rural Development (MDR) helped to create. The CREPs—village savings and loan associations—have grown rapidly in Benin since 1992, and today are operative in three other countries—Togo, Burkina Faso, and Mali. The FENACREP managing director is Dr Bernadin Glehouenou, previously SG 2000 national joint co-ordinator in Benin.

The CREP movement: buildings and safes are important for creating confidence.

"This year we are helping to consolidate and expand the work of FENACREP," comments Benin's SG 2000 Country Supervisor, Marcel Galiba. "We want to see the CREP movement become more involved in running field demonstration plots (Production Test Plots or PTPs) and in financing inputs. As part of its agricultural programme, FENACREP has earmarked 406 maize PTPs and 145 rice PTPs for planting on members' land from 23 CREPs. PTP farmers will have the advantage of access to loans at low rates through the CREP system. These credit lines have worked well with SG 2000's agroprocessing programme, and facilitated the purchase of equipment demonstrated at village level."

A March 1999 report on FENACREP by financial analyst Dr J. D. Von Pischke, President of Frontier Finance International, states that "savings and credit co-operatives in many countries would envy the CREPs of Benin. The CREPs' world is relatively uncomplicated, many have little direct competition on the credit side . . . reported repayment rates are wonderful, showing that peer-solidarity works and the co-operatives are dynamic."

However the report, sponsored by SG 2000, lists a number of challenges to the future of CREPs including: management of solidarity; borrower domination; politicisation; management of "institutional capital;" and risk concentration. Borrower domination is described as causing "a co-operative to remain smaller than it could be, making it difficult to achieve economies of scale and scope to remain competitive. This in turn leads to more efforts to attract subsidy, which easily leads to politicisation and appeals to solidarity and other behaviour that does not encourage a commercial approach."

There are 137 CREPs in Benin. The majority of these are "spontaneous" and do not have buildings or safes which, the report notes, "are important for creating confidence among depositors." They are, however, registered with the Ministries of Finance and Rural Development. Of 52 CREPs, 40 formed through SG 2000 are in full operation and 12 spontaneous CREPs have achieved full operation. FENACREP's objective is to have all CREPs in full operation by the end of 2000. In mid 1999, total CREP assets were US $1.25 million with liabilities for loans amounting to US $365,000, (see update figures below).

Of 52 CREPs, 40 formed through SG 2000 are in full operation and 12 spontaneous CREPs have achieved full operation

FENACREP has specialised extension officers *(animateurs)* and field accountants, based in six regional centres, who visit the CREPs on a regular basis. The accountants are prohibited from handling cash and the CREPs must contribute to their salaries.

The CREP Movement in Benin, 1999

figures in CFA: US $1 = 600 CFA

Department	No. of CREPs	Membership	Deposits	Loans
Oueme	38	7,430	203,815,391	86,932,000
Mono	10	4,042	53,918,225	11,272,000
Atlantique	13	2,154	9,974,580	12,048,125
Zou	42	7,285	335,757,295	67,206,000
Atacora	11	1,880	44,238,705	16,644,500
Borgou	23	4,082	101,094,150	24,915,000
Total	**137**	**26,873**	**748,798,911** (US $1,250,000)	**219,017,625** (US $365,000)

Source: FENACREP

Burkina Faso

Last year, with much improved rains compared with 1997, cereal production in Burkina Faso recovered rapidly. Over 2.3 million t of cereals were harvested, second only to Mali among the Sahelian countries (see chart, page 14).

Since the SG 2000 programme was established in 1996, in collaboration with the Ministry of Agriculture, soil fertility improvement has been a major focus. Various types of green manure and grain legume crops are being evaluated, and phosphate rock has been widely promoted as an amendment to traditional compost. "Finding cost-effective ways to improve and maintain soil nutrient levels in the Sahel is of paramount importance," says Country Director, Marcel Galiba.

Last year, 280 ha were prepared with dykes while 600 plots were treated with compost and phosphate rock. A target of 400 ha has been set for dykes in 1999 and 700 farmers will add phosphate rock to their compost during the year.

Earlier-maturing maize varieties are being promoted in the southwest portion of the country, which is the "cotton" zone and the area with the greatest rainfall (700-900 mm) in Burkina. The maize technological package (improved seed, moderate amounts of chemical fertiliser to supplement organic nutrient sources, and good agronomic practices) has shown outstanding performance, with the best farmers obtaining yields above 4 t/ha.

The 1999 field programme will see a considerable expansion. About 1,000 production plots will be planted with the various green manure crops—Mucuna and Lablab—and another thousand farmers will grow maize—with a concentration on the QPM variety Masongo, the local equivalent of Obatanpa in Ghana. Some 200 ha one hectare maize plots will be planted, in contrast to the usual 0.25 ha size of production plots.

"The excellent maize yields last year reaffirm the potential for this versatile crop in certain areas," says Galiba, "and farmers are enthusiastic about Masongo and its improved nutritional qualities. We are concentrating, too, on producing and disseminating QPM seed, in collaboration with MOA and research institutions."

Working with Burkina's farmers to improve human and soil nutrition.

Demand for QPM seed is high and farmers appreciate the two kilo bags.

In addition, 1,000 PTPs are being planted with millet and sorghum and 100 with rice. The seed dressing Apron Plus (from Novartis) is being promoted in areas where downy mildew is endemic. By controlling this disease, millet and sorghum yields can be increased by 20-30 per cent.

The excellent maize yields last year reaffirm the potential for this versatile crop in certain areas

Four savings and loan associations (CREPs), along the lines of the CREPs in Benin, were established in 1998, with two operating effectively. "We are not yet convinced that the CREP movement has taken root in Burkina," says Galiba, "but the many lessons we have gained from Benin are being put to good use."

Other targets this year include further development of watershed management interventions and a subsequent increase in income-generating activities for women's groups: also the diffusion of improved postharvest technology based on grain silos of traditional designs, "which work quite well," Galiba comments.

"There appears to be considerable scope to develop prototypes for small-scale flour mills for processing millet, sorghum, and maize," reports Chris Dowswell, SAA Director for Programme Co-ordination, "especially among organised groups of farmers, such as those belonging to the CREPs. SAA is working with IITA engineers and food technologists to develop suitable prototypes for small-scale 'wet milling' mills. Not only can these mills make a very positive impact on income," Dowswell notes, "but they can greatly reduce the time currently spent by women, who often must travel significant distances to get their cereals milled into flour for family use."

Burkina will be the first francophone African country to adopt the SAFE programme—at the *Université Polytechnique Bobo Dioulasso*. "This is a significant development for the SAFE programme and for Burkina," commented SAFE's Deola Naibakelao, who has moved to Burkina from Ghana.

Ethiopia

The rapid expansion of Ethiopia's national extension intensification programme—using the SG 2000 technology transfer approach—will involve the participation of 3.5 million farmers in the 1999/2000 season. During 1998/99, more than 2.5 million farmers were included in the programme.

"The success of this programme," says Country Director Marco Quiñones, has enabled us to concentrate our resources on a productive collaboration with the national research system, as well as extension, to explore and develop new technologies now well advanced in the research pipeline."

Hands on training, in the field, is given to front-line extension staff while the postharvest sub-programme has made significant progress—particularly with the development of a multicrop thresher (see page 7) and the construction of improved grain silos.

Vice-Minister of Agriculture, Belay Eijgu, and Dr Twumasi-Afriyie, CIMMYT highland maize breeder for Eastern Africa, discuss QPM trials at Bako Research Station. Dr Twumasi-Afriyie has been a leader in the development of QPM varieties and hybrids since his days as head of the maize improvement programme at the Crops Research Institute in Ghana.

Conservation tillage, with all its labour saving benefits, was initiated during the 1998/99 crop season with a total of 77 maize plots of 0.5 ha in size—62 in Oromia and 15 in Southern region. Average yields were 5.5 t/ha, equivalent to those obtained by farmers using improved husbandry practices. This season 318 maize plots will be planted—as well as 70 wheat plots.

With nearly one million hectares under sorghum, the importance of the Striga resistant programme cannot be over-emphasised

One area of close collaboration with the Ethiopian Agricultural Research Organisation (EARO) is in the dissemination of Striga-resistant sorghum cultivars to Ethiopian small-scale farmers. Under the auspices of INTSORMIL (the International Sorghum and Millet Network), new sorghum varieties possessing genetic resistance to this parasite weed have recently been developed by Purdue and Nebraska universities in the United States.

During the 1998/99 season, 371 sorghum demonstration plots, 0.5 ha in size, were grown by participating farmers in Striga infested areas.

"Apart from resistance to Striga, yield and grain quality were excellent," comments Quiñones.

"As nearly one million hectares are planted under sorghum in Ethiopia—and Striga is the main threat—the importance of this programme cannot be over-emphasised."

During the 1999/2000 season, SG 2000 is sponsoring a total of 350 field demonstrations with the new varieties. In addition, local authorities have secured additional seed from the previous season and are sponsoring several hundred plots, mainly in Tigray and Oromia, where Striga is of special concern.

SG 2000 has been collaborating, too, with the International Maize and Wheat Improvement centre (CIMMYT) and the National Maize Research Programme to develop Quality Protein Maize (QPM) from the best local maize varieties. The Ethiopian national maize research leader has been working for over a year and a half at CIMMYT headquarters in Mexico on this programme. It is hoped that, in the next crop season, a few Ethiopian farmers will be testing on their own fields improved QPM which, at the present time, is restricted to research centres.

Front-line training of extension has continued with the construction of improved grain silos with solid walls.

A small number of farmers are now participating in a new inventory credit scheme, receiving cash loans from the Ethiopian Development Bank as collateral against their harvested grain. The grain is then sold when the market value rises. SG 2000 is acting as an intermediary between farmers and the bank, which has expanded its loan portfolio to accommodate a larger number of farmers next year.

Striga-resistant sorghum––developed under the auspices of INTSORMIL.

Ghana

SG 2000 programme management in Ghana is primarily in Ghanaian hands, guided by National Co-ordinator, Benedicta Appiah-Asante, in collaboration with Ministry of Food and Agriculture (MOFA) leaders. Former Country Director, Dr Wayne Haag, continues to provide specialist support to the Quality Protein Maize (QPM) breeding and nutrition programmes; seed production; postharvest technology; and field demonstrations.

A farmers' group, which received an award from Monsanto for successfully adopting no-tilling in Ashanti, seen with storage facilities.

QPM continues to gain momentum in Ghana, as indicated by a recent CIMMYT/CRI/CIDA adoption study, which was carried out as part of an overall CGIAR impact study. Their findings showed that a significant portion of Ghana's maize is now the popular QPM open-pollinated variety, Obatanpa.

Efforts are also underway to introduce a QPM hybrid to Ghanaian farmers. According to Lans Delimini, Director of the Ghana Seed Inspection Unit (GSIU) and Dr Ernest Asiedu, Head of the Crops Research Institute's Seed Unit, during 1999 the seed production programme will produce about 24 t of certified QPM hybrid seed. This QPM hybrid, called Mamaba, was released by CRI during 1998 and has a yield potential of 7-8 t/ha. "Farmers have been very impressed with the new QPM hybrids and there is a high demand for the Mamaba seed," comments Benedicta Appiah-Asante.

A QPM nutrition study is underway in the Ashanti Region. Results of this study are expected to be available by the end of the 1999. Preliminary results are encouraging to Abena Akumaoh-Boateng, nutritionist and project leader.

In 1999, maize seed production targets have been reduced by 40 per cent due to substantial quantities of seed in the system, carried over from the difficult 1998 season. According to Dr V K Ocran, seed specialist, the seed inspectors have concentrated on monitoring dealers and testing and revalidating carry-over seed for germination quality.

Farmers have been very impressed with the new QPM hybrids and there is a high demand for the Mamaba seed

The Extension Test Plot (ETP) focus in Ghana is changing in 1999. Following a meeting with the Department of Agricultural Extension Services (DAES) and Agricultural Development Bank (ADB), priority was given to four crops—plantain, soybean, vegetables and maize (in descending order).

SG 2000 staff have been working with the district assemblies following the Government's decentralisation measures. With these, many governmental functions are now being transferred to district governments. MOFA is heavily involved in decentralising its operations—including extension and crop services—to local government. In response, SG 2000 staff have been presenting the ETP programme to local officials, in the hope of building support. In 1999, some 21 district assemblies, one rural bank, and two ADB branches have agreed to finance the input credit for 651 ETPs, reports Appiah-Asante.

Smallholder input dealers are expanding in the Kumasi region encouraged by the growing adoption of conservation tillage practices.

In addition, 130 farmers, mainly in Ghana's maize belt, were supplied with herbicides by Dizengoff Ghana Ltd, for the "conservation-tillage" demonstration programme, as part of their collaboration with CRI, MOFA, Monsanto and SG 2000. According to the no-till co-ordinator, Kofi Boa of CRI, the no-till technology and herbicide use is being adopted by many small-scale farmers and in many different crops.

The postharvest maize grain programme continues to be active in four regions—Western, Brong Ahafo, Ashanti and Central. "The visit to the Western Region revealed a problem with the Larger Grain Borer," notes Appiah-Asante, "as a result, field days focusing on pest control have been planned for the next quarter."

SG 2000, together with CRI and MOFA specialists, will be conducting research into mud silos through multi-locational testing—two at the Sasakawa Centre at the University of Cape Coast, and two at Kwadaso Agricultural College. All four silos will also be used for demonstration purposes.

Guinea

The importance of rice as the predominant food crop in the Republic of Guinea is reflected in the country's SG 2000 programme. Rice occupies 49 per cent of the entire cultivated area. Consumption reaches 90 kg per person each year—one of the highest levels in West Africa.

Jean Paul Sarr, Guinea's Minister of Agriculture, Water and Forests, at the opening of an agricultural workshop.

Prior to 1995, Guinea had been importing around 300,000 t a year, but improved agricultural programmes have led to a progressive decline in these imports—down to 200,000 t in 1997 and 150,000 t in 1998. This import reduction is a considerable achievement, especially given the serious refugee problems and the movement of rice into Liberia and Sierra Leone. Guinea's target date for self-sufficiency in rice production is 2005.

During the 1999 season, the Ministry of Agriculture, Water and Forests and SG 2000 tripled the number of Production Test Plots (PTPs) over the 1998 number. Half the PTPs demonstrate improved upland and irrigated rice cultivation. Last year, with a major distribution of fertiliser and improved seed, the Ministry/SG 2000 field demonstration programme expanded into six regions and 27 districts.

In 1998, mean yields were higher by an average of 800kg/ha over 1997, both for upland and lowland rice and for maize

Country Director Tareke Berhe recognises the vital role played by the *Service National de Promotion Rural et Vulgarisation* (SNPRV) and believes that the expansion is reaping dividends. "There is a tremendous increase in the demand for farmers to take part in the programme," he says. "We believe, too, that we are improving our ability to cope with this demand."

A further encouraging factor has been the trend of increasing crop yields. In 1998, mean yields were higher by an average of 800 kg/ha over 1997, both for upland and lowland rice and for maize.

The number of rice and maize PTPs has increased. However, the growth of Mucuna PTPs has slowed down, even though it can contribute sufficient nitrogen to raise rice and maize yields by 0.5 to 1.5 t/ha, when used in rotation, with little additional fertiliser needed. Many farmers say that "unless they can eat the bean," they cannot afford to grow Mucuna, given their land and labour limitations. Tareke Berhe believes that farmer interest in Mucuna will pick up again "if processing techniques are developed to make Mucuna safe and easy to eat."

QPM has been enthusiastically received by farmers in all Guinea's six regions. "For example," says Tareke Berhe, "we introduced it to a group of poultry producers in Dittin, Mamou region. In 1998 they planted five ha; in 1999 they planted 50 ha."

The postharvest and agroprocessing technology programme received a boost with the surprise visit of President Lansana Conté to a field day. Accompanied by the Minister of Agriculture, Water and Forests, Jean Paul Sarr, the President awarded certificates to graduating trainees.

Rice farmer, Tamba Camara, with his son in the village of Gaoul, Boke region, Guinea.

QPM has been enthusiastically received in Guinea.

PTP activities in Guinea, 1998

		CROP				
Activity		Rice	Maize	Mucuna	Other	**Total**
No of PTPs		429	193	123	117	**862**
No. of participants		2,796	767	287	1,478	**5,328**
Area covered (ha)		206	77	533	95	**911**
Mean yield obtained (t/ha)	Upland: 2.0 Lowland: 3.6	3.0	-	-	-	

Malawi

Participating farmer (centre) with José Antonio Valencia and SG2000 National Co-ordinator John Kumenda.

The 1998/1999 cropping season marks the first year of the SG 2000 field programme, in collaboration with the Government of Malawi, where there is an urgent requirement to increase agricultural productivity and rural incomes.

"A number of factors restrict food production in Malawi," comments Dr José Antonio Valencia, SG 2000 Country Director. "These include very small landholdings, declining soil fertility, post agronomic practices, and limited financial resources. We need to address all these to ensure a food supply which meets growing demand."

The Government, with financial support from the European Union and other donors, embarked on a three-year crash food security programme in 1998/99 to distribute maize intensification "starter packs" (distributing up to 2.6 million packs), which include 2.5 kg of improved seed, 5 kg of fertiliser, and some seed of a grain legume to all small-scale farmers, free of charge. This sort of poverty intervention, notes Chris Dowswell, SAA Director for Programme Co-ordination, has significant risks associated with it. Often, intended recipients do not receive the starter packs on time and/or sell them at a discount before planting. Effective extension training to ensure proper use of inputs is difficult to implement. Finally, give-away programmes discourage private sector investment in the agricultural inputs.

Working with the Ministry of Agriculture and Irrigation, SG 2000 is currently disseminating information on improved technologies for increasing production in maize and other food crops. Agricultural Development Division (ADD) extension staff are being strengthened through training and logistical support; and research, extension and farming networks are also being strengthened.

Management Training Plots (MTPs) are the primary method for disseminating the technology. The programme uses 0.1 ha demonstration plots on farmers' fields to promote integrated agronomic packages for maize, from land preparation to harvesting and postharvest.

During the 1998/99 cropping season, SG 2000 implemented 250 MTPs on farmers' fields in four ADDs (see table). Inputs were provided on credit by SG 2000, repayable at harvest time. Yield data is not yet available but preliminary data collected from Blantyre ADD indicated good yields with a range from 3.2 t/ha to over 10 t/ha—a major increase over the national average. Reports Dr John Kumwenda, National Co-ordinator, "frontline extensionists are greatly encouraged by these results."

Working with the Ministry of Agriculture and Irrigation, SG 2000 is currently disseminating information on improved technologies for increasing production in maize and other food crops

"We hope to have a total of 4,200 maize MTPs in 1999/2000," states Country Director Valencia,"and will continue to look for new technology options for farmers in rice, soybean and other legumes." SG 2000 will also be looking for new partnerships with other institutions that share its development objectives while placing more emphasis on training for extension staff and farmers.

Establishment of Management Training Plots (MTPs) in Malawi

NAME of ADD	1998/1999 Number of MTPs	1998/1999 Area (ha)	1999/2000 Number of MTPs	1999/2000 Area (ha)
Blantyre	40	4	900	90
Machinga	50	5	900	90
Lilongwe	100	10	1,500	150
Mzuzu	60	6	900	90
Total	**250**	**25**	**4,200**	**420**

Zonal Extension Co-ordinator with frontline extension worker visit farmers growing maize MTPs.

Mali

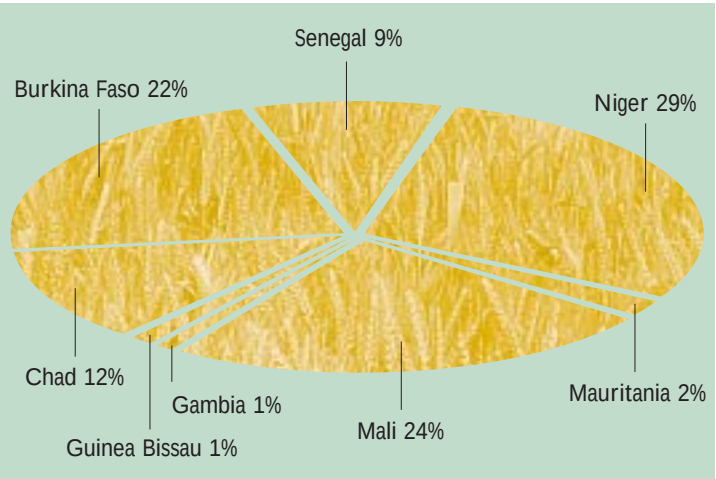
Inadequate rainfall is the most limiting agricultural production factor in most of the Sahel region. However, 1998 was a very good year for rainfall. CILSS *(Comité Inter-Etats de Lutte Contre la Secheresse au Sahel)* reported that its nine member countries produced 10.6 million tonnes of cereals in 1998—an increase of 31 per cent over the previous year. Mali contributed 24 per cent of this total.

In much of the country, SG 2000 emphasises soil conservation through anti-erosion strategies (bunds, dykes) and is promoting the use of finely ground phosphate rock and grain legumes—as well as small amounts of chemical fertiliser—to restore soil fertility and improve the organic content of the soil. Country Director Marcel Galiba comments that, in many areas, "the soil nutrient balance is negative and continuing to decline." This biological reality contrasts with the national objective to encourage increased agricultural intensification in the smallholder sector.

However sorghum and millet yields—where farmers are reluctant to invest in inputs—remain uncertain although improved varieties have been introduced. Downy mildew also remains a threat, often reducing yields by as much as 30-40 per cent in certain areas. In 1998, the SG 2000/MOA field programme began demonstrating the benefits of using the crop protection chemical developed by Novartis, called Apron Plus, which can effectively control downy mildew through an initial seed dressing. In the Segou region, 700 farmers planted Apron Plus demonstrations in 1999, in collaboration with SG 2000, Novartis and the Institute for Economic Research (IER). The results of this intervention are very promising, and Novartis is now releasing a new version of Apron Plus which is environmentally safer.

SG 2000's longer term objective, in partnership with the Ministry of Agriculture, is to take advantage of Mali's proven potential as a cereal producer in both the southern rainfed areas of the country, which produced 408,511 t of maize last year, and in the irrigated areas which, at the present time, are dominated by rice.

Country shares of the record-breaking cereal harvest in the CILSS countries



One of Mali's first CREPs near Segou. Nine CREPs have now been established.

Mali has two major rivers—the Niger and the Senegal—which supply water to 12 irrigation schemes across the country. The *Office de Niger*, founded in 1932, is responsible for an area of a potential of one million ha of irrigated land—with 209,678 people and 190 villages.

Marcel Galiba sees the introduction of maize into the irrigated area as "breaking the pattern of rice after rice and becoming a major source of income."

In 1997, SG 2000 introduced the high-yielding QPM variety Obatanpa from Ghana to 15 farmers on irrigated land at Baguineda. Yields averaged 4 t/ha. This year 2,000 farmers will test Obatanpa on 500 ha, and next year some 4,000 farmers will be testing Obatanpa on 2,000 ha of demonstration plots. This pattern is being repeated at both Sélingué and Niono, one of the country's largest irrigation schemes.

Galiba has noted too that Mali's 50 bakers annually import 60,000 t of flour wheat, at a cost of US$ 27 million. Bramali, the sole brewery, uses 600 t of imported maize grits a year, costing US$ 1 million. SG 2000, IER, and the *Compagnie Malienne pour le Développement des Textiles* (CMDT), have set up a maize team—with researchers, extension officers, farmers and entrepreneurs—to examine ways of substituting five per cent of imported wheat flour with maize flour, and to produce maize grits for Bramali. The programme, which has already started, will involve the training of bakers in the production of fine maize flour and grits.

Ministers of Agriculture from SG 2000 operating countries, senior leadership from the World Bank and other international organisations, and representatives from bilateral development agencies and the agribusiness corporate sector, will meet in Bamako, from 15 to 19 October for Workshop 1999—the thirteenth in the series of high-level rural governance conferences organised by the Centre for Applied Studies in International Negotiations (CASIN), in co-operation with SAA, and sponsored by the Nippon Foundation.

Entitled "The Food Chain in Sub-Saharan Africa: Linking Farmers to Markets", the workshop will consider solutions to the many bottlenecks impacting on the distribution of food from rural farms to Africa's burgeoning urban areas—including infrastructional weaknesses, such as roads and transport, and deficiencies in telecommunications, rural energy and electric power systems.

Mozambique

Mozambique has produced a good maize harvest during the 1998/99 season and is exporting maize to neighbouring countries—mainly to Malawi. The donor community has also recognised the country's agricultural potential. The Proagri—the public sector's agriculture investment strategy—supported by a consortium of donors, is already under way and will be fully launched by early 2000.

Country Director Wayne Haag and other maize scientists viewing QPM trials.

Against this background SG 2000, in collaboration with DNER, the Ministry of Agriculture and Fisheries (MAP) rural extension directorate, considerably expanded its demonstration programme in 1998/99. Some 255 rice plots were planted in the provinces of Gaza and Sofala with 1,171 maize plots established in Manica, Nampula and Cabo Delgado. Test sampling has indicated that maize yields were more than three times greater than traditional yields—an improvement over the previous season when rainfall was erratic.

Further expansion has come through the Government's "Programa Suplemental" with around 1000 demonstration plots being established. The Food and Agriculture Organisation of the United Nations (FAO) set up a special project, with 500 demonstration plots being run in collaboration with DNER along SG 2000/ DNER lines. A special effort, supported by MAP/GOM was also made to increase rice production in Chokwe, Gaza Province, where about 3,500 ha of rice were grown using seed of improved varieties, fertiliser and herbicides.

"An important area for us in Mozambique is our involvement in partnerships with other NGOs," says Country Director Wayne Haag.

One partnership is with the Cooperative League of the USA (CLUSA) which, with funding from USAID, is assisting with the development of farmers' associations in Nampula for the commercial marketing of their maize crops. Twenty-one farmers' groups, with 325 farmers, were involved in a pilot scheme, with SG 2000 and DNER providing the technical input and CLUSA the management capability. Encouraged by this partnership, the agro-chemical distributor, Agroquimicos, has supplied fertiliser to the farmers' groups on credit. Thirty-five farmers, in a similar programme organised by CARE and supported technically by DNER/SG 2000, have also used fertiliser and the DNER/INIA/SG 2000 technical package for the first time.

In Manica province, which borders Zimbabwe, another American NGO, the Citizen's Network in Foreign Affairs (CNFA), also supported by USAID, is working with DNER/SG 2000 and has developed a training programme involving small business management, input procurement, inventory management, grain marketing and storage, for 15 agro-input retailers.

The effectiveness of no-till technology and herbicide use has now been introduced to 500 farmers in Manica, Nampula and Cabo Delgado provinces in partnership with Monsanto and Agri-Focus, DNER and INIA (the national research organisation). In Gaza and Sofala provinces, rice farmers are also being introduced to minimum tillage and herbicide use.

On QPM, there has been close collaboration with INIA's maize programme, SEMOC (the national seed corporation) and CIMMYT in Mexico and Zimbabwe. Varieties are now in the final year of testing, with simultaneous seed increases. An on-farm postharvest programme has begun with all maize demonstration farmers receiving postharvest kits. On agroprocessing, a working group has been formed involving DNER, INIA, the Ministry of Health and private manufacturers.

An important area of activity is SG 2000's involvement in partnership with other NGOs

Wayne Haag observes positive developments in the fertiliser sector. The IFDC/MAP/USAID project and Japan's KR-II Programme are expected to make major contributions towards developing the sector. There is also a growing interest on the part of South Africa's fertiliser industry in the potential of Mozambique.

Minister of Agriculture, Carlos Agostinho do Rosario, urging farmers, INIA, DNER and the private sector to work together to raise yields during a rice field day.

Nigeria

Frontline Kaduna extension worker is proud of his farmers' bumper crops.

Weather conditions during the 1998/99 winter season were excellent for the development of wheat in the fadama flood plains adjacent to rivers, where some 1,520 wheat Management Training Plots (MTPs) were grown in Katsina, Kano, Jigawa, Gombe and Bauchi states.

Using boreholes or tube wells for irrigation, most MTP farmers were able to achieve expected wheat yields in excess of 3 t/ha. However, the development of some MTPs was affected by fuel shortages, restricting the use of motorised pumps, and flooding problems. The exploratory wheat MTPs in Gombe state were destroyed by nomad cattle.

The SG 2000 wheat seed multiplication programme was transferred to the farmers in 1998/99. These smallholder seed growers produced enough certified wheat seed for the forthcoming 1999/2000 dry season and it is expected that the seed growers will obtain a premium of approximately 25 per cent over commercial grain prices. "We were pleased to see that farmers were able to procure inputs with their own financial resources," comments SG 2000 Country Director, Dr José Antonio Valencia.

"There is great potential to increase wheat production in northern Nigeria," notes Valencia, "providing the Government tackles the flooding problem." Farmers who harvested 4.5 t/ha received a net income of US $600/ ha.

In early March, SG 2000 hosted a wheat field day at Kuka in Gabasawa, Kano State. Over 400 participants attended, including the Kano State Commissioner for Agriculture, government officials, extension workers and farmers. Seri is the most popular wheat variety in the north of the country. Dr Valencia expects 1,300 wheat MTPs to be in place for the 1999/2000 season.

For the maize programme, some 2,028 MTPs were established in the 1998 summer season in the states of Jigawa, Kano, Bauchi, Gombe, Kaduna and Katsina. This season, MTP maize yields averaged over 4 t/ha, compared with a national average of 1.43 t/ha. In Kaduna State, an average of over 5 t/ha has been achieved in recent years, with farmers in the Lere Zone producing over 7 t/ha.

Maize field days, held during the growing season, were attended by local government officials, Agricultural Development Project (ADP) representatives from the zone, and between 200 and 300 farmers.

There is great potential to increase wheat production in northern Nigeria

SG 2000 also supported 1,030 MTPs in cowpeas, soybeans, sorghum, millet, rice and cotton.

On 12 May, the National Maize Association of Nigeria presented Valenica with a merit award in recognition of SG 2000's contribution to Nigerian agriculture.

Kano wheat field day: Othman Yahaya, KNARDA/SG 2000 state co-ordinator, and farmers.

Average yields (t/ha) in wheat MTPs

State	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Kano	2.5	2.5	2.7	3.2	4.0	3.8
Jigawa	-	2.8	2.9	3.2	4.9	3.8
Katsina	-	-	-	-	3.2	3.1
Bauchi	-	-	-	-	-	2.6
Kaduna	-	-	-	-	3.1	-
Farmers (no.)	108	192	634	934	1,300	758

Average yields (t/ha) in maize MTPs

State	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
Kaduna	3.8	2.6	5.2	5.1	5.2	6.1
Jigawa	-	4.8	4.2	4.1	4.4	4.7
Kano	-	-	-	4.6	4.7	5.2
Katsina	-	-	-	-	4.3	5.4
Gombe	-	-	-	-	-	4.3
Bauchi	-	-	-	-	4.8	4.8
NAERLS	-	-	-	4.0	4.2	-
Farmers (no.)	98	344	413	2,650	3,700	2,028

Tanzania

There were mixed results in the 1998/99 crop season. The highlands enjoyed good harvests, but the lowlands had drought. Overall it is estimated that the country will not produce enough food to cater for the national needs. Some areas are already food insecure and the Government is very concerned with the future outlook as a result of the failure of the rains.

Tanzania's renewed commitment to agricultural intensification, given impetus by Prime Minister Frederick Sumaya's visit to Ethiopia last year, accompanied by Minister for Agriculture William Kusila, is gathering momentum. The visit was followed by a national workshop in Dodoma, launched by President Mkapa and chaired by the Prime Minister, aimed at identifying strategies and programmes to accelerate agricultural intensification.
SG 2000 has been participating with the Ministry of Agriculture in devising a strategy to tackle the problems of putting in place an agricultural food intensification campaign that will start this coming new crop season.

"The Government is highly committed to developing the agricultural sector, both food crops and cash crops," comments Country Director Marco Quiñones, "and has requested the World Bank for assistance."

In September, a World Bank identification mission arrived in Tanzania in response to a request from the Prime Minister to support the fertiliser sector. The mission sought to identify the need for a project, funded by the International Development Agency (IDA), to assist the country in moving agriculture forward. Marco Quiñones was a member of the mission in his capacity as an agronomist.

"The Government is determined to increase food production and ameliorate the problem of food insecurity," says Quiñones. "The agricultural intensification campaign is expected to start in the coming season. Its size will be determined by the initial levels of funding and donor support."

Young Tanzanians in the rural areas will reap the future benefits of agricultural intensification.

The Government is highly committed to developing the agricultural sector, both food crops and cash crops

Nicodemus Sicilima was recently promoted to Director of Crop Services in the Ministry of Agriculture, where he is now responsible for extension and crop production services. Sponsored by SAA, Sicilima graduated in May 1996 from the University of Wisconsin Madison, where he gained his PhD. Returning to Tanzania, he became Senior Extension Adviser to the assistant commissioner extension services and was involved in running the methodology section of the National Agricultural Extension Project, financed by the World Bank.

IFDC-SG 2000 collaborative study

In April 1999, IFDC and SG2000, with support from the Ministry of Agriculture and the Prime Minister's Office, completed the fieldwork for a fertiliser policy study in Tanzania. The main objective of the study was to identify policy-related, organisational, and other constraints to fertiliser supply and use in Tanzania and suggest action-oriented policies and programmes to alleviate such constraints. The Tanzania study was one of three country studies planned under the IFDC/SG2000 partnership programme.
The other two studies were conducted in Mozambique and Uganda in 1998.

The study team visited farmers, dealers, policymakers, donors, and other stakeholders in several parts of the country and held a special session with the Prime Minister in Dodoma, where parliament was in session.

The study team found that, during the implementation of structural adjustment programme in the 1990s, fertiliser use deceased from over 140,000 t of fertiliser products in 1991 to around 40,000 t in 1998. This seriously adversely affected the fertiliser use on food crops.

The team also found that, during the early period of market reforms, excess imports led to a severe oversupply situation and a number of private firms incurred heavy losses. The loan defaults in the past seem to have made the commercial banks risk-averse towards lending to agriculture and small agribusiness dealers. This constraint could be partially alleviated by creating a special credit fund, targeted to input dealers, and by providing training and technical assistance to agribusiness dealers in project preparation and loan application.

Uganda

Uganda's tradition and capacity of being a net food exporter to its neighbouring countries have been diminished in recent years. Moreover, there are still national areas where the population is food insecure—as Uganda's food systems operate well below their productive potential. Forecasts for the 1999 crop season predict lower than normal levels of total food production. The rains began a month and a half earlier than usual, before many farmers had prepared their fields for planting.

Minister for Agriculture, Animal Industries and Fisheries, Dr Kisamba Mugerwa, visits a demonstration plot in Iganga district—part of a three day visit to farmers' fields. Centre is Country Director Abu-Michael Foster.

Comments SG 2000 Country Director Abu-Michael Foster, "the extension staff worked round the clock to cope with the unusual situation, rushing planting materials, seeds and fertilisers to rural areas for the demonstration programmes. They were aided in this task by the SG 2000-funded weekly radio programme for farmers."

As a precaution, SG 2000 encouraged the planting of drought-tolerant crops like cassava, sorghum and millet; also short-season crops like groundnuts and beans.

Despite the weather, government extension workers from 18 districts managed to supervise the planting of 1,328 demonstration plots (1200m^2) for maize and sorghum. Additional maize demonstration plots have been planted in the western areas where the major season is July-October. In the southern part of the country the main sorghum season began in September.

Extension workers helped farmers to plant seed multiplication plots (4.2 t to bean seed—K132 variety; and 2.2 t to groundnuts—Igola variety) to help meet the high demand for improved seed of legumes, especially in northern and eastern Uganda.

An estimated 85 t of the K132 bean variety are being produced from the seed multiplication plots. Approximately 8 t of the seed will be recovered, cleaned, bagged and sold as common seed through rural stockists. Over 169 acres of cassava mosaic tolerant materials (554, NASE II) have been planted in farmers' fields in the first season of 1999.

Eighty of the 200 stockists in the dealership-training programme organised by SG 2000 and the Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) were able to procure consignments of fertiliser and seed for sale to farmers through the joint input guarantee scheme (JIGS). USAID's IDEA project sponsored some stockists not covered by JIGS. More than 30,000 kits have now been sold to farmers for demonstration and production and the Uganda government has earmarked Ugsh 1 billion (US$ 650,000) to strengthen and expand this programme.

Training of draft animals and handlers will continue after the existing crop is harvested. East African foundaries have supplied 100 of the first order of 500 tool bar kits, complete with plough and weeder, ordered under the USAID's PL480 grant. These have now been placed with farmers with repayments running at over 68 per cent.

Savings' mobilisation among rural farmers has increased. A total of 221 groups—mostly women—have mobilised savings in excess of Ugsh 14 million (US$13,000). Some of this money has been used to purchase seed, fertiliser and animal traction equipment. Four of the two women's agro-processing groups have acquired cassava graters.

More than 30,000 kits have now been sold to farmers for demonstration and production

The commitment of Uganda to the joint partnership between the Government and SG 2000 continues to strengthen. The Government has recommended that the national extension programme emulates the success of SG 2000 in technology transfer and is designing, with the World Bank, a national extension programme.

Batson Kayayo, an animal draft power specialist, trains a group of farmers in Buigiri.

Enhancing Postharvest Technology Generation and Dissemination in Africa

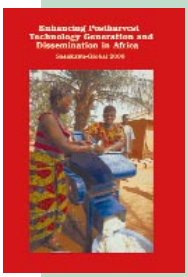
Joseph Kwarteng, editor, SAA, 1999

The proceedings contain papers presented at the workshop, which was sponsored by the Sasakawa Africa Association and the International Institute of Tropical Agriculture, (IITA) and held in Cotonou in October 1998. A series of papers and postharvest equipment designs are highlighted in this report.

Strategies to address recurring food insecurity in Africa must involve postharvest practices and these technology development approaches should be re-oriented to fully integrate social, economic, and technical considerations.

FAO has established a new international reference facility and a post-production network for the exchange of information, which is accessible through the Internet, as well as on CD-ROM.

Ways to strengthen the weak linkages between agriculture and industry were explored. Good designs that are easy to fabricate, easy to use, and durable should be the target.



NGOs involved in this effort must adopt a clear businesslike orientation in their advisory services and interventions.

Microfinance in Africa

Steven A Breth, editor, SAA, 1999

Microfinance in Africa examines organised attempts to improve the availability of credit to small-scale producers. The book is divided into two parts. Part 1 contains several papers that were presented at a workshop, sponsored by SAA and the World Bank, and held in Cotonou in July 1999. Part 2 contains case studies of African microfinance organisations that were commissioned by the World Bank.

In Part 1, J. D. Von Pischke argues that too often schemes intended to overcome lack of access to credit miss the underlying problem of the insufficient debt capacity of the borrowers. Thomas Dichter reports on microfinance activities by NGOs, finding many unable to reconcile the twin goals of lending money efficiently and serving the poor.

Julia Paxton and Cecile Fruman compare eight African microfinance institutions. Assessing the institutions using various performance indicators, they find that the donor-dependant institutions are more likely to reach the most disadvantaged women, illiterates, and the destitute.

Henry Oketch describes how K-Rep, a prominent NGO in Kenya, has evolved from a microfinance project to a registered commercial bank dedicated to serving small borrowers. Bernadin Glehouenou and Marcel Galiba examine the role of Benin's CREPs, while Nabil El Shami shows how Egypt's Alexandria Business Association finds and trains competent microfinance administrators. Alain Plouffe outlines the benefits of lateral learning networks among organisations such as microfinance institutions.

Part 2 presents recent case studies of six microfinance institutions, one each in Burkina Faso, Mali, Benin, Niger, South Africa, and Zimbabwe.

Setting the Grassroots on Fire— Norman Borlaug and Africa's Green Revolution

A 56-minute documentary film made by Images First Ltd for SAA, 1999. The film was produced and directed by award-winning film maker, Tony Freeth.

Norman Borlaug––expertise, energy and an overwhelming sense of urgency.

For more than 55 years Dr Norman Borlaug has battled against hunger and poverty in developing countries. His approach to development is characterised by expertise, energy and an overwhelming sense of urgency. Under the SG 2000 programme, he has brought these qualities to Africa. Using footage shot in Africa over the last 12 years, as well as fascinating archive film from 30 years ago, the film charts his struggle against world poverty and misery. Through his eyes, we see the multiple crises that face Africa and the possibilities for solutions.

The learning ground for Borlaug's approach to smallholder agricultural development began in Mexico in 1944, when he was hired to lead a wheat research programme to tackle that nation's food crisis. During the 1960s, Borlaug took his high-yielding, disease-resistant 'Mexican' wheats to Asia, which brought an end to famine in India and Pakistan. For this work, Borlaug was awarded the Nobel Peace Prize in 1970.

SG 2000 publications and videos

For copies please contact Raitt Orr & Associates Ltd in London

Publications

Proceedings of 1998 Workshop on Microfinance in Africa.

Proceedings of 1998 Workshop on Enhancing Postharvest Technology Generation and Dissemination in Africa.

Proceedings of Workshop 1997: Agricultural Intensification in Sub-Saharan Africa.

The Earth and the Sky - the change and challenges in Africa agriculture, 1998.

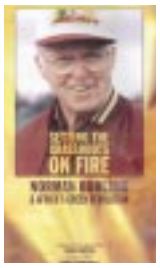
This is SAA: An introduction to the work of the Sasakawa Africa Association.

Proceedings of 1996 Workshop on Women, Agricultural Intensification, and Household Food Security.

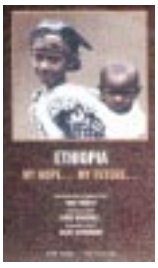
Other proceedings available:

- Proceedings of Workshop 1996: Overcoming Rural Poverty in Africa.
- Proceedings of Workshop 1995: Achieving Greater Impact from Research Investments in Africa.
- Proceedings of Workshop 1994: Strengthening National Extension Services in Sub-Saharan Africa.

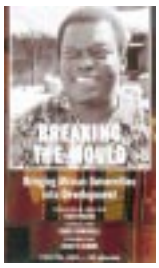
Videos



Setting the Grassroots on Fire - Norman Borlaug and Africa's Green Revolution. 1999.*



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.*

Facing the Future The SG2000 Programme for Agricultural Development in Africa. 1996.*

You Can't Eat Potential Breaking Africa's Cycle of Poverty. 1996.*

All videos are available in English and French.

Video formats are PAL, Secam and NTSC.

* Also available in Japanese.

For further information contact:

Japan
Masataka Minagawa
General Manager, SAA
Michio Ito, Administrative Officer
Toshiro Mado, Programme Officer
c/o SPF, 3-12-12 Mita
Minato-ku
Tokyo 108-0073
Tel - 81 3 3769 2093
Fax - 81 3 3798 5068
E-mail - minagawa@spf.or.jp
ito@spf.or.jp
tmado@pd5.so-net.ne.jp

Mexico
Chris Dowswell
Director for Programme
Co-ordination, SAA
CIMMYT
Lisboa 27
Apdo 6-641
06600 Mexico DF
Tel - 52 5 804 2009
Fax - 52 5 804 7558
E-mail - cdowswell@cgiar.org

Switzerland
Jean Freymond
Director, CASIN
7 bis, avenue de la Paix
PO Box 1340
1211 Geneve 1
Tel - 41 22 730 8660
Fax- 41 22 730 8690
E-mail - freymond@casin.ch

United Kingdom
Patrick Orr
Information Consultant
Raitt Orr & Associates Ltd
36 Buckingham Palace Road
London SW1W 0RE
Tel - 44 20 7828 5961
Fax - 44 20 7630 9750
E-mail - RaittOrr@compuserve.com

USA
Craig Withers
Acting Director of Operations
Global 2000
The Carter Center
One Copenhill
Atlanta, Georgia 30307
Tel - 1 404 420 3830
Fax - 1 404 874 5515
E-mail - cwither@emory.edu

And in Africa:

Benin
Sasakawa-Global 2000
BP 04-1091 Cadjehoun
Cotonou
Tel - 229 300459
Fax - 229 300637
E-mail - sg2000B@intnet.bj

Burkina Faso
Jean Babou Bado
National Co-ordinator
Deola Naibakelao
SAFE Director
Sasakawa-Global 2000
BP 01-6149
Ouagadougou
Tel/Fax- 226 34 37 57
E-mail- sg2000@fasonet.bf
deolasaa@ncs.com.gh

Eritrea
Bekuretsion Habte
National Co-ordinator
Sasakawa-Global 2000
c/o Ministry of Agriculture
Extension Department
PO Box 1048
Asmara
Tel - 291 1 181077
Fax - 291 1 181415
E-mail - sg2000@gemel.com.er

Ethiopia
Marco Quiñones
SG 2000 Country Director
Sasakawa-Global 2000
c/o Ministry of Agriculture
Agricultural Extension Department
PO Box 12771
Addis Ababa
Tel - 251 1 510584
Fax - 251 1 510891
E-mail - m.quinones@cgiar.org

Ghana
Benedicta Appiah-Asante
National Co-ordinator
Sasakawa-Global 2000
Private Mail Bag
Kotoka International Airport
Accra
Tel - 233 21 660566
Fax - 233 21 660567
E-mail - benedict@ghana.com

Guinea
Tareke Berhe
SG 2000 Country Director
Sasakawa-Global 2000
Rue KA 003 No 837
BP 5348
Conakry
Tel - 224 45 10 44
Fax - 224 45 10 45
E-mail - t.berhe@cgiar.org

Mali
Marcel Galiba
SG 2000 Country Director
Sasakawa-Global 2000
BPE 3541
Bamako
Tel - 223 77 14 38
Fax - 223 21 90 28
E-mail - m.galiba@cgiar.org

Malawi
José Antonio Valencia
SG 2000 Country Director
Sasakawa-Global 2000
Private Bag A142
Lilongwe
Tel - 265 831 951
E-mail - saag2000@malawi.net

Mozambique
Wayne Haag
SG 2000 Country Director
Sasakawa-Global 2000
Avenida Julius Nyerere 1339
CP 4247
Maputo
Tel - 258 1 490 004
Fax - 258 1 491 417
E-mail - w.haag@cgiar.org

Nigeria
José Antonio Valencia
SG 2000 Country Director
Sasakawa-Global 2000
KNARDA Building
PMB 5190Kano
Tel - 234 64 634890
Fax - 234 64 638190
E-mail - j.a.valencia@cgiar.org

Uganda
Abu-Michael Foster
SG 2000 Country Director
Sasakawa-Global 2000
Plot 15A Clement Hill Road
Ruth Towers
Nakasero
(Opposite UNDP building)
Kampala
Tel - 256 041 345497
Fax - 256 041 346087
E-mail - sakfos@starcom.co.ug
c/o Ministry of Agriculture,
Animal Industries and Fisheries
FSSP Building
PO Box 452
Entebbe

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