

# SPORE



Information for agricultural development in ACP countries

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Website: [www.cta.nl](http://www.cta.nl)



Photo Alain RIVAL

## Food security: grasping at straws?

Falling world grain stocks and rising grain prices have, since 1995, made global food security a major issue. Will the spectre of famine haunt more of the South, particularly in sub-Saharan Africa, in the next century? Or is there hope that new food security strategies will restore tranquillity to the food markets?

More than 800 million people in developing countries were undernourished at the beginning of the 1990's, and several tens of millions of people are dependent on emergency food aid each year, whilst such aid is falling sharply. Among those experiencing direct food insecurity are the fifteen million refugees and displaced persons in Africa in 1998. In overall terms, however, since the 1960's, world food production has risen faster than the world's population, according to the UN's Food and Agriculture Organization (FAO).

The statisticians tell us that the average amount of food available per person per day is equivalent to 2,700 calories, compared with 2,300 calories in the mid-1960's. In Western Europe and North America, the average food availability is more than 3,500 calories per person; but in Africa, average food availability is only 2,300 calories. Added to this is the fact

that since 1980, the population of Africa has risen by 53%, but food production has risen by 'only' 45%.

The World Food Summit in November 1996 vowed 'to reduce the number of undernourished people to half their present level (at least 800 million) no later than by 2015.' This means that food production would have to grow by 4% each year for the next two decades. Such a rate of growth is based on a combination of increases in cropped area, cropping intensities and crop yields. The cultivated land area in Africa is already expected to grow by 18% by 2010, and the harvested area by 33% – the latter thanks to more frequent harvesting. However, much potentially arable land is currently occupied by forests, human settlements and protected areas. Beside environmental constraints, there are obstacles to using these 'new' lands: they require disease elimination and control programmes before they can

### THE FOOD TRIANGLE

▲ Food aid from Europe is no longer dominated by the supply of European foodstuffs. The approach is now driven by development concerns, with local and triangular purchasing representing almost two-thirds of the volume of EC food aid in 1996. It involves purchasing foodstuffs from regions with a surplus, either in the same country (local), or in Southern countries (triangular purchases). This means that local dietary practices can be taken into account, and that networks for production and trading networks can be stimulated.

be put under the plough. A further barrier, which also applies to the productivity of existing cultivated land, is the absence of equitable and functioning land tenure systems.

### Waste not, want not

The potential for increased yields lies in a complex mixture of factors including better plant varieties, better use and control of water,



PHOTO: ME DONALD / SUNSET

and more use of plant nutrients. Soil fertility is decreasing in many parts of inter-tropical Africa where, in 1983, nine million tonnes of nutrients were lost to so-called 'soil mining', the removal by plants of soil nutrients in excess of that returned to the land. These losses may rise to 13 million tonnes by 2000. New, environmentally sound techniques such as integrated plant nutrition systems (IPNS) and integrated pest management (IPM) offer great possibilities for improved yields, but have yet to become widely available, both physically and financially, to many small farmers. Such systems, together with

management techniques, also require more research and dissemination; the work of the agricultural research community must be made much more accessible.

It is access, above all, which features in current policies for food security. Access to natural resources and land, access to education, water, credit, access to seed supplies, technology and inputs; access for women, whose fundamental role in ACP agriculture was discussed in *Spore* 76. This litany of requirements was emphasised at a series of three seminars on 'The EC's food security strategy and the ACP countries' held in the last quarter of 1997 in Brussels and Wageningen by the Directorate-General VIII for development of the European Commission and CTA.

As well as the need for stakeholders to have access to the means of production, the seminar participants stressed that food security depends on their access to the mechanisms of public decision-making. There were more than 100 participants, from more than twenty ACP States, coming from governments, regional bodies and NGOs. They emphasised that food security is not simply a question of increased production; there are issues of distribution, involvement of all concerned players, institutional renewal, and, most complex of all, the 'impact of an uncertain macro-economic climate'.

Food security is coming to be recognised as a structural issue which needs to be tackled on several fronts simultaneously. The scientific challenge of raising production, the logistical and political question of distribution, and the social and political issue of access all need to be addressed. A

## STAKEHOLDER PARTICIPATION

A World Conference on Multifunctional Agriculture and Land Management will be held in Den Bosch, The Netherlands, in September 1999. The organisers (The Netherlands government and FAO) wish 'to engage the widest possible representation of stakeholders to identify and prioritise the issues'. For more details of how to get involved in their extensive process of preparation and consultation, contact:

FAO/SDRN, Viale delle terme di Caracalla 00100, Rome, ITALY.  
Website: [www.fao.org/sd/agr99](http://www.fao.org/sd/agr99)

PHOTO: S. REICHE

prerequisite to addressing these issues is that recent changes in Northern food aid policy must be continued. The European Union, the world's largest provider of food aid, have introduced reforms to their food aid and security policies and are now seeking to integrate emergency aid into long-term development strategies. In previous decades food aid, paradoxically, damaged long-term prospects by disrupting local production patterns, and destroying the market.

Two unknown factors remain. First, climate change is expected to cause serious changes in the level, location and type of production. The ability of ACP States to adapt quickly to such changes will depend on institutional strength, investment and the availability of foreign exchange – all of which are in short supply. Current forecasts predict that sub-Saharan Africa will need to double grain imports to 50 million tonnes by 2010, in a fiercely competitive world market, and one which is expected to be drastically changed by the second factor: China.

Whilst Chinese officials insist that China will be able to feed its 1.6 billion people in 2030, more objective forecasts are alarming, and there are even fears of decreased production. A key question is how much China will increase its consumption of meat (4 kg of grain are required to produce 1kg of meat), from current low levels towards Western-style levels. It is in the exploding cities of the Orient, and not just in the fields, city farms, schools and banks of Africa, that the food security of many ACP States will be determined. ●

### For further information:

*Famine and Food Security in Ethiopia, Lessons for Africa.* Webb, P and van Braun, J. 1994. 196 pp. John Wiley & Sons, Chichester, United Kingdom. ISBN 0 471 94821 7, CTA number 803, 20 credit points.

*The EC's food security strategy and the ACP countries. Seminars on food security,* Brussels, Belgium, October-December 1997. European Commission, Directorate-General for Development/CTA, 1998.

ISBN 92 9081 1927, CTA number 890, 10 credit points.

*Food Security Assessment, an annual publication,* approved by the World Agricultural Outlook Board, from U.S. Department of Agriculture, Washington, DC 20036-5831, USA.

Website: [mann77.mannlib.cornell.edu:70/0/reports/erssor/international/gfa/gfa9x](http://mann77.mannlib.cornell.edu:70/0/reports/erssor/international/gfa/gfa9x)

*The ACC Network on Rural Development and Food Security, a United Nations inter-agency group,* c/o FAO (address in box)

<http://193.43.36.7/waicent/faoinfo/sustdev/rdfs/ACC00006.htm>

(1) *The vulnerability of certain groups to food insecurity is the subject of considerable attention in the context of disasters and adjustment programmes. Improved identification of such groups, as well as the major structural causes, constraints and policy interventions relating to their food insecurity is a focus of debate at CTA's October 1998 seminar in Leuven, Belgium.*

(2) *The issue of access to land, and land tenure, feature in the seminar on 'Community-based land-use management' organised by the CTA in Bamako, Mali, in November 1998.*

# Infrastructure

## Strengthening the backbone

A country's infrastructure, and its transport system in particular, is very often seen as a key aspect of its development. Harbours, railways, roads and airports are literally the gateways that a country needs for exchange and communication, for its economic growth and for people to have access to basic goods and services. Despite their importance, it is hard to name a single ACP country whose transport systems function as they should. An inadequate, dilapidated transport network is the underlying cause of low levels of trade and export volumes. True, the situation is changing: there are cases of railway lines being renovated and modernised, roads being upgraded, air routes being reinstated and airports being improved. The involvement of the private sector, and novel forms of partnership and use of local resources should reinvigorate markets, increasing the competitiveness of products and opening up isolated regions. For many countries in the South, it is a long road to go down. Some are starting to show the way, with promising results. We take a trip through the landscape of ACP infrastructure, scattered with wreckage and waste, highlighted by hope of improvement.

PHOTO: FERSCOOP



Transporting produce, people and goods in a typical ACP country is often likened to an obstacle race. The problem is especially acute in many countries of Africa which, as a continent, is recognised as being amongst the most poorly endowed as regards infrastructure in general, and reliable road networks in particular. In the countries of the Caribbean and the Pacific, the situation is none too good either, but it is of a different nature: the movement of goods and people is more dependent on properly functioning water-based transport (boats), and air transportation. The user is faced with many difficulties. Unreliable schedules, poor safety, prohibitive costs, not to mention natural disasters, all collude to disrupt the correct shipment of merchandise, and the free movement of people.

### Maintenance needed

'Trade and commerce is the motor of economic growth, and it can only flourish when it can rely upon transport systems that perform well; only then will farmers be able to ship their goods to market' asserts Veronique Jacobs of the World Bank group. A major obstacle to the development of the African continent is the parlous state of the transport infrastructure. A significant proportion of the investments made in road networks in the 1960's and 1970's has disappeared, due to lack of maintenance. The worsening condition of the road system is such that the amount of necessary repairs, or reconstruction, require levels of

expenditure between three and five times as much as preventive maintenance would have cost. The World Bank estimates that the 'saving' of one dollar on road maintenance increases the cost of operating vehicles on that route by two to three dollars. This results in increases of sometimes twice, even thrice, the selling price of certain consumer items. The poor state of roads thus slows down the development of supply systems and food distribution, and it is the users and consumers who suffer, and pay the consequences.

According to World Bank studies, in 85 countries, one-quarter of rural tarmacked roads need to be rebuilt, as well as one-third of non-paved roads. On top of the dilapidated state of the roads, and the deterioration of rural tracks, there is another layer of concern: the human dimension of road system management. Public services fiddle papers around in agonising detail, there are illegal road checks and 'flying' squads of excise officers with their associated costs; they all add to the inconvenience and expense of road transport (see box). On the road between Abidjan and Ouagadougou, for example, the expenses of informal tolls sometimes amount to 10% of the value of the goods in transit. The high costs are aggravated by high risks. Ramshackle vehicles hurtling at excess speed from pothole to pothole, overloaded with human and other cargo, are sometimes a fatal recipe for disaster. Travelling by road is more dangerous in Africa than elsewhere. The fatalism – or is it a frantic desire for protection? – of some drivers, shown by such slogans as

### THE LONG MARCH

In Cameroon, a farmer often has to walk six kilometres to transport his maize from Tonié to Bafoussam. If, when reaching the nearest road, he then takes a local truck, it will cost him 25,000 CFA francs (about \$US 50), with a hefty part of the price belonging to the 'informal sector'. Why? The transporter will pass at least three 'control posts', where he has to part with CFA 500 or CFA 1000. The costs of paying these informal duties, 'tourist taxes' and 'overtime charges', as they are variously called, to shameless 'agents' are reflected in the price of the transport, and in the final price at market. In Mali, for example, in the zone of the internal Bani Niger delta, millet is sold for 20 to 25 CFA a kilo, whereas 30 kilometres away in the market of San, it sells for 60 to 65 CFA\*.

\* Adapted from: 'L'Afrique a le mal des transports' in *Syfia* No. 83, December 1995.



Time - a commodity - often travels slowly by rail. (Congo Ocean Railway)

Photo: L. WIJAME/SUNSET



The fish traders of Mopti in Mali are hit hard by poor roads.

Photo: Hamadou IMANGA/ORSTOM

## Getting the private sector into the driver's seat

The development of the transport sector is part of the overall development strategies of the ACP States. For most, if not all, the rapid expansion of access routes depends on the right institutional and financial facilities being in place, so that the operation of transport systems can be gradually privatised, and users can become involved in managing their maintenance.

### Massive reforms

Airports, roads and ports are all up for privatisation in many countries. Their return to the private sector is taking the form of operational concessions, co-management and leasing. So far, the three different approaches have been used in 32

ACP countries, mainly in Africa, over the last seven years. The principle of user participation in such reforms, and in improving the management of road networks, is now generally accepted. Some African countries, including Benin, Ethiopia, Mozambique, Tanzania and Zambia, have set up (or re-activated) Roads Committees and Roads Funds. Road users thus finance road maintenance through taxes on petrol, road tolls and road licence fees, and can participate in developing strategies ensuring that road development meets their needs. One of the first toll roads in sub-Saharan Africa to be managed by a private company is between Hillacondji and Cotonou, part of the road that links the Togo border to the old Nigerian capital, Lagos, crossing the entirety of Benin.

"Death - who cares?" painted on their wind-screens, speaks volumes about road safety. Directorate-General VIII of the European Commission, which is concerned with development issues, has calculated that the economic cost of road accidents in some developing countries equals up to 1% of the Gross Domestic Product, without even adding in the cost of human loss and grief.

Railroads show a similarly damning picture. Generally speaking, rail has long lost its traditional image of being cheaper and safer than road transport. Starved of even minimal investment for years, and forced to use rolling stock ready for the breaker's yard, the railways of sub-Saharan Africa are in an alarming condition. Yet they have played a role of paramount importance in the economic development of such countries as

Burkina Faso, Chad, Mali, and Niger, all of which are more than 1,000 kilometres from the nearest coastal ports. And so we come to the ports and harbours. Here too, inadequate maintenance of installations lies at the root of poor service, of the excessive costs that come from inefficiency and which compromise the competitiveness of ACP States on world markets.

### Desperately seeking efficiency

The efficient flow of agricultural produce requires a good quality system for shipping and moving goods. Allied to this is the need for well-oiled infrastructures for storage, consolidation, and wholesale and retail systems. These are essential for achieving the desired mixture of marketable goods with the right price/quality ratio, minimal postharvest losses and reduced health risks. More often than not, producers of fruits, vegetables and other

### OFF-ROAD TRAVEL - USING LOCAL RESOURCES

In rural areas, most travel is in fact by foot, literally off the beaten track, using local roads and tracks. To get to water, to collect firewood, go to the fields, local markets, health services, the mill and the school, people need off-road transport such as bikes, scooters, and hand and animal-drawn carts. To take these needs better into account in transport strategies, the Integrated Rural Accessibility Planning (IRAP) approach has been developed, based on field experience. Using an assessment of the access problems faced by rural families, IRAP allows planners to better prepare local-level investments in infrastructure (such as in the maintenance of roads, tracks and bridges) and to draw up longer-term plans.

fresh products (meat, fish) in developing countries are hindered by weak wholesale and retail marketing systems; the systems' shortcomings eat into their potential profits, and cut down any gains for consumers. Many advantages accrue from developing marketing infrastructures which will entice wholesalers and retailers alike to operate on a group basis, achieving economies of scale in their sales. Two changes are needed: regulations on

### FROM DILAPIDATION TO ISOLATION

'One of the key characteristics of the Malagasy economy is the isolation of rural areas, due to the sorry state of road infrastructure. Only 10% of the total road network of 20,000 km is passable, and the most recent figures, from 1993, estimate that road repair and renewal was advancing at a mere 900 km a year. Without access to decent roads and appropriate means of transport, farmers in many areas are prevented from supplying nearby markets, or can only do so at prohibitive costs. The same state of isolation deprives the vast majority of farmers of access to inputs and technological advances, with a consequent drop in production and the fundamental problem of exhaustion of the soil of Madagascar.'

From: *Etude pilote sur le développement de partenariats efficaces entre le CTA et des organisations des pays ACP. Madagascar, February 1998*, by Zazah Ravaoarivony-Tuengerthal

Such institutional reforms are bearing fruit in some countries. In Zambia, for example, virtually the entire road network has been tarmacked.

Similar trends are on track with railroads, with the concessionary approach being used as far as Southern Africa. The operation of some railway lines has been handed to private companies, without ownership changing hands: Malawi was the first to adopt this strategy, and published its call for tenders on the Internet! In West Africa, the operation of the railway between Abidjan (Côte d'Ivoire) and Ouagadougou (Burkina Faso) is in the hands of a private company, Sitarail. On average each month, it runs 108 goods trains, on a daily basis, on this two-way route. In 1996, it moved 480 000 tonnes of merchandise. Abdel Aziz Thiam, director of Sitarail: 'We are seeing an upward trend in volume of cotton, fruit, dry vegetables and, in particular, poultry and livestock, for all of which Côte d'Ivoire is still heavily dependent on Sahelian countries.'

marketing food and foodstuffs have to be modified, and physical facilities have to be built (or existing ones modernised). The new wholesale market in Bouaké, in Côte d'Ivoire (see *SPORE* issue 76) is an example.

True, in some countries, main roads are in a good state, and goods can be shipped in reasonable time from rural areas to urban markets, and from the ports to the most isolated areas. There is still plenty to be

done. In some countries of the Pacific and the Caribbean, a more fundamental choice has to be faced between allowing the decline of some sectors of the economy because their level of commercial transactions is too low to justify the required investment in transport systems, and encouraging the surge of tourism, which is becoming the dominant, if not sole, source of foreign exchange.



Freight on board, but how long before freight with customer? Beira harbour in Mozambique is a crucial commercial gateway for Southern Africa.

Photo: Jørgen SCHYTTE/STIL PICTURES



Loading mangoes in Mali.

Photo: FERISCOOP

The gradual transfer to the private sector of management tasks for the running and maintenance of transport networks has many advantages, according to the World Bank. They include improved productivity and quality in service, lower costs for users, and reduced deficits for public bodies. These are the first benefits of many which - according to current thinking - privatisation holds in store for the African transport sector.

#### For more information:

ISTED, Institut des sciences et des techniques de l'équipement et de l'environnement pour le développement, La Grande Arche Paroi Sud 92055, Paris, La Défense cedex 4, France.

The Courier ACP-EU No. 169, May - June 1998, European Commission, 200, rue de la Loi 1049, Brussels, Belgium.

International Forum for Rural Transport and Development, New Premier House, 150 Southampton Row, 2nd floor, London, WC1B 5AL, England.

## Reconsider the lowly bug

Have you ever eaten insects? Some people find the idea revolting, while others consider certain insects a gustatory delight. Insects make up a large proportion of the world's biomass — indeed, scientists don't even know how many species exist, recent estimates place their numbers somewhere between 2 to 80 million. There are over 2000 recorded edible insect species in the world. Beetles, butterflies, moths, bees, ants, wasps, grasshoppers and bugs are most commonly eaten. Although 'entomophagy', or the eating of insects, is recorded from France, Italy, Germany, and the United Kingdom to all countries in Africa, the Americas and the majority of Asian countries and Australia, it is most common in tropical and subtropical countries.

Consumption of insects is part of a people's cultural heritage, and knowledge on how to find, gather, prepare and conserve insect resources is usually handed down from generation to generation by oral tradition. Considerable amounts may be consumed; for instance, a recent study in Kanan-ga, the Democratic Republic of Congo (formerly Zaire), found

that among a group of 2000 people, there was an average ingestion per person of 50 g fresh insect/day which translates into 35,000 kilos/year for the group. Nutritionally, insects can be a good source of protein, vitamins, minerals and even fat. Protein content on a dry-weight basis, mostly varies from 30% (wood worms) to 81% (*Polybia* wasps). In some villages in the Democratic Republic of Congo, it is reported that insects are the source of up to 81% of ingested animal protein. Of course, insects can be terrible crop pests, but, in some cases, these same pests are edible and could be used as a food source and sometimes are! Not only are locusts and certain caterpillar crop pests eaten in parts of Africa, but they are also preserved and stored for later consumption. From a nutritionist's point of view, it seems ironic that large sums of money are devoted to the killing of insect pests, which may contain up to 75% high quality protein, to save crops that may contain no more than 14%. Although usually gathered for self-consumption, demand in towns and cities for some species



Smoked caterpillars sold at Basonga market in Brazzaville.

is sufficiently great as to warrant commercialisation. In Venda, South Africa, the indigenous insect market is valued at a million US\$ per year. Exploitation of insects as a food source would seem to represent the ideal ecologically friendly, sustainable development project. The challenge for the future is to remove the social stigma attached to their consumption.

## Beyond their 'use by' date: obsolete pesticides

The estimated 100,000 tons of obsolete pesticides lying unused in developing countries represents a tremendous potential hazard to human health and the environment. The size of the problem is

such that it cannot be solved by the farmer alone. Nonetheless, the farmer would of course benefit from heeding the directives of the UN Food and Agriculture Organization (FAO) and of NGOs spe-

cialised in environmental protection such the UK-based Pesticides Trust. Guidelines have been written that cover how to prevent stockpiling, and how to destroy, pesticides which have exceeded their 'use by' date. The build-up of a stockpile can be avoided through simple steps such as calculating the amount of pesticides required; checking their use dates; proper storage; and incinerating used and empty pesticides packages. Time is money and can be hazardous. International organisations calculate that the cost of destroying 10 tonnes of obsolete pesticides can reach up to \$US 80, 000. Cleaning up the polluted planet - and the store shed - obviously costs more than keeping it clean in the first place.

Contact: Plant Protection Service, Division for Crop and Plant Protection FAO, Viale delle Terme di Caracalla 00100 Rome, Italy. Fax: + 39 06 522 25 63 47



Contact: Julieta Ramos-Elorduy Instituto de Biología UNAM Aptdo Postal 70-153, 04510 Mexico D. F. Mexico.

The International Register for Potentially Toxic Chemicals is maintained by United Nations Environment Programme (UNEP). Information is available from its Websites [www.irpct.unep.ch/Irpct/](http://www.irpct.unep.ch/Irpct/) [www.irpct.unep.ch/pops/](http://www.irpct.unep.ch/pops/) [www.irpct.unep.ch/prtr/](http://www.irpct.unep.ch/prtr/)

## The Dirty Dozen pesticides to bite the dust

Over 100 governments met in Montreal (Canada) at the end of June for the first round of talks on an international agreement to minimise emissions and releases of Persistent Organic Polluters (POPs) such as DDT and other members of "The Dirty Dozen" pesticides. The negotiations, sponsored by the UN Environment Programme, are expected to last at least two years.

## Biofertilizer gives boost to yields

More than two thousand small-holder farmers on communal land in Mashonaland, Zimbabwe are now obtaining soybean yields which are comparable to those on large commercial farms. Since 1996, Mashonaland farmers, who traditionally cultivated maize, have started soybean production and tested the effects of *Rhizobium* 'biofertilizer'. Atmospheric nitrogen can only enter plants after it has been 'fixed' in the root nodules of leguminous plants by a bacterium called *Rhizobium* that lives in the soil. Under natural conditions, legumes do not find the best bacteria to fix sufficient quantities of nitrogen for high yields. By inoculating seeds with *Rhizobium* in liquid form, yields have more than doubled in field trials. These fields performed better than fields treated with 145 kg per hectare of commercial fertiliser. At the current price levels, this means a saving of \$US 50 per hectare.

The International Atomic Energy Agency has been helping the Zimbabwean authorities with nitrogen-15 isotopic analysis to monitor nitrogen through the entire plant growth cycle. By this means the most efficient strains of *Rhizobium* can be identified and made available to farmers for a cost that can be quickly recouped in increased yields.

The Soil Productivity Research Laboratory of the Ministry of Agriculture is responsible for the production of biofertilisers in Zimbabwe. The extension work on the application of the biofertiliser is done jointly with Agritex, the extension department of the Ministry of Agriculture.

Contact: Dr. C. Mushambi Director of the Soil and Chemistry Research Institute Soil Productivity Research Laboratory Private Bag 3757 Marondera, Zimbabwe. Fax: +263 4 728317

## Protect stored cowpeas

Cowpea (*Vigna unguiculata*) is cultivated widely in Africa and its centre of production is Nigeria. A good source of vegetable protein, in certain regions cowpea provides people with nearly 60% of their protein intake. Local farmers often store cowpeas until the off-season when they sell them for higher prices. However, this practice is quite risky as, in storage, cowpea is susceptible to damage by the cowpea bruchid *Callosobruchus maculatus*. There are no synthetic pesticides commonly available for protecting stored cowpeas. So what are small farmers to do? Researchers have found that dried powdered grapefruit and lime peel, when mixed with stored cowpeas,

are very effective in killing *C. maculatus* and inhibiting egg-laying. Grapefruit peel was found to be effective at concentrations of 10% weight/weight of dried cowpea, whereas lime peel was effective at 20% weight/weight. Grapefruit and lime are common citrus crops in much of Africa, so farmers should have no difficulty obtaining fruit peel. Although limited so far to laboratory trials, such treatments hold great promise as sustainable alternatives for general stored produce pest control on small-scale, low input farms.

Contact: I. Onu Department of Crop Protection Ahmadu Bello University P M B 1044, Zaria, Nigeria.

## El Niño hits Somali banana crop

Somalia's banana industry, the country's second most important foreign exchange earner after livestock, has been devastated by flooding considered to have been caused by the El Niño weather phenomenon (see *Spore* 75) and this year's exports are expected to be less than half their 1997 level. Floods

have waterlogged plantations and swept away secondary roads making it impossible to transport bananas to port. Since October 1997 there have been virtually no exports.

Source: New Agriculturist/El Niño Southern Oscillation Website: [darwin.bio.uci.edu/~sustain/enso.html](http://darwin.bio.uci.edu/~sustain/enso.html)

## Know your soya beans better

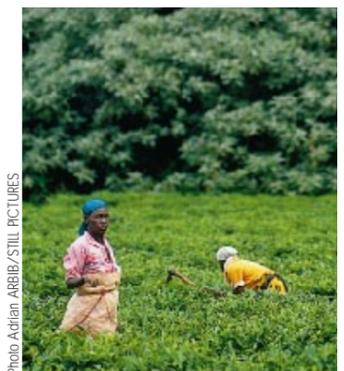
Besides more familiar soya products like soya sauces, soya milk and tofu, flour can be made from soya beans. The soybean consists of approximately 40% high quality protein. That makes it one of the most protein-rich vegetable seeds. It is also rich in unsaturated fatty acids, which is of special interest as the human body does not synthesise these fats. Finally, lecithin in the beans has important properties for cell building in the human body. It serves metabolic functions related to regeneration of nerve cells and control of cholesterol levels. Using soya flour in doughs is not only healthy, it also has technical

advantages in baking. It yields a more homogeneous dough, causes more even browning and more uniform texture. Above all, it adds a tasty nutty flavour.

When preparing soy beans, they should be cleaned by hand; do not use water, since this will spoil the taste. Put the beans in boiling water and boil for half an hour. Strain, and rinse them with clean, fresh water. Dry the beans in the sun, on a mat or bag. Crush the dried beans or grind them in a mill. Sift to obtain real flour and keep it in a closed tin. (Recipe adapted from Renate Schempp, 'Comment utiliser le soya à la cuisine', ECOVOX 15, 1998)

## Tea prices continue moving skyward

Strong consumer demand and unusual climatic conditions in some of the major tea producing countries have pushed tea prices at auction centres around the world to the highest levels in decades. Between January and December 1997 the world's main auction centres saw the price of tea rise into high double digits: in Calcutta, India +69%; Mombasa, Kenya +43.2%; Blantyre, Malawi +74.6% and Colombo, Sri Lanka +53.8%. The rising price trend is expected to continue at least until the end of 1998.



Tea estate Kakamego Forest, Kenya.

## Seaweed wealth in Kiribati

Cultivating seaweed as a cash crop is gaining popularity in Kiribati in the Pacific. Production of *Eucheuma cottonii* started in 1986 and, after several disappointments, reached 1,283 tonnes by 1996. It is estimated that the industry will become self-sustaining when production reaches 3,000 tonnes a year. There is a good potential for the development of regional trade, as Japan is a major importer of seaweed both as a food and a food additive.

For almost half of the rural households in this island economy, harvesting seaweed for use has already become a more profitable activity than fishing, chopping copra, or making cigarettes. Self-reliance has been enhanced because people are better able to meet their needs in terms of food, household goods and services. There is still a long way to go before production can seriously rival that of the Philippines, which dominates the world seaweed market with 300,000 tonnes a year. Nonetheless, aided by significant start-up support through financial and technical assistance, and the acquisition of skills through experience, the results on Kiribati are already encouraging.

Contact: EC Fisheries Cooperation Bulletin, Vol. 10, number 3. European Commission 200, rue de la Loi 1049 Brussels, Belgium Fax: +32 2 299 06 03

## Guidelines for coconut germplasm movement amended



Photo: J. WARDEN/SUNSET

As part of research into the damaging disease in coconuts caused by the cadang cadang viroid, it was noticed that Pacific coconuts had viroid-like nucleic acid sequences present in their tissues, although this appeared to be unassociated with disease. Nonetheless, given the gravity of the disease and the unknown risk posed by the presence of viroid-like sequences, the FAO and IBPGR (now International Plant Genetic Resources Institute or IPGRI) published 'Technical Guidelines for the Safe Movement of Coconut Germplasm' (edited by E. A. Frison *et al.* 1993). The guidelines called for the restriction of coconut germplasm movement from those countries where the viroid-like sequences were known to occur, and relate to germplasm for conservation, research and plant breeding programmes, not trade.

Scientific studies have since shown that these sequences are widespread in coconuts in both exporting and importing countries and there is no evidence that their presence leads to disease. Accordingly, in December 1997, FAO and IPGRI published an addendum to the Technical Guidelines saying that viroid-like sequences are not to be considered of quarantine significance. Guidelines restricting coconut germplasm movement still remain in effect for the Philippines (where the cadang cadang viroid is present) and Guam (because of the Tinaja viroid).

Contact: Pons Balugal  
International Coconut Genetic Resources Network (COGENT)  
P O Box 236, UPM Post Office  
43400 Serdang  
Selangor Darul Ehsan, Malaysia.  
Fax: +603 9423891  
Email: P.Balugal@cgnel.com

## Household water storage tanks

The rainy season is the best time to build up water stocks for the kitchen garden. This simple method of collecting water in barrels offers a cheap way to of expanding and diversifying garden production, and reduces the workload of women and children.

- You need :
  - one long thick length of bamboo, or a strip of corrugated iron, as long as your roof, to make into a gutter.
  - a creeper or twine, or lengths of wire, to attach the gutter to the roof
  - three 50-gallon metal barrels;

- two overflow pipes of non-rusting material (bamboo or plastic), about 30 cm long;
- three solid foundations, capable of bearing heavy weights (200 kg or more) made of wood, dried earth or concrete;
- To build the system :
  - slice the bamboo in two along its length, or fold the corrugated iron, to make the gutter;
  - fix the gutter to the roof, with the creepers or wire, at a slight angle so that the run-off rain-water will flow down
  - in two of the barrels, make a hole about 5 cm from the top, slight-

- ly wider than the overflow pipe, which you fit into the hole;
- put the three barrels squarely on the foundations, staggered, as shown in the diagram;
- the first one should be right underneath the end of the gutter, and the second and third barrels should be placed lower, under the overflow pipe, so that the overflow water from one will flow into the next, when full;
- cover the barrels to keep the water clean.

You can install taps in each of the barrels, so that you can take water without dirtying it with a bucket. This is an extra step and is non-essential to the main benefits of the storage system. The system has already been used in Sangmélina (in Southern Cameroon).

Source : Communautés africaines  
Number 20, June 1997.  
BP 5946, Douala-Akwa,  
Cameroon.

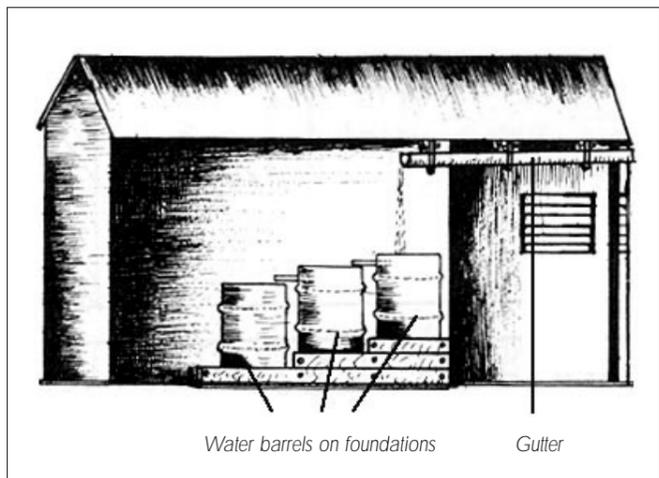
## PANIS: Check it out!

Developed and supported jointly by the UN Food and Agriculture Organization (FAO) and the Secretariat of the Pacific Community (SPC) — formerly the South Pacific Commission, the Pacific Animal Health Information System or PANIS is a database and information system available on the Internet and on CD-ROM (only for Pacific Island Countries participating in PANIS). The Website is maintained by the SPC Regional Animal Health Service in Suva, Fiji, and among other things, Pacific countries may post information related to animal health or quarantine on their

respective country page. PANIS was created to foster unity and exchange among Pacific Island Countries. It should be noted, however, that the database is not limited to them: a livestock disease search will yield information on the prevalence of the disease world-wide, making PANIS a truly international project. A sister project for plants is in the works.

Website: <http://202.0.157.4>

Contact: Dr. Peter Saville,  
Animal Health Advisor  
SPC, Private Mail Bag  
Suva, Fiji.  
Fax: +679 370021  
Email: [peters@spc.org.fj](mailto:peters@spc.org.fj)



## Yummy, yummy, coco-yoghurt

One profitable project for village enterprises in coconut-growing areas is the making of coconut yoghurt. This product is both delicious and nutritious (on a par with yoghurt made from 100% dairy milk). Some capital investment is required to buy equipment such as a coconut meat grater and a presser, autoclave, refrigerator, incubator, stove, blender, stainless steel mix-

ing container and weighing scale. To make coco- yoghurt, starter cultures must first be prepared. To do this, a 10% solution of non-fat dry milk (NFDM) is autoclaved for 10 mins at 10 psi, cooled, and divided in half; one half is inoculated with *Streptococcus thermophilus*, and allowed to incubate for 14 hrs at 38° C, and the other half with *Lactobacillus bulgaricus* and incubated for 15

hrs at 42° C. The starters may now be stored at 5° C until use. Two textures of yoghurt may be made, a viscous one and a soft curd type. For the viscous, the milk base consists of 50% coconut milk and 50% NFDM; for the soft curd, the proportions are 44% coconut milk to 56% NFDM. The milk base is pasteurised at 85° C for 20 mins, cooled, and inoculated with 1.5% each of the previously prepared starter cultures. The mixture is poured into small yoghurt

containers and then incubated at 42° C until the pH reaches 4.5 - 4.7. Coco-yoghurt can now be stored for 5 days at 5° C. For different flavour sensations, fruit extracts may be added to the yoghurt. Bon appetit!

Contact:  
The Institute of Food Science and Technology  
College of Agriculture  
University of the Philippines at Los Baños College  
Laguna, Philippines.

## COURSES

### ■ GENDER, AGRICULTURE AND ORGANISATIONAL CHANGE

10 - 31 January 1999, The Netherlands

In this three-week course, tools and processes for gender planning and assessment will be explored and applied. The course teaches leadership and facilitation techniques and methods to guide the gender and change processes within organisations. It is designed for everyone who is expected to incorporate a gender perspective in agricultural and rural development organisations and programmes.

Organised by IAC, Wageningen.  
See 'RURAL MICRO FINANCE' for address.

### ■ MSC CROP PROTECTION

1 February 1999 - 1 December 2000, Zimbabwe

This multidisciplinary course emphasises the integrated pest management concept. Subjects covered in the course include among others applied entomology, plant pathology, weed management, pesticide technology and decision making in crop protection. One year of coursework is followed by a final research project. A limited number of scholarships is available for nationals of southern African countries.

Contact: Professor D P Giga, Dept. Crop Science, University of Zimbabwe,  
P O Box MP 167, Harare, Zimbabwe. Fax: + 263 4 333407

### ■ RURAL MICRO FINANCE

14 - 28 March 1999, The Netherlands

This course is meant for mid-career professionals engaged in rural finance policies and design, implementation of rural micro finance programmes, and rural development banking. The two-week course will focus on the organisation and reform of rural financial markets, linkages between savings and credit systems, lending policies and financial inter-mediation and portfolio management for financial institutions.

Contact: International Agricultural Centre, P O Box 88,  
6700 AB Wageningen, The Netherlands.  
Fax: +31 317 418552; Email: [iac@iac.agro.nl](mailto:iac@iac.agro.nl)

### ■ PARTICIPATION IN LOCAL DEVELOPMENT

19 - 23 April 1999, The Netherlands

Development workers with little or no experience in the use of participatory methods will be interested in this five-day course, which provides insight into the theoretical background and practices of the most widely used participatory techniques. It is organised by Agromisa and the Institute for Applied Communication and Innovation.

Contact: Agromisa, P O Box 41, 6700 AA Wageningen,  
The Netherlands. Fax: +31 317 419178;  
Email: [agromisa@worldaccess.nl](mailto:agromisa@worldaccess.nl)

Please write to the addresses given above, and not to CTA, if you are interested in participating in these events.

## CONFERENCES

### ■ CONTRIBUTIONS OF SCIENCE TO THE DEVELOPMENT OF FOREST POLICIES

7 - 9 January 1999, South Africa

The purpose of this meeting is to provide a forum for dialogue on the integration of science and forest policy. There are many experiments going on world-wide that illustrate how people are trying to reconcile policy needs with a growing body of scientific evidence and how to use scientific knowledge in the development of forest policy. This symposium will examine the interface between science and policy through case examples, research papers, and research-based posters. The symposium will be held at the CSIR facilities in Pretoria, South Africa.

Contact: Dr. Perry Brown, Dean, School of Forestry,  
The University of Montana, Missoula Mt 59812 USA.  
Fax: +1 406 243 4845; Email: [pbrown@forestry.umt.edu](mailto:pbrown@forestry.umt.edu)

### ■ CHEMRAWN XII - AFRICAN FOOD SECURITY AND NATURAL RESOURCE MANAGEMENT: THE NEW SCIENTIFIC FRONTIERS

20-24 June, 1999, Kenya

An international conference to foster stakeholder input to advance the role of chemistry and allied sciences in increasing per capita food production while enhancing the natural resource base in sub-Saharan Africa. CHEMRAWN XII will bring together leaders in science, government and the private sector in order to reverse the decline in soil fertility in Africa; enhance integrated pest management; improve plant and animal germplasm via biotechnology; and to intensify, diversify and transform small-scale African agriculture through high-value products.

Contact: F J C Chandler, CHEMRAWN XII Organising Committee, ICRAF,  
P O Box 30677, Nairobi, KENYA. Fax: USA +1 650 833 6646 /  
Kenya +254 2 521001; Email: [F.Chandler@cgnel.com](mailto:F.Chandler@cgnel.com)

### ■ 14TH INTERNATIONAL PLANT PROTECTION CONGRESS - PLANT PROTECTION TOWARDS THE THIRD MILLENNIUM: WHERE CHEMISTRY MEETS ECOLOGY

25-30 July 1999, Israel

Jerusalem, Israel.

Fax: +972 3 5175674  
Email: [ippc@kenes.com](mailto:ippc@kenes.com)

### ■ EMPOWERING FARMERS THROUGH ANIMAL TRACTION IN 21ST CENTURY

20 - 24 September 1999, South Africa

This conference will be held in Mpumalanga, South Africa.

Contact: Bruce Joubert, ATNESA/SANAT Workshop secretariat.  
Fax: +27 4065 31730; Email: [sanat@ufhcc.ufh.ac.za](mailto:sanat@ufhcc.ufh.ac.za)  
Contact Michelle for conference reservations at JHR Management.  
Fax: +27 11 234 0389

On our 'Mailbox' page we publish extracts from letters sent to the editorial team at CTA. These letters have been selected for their potential interest to other readers of *Spore*. Readers are therefore invited to send us further information on subjects covered in *Spore*.

*Spore* would also be pleased to receive short articles and news items on agriculture and rural development in ACP countries; these will be considered for publication in our 'In Brief' pages. Finally, under the heading 'Viewpoint', we will continue to publish personal opinions on the subject of agricultural development in general.

Please send your correspondence to *Spore* at CTA in the Netherlands (see back page for our address) and please note that we are unable to return manuscripts.

#### FISHING LAW MUDDIES THE WATERS

Mr N. Djimasngar, of the fisheries office in Logone/Tandjilé in Chad found the leading article 'Water: will there be conflict?' in *Spore* 74 very relevant to a recent experience of his: 'As the fisheries officer in the region, I was very involved in a conflict about the management of fish resources. It was between some Ngambaye fishermen who came from the south-west, and the Sarakaba, Niellim and Tounia peoples, from the mid-Chari region in the south-east of Chad. The Ngambaye are professional fishermen who left their region of origin several decades ago to settle down in mid-Chari. The local people felt that they were undesirables, and accused them of depleting the fish stocks in the river Chari, and in other waters in the region. They were forbidden from fishing; blows were exchanged, and their fishing equipment was confiscated. This led to an increase in tension between the two communities. The question was taken to the local authorities several times, but no lasting solution was found. According to the letter of the law, right is on the side of the Ngambaye. Fishing is allowed by law anywhere in Chad, as long as the fisherman has authorised equipment, and has paid for an annual fishing license. Herein lies the inappropriateness of legislation. Local communities have a clear political will for managing natural resources themselves. But the sense of the law runs counter to this.'

#### SPORE SCORES WELL, BUT THERE'S ALWAYS ROOM FOR IMPROVEMENT!

Mr G. Osuji, of G.O.O. Farms, Imo State, Nigeria, has several suggestions to improve our services to the reader. For example, he suggests that *Spore* could show the full address of correspondents on the Mailbox page. This would help readers interact and obtain more information.

Like most magazines, *Spore* only publishes the full address at the writer's request. Readers wanting to contact other writers should send their letters to *Spore* and we will forward them. In fact, we encourage readers to respond to any item in *Spore*, and to share their opinions through Mailbox.

Mr Osuji also recommends that *Spore* should always include the price of every book mentioned in the magazine, in US dollars. This would save readers the burden of inquiring about the price from the publisher, or a bookshop, before ordering it.

As a general rule, *Spore* puts the price of the book in the currency which is recommended by the publisher. Remember that bookshop prices fluctuate, just like the value of the dollar. When a book is

available free of charge, that is always mentioned. Sometimes we do not receive price information in time, and then we show no price. We hope that when the new Euro is introduced in 1999, many publishers will use it as a reference price. This will simplify matters considerably.

Finally, Mr Osuji asks if CTA could connect readers with individuals or organisations who could finance or sponsor projects. He suggests that this information could be published next to the Courses and Conferences section.

Unfortunately, CTA cannot play this role for the countless individuals and organisations involved in agricultural and rural development in the 71 member countries of the ACP Group. We do try to give addresses, book references and other useful sources of information. As far as courses and conferences are concerned, there are just too many different possibilities of obtaining scholarships, with varying criteria and schedules, for us to publish them all. For this reason, we recommend that the reader contact the organisers directly.



Sébastien Makila, director of a primary school in the province of Haut-Ogooué in Gabon, has set up small gardening plots in the school.

#### MORE EXTENSION WORK NEEDED

Mr D. Koulangar Ngartoubam, of the ONDR in Chad is musing about a strange rumour which is holding back the growth of soya in his region. 'In this day and age, soya is a very important crop all over the world, as a source of protein and vegetable oil. It is used extensively in various dishes [...] The subsection of the rural development division (ONDR) in the Soudano zone at Moundou started a project to develop the cultivation of soya, in view of its value in human and animal nutrition, and its important role in improving soil fertility. During the first few years, it was a success. Then there was a fall in the area sown, whereas we had expected the area to increase. We started to enquire as to the reasons for this decline. It was not easy to get a proper answer but, when pressed hard, the farmers told us that eating soya leads to impotence, and that was why they did not want to grow it any more. We asked them how they knew this, or to tell us where they had heard that soya makes a man impotent. They replied by telling us that each time they ate soya, they were no longer the virile man they used to be. We told them some other reasons as to why they were less virile, but they remained unconvinced. They are sticking to their position and, as a result, on top of it all, they are standing in the way of soya being cultivated more widely.' Our correspondent hopes that some relevant authority will be able 'to give some clarification so that we can lay this tale down to rest.'

## Help farmers winnow tools and partners

Marina Padrão Temudo is a junior researcher at the Instituto de Investigação Científica Tropical (IICT)/ Centro de Estudos de Produção e Tecnologia Agrícolas (CEPTA) in Lisbon, Portugal.



Winnowing is the process by which farmers separate the grain from the chaff, and consequently divide the useful and desirable from the useless and undesirable. The same approach needs to be used by small farmers when dealing with the innovations researchers create for them – they winnow the package by sifting out the useful elements.

#### Local wisdom knows best

Many researchers and extension agents still believe that technologies developed in laboratories and research stations are always applicable to the circumstances of resource-poor farmers. This view is held despite all the evidence against it, compiled by such authors as Robert Chambers, John Farrington, Paul Richards, Maria Salas, Jean-Pierre Olivier de Sardan and Jan van der Ploeg.

During three years work in the south of Guinea-Bissau, studying knowledge and institutional interfaces in subsistence agriculture, I have encountered several situations in which farmers felt obliged to accept innovations presented by government officials and NGO workers, because of their 'all or nothing' approach, despite the participatory rhetoric of the projects.

In one project, a local NGO tried to disseminate improved varieties of mango, in order to reduce slash-and-burn rice cultivation while generating new sources of income. The project insisted that deforestation should be thorough, and forbade inter-cropping with other fruit trees, under threat of restricting access to credit and improved varieties. Extension agents wanted to inter-crop mango with cassava, beans and peanuts, in order to reduce soil erosion. However, beans and peanuts only cover the soil during the rainy seasons, and cassava does not provide significant protection against erosion. During the dry season, project technicians wanted the farmers to water the young mango trees.

Traditionally, however, farmers inter-crop several species of fruit trees, at a high density, with the mixture depending on soil type, and their access to new plants and varieties. For example, bananas are used often as an 'insurance' crop during the first year of a perennial tree orchard. Another advantage is that they shade young trees, reducing the need for watering. Inter-cropping is also a traditional risk-avoidance strategy against pests, and criss-cross planting helps to prevent soil erosion during the rainy season.

The interface between peasants and extension agents is thus sometimes uneven. It is not so much that misunderstandings and ignorance lead to open conflict, but that they create friction and frustration.

Another dimension of this issue of 'who knows best what we need' is in education. Although it is the official language of Guinea-Bissau, Portuguese is only spoken by a minority of the urban population. There are more than thirty ethnic groups each with their own languages, and even the Creole language, much used during the war of liberation and after independence, is not spoken by the entire population.

Some integrated development projects have introduced an innovation by teaching ethnic languages (thus reaching women, who seldom master Creole well) and using the Portuguese alphabet.

It was surprising, to say the least, to see a local NGO respond to local community demands and launch an educational programme in the south of the country,

using Creole and the failed alphabet. The local people wanted to be taught with the Portuguese alphabet instead. Using their own resources, they hired a primary school teacher to provide them with the education they wanted.

#### Participation is a chameleon

Participation cannot be parachuted onto a project, as if from a plane loaded with good intentions. Participation is situation-specific. Like a chameleon, it has multiple 'faces' and colours, depending on the actor, the player and the institution using it, and on whether it is in the rhetoric of speeches and project reports and proposals, or it is embedded in development practice.

Consequently, I argue that participatory research and the development of new technologies with farmers implies more than simple knowledge of a set of techniques but that it requires a change in institutional and individual attitudes. It also requires specific skills in cross-cultural communication and a will to succeed in this area.

In any project intervention, it is development agents and institutions who are seen as the first carriers of potential innovation. That being so, I uphold that the farmers should be given the power, the right, and the tools to winnow those with whom they want to work. This represents a challenge to the research community, because it means changing the traditional ways of rewarding professionals, and of funding research and development institutions. Before the winnowing, let's pay attention to the harvest!

The opinions expressed in this Viewpoint are those of the author, and do not necessarily reflect the views of the CTA.

## CTA's 1997 Annual Report features Special Paper on policy analysis

CTA's Annual Report for 1997 is now available. In his introduction, CTA's Director, Dr R. D. Cooke, highlights the importance of capacity development and the need for agricultural policies that alleviate poverty. He further stresses the shift in the emphasis of CTA's work, from the provision of information to the development of ACP capacity for information management, as outlined in CTA's Mid-Term Plan.

The report describes CTA's activities for 1997 by specific objectives, beginning with promoting the exchange of information, followed by providing information on demand, strengthening ACP information and communication management and ending with the development of strategies for information management in ACP countries. The report concludes with an account of financial and administrative matters, and details of the CTA's Advisory Committee.

A Special Paper contributed by Dr G. C. Mrema, the Executive Secretary of the

Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA), is entitled 'Strengthening Africa's capacity for agricultural development policy analysis'. Dr Mrema chronicles key agricultural policy issues and outlines agricultural policy trends from the 1950s to the 1990s. He critically examines national policy-making systems and the role of the international development agencies, as well as detailing future prospects and making specific recommendations. Dr Mrema concludes by emphasising the need to support human resources development in the field of policy analysis. This paper is available as a separate publication.

Readers who have not already received copies of the Report, or who require copies of the Special Paper, should write to CTA (PDS subscribers may find it quicker to use their publications order forms). The credit value for the publications is zero, and both are available free-of-charge to non-subscribers.

CTA Annual Report 1997, CTA number 871.  
1997 Special Paper, CTA number 873.

## Integrated Pest Management: 2nd meeting of regional Caribbean network

The Integrated Pest Management Network is one of the collaborative programmes among the nations of the Caribbean and one of the important activities of PROCICARIBE (the Caribbean Agricultural Science and Technology System). I therefore speak in the context of regional integration and in recognition of the need for us as small nation states, to join forces together in fighting the threat from existing and new exotic pests and diseases in the Caribbean. With these opening words, the Honourable Dr Fenton Ferguson, Minister of State in the Ministry of Agriculture in Jamaica, emphasized the importance of the IPM regional network meeting, held from 4-6 February in Kingston. There were 45 participants representing the wider Caribbean, the US-based IPM CRSP Program, CARINET, CAB International, ISNAR, CIMMYT, FAO, USDA-Aphis, CARDI, UWI, IICA and CARICOM. The meeting was financially supported by CTA, in recognition of the importance of the topic and the adoption of the regional approach.

The meeting had three principal outcomes:

- the appointment of a regional coordinator was recommended;
- election of the network's Technical Advisory Committee (TAC);
- broad guidelines of the work programme were agreed.

Each country in the network will have a national IPM Coordinator, who will meet with

public and private IPM players in their National Agriculture Research Systems (NARS), to set up national work programmes. These will form the basis of the regional IPM work programme.

Contact: Dr Samsundar Parasram,  
Executive Director, PROCICARIBE,  
c/o CARDI, University Campus,  
St Augustine, Trinidad, West Indies.  
Fax: +1 868 645 1208;  
Email: procicaribe@cardi.org

## Larger Grain Borer

A revised, corrected version of GASGA/CTA technical leaflet number 1.  
CTA number 575, 5 credit points.

## Geographical Information Systems (GIS) for Rural Development in Sub-Saharan Africa

The joint CTA/ITC workshop, held in September 1997 in the Netherlands, was reported in *Spore* 73. The summary report, with an introduction to the discussions and recommendations, has now been published.

26 pp. ISBN 92 9081 1900, CTA number 876, 5 credit points.

## Weeds of Rice in West Africa

Weeds are the major biological problem in rice production. This bilingual guide, in English and French, with colour photographs and illustrations, helps to identify the major weed species, as well as some fallow and occasional weeds, and provides detailed descriptions. It also gives an account of the general principles of weed control. There is an index, a glossary, a lexicon and a table showing the medicinal uses of some plants.

Co-publication WARDA/DFID/CTA 1998,  
312 pp. ISBN 92 9113 1105,  
CTA number 875, 40 credit points.

## On-farm fish culture

This new addition to the Agrodok collection describes various ways to combine fish culture with crop cultivation and livestock, in order to optimise farm output. For example, animal manure and composted vegetable residues can be used to fertilise a fish pond and increase the amount of food available to the fish. The pond lining can later be used as a source of fertiliser for cultivated land. The manual, which also offers guidelines for the selection of fish species, and which vegetables to use as fish food, is aimed at extension and field staff who work with farmers. It makes an excellent companion volume to Agrodok 15 (CTA number 724) which describes the construction and management of a fish pond (see *Spore* 65, p.13).

Agrodok 21, Co-publication Agromisa/  
CTA 1998, 72 pp. ISBN 90 72746 82 1,  
CTA number 863, 5 credit points.

## INIBAP technical guides

The first issue of this new series in English and French is devoted to 'Screening of Musa germplasm for resistance and tolerance to nematodes'; the second to 'Routine post-harvest screening of banana/plantain hybrids: criteria and methods'. Designed as reference works for specialists, the guides have received contributions from many institutions. They are clearly presented, with colour illustrations, diagrams and photographs.

Co-publication INIBAP/CTA 1998, guide number 1, 48 pp. ISBN 2 910 810 16 X; guide number 2, 64 pp. ISBN 2 910 810 22 4. Not available from CTA. Contact: INIBAP, Parc Scientifique Agropolis II, 34397 Montpellier cedex 5, France. Fax: +33 467 61 03 34; Email: inibap@cgnet.com

## Trees and Multistorey Agriculture in Africa

The book sets out to explain trees as a fundamental form of life, and to recognise the benefits which can be derived from their presence in terms of production, fertilisation, animal feed, energy, as well as the ecological services they render to the environment ('When trees die, stones begin to grow'). Part 1 examines issues related to the integration of trees into agriculture, including land rights and social and political considerations. Multistorey farming is presented as a 'way of reconciliation' between man and trees. Part 2 focuses on this farming system from both economic and ecological perspectives, with particular emphasis given to productivity, soil fertility and erosion control. This well-illustrated book contains numerous examples and case studies which emphasise the importance of a global approach involving all stakeholders.

CTA/Terres et Vie co-publication 1998, 280 pp.  
ISBN 2 87105 010 X / 92 9081 1781, CTA  
number 860, 40 credit points.

## CTA's electronic observatory

The unceasing waves of new information and communication technologies (ICTs) offer much to agricultural development in ACP States. Ranging from participatory geographical information systems (GIS) which use satellite photos to support land tenure programmes, through the use of hand-held computers to diagnose crop disease, to the use of electronic mail and the Internet to link farmers' cooperatives to market information across borders and continents, the practical value of computer technologies gets clearer by the day.

The use and potential of ICTs has been a recurrent theme in CTA's work for several years. The CTA seminar on 'The role of information for rural development in ACP countries' held in Montpellier, France, in June 1995 concluded that 'these modern technologies offer new and multiple perspectives, such as faster and better-focused access to information'. It was recommended that a 'technology watch' will be necessary, to track the evolution of these technologies, and to enable stakeholders in ACP countries to draw maximum benefit from them.

That 'watch' body has now evolved into the CTA Observatory on information and communication technologies. It has the task of informing the agricultural community on appropriate technologies for information management and communication. The Observatory is a body of experts with experience in the introduction of ICTs in ACP countries and related initiatives in Europe. Its first meeting was held at CTA headquarters on 16 and 17 June 1998, and had participants from six ACP countries, six European countries and international governmental and non-governmental bodies. With the aim of monitoring and making accessible trends in ICT uses, the major task of the Observatory is to be well-informed about recent experiences, current projects and programmes, and planned initiatives.

The June meeting studied three levels in depth: policy-making, capacity building and applications. The issues in which CTA has a role to play include ensuring that the agricultural sector is represented in existing and planned ICT initiatives, promoting more integrated policies at national and regional level;

## All Africa Crop Science Congress

The proceedings of this conference held from 13 to 17 January 1997 in Pretoria (South Africa), have been published with CTA support, in three parts in the journal *African Crop Science*, volume 3. Not available from CTA.

Contact: African Crop Science Society, Makerere University, P O Box 7062, Kampala, Uganda.  
Fax: +256 41 531 641  
Email: acss@starcom.co.ug

ensuring support for thematic and cross-sectoral networks; supporting information flows on appropriate policies (such as pricing and tax reforms); and encouraging the broad participation of stakeholders (NGOs, private sector, civil society), with attention to gender issues.

At policy level, there is work to be done in sensitising ICT professionals to the agricultural sector, and the sector to ICTs.

Capacity building priorities lie in providing sustainable training and support in the use and management of ICTs, with special emphasis on providing regular, reliable information on the World Wide Web. CTA was invited to consider applications which support rural telecentres, the dissemination of rural radio in digital form through the Internet, software libraries, and *Spore* online.

The Observatory stressed the importance of cooperation with specialised ICT bodies and initiatives in other sectors, and the exchange of information and experiences. CTA's own ICT activities, and a discussion forum to develop the ideas launched and the initiatives described at the meeting, are featured on CTA's own Website ([www.cta.nl](http://www.cta.nl)), which also hosts the online edition of *Spore*.

## Obtaining CTA publications

Publications on CTA's list are available free-of-charge to subscribers to the Publications Distribution Service. Readers who have applied to become subscribers will, in due course, receive a response to their application and, if admitted, will be sent two publications order forms, one of which will indicate the number of CTA credit points available to them.

Credit values have been assigned to all the publications on CTA's list. Subscribers can order these publications up to the value of the credit points available to them. Publications can only be requested on the order forms provided.

Non-subscribers who apply by letter, fax or email will be sent an application form. Applications will be considered from agricultural and rural development organisations in the ACP (Africa, Caribbean and Pacific) Group of States; individuals resident in ACP countries may also apply.

Organisations which work for agricultural and rural development in the ACP States, but are not based in an ACP country, should write to CTA giving details of the publications they wish to acquire and the reasons why they are needed.

## The ocean is a bridge, not a chasm

Oceans always have been the gateways to meetings between cultures, to trade and to seafood. They also symbolise the cooperation between the European, African, Caribbean and Pacific countries, laid down in the Lomé convention. Again here the ocean represents not a frontier, but a common heritage of precious and fragile riches. Similarly, the seas know no frontiers either for fish or pollution. Cooperation is and remains essential for the conservation of this marine heritage. Such poetic imagery is the basis of the European Commission's recently published booklet 'The shared ocean', which gives an account of various examples of projects between EU and ACP States.

These vary from protecting and exploiting natural resources, managing fisheries and improving shipping or access to ports, to ensuring that tourist developments are integrated into local communities. One example describes support to non-industrial fishing in The Gambia. Besides higher fish consumption, which replaces expensive food imports, there have been several indirect effects. New fishing, drying and smoking methods have been developed and a modest export of fish has begun. The non-industrial fishing is now continuing without external support.

Another example is the improvement of the communication management along transport



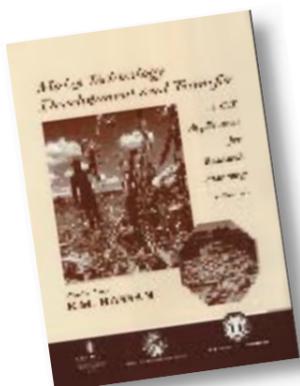
routes from African landlocked countries to the nearest ports (also see the dossier on infrastructure on pages 3-5 of this issue). It

describes how the development of an information system (SIAM) to manage the movement of goods in such corridors as between Zimbabwe and Beira in Mozambique or between Ouagadougou and Abidjan. Besides the rapid quantifiable results, the most interesting consequence is the growing awareness of a common interest between port authorities, shippers and governments of the various countries.

ISBN 92 828 3186 8, 1998.  
Published by the European Commission, Directorate-General for Development Information Unit, Rue de la Loi 200, B 1049 Brussels, Belgium  
Fax: +32 2 299 3002  
Website: <http://europa.eu.int>

## Database helps research planning on maize technology

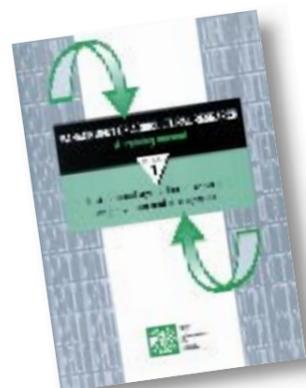
Scientists at the Kenya Agricultural Research Institute (KARI) have developed powerful new tools to improve the effectiveness of their maize research. The Kenya Maize Data Base Project (MDBP) was established in 1992 with the help of the Rockefeller Foundation, CIMMYT, and the US Agency for International Development. The MDBP enabled scientists to use advanced technology to prioritize and evaluate maize research options more effectively, by taking into account such variables as climatic effects and farmers' socioeconomic conditions. This book recounts the development and application of the MDBP, which uses spatial



analysis to integrate data from Geographical Information Systems (GIS) with the results of biological experiments, socioeconomic statistics (including

interviews with farmers) and agroclimatic information. The book provides an excellent planning tool for targeting new technology to the needs of farmers. It offers useful information for maize agronomists, crop modellers, agricultural and development economists, extension workers and planners.

*Maize Technology Development and Transfer: A GIS Application for Research Planning in Kenya*  
Edited by R.M. Hassan, 1998,  
ISBN 0 85199 287 0  
Publishing Division, CAB International  
Wallingford, Oxford, OX 10 8DE, UK  
Fax: +44 1491 833508  
Email: [cabi@cabi.org](mailto:cabi@cabi.org)  
Price: British Pounds 45.00



## How to manage agricultural research?

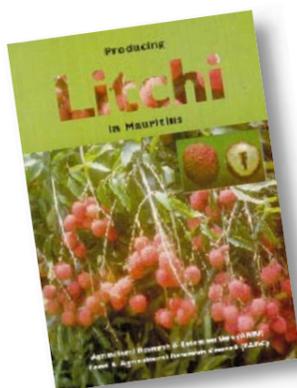
The Food and Agriculture Organization of the UN (FAO) has published a training manual, which serves as a basic reference material to help national research trainers structure and conduct courses on research management. It is intended for

managers of research institutes in developing countries and institutions of higher education. The manual consists of ten modules, each treating major management functions. The manual has been designed to support participatory learning through case studies, group exercises and presentations by the participants.

*Management of agricultural research manual*  
ISBN 92 5 104091 5  
Director, Information Division, FAO,  
Viale delle Terme di Caracalla,  
00100 Rome, Italy.

## Producing Litchi in Mauritius

This practical guide presents all aspects of producing litchi in Mauritius. It provides background information on the history of the fruit, its nutritional value and litchi production worldwide. However, the major focus is on litchi production, including how to set up an orchard, deal with pests and propagate the plant. The final chapters are about harvesting and marketing of litchis and production costs.



1998, 62 pp.  
Agricultural Research & Extension Unit  
Food and Agricultural Council  
Réduit, Mauritius.  
Fax: +230 464 8809  
Email: [areu@bow.intnet.mu](mailto:areu@bow.intnet.mu)  
Price per copy (inclusive of air charges) are: America, Pacific and Australia: US\$ 8;  
Asia, Africa and Europe: US\$ 7;  
Indian Ocean Islands: US\$ 6

## Everything you always wanted to know about *Leucaena* trees



native to Central America and Mexico. One example is *L. esculenta*, a small to medium-sized tree that is cultivated in south-central Mexico for its edible immature seeds and pods. Besides *Leucaena*'s genetic characteristics, this genetic resources handbook also discusses its taxonomy, and ethnobotany. Moreover, 22 species of *Leucaena* are described in detail.

*Leucaena: A genetic resource handbook.* Colin E Hughes.  
1998. 272 pp.  
Oxford Forestry Institute, Department of Plant Science, South Parks Road, Oxford OX1 3RB, UK  
Fax: +44 1865 275074  
Email: [colin.hughes@plant-sciences.ox.ac.uk](mailto:colin.hughes@plant-sciences.ox.ac.uk)

The Forestry Institute of the University of Oxford recently published a new volume in their series of Tropical Forestry Papers. Number 37 is entirely dedicated to the genus *Leucaena*, which is

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ISBN 0 85199 265 X, 1998.  
CAB International

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*Biotechnology in Agriculture Series, No. 20.*  
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CAB International

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CAB International

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ISBN 0 85 199 255 2, 1998.  
CAB International

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W A Sands.  
ISBN 0 85 199 225 0, 1998.  
Publishing Division, CAB International  
Wallingford, Oxford, OX 10 8DE, UK.  
Fax: +44 1491 833508,  
Email: [cabi@cabi.org](mailto:cabi@cabi.org)

## From harvest to consumer



the book's coverage of tropical produce. Clearly written and well-illustrated, this book should be of interest to students of horticulture; nutritionists; farming company technologists, transport workers and retailers; packing house managers; government advisers and concerned consumers.

*Postharvest: an introduction to the physiology and handling of fruit, vegetables and ornamentals.* Fourth edition. R Wills, B McGlasson, D Graham and D Joyce. 1998. 262 pp.  
ISBN 0 86840 560 4 (UNSW Press)  
ISBN 0 85199 264 1 (CABI)

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Sydney 2052 Australia

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Email: [cabi@cabi.org](mailto:cabi@cabi.org)  
Price from CABI: British Pounds 24.50

Available from CTA (see details p. 13) CTA number 859, 20 credit points

## Tropical fruits

*Tropical fruits*, by H Y Nakasono and R E Paull, aims (and succeeds!) at providing a basic understanding of all aspects of tropical fruit production and usage. The book begins by discussing tropical environmental conditions, general cultivation techniques and postharvest handling. Then the fun begins and the reader is treated to an enlightening and luscious journey through the botany, ecology, general characteristics, cultivar development, cultural practices, harvest and postharvest handling, and use of the following fruits: avocado; banana; carambola; guava; litchi, longan and rambutan; mango; papaya; passion-fruit; and pineapple. For desert, the last two chapters are devoted to lesser known Asian and American fruits. This book is required reading for anyone



interested in tropical fruit production.

ISBN 0 85199 254 4, 1998. 445 pp.  
British Pounds 30 (US \$55, only in the Americas)

CAB International, Wallingford, Oxon, OX10 8DE, UK.  
Fax: +44 1491 833508  
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Unless otherwise stated, the books on these two pages are not available from CTA. Readers are advised to write to the publishers for further information.

