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Website: spore.cta.int



In this issue

The world is changing. Very fast. In the space of 12 years,

communication tools, and especially the internet, have drastically altered the way in which scientific information is produced and disseminated. We offer you a brief and by no means exhaustive glimpse of the opportunities open to ACP researchers who want to remain connected to the global science community and play a continuing role in it. Changes at table are also on the horizon. New so-called functional foods have emerged. More nutritious, they are good for the health and may prove profitable for ACP producers. Even in the heart of the forest, changes are afoot. Forest communities are gradually winning back the right to manage their own resources, though much still remains to be done to ensure that those rights are rooted in the law. And has the training of agronomists adapted to changes in ACP agriculture? A number of young people debate the issue in our Viewpoint.



Niche markets

Functional and profitable

An increase in diet-related diseases has fuelled a growing interest in foodstuffs which offer disease prevention rather than simple nutrition. Functional foods have entered the global market with force in the past decade. Whether they represent a market opportunity for ACP producers remains to be seen.

Families in Europe could soon be sitting down to a dish of fonio at mealtimes. The African cereal (*Digitaria exilis*) is one of a growing number of foods with exceptional health-giving properties being marketed to consumers in the North to help ward off disease and improve quality of life. Known as functional foods, or food for specified health uses (FOSHU) in Japan where the concept first took hold, this rapidly growing sector offers interesting opportunities for producers in the South, where many of the health-giving foodstuffs originate.

The drive to put fonio on European tables is part of an EU-funded project to encourage the cereal as a healthy addition to diets, while at the same time generating incomes for local producers. Fonio is richer in magne-

sium, zinc and manganese than other cereals; it has high levels of sulphur amino acid, important for proper heart function and nerve transmission.

Generally defined as food products that offer health and performance benefits beyond their regular nutritional value, functional foods have emerged as a powerful niche sector in recent years, rapidly gaining a market share estimated by the World Bank to exceed that of organic foods. Already, their global market is worth an estimated annual US\$72 billion (€57.4 billion) and is rising fast.

In the industry, this new approach to food production is known as positive nutrition. Growing research into the relationship between diet and health is driving the boom-

ing sector, with consumers anxious to prevent disease and maintain their well-being into old age and governments keen to promote healthier diets as life expectancy



Photo: Banaki © Jereza Cristina Poroca Irs

The Acerola, or Barbados cherry, is extremely rich in vitamin C

increases and health costs soar. For ACP producers, the trend opens up new horizons. Functional foods have higher profit margins and retail prices are typically 30 to 500% (!) above comparable conventional foods, according to a recent World Bank report.

So far, there is no accepted definition of a functional food. In practical terms, it may be a natural food with health-giving properties or a food to which beneficial components have been added, such as vitamins, antioxidants — natural substances which help mop up damaging free radicals in cells — and dietary fibre or probiotics. Probiotics are live microbial food ingredients that are massively popular in Northern consumer households. A functional food may also be one from which components have been removed, such as harmful saturated fatty acids. According to some definitions, functional foods may include genetically modified foods.

Rapidly evolving food technology is devising new ways of producing functional foods through fortification and extraction. Isoflavones — beneficial organic compounds produced almost exclusively by the members of the *Leguminosae* (bean) family — can now

be extracted from soya and added to products designed to help reduce osteoporosis (a bone disease), promote cardiovascular health and alleviate menopausal symptoms.

Glucosinolates — other compounds found naturally in certain plants, especially the Brassicaceae family — are being investigated as potential functional foods for detoxifying the liver. Already, several products on the market contain plant sterols, natural constituents of some plants, including soya and maize, which are added to foods to lower cholesterol.

Plant power

Many traditional food products including fruits, vegetables and herbs have been found to contain components with health benefits, and a range of natural functional foods is already produced in ACP countries. Brassicas have antioxidant properties, avocado is believed to lower cholesterol,

tomatoes are rich in lycopene, an important antioxidant associated with a reduction in prostate cancer risk, and oily fish such as tuna is a good source of omega 3 fatty acids, which protect against heart disease and diabetes.

A wide array of other ACP products could also be developed for the functional foods sector. Among them are

turmeric, valued for its anti-inflammatory properties, garlic, whose organosulphuric compounds are believed to lower cholesterol levels, and foods derived from micro-organisms, such as fungi and algae.

Some speciality teas, such as rooibos (*Aspalathus linearis*) and honeybush (*Cyclopia intermedia*), both from South Africa, are rich in antioxidant flavonoids — substances which appear to boost immunity to allergies, viruses and cancer. These teas are already enjoying considerable success on overseas markets. Aloe vera (*Aloe barbadensis*), widely produced in the Caribbean, is now an established ingredient for a whole range of functional foods, and acerola (*Malpighia glabra*) or Barbados cherry, one of the highest sources of vitamin C, is making a name for itself outside its native Caribbean. Vegetable oils, widely produced in West Africa, offer interesting prospects as vehicles for 'functional oils', enriched with beneficial ingredients. In Japan, oils fortified with vitamin E and phytosterols are already available.

"The trouble is, most of these interesting products get taken up and developed outside ACP regions," said Denzil Phillips, herbals consultant to the Centre for the Development of Enterprise who warns of the need

to protect intellectual property rights so that local communities will reap the benefits.

The success of functional foods depends to a large extent on marketing. Linkage for this new sector is likely to prove difficult for small-scale ACP producers unless they receive help. "There are major opportunities in the functional foods market, but there are also a number of obstacles," said Phillips. Considerable scientific input is required to develop these foods and in many cases, harvesting, processing and storage technologies will need to be upgraded. ACP producers will also require help with packaging, since some functional foods are highly sensitive and need special wrapping to prevent them from losing their precious properties.

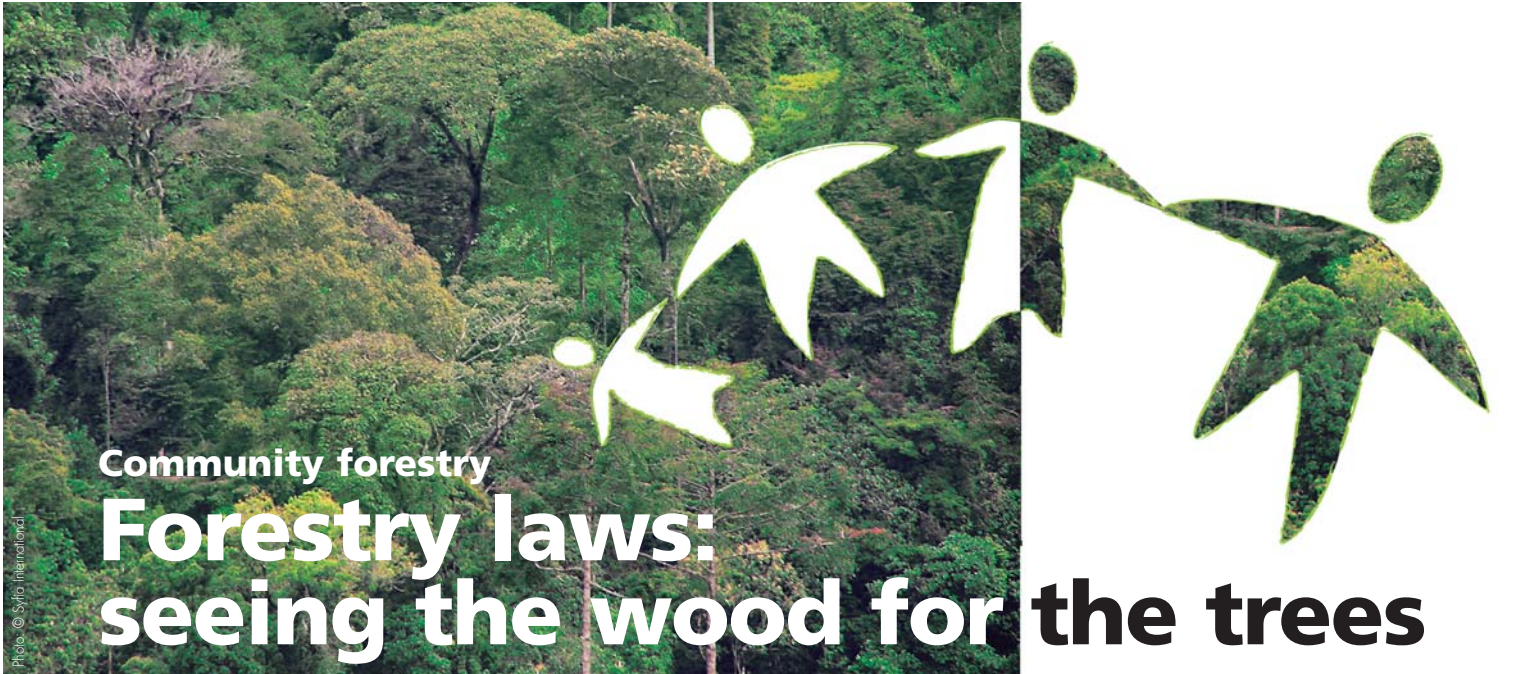
One major stumbling block is the EU's Novel Foods regulation which bans imports of any foodstuff that does not have an established track record. A lack of regulatory frameworks also threatens to hamper development. No internationally accepted set of safety requirements exists, though there are plans to include functional foods in the FAO/WHO Codex Alimentarius system. In Europe, the Fufuse (Functional Food Science in Europe) programme is laying the groundwork for a common approach to the evaluation of functional foods. A number of organisations are working on establishing a scientific basis to health claims. For these 'wonder foods' to deliver their potential public health benefits — and for ACP producers to benefit from the commercial spin-off — consumers will need to have strong confidence in their efficacy.

Counting on variety

The trend for functional foods may also have important regional repercussions, boosting demand in local markets and contributing to disease prevention. In Senegal, two large hospitals in Dakar have begun serving fonio to diabetes patients. Among the cereal's many nutritional attributes is a particularly low glycemic content (see *Spore* 111).

Fortified foods are already having a positive impact on public health in some developing countries, where micronutrients and vitamins are often lacking. An initiative to add red palm oil to the diets of women and children in central-eastern Burkina Faso has resulted in a significant fall in levels of vitamin A deficiency (see *Spore* 111). Iron-fortified flour is being developed in Fiji and the African Biofortified Sorghum project is developing a variety of sorghum with increased levels of essential amino acids, vitamins, iron and zinc.

But functional foods do not offer a solution to hunger and malnutrition, whose real causes are poverty and lack of access to land. And a varied diet will always be preferable over one rich in fortified foods, not least because some additives can prove harmful if taken in excessive quantities. More information is needed for ACP consumers as well as producers. Functional they may be, but it is too early yet to talk of a food revolution.



Community forestry

Forestry laws: seeing the wood for the trees

Once considered the main agents of destruction of forests and their biodiversity, people are beginning to take responsibility for community forestry management. But all too often they still have no legislative framework to back them up.

Tropical forests, which cover 6% of the Earth's surface, are disappearing at a rate of 14 million ha/year according to FAO. The loss poses a threat for the 240 million or so people who live in forests, as well as for all the many communities which depend on them for their work or income.

Deforestation is linked to the over-exploitation of tropical wood for commercial purposes. But another perhaps even more important cause is land clearing by rural populations. The notion of involving local communities in forestry management as a way of conserving the resource only began to make headway in development circles at the end of the 1970s. Before that, conservation efforts focused on creating protected areas from which communities were barred since they were viewed as a threat to the forests' biodiversity (see *Spore* 112). Since then, it has become increasingly clear to both donors and politicians that it is no use protecting forests and their resources at the expense of the people who live in them.

These resources include wood of course, but also a range of non-timber forest products (NTFP): fruits, leaves, bark, fuelwood, bushmeat and medicinal plants, the harvesting and use of which have driven community management in a good number of countries (Cameroon, Niger, Uganda). According to the director of the Center for International Forestry Research (CIFOR), "small-scale farmers and local communities now own or have long-term user rights to one-fifth of forests in developing countries, but they control substantially more in an informal manner."

In accordance with the recommendations of the 1992 Rio Summit, more and more countries are now accepting the principle of local community participation in forestry management. In many African countries, governments have progressed from a purely repressive approach, inherited from colonial

times, to one based on reasonably open dialogue with communities.

Recognition at last

In the Gambia, local communities have won exemption from restrictions on the harvesting and use of forestry products and are excused from the taxes and permits that would normally be required. In Sierra Leone, the government is helping forest dwellers to negotiate contracts directly with logging companies. In the Seychelles, consultative committees formed by local communities have the right to express their views on all proposals for forestry reform. In Papua-New Guinea, about a hundred indigenous communities benefit from the ecological management of some 200,000 ha of forests.

Other ACP countries place more emphasis on the creation of protected forestry areas, whilst at the same time encouraging communities to develop the economic potential of forestry ecotourism. The Community-Centered Conservation (CCC) programme run by the Jane Goodall Institute in the Democratic Republic of Congo, South Africa, Tanzania and Uganda combines efforts to protect great apes with initiatives to safeguard biodiversity and cultural traditions. Private operators are also involving local communities in the management and protection of ecotourism areas.

However positive their impact may be, these initiatives, which are often backed by NGOs and foreign donors, can only have a sustainable future if they are supported by a sound judicial and political framework. The precise definition and formal recognition of community rights are essential prerequisites for any lasting development plans. Some ACP countries have taken this vital legislative step. Among them is Cameroon, where a law introduced in 1994 sets out the user

rights of communities. Since 2001, these groups have been able to sign an agreement with the administration to exploit a forest. In Equatorial Guinea, a similar law has been in force since 1997. In Mozambique, a law passed in 1999 defines the rights of communities, including one that stipulates they should be consulted before permits for exploiting forests are issued to third parties. Liberia's new forestry law, introduced in October 2006, recognises for the first time ever the importance of the role of communities in forestry.

But just because a law exists, it does not necessarily follow that it will be enforced. In five years, only 55 community forests have received official recognition in Cameroon out of 340 recorded applications. The extremely high cost and the complex nature of the process have emerged as the main obstacles to a proper enforcement of this piece of legislation, which requires a prior agreement between communities on the sharing of any economic benefits.

Laws need enforcing

In Papua New Guinea, Forest Trends, an independent international organisation, highlights in its 2006 report the need to make communities more aware of their rights and calls for inquiries into cases of 'potential corruption', pointing the finger of suspicion at timber industry officials and local politicians.

Guaranteeing the rights of communities is the cornerstone of a decentralised development strategy for tropical forests which, in Africa, still mostly come under government supervision. The passing of the baton will only result in benefits for forests and communities if the latter have access to technologies which permit the sustainable development of these areas and if they are trained in the financial management of resources harvested from the forest. But good governance also depends on recognition of the traditional knowledge owned by local communities and indigenous peoples — all too often these groups have been uprooted or stripped of responsibility.

See *Links*, page 10

Creating a virtual community

The advent of ICTs should put ACP researchers in a better position to play a greater role in international science and to stay informed, be read and exchange views. But achieving this goal will to some extent depend on narrowing the scientific divide. A number of projects and initiatives are seeking to do just that.



Photo: H. Pineau © Terre nourricière

In common with their colleagues in other parts of the world, scientists in ACP countries need to keep abreast of the latest developments in their field, share the results of their work with as wide an audience as possible, communicate and hopefully collaborate with their peers in other countries.

For the past 10 years or so, the rapid advance of new technologies has done much to change the way in which scientific and technical information (STI) is produced and disseminated. The internet offers researchers from developing countries a chance to play a more active role in the global information and knowledge society. In practice, although ICTs serve as a powerful force in the North, paradoxically these tools may sometimes have the opposite effect on researchers from the South, who risk being sidelined due to the lack of resources available to research centres and universities.

Publishers of scientific reference journals, mostly based in the North, have now virtually all taken to offering subscriptions which include an electronic version, instead of a print-only version as was previously the case. For subscribers, the cost is as high, if not higher than before. Since electronic journals are largely financed by the print versions, the price of subscriptions has soared (by an annual average of nearly 10% over the past decade). These price hikes are difficult for research centres to absorb, especially those in

developing countries which often have a very small budget for documentation.

Institutional STI producers have also been won over by the internet and the opportunities it offers for distributing material: they create their own websites, portals and newsletters, sometimes giving up completely on the print versions of bulletins and other works that they once made available to researchers in developing countries.

"Universal access"

By isolating researchers, the digital divide — the result of inequalities between rich and poor countries in the use and availability of ICTs — fuels the 'scientific divide'. Widely seen as a serious obstacle for developing countries, the scientific divide is also having a damaging effect on global research, which no longer has such a broad range of viewpoints and inputs to draw from. This concern prompted the World Summit on the Information Society held in Geneva, Switzerland in 2003 to recognise, in its declaration of principles, the need to "strive to promote universal access with equal opportunities for all to scientific knowledge and the creation and dissemination of scientific and technical information, including open access initiatives for scientific publishing". The New Partnership for Africa's Development (NEPAD) has also made this goal a priority.

A range of initiatives aims to restore the balance by giving researchers, teachers and students from developing countries free or discounted access to journals and publications. Among them is the Access to Global Online Research in Agriculture (AGORA), launched in 2003 as a joint initiative between FAO and the publishers of scientific journals (37 to date). Some 850 institutions from the South can already consult 900 journals and other publications online. AGORA is currently extending access to around 100 low-income countries.

Since June 2006, *CGVlibrary*, the virtual library launched by the Consultative Group on International Agricultural Research (CGIAR), has enabled visitors to search the main databases on agriculture, food security, poverty and the environment.

Assuming they have high-speed internet connection — which is by no means always the case — researchers in developing countries can therefore obtain real-time information about the latest developments in their field. But this also presupposes that they do not get lost in the web en route, and that they have learned how to surf the Net. The profusion of websites now available has spawned the creation of themed portals, whose content is sometimes repetitive. Constantly being refined and developed, the RSS feed system enables users to receive instantly updated information from a host of different sites on a single screen, without having to waste time opening them.

Greater visibility

Scientists also need to make sure that their work is seen by as wide an audience as possible. This visibility is all the more important

Information on demand

CTA's Selective Dissemination of Information (SDI) service enables ACP agronomics researchers to obtain up-to-date information on research topics (called profiles) judged by their institutions to be a priority. Every 2 months, each user receives a summary of new publications, either by email or post. A user will be given an annual quota of units, which he or she can 'spend' on articles from journals, reports or books. Beneficiaries receive their chosen documents by airmail or email. To link researchers to a wider public, the SDI service has been broadened to include leaders of farmers' organisations and other decision-makers. In 2005, 620 researchers and ACP decision-makers, representing nearly 1,600 profiles, benefited from this service; together, they received a total of more than 380,500 references.

for ACP scientists since the number of publications available for showcasing their output has fallen sharply in recent years. For example, during the past decade, Africa has lost 20% of its market share of publications available globally, according to a report on science in Africa published by the French research institute IRD in 2002. Behind these plummeting figures is a lack of resources, but also a lack of communication strategy in ACP countries, coupled with obstacles posed by the cost of getting published and by language. The predominance of English represents a problem for many non English-speaking researchers. Most of the websites

that digital technology offers in reaching a wider audience more quickly. One result of this trend was the launch 15 years ago of the *open access* movement, a development which is revolutionising the world of scientific communication. A researcher can post work (be it an article, thesis, course or other publication) on a server and receive feedback from peers. An article enriched in this way can then be made available by a publisher using the classic procedure of review by a reading committee. The final version will subsequently be posted on-line on the open access server, with obvious gains in terms of improved visibility.



Internet access has revolutionised information for researchers

created by national research institutes in ACP countries are highly institutional and few of them give enough prominence to the work their researchers do, nor are they updated on a regular basis.

Various projects seek to disseminate STI produced in the South. Among them is African Journals OnLine (AJOL) which helps to ensure better exposure for African research by offering on-line access to abstracts from more than 250 scientific journals published on the continent. Users from developing countries can order articles free of charge, while those from other countries pay a fee. Part of the International Network for the Availability of Scientific Publications (INASP), the Programme for the Enhancement of Research Information (PERI) uses ICTs to strengthen the production, access and dissemination of scientific and technical information. Among its priorities is the distribution of national and regional information.

The open access revolution

The concentration of peer reviewed scientific publishing in the hands of just a few companies, combined with the high cost of publications and delays in making them available have prompted researchers in the North to take advantage of the opportunities

The pioneers of open access have gradually been joined by leading international figures from the scientific community who, in 2003, signed the Berlin Declaration. In the text, the signatories recognise that, "the internet has fundamentally changed the practical and economic realities of distributing scientific knowledge and cultural heritage. For the first time ever, the internet now offers the chance to constitute a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access."

Today, open access enjoys the support of international institutions and fuels passionate debates, especially on intellectual property, research evaluation and the financial aspects of publishing. One point worth noting: open access does not necessarily mean access that is free of charge.

Against a backdrop of globalisation, researchers need to be able to communicate with their colleagues wherever they may be. It is equally important that they have the chance to air their views in the major debates under way on issues such as genetic modification or intellectual property, in which they have a major stake. The *Scidev.net* website, launched in 2001 by the publisher of *Nature* magazine with the backing of international aid agencies, allows them to get their voice heard and to keep abreast of scientific

Glossary

Open archive: Creates a pool where open access data from scientific research and teaching can be lodged. Availability of access is made possible by the use of common protocols.

Self-archiving: Involves a researcher depositing his or her article (before and after publication) in open archives.

Blog: A private website where one or more people freely express their views as and when they choose.

RSS feed: RSS feeds (*Rich Site Summary* or *Really Simple Syndication*) are supplies of free material channelled from internet sites or blogs. To receive them automatically, and in real time, you must have a special software on your computer. Once you have installed it, select the RSS feeds that interest you on websites bearing the RSS logo **RSS**.

Open access: "By 'open access' to this literature, we mean its free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. The only constraint on reproduction and distribution, and the only role for copyright in this domain, should be to give authors control over the integrity of their work and the right to be properly acknowledged and cited."

(Budapest Open Access Initiative)

Open access journal: A journal, either new or existing, whose articles satisfy quality requirements thanks to the presence of a reading committee, but whose financing mechanism enables it to have as wide a distribution as possible with no restriction to either its use or access.

Wiki: A dynamic website where visitors can modify pages as they wish. For example: Wikipedia

Sources: INIST, Wikipedia

advances in the field of development. Specialised websites host discussion groups where researchers can intervene and engage in dialogue. *Dgroups*, for example, dedicated to international development, supports nearly 2,000 forums, to which membership may be either open or restricted.

Putting research in ACP countries back on the world scientific map is not just a simple question of fairness. It is a vital necessity for all countries at a time when the 'global village' needs to pull together in order to survive.

See *Links*, page 10



Networking in the Pacific

■ A new network launched in the Pacific aims to foster dialogue on regional agricultural policy issues among government agencies, agribusiness communities, farmers' organisations, NGOs, womens' and youth groups. Foundations for the Pacific Regional Agriculture and Forestry Policy Network (PRAFPNet) were laid at a workshop held in Nadi, Fiji, in August 2006, organised by CTA and the Secretariat of the Pacific Community (SPC). Network membership is open to individuals, organizations and other networks connected with agriculture and forestry. SPC will coordinate the network.

▲ Pacific Regional Agricultural and Forestry Network
c/o Land Resources Division
Secretariat of the Pacific Community
Private Mail Bag
Suva
Fiji Islands
Fax: +679 337 0021
Email: lnokeR@spc.int
Website: www.spc.int

Ota makes a comeback

■ Ota (*Athyrium esculentum*), a traditional vegetable once widely consumed in the Pacific, can now be grown in backyard gardens, thanks to an initiative by Fiji's Ministry of Agriculture. Supplies of wild ota, harvested by generations of families from the forests, have dwindled drastically in recent years due to logging and uncontrolled fires. Researchers found planting materials from Namosi, a province of Fiji, and planted cuttings at a demonstration plot, covering the plants to protect them from the sun and spreading sawdust over the soil to keep it moist. They describe ota as an easy crop to grow and say it is ideal for both small-scale farmers and people living in urban areas.

▲ Sigatoka Research Station
Ministry of Agriculture, Sugar & Land
Resettlement
PO Box 24
Sigatoka
Fiji
Fax: +679 520 307
Email: apisainu@is.com.fj

Model island

■ The Small is Beautiful project aims to make Tuvalu an environmental showcase. August 2006 saw the laying of the foundation stone for a renewable energy training centre on the island of Amantuku measuring just 0.1 km² in the Funafuti atoll. Two biogas digesters producing energy from waste, a small biodiesel production unit, a wind generator and photovoltaic cells will be installed on the islet as part of the project. A lesson in courage from this small country whose very existence is threatened by climate change.

Website:
www.alofatuvalu.tv/page_cadres_us.html

3-D knowledge



In Kenya, the entire Ogiek community has taken part in mapping its environment

■ For any community, getting together to map their territory is a rich and valuable experience (*Spore* 120). In Kenya, the Ogiek went through the process in August 2006, using participatory geographic information systems (PGIS) to build a model representing their natural and cultural environment (528 km²; scale

1:10,000). The Ogiek people hope that the initiative will help them to develop and protect their natural heritage and traditional knowledge. PGIS proved a useful tool for promoting social cohesion in this community of hunter-gatherers, which comprises 10,000 members belonging to 21 different clans.

As a starting point, community elders agreed to reconstruct their environment just as it would have looked in 1925 when the government installed a tree plantation on their land; this turning point in their history was to serve as the common reference point for the exercise. School-children built a blank 3-D model of the territory. Then the grown-ups stepped in, using their memory and other aids to help pinpoint a stream here, a tree there, or a sacred place in another spot. This phase generated intense exchanges between generations, as well as between members of different clans and men and women.

At the end of the process, seeing all their knowledge encapsulated in the model, the community members felt a shared feeling of pride at this new understanding of their physical, cultural, biological and social surroundings. One elderly lady enthusiastically exclaimed, "I feel like a swallow! This is the first time that I've been able to see our land just as it was all those years ago."

The participatory mapping exercise was supported by CTA, the NGO Environmental Research, Mapping and Information Systems (ERMIS Africa) and the Indigenous Peoples of Africa Coordinating Committee (IPACC). It was carried out during 2 weeks in Nessuit, a village in Nakuru district, in central-western Kenya.

Websites: www.ipacc.org.za
www.ermisafrica.org

WTO, EPA: West Africa opens up dialogue

■ Similarly to other ACP regions, West Africa is involved in a series of multilateral trade negotiations with the World Trade Organization (WTO), as well as bilateral talks with the EU on Economic Partnership Agreements (EPA). These discussions will have a major impact on agricultural trade in the sub-region and hence on the future of West African economies. The WTO negotiations were suspended in July to allow the various member countries time to withdraw and consider their positions. As for the EPA discussions, these are now entering the crucial phase of drawing up the

draft agreement, even though no consensus appears to have been reached. Civil society in West Africa, and especially professional agricultural organisations, are highly critical of the current approach.

Against this backdrop, the Conference of West and Central African Ministers of Agriculture (CMA/CWA) organised a workshop on "policies and agricultural trade in West and Central Africa: extending dialogue to build an alliance". This regional workshop, held from 30 August to 1 September 2006 in Saly Portudal (Senegal) and jointly financed by CTA, International

Lawyers and Economists Against Poverty (ILEAP) and the African Capacity Building Foundation (ACBF), enabled participants to assess the state of play of agricultural trade talks with WTO and EPA negotiations. It also allowed them to forge links and common strategies and, most importantly, to form alliances and networks of players (politicians, journalists, researchers, decision-makers) at the regional level to advance the dialogue and influence the course of the current talks.

Websites:
www.cmaoc.org/en/index.cfm
<http://agritrade.cta.int/en>

Tasty business

■ Business is booming for Bernadette Namusisi, from Uganda's Mukono District, who makes wine from the roselle plant (*Hibiscus sabdariffa*). Bernadette experimented with making wine from pawpaw and pineapple juice before turning to roselle. Roselle produces a sweet red wine with an alcohol content of 7% that is proving a hit with consumers. It is popularly known as hibiscus in the UK, sorrel or Jamaica sorrel in the Caribbean, marakwanga in northern Uganda and bissap in Senegal.

Bernadette's first roselle harvest yielded just 8 kg and produced four jerry-cans of wine. Last season, she harvested 51 kg and has since planted an extra half-hectare. Each pod contains 25-30 seeds, which multiply rapidly. Harvesting begins in the sixth month and roselle wine takes a further 6 months to mature.

The plants can be rotated with crops including beans, cowpeas, groundnuts and finger millet or may be intercropped with maize. Roselle fruits can also be used



Producers in Uganda and Mauritania are adding value to hibiscus and dates

to make juice and jam and Bernadette now has plans to launch a roselle juice for customers who do not drink alcohol.

A venture that started small has come a long way in Mauritania. Delicious and very sweet, date jam sells well overseas. In 1999, Mamadou Ly obtained two patents for making preservative-free jam. Six years later, with the support of local and foreign partners, the Mauritanian entrepreneur set up a company, the Confiturerie nationale de Mauritanie (CONFINAM). Total cost of the investment: FCFA300 million (€457,000). For almost a year, the factory, located at Atar, 400 km from Nouakchott, has employed about a hundred people and produced jam at 250 kg/h.

In the future, Ly and his team, who already export 60% of their production to the EU, are planning to launch a complete range of foods — including not only jams, of course, but also juices, syrups and other drinks.

Aromatic tea revives flagging incomes

■ The discovery of a naturally endemic site of *Lippia multiflora* has changed the fortunes of a struggling farming community in Trayonya, Ghana. Producers are now making a good living by selling *Lippia multiflora* leaves to make aromatic tea. Helped by the Agribusiness in Sustainable Natural African Plant Products (ASNAPP), about 30 farm households have formed a lively cooperative to harvest and market the leaves of the plant, which had almost certainly grown for centuries in the area, without ever being exploited.

ASNAPP has given the group a grant to build a dryer, while research partners have trained the farmers in *Lippia multiflora* husbandry and post-harvest handling practices. The WHO Collaborative Centre for Scientific Research into Plant Medicine (CSRPM) has stepped in with advice on marketing the dried leaves.

Lippia species have long been used as aromatic teas in Africa. Traditionally, the leaves of *Lippia multiflora* are consumed as a hot infusion to treat fevers, gastro-

intestinal disturbances, enteritis, coughs and colds. But the tea, sweetened with honey or sugar, is also a pleasant-tasting tisane in its own right.

Farmers in Trayonya have received training in basic financial management skills, and have seen their incomes almost double since they first began selling the tea, from a starting price of €4,000 (€0.35) per kg to a current one of €7,600 (€0.67). Plans are in hand to add further



Lippia multiflora: a traditional plant in Ghana has been rediscovered

value by bagging the tea for sale on regional and export markets, a move which is expected to boost incomes even further.

■ ASNAPP — Ghana
PMB (18) Kanda
Accra
Ghana
Fax +233 21 505-617
Email: info@asnapp.org
Website: www.asnapp.org

Tomorrow's sugar

■ Brazil, the world's leading sugar producer, is investing in research to develop new high value-added products made from sugarcane: flavour enhancers, ecological packaging and even functional foods and medicines. Specialised biotechnology companies are being launched to develop innovative products. Already a pioneer in the production of bioethanol from sugarcane, Brazil is now planning to take the lead in developing other new technologies for the sugar sector.

■ Faced with the erosion of ACP preferential margins for EU's sugar markets (see Spore 122), Barbados is building a multi-million dollar sugar factory as part of a plan to reorganise the industry and diversify into a wider range of products. The new plant, due to open in 2008, will manufacture a mix of products including an annual 10,000 t of specialty sugar for the export market. It will also have a power generation facility and a distillery for the production of fuel grade ethanol, producing an initial output of 14 million l of ethanol, with the potential to increase to 20 million l at a later date.

A truce on trawling

■ Four major fishing companies have announced a voluntary halt to trawling in 11 deep-sea areas of the southern Indian Ocean. The aim is to protect the bottom of the sea floor, associated fish fauna and related biodiversity in one of the world's largest marine protected areas. The newly formed Southern Indian Ocean Deepwater Fishers' Association (SIODFA) has been formed by the four companies — from Australia, Mauritius, New Zealand and Namibia — which dominate trawling in the area. SIODFA has delimited 309,000 km² of ocean floor where its vessels will no longer fish. To verify compliance with these self-adopted restrictions, the companies will track their vessels' locations and activities via a special satellite monitoring system.

Soil analysis

■ Researchers at the British institute Rothamsted Research have developed a new computer programme which can estimate variations and complexities in soil composition during the sampling process itself. A mathematical model maps variations in soil composition in a given area. As data accumulates, a reliable picture of the soil emerges. The technology should prove a useful tool, helping small-scale producers to have a better understanding of their land and to gauge more accurately the right quantities of fertiliser needed to produce higher yields.

■ Rothamsted Research
Harpenden, Hertfordshire,
AL5 2JQ
UK
Fax: + 44 (0) 1582 760 981
Website: www.rothamstein.ac.uk

Sea cucumbers

■ Sea cucumbers, or Holothuroidea, are the subject of much interest in Mauritius, where attempts are being made to breed them. In spite of their unattractive appearance, these large sea worms, which grow up to 12 cm long and belong to the echinoderm family, have fallen victim to the appetite of Asian gourmets. Selling for between €13 and €25/kg on the world market, they are widely fished by coastal communities, especially off eastern Papua New Guinea and Madagascar, where they have all but disappeared in some areas. Researchers in Mauritius have developed a reproductive technique for certain species of sea cucumber which involves stimulating egg production with thermal shocks. The larvae are then reared in tanks and fed with microalgae.

Workshops thwart fish pirates

■ FAO's FishCode Programme is organising a series of hands-on workshops for fisheries authorities to strengthen their illegal, unreported or unregulated (IUU) fishing control strategies and train them in best practices in fishing boat inspection. The workshops are also aimed at improving communication among authorities, so they can warn each other about chronic offenders. The first workshop, jointly organised with the Pacific Islands Forum Fisheries Agency, was held in August 2006 in Fiji.

George Kouros
FAO
Viale delle Terme di Caracalla
00100 Rome
Italy
Fax: +39 06 570 3729
Email:
george.kouros@fao.org

UK upholds kava ban

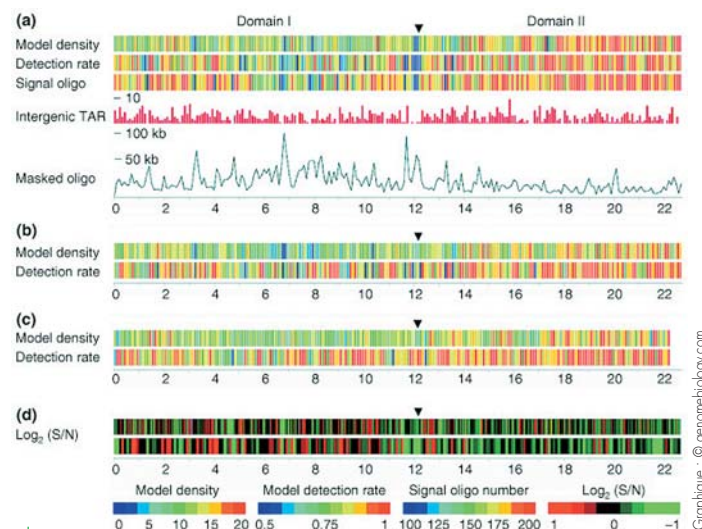
■ Spore has charted the rocky path of kava (*Piper methysticum*), the Pacific plant banned by France and Germany in 2002 following allegations that it may cause liver cancer. Now the UK has upheld a similar ban in the wake of research done by scientists. The UK has ruled that herbal kava is to remain banned in both medicinal and food products, despite protests from some within the herbal industry. Kava is a herb from the pepper family with reputed benefits for alleviating anxiety and inducing sleep. It has a long history of use in Pacific island countries and has more recently found a market in some EU countries, USA and Australia, as a herbal medicine and as a component in teas, cereal products, smoothies and sports drinks.

Results with rice

■ With global demand for rice projected to soar by 153 million t by 2030, the race is on to find ways of boosting yields. The challenge is made more acute by the constant fall in availability of land and water resources for rice production. The mapping of the rice genome, which was completed in 2005, has created opportunities for breeding a new generation of rice varieties with higher yields, greater resistance to a range of stresses and better water-use efficiency. Three research programmes hold particularly good prospects of improving sustainable rice production.

High hopes for C4 rice

International research to improve the photosynthetic efficiency of the rice plant is producing promising results. The aim is to enhance the rice plant's efficiency, converting rice from what experts call a C3 plant to a C4 plant, where the 'C' refers to the carbon captured by photosynthesis for growth. The more solar energy a rice plant can efficiently capture, the more the plant will yield, and scientists say C4 offers real hope for a substantial increase in rice yields per hectare. "The C4 rice would have the potential to out-yield the best performing existing rice varieties and hybrids by 15 to 20%," said International Rice Commission Secretary Nguu Nguyen.



Sequencing the rice genome has opened wide perspectives for developing new varieties

Flood-tolerant varieties

Scientists have identified a gene that enables rice to survive complete submergence, paving the way for development of new varieties that can withstand flooding. The move would overcome one of agriculture's oldest challenges and offer relief to millions of poor rice farmers in developing countries.

While rice is the only cereal crop that can withstand submergence, most rice varieties die if fully submerged for too long. When the plant is covered with water, its oxygen and carbon dioxide supplies are reduced, which interferes with photosynthesis and respiration. Growth is inhibited and the plants usually die after 4 days. Annual rice losses from flooding have been estimated at more than US\$1 billion (€786,000).

Using genetic mapping techniques, researchers working

in the Philippines and the USA have identified a cluster of three genes linked to the biological processes which control rice plants' ability to withstand submergence. The researchers focused on one of the trio, the Sub1A gene, finding that when it is over-expressed, or hyper-activated, a rice variety that is normally intolerant of submergence becomes tolerant.

Resistance to rice yellow mottle virus

Scientists from IRD, the French development research institute, have identified the resistance gene for one of the most serious diseases found in African rice cultivation: rice yellow mottle virus (RYMV). Transmitted by an insect, this virus has badly affected African rice yields over the past 40 years. Noting that certain rice varieties are immune to the disease, researchers have isolated a gene, *Rymv1*, which interacts with the virus to allow the disease to develop, but which, in the case of resistant varieties, prevents the virus from completing its cycle.

Scientists will now use simple crossing techniques to transfer this resistance to high-yield varieties of rice that are particularly vulnerable to yellow mottle virus. The task of selecting varieties is being undertaken by the Africa Rice Centre (WARDA) as well as by national research institutes in Côte d'Ivoire, Madagascar and Senegal.

Website:
www.ird.fr/fr/actualites/fiches/2006/fas247.pdf

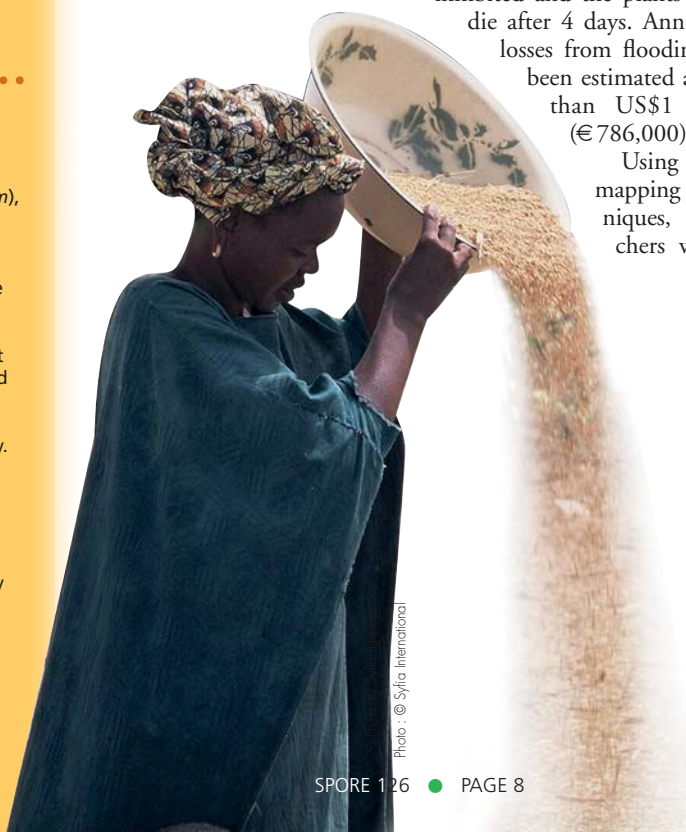


Photo : © Sylla International

Bridging the information gap for farmers



Photo: © UNKS

■ An organisation in Uganda is using ICTs to increase opportunities for marginalised farmers. The Information Communication and Technologies for African Rural Development (ICTARD) is helping farmers boost productivity by giving them access to vital information, such as weather forecasts, crop advice and market pricing. One of the earliest successes of this venture is the launch of the Farmer Information Communication (FICOM) Pilot Project, which uses mobile technologies to help

small-scale producers improve their livelihoods. The project developed a market information system to connect sellers and buyers and linked farmers to agronomic and market information using ICT tools. A website offers advice on best crop and animal farming practices and a RANET system enables farmers to access web information using computers and world space radios without an internet connection. RANET is an international collaboration to make weather, climate and related

information more accessible to remote populations (www.ranet-project.net). The ICTARD programme has also supplied computers, photocopiers, printers and mobile telephones to farmer groups at village level and taught producers how to receive market prices via SMS text messaging. The project focuses on the Kayunga district, but there are now plans to extend the initiative to the rest of the country.

✉ ICTARD
Plot 4654, Kazimiri Road
Muyenga, PO Box 4456
Kampala
Uganda
Email: info@ictard.org
Website: www.ictard.org

Anthuriums are blooming

■ The anthurium, an ornamental plant which belongs to the Araceae family, is enjoying a new lease of life in Mauritius, its country of origin. Two research centres on the island, the Food and Agricultural Research Council (FARC) and the Agricultural Research and Extension Unit (AREU), have launched five promising varieties, developed from species with good resistance to disease. The aim is to boost cultivation of this flower for domestic and export markets.

In the early 1980s, Mauritius was the world's second largest exporter of anthuriums, after the Netherlands. More recently, strong competition from other countries, together with an import ban on new foreign varieties due to the spread of bacteria called *Xanthomonas axonopodis* pv *diphenbachiae*, have hampered cultivation. In 2005, Mauritius exported anthuriums to a total value of some €2.3 million.

Meanwhile, Caribbean researchers have succeeded in developing disease resistant varieties of the plant, heralding hopes of a revival in the region's flagging anthurium industry. During the late 1980s, Caribbean growers produced over 10 million anthuriums per year, but output subsequently slumped dramatically due to bacterial diseases. A tissue culture laboratory has been established at the University of the West Indies in Trinidad to make the new improved planting material more readily available to growers.

✉ CTA
Postbus 380
6700 AJ Wageningen
The Netherlands
Email: cta@cta.int

Agricultural information by satellite

■ Agricultural workers in the Pacific region can now hook up directly to the internet via satellite. The system, called the First Voice International Multimedia Service (FVI-MMS), enables users to access important information on subjects including farming, HIV/AIDS, climate and technology by simply connecting a PC or laptop to a satellite receiver. *Spore* and other CTA materials, under the name *Spore 'n More* are also being made available through the service. Users can download 64 kilobits per second (kbps) of content directly on to a hard drive without having to depend on any terrestrial infrastructure or internet service provider.

The technology was demonstrated at a CTA-funded workshop held 17-21 July 2006 in Nadi, Fiji, with coordination provided by the Secretariat of the Pacific Community. Participants drawn mainly from agricultural NGOs and extension offices were introduced to the basic concepts of digital satellite broadcasting

and satellite digital radios and shown how to download information from the satellite to a computer. The workshop also offered training in how to assemble and disassemble a satellite dish, to increase the signal — made necessary by the topography of most Pacific islands.

The system is expected to prove a useful tool in helping agricultural workers access and disseminate up-to-date information to remote rural communities in the region. Many agriculturally focused NGOs and extension offices are not covered by the internet grid. Others have only limited or intermittent access, or have very expensive service providers. Armed with this knowledge, participants will now be able to train colleagues and partners at their own organisations to use the technology.

Bananas from Burkina Faso

■ The crisis in Côte d'Ivoire has offered new opportunities for banana producers in Burkina Faso. The decline in trade between the two countries has enabled Burkina Faso to strengthen its banana sector. Until a few years ago, this country imported the bulk of its requirements for domestic banana consumption. Today, it produces an annual 15,000 t, enough to cover its own needs and export its surplus to Mali and Niger. Of all the irrigated crops grown in Burkina Faso, bananas are the most profitable for producers.

More robust robusta

■ With backing from the International Coffee Organisation (ICO), Gabon is planning to play the quality trump card for its robusta coffee, which, in 2005, won an award at a salon of locally grown products in Paris. The origin and quality, both scrupulously monitored, will give added value to this exceptional robusta. Gabon is hoping that the strategy will help it to revive its coffee production, which has plummeted tenfold since the 1980s and the onset of the oil boom. Côte d'Ivoire, Guinea and Togo are also receiving support from the ICO to help them develop their robusta sector.

Colourful fish

■ A South African company has set up production of astaxanthin, a pigment found in plankton and used to feed and colour ornamental fish. The pigment has antioxidant properties that outstrip those of both vitamin E and beta-carotene. It sells at €2,000/kg in powdered form to specialist European industries. Astaxanthin is also marketed as a health supplement for humans. The South African company has set a production target of 1,600 kg/year. To date, just two Hawaiian firms are present in this sector.

Website : www.biotech-weblog.com/50226711/cape_carotene_to_produce_astaxanthin_from_algae.php

Fair milk

■ After frozen chicken comes powdered milk. The NGO SOS Faim has launched a new international campaign to highlight the devastating effect of exports of subsidised milk on livestock rearing and family agriculture in Africa. The aim is to persuade the EU to include the concept of protecting domestic ACP markets in discussions on Economic Partnership Agreements (EPA).

✉ SOS Faim
Rue aux Laines 4
1000 Brussels
Belgium
Fax: +32 2 514 47 77
E-mail: info@sosfaim.be
Website: www.sosfaim.org

Science at your fingertips

There is so much scientific and technical information (STI) on the Web that it can be hard to see the wood for the trees. To find your way around, the important thing is to get off on the right foot. The International Network for the Availability of Scientific Publications (INASP), which strives to improve the dissemination of scientific information between countries with less developed publishing and distribution systems, is a good starting point. INASP carries out its work through partnerships with a number of organisations. Among them is **African Journals OnLine (AJOL)**, a database of African scientific journals, covering several disciplines. **Access to Global Online Research in Agriculture (AGORA)**, created by FAO, offers free or low-cost access to scientific literature relating to agriculture.

Another FAO initiative, the **International Information System for the Agricultural Sciences and Technology (AGRIS)**, distributes STI between 240 national, international and inter-governmental centres.

There is a wide range of specialised virtual libraries available on the Web. You can find a list of them on the website of the **United States Agricultural Information Network (USAIN)**. The recently launched **CGVLibrary** is a mine of information, and makes material available from the libraries of the **Consultative Group on International Agri-**

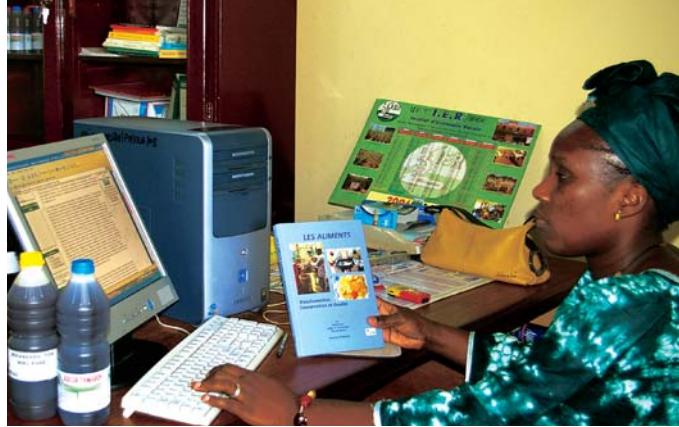


Photo: H. Pineau © terre nourricière

cultural Research (CGIAR) amongst others — see also p. 11.

Ten Sub-Saharan African countries are already benefiting from the **Système d'information scientifique et technique (SIST)** which aims to encourage and develop the exchange, production and dissemination of STI in Africa and which offers some information in English.

For information about ICT applications in agricultural research in ACP countries, do not forget to look at the CTA portal **ICT Update**. You can also join a number of open forums on this subject hosted by **Dgroups**, including a very lively discussion group called **Information and Agricultural Services (iNARS)**. Another site worth bookmarking is that of the **International Association of Agricultural Information Specialists (IAALD)**, which has recently added a section on Africa, where scientists will eventually be able to exchange experiences. Other good sources are **Google Scholar**,

which searches for works published by universities, and the **SciDev** website, which enables visitors to keep up to date with scientific news in the field of development.

Open access is a complex technical topic, the subject of much debate. Its repercussions are important for ACP countries. Before exploring the vast array of resources it offers, you may want to acquaint yourself with the concept by first going to the online encyclopedia **Wikipedia**, then moving on to the very rich and well designed website of the **Institute for Scientific and Technical Information (INIST)**. Here you will find a list of the main open access initiatives created for developing countries. Lastly, for those interested in the global debate on the subject, two partly bilingual websites are worth a look: **Open Access to Scientific and Technical Information**, which is linked with **INIST** and **Archive ouverte en sciences de l'information et**

de la communication (@SIC) which, in spite of its French title, has a number of documents in English.

For further information:

AGORA

Website: www.aginternetwork.org/en

AGRIS

Website: www.fao.org/agris

AJOL

Website: www.ajol.info/index.php?jid=1

@SIC

Websites: <http://archivesic.ccsd.cnrs.fr>
www.inist.fr/openaccess/index.php

CGVlibrary

Website: <http://vlibrary.cgiar.org>

Dgroups

Website: www.dgroups.org

Google Scholar

Website: <http://scholar.google.com>

IAALD

Website: www.iaald.org

ICT Update

Website: ictupdate.cta.int

iNARS Forum

Website: www.dgroups.org/groups/iNARS

INASP

Website: www.inasp.info/index.html

INIST

Website: <http://international.inist.fr>

Scidev

Website: www.scidev.net

SIST

Website: www.sist-sciencesdev.net/index.html

USAIN

Website: <http://usain.org/developingresources.html>

Wikipedia

Information technology portal: http://en.wikipedia.org/wiki/Portal:Information_technology

Forests and rights

The Center for International Forestry Research (CIFOR) takes a special interest in the link between Man and forests. The International Institute for Environment and Development (IIED) devotes a section of its website to forestry and land use.

The website of FAO's forestry department provides information on community forestry, in English, French and Spanish, in its People and Forests section. A synthesis of proceedings of the 12th World Forestry Congress, held in Quebec City, Canada in

2003 with the theme *Forests: source of life*, looks at the issue of harmony between people and forests. The more militant US NGO Forest Trends supports communities and indigenous people in the sustainable development of forests.

The FAO publication *Trends in Forestry Law in Europe and Africa* looks at the judicial aspects of forestry management in English and French-speaking Africa. If you want to check legislative sources, the **FAOLEX** database allows you to conduct a country by country search for the

texts of laws, which are either currently in force or have been repealed.

For further information:

CIFOR

Website: www.cifor.cgiar.org

FAO

Forestry department
Website: www.fao.org/forestry/index.jsp

• Trends in forestry law in Europe and Africa
FAO, 2003, 211 pp.
ISBN 9251046867
US\$18 • €14

• Forests: Source of Life
FAO, 2004, 134 pp.
ISBN 9251051615
US\$14 • €11
Email: publications-sales@fao.org
Website: www.fao.org/catalog/interf.htm

FAOLEX

Website: <http://faolex.fao.org/faolex/index.htm>

Forest Trends

Website: www.forest-trends.org/index.php

IIED

Forestry and land use
Website: www.iied.org/NRI/forestry/index.html

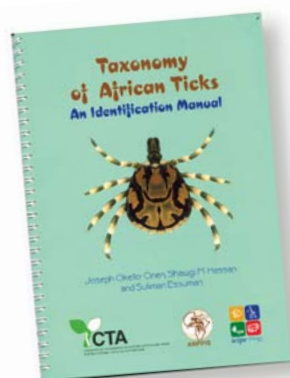
Publications

Talking about ticks

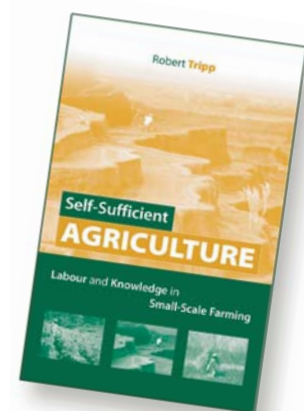
Ticks transmit more diseases to animals and humans than any other insect. Nowhere is this more so than in Africa, home to most of the 170 species of soft ticks (Argasidae) and 700 species of hard ticks (Ixodidae) known to exist. Yet in spite of the scale of the damage, both economic and in terms of suffering, relatively little work has been done to chart the biology, distribution and host and

disease relationships of these pests in an African setting, so that appropriate control strategies can be set in place. This revised and updated manual from the International Centre of Insect Physiology and Ecology (ICIPE) aims to fill the gap, providing scientists and livestock keepers with a clear guide to help them identify ticks and establish the tick-borne diseases which each pest may be transmitting. The manual comes in a user-friendly format, with tables, photographs and illustrations to describe each species. There is also a helpful chapter on methods of collecting ticks for identification, with tips on how to restrain animals and remove the insects and how to preserve and label the pests once they have been caught.

Taxonomy of African Ticks:
An Identification Manual
By S Essuman, S Hassan & J Okello-Onen
ARPPIS/ICIPE/CTA, 2006. 126 pp.
ISBN 92 9064 127 4
CTA number 1318
20 credit points



Low inputs can reap high yields



Low external input technology (LEIT) is gaining ground as a sustainable agriculture option, largely in response to concerns about the environmental impact of using chemical fertilisers and pesticides. But in spite of the growing interest and debate on the issue, there is little evidence available on the performance and impact of LEIT. This in-depth analysis looks at the potential for using LEIT to address the needs of resource-poor farmers, often living on marginal lands.

Through an extensive review of the literature produced to date, combined with case studies, including one from Nyanza Province, Western Kenya, the study examines ways in which traditional farming methods are being used to combat the diminishing returns of 'green revolution' era farming. Although LEIT does have its limitations — and these are frankly discussed — the clear message to emerge is that better use of local resources in small-scale agriculture can improve farm productivity and innovation.

Self-Sufficient Agriculture: Labor and Knowledge in Small-Scale Farming
By R Tripp
ISBN 1 84407 297 5
Earthscan, 2006. 224 pp.
US\$32.50 • €25
Earthscan
8-12 Camden High Street
London NW1 0JH
UK
Fax: +44 20 7387 8998
Email: earthinfo@earthscan.co.uk
Website: www.earthscan.co.uk
www.earthscan.co.uk

Strength in numbers



There comes a point when many farmers realise that it makes more sense to band together with others in the same business than to go it alone. By taking advantage of economies of scale, producers can often get cheaper prices for inputs such as seed and fertiliser, obtain easier access to credit and negotiate higher revenues for their output together with lower costs for transport and packaging. One solution is the creation of an agricultural cooperative, an association which the farmer members control between them, sharing the risks and the profits. Against a background of market-oriented reform and privatisation, cooperatives are currently enjoying a revival. Previously, the image of such associations was often tainted by government interference and misuse for political objectives.

But setting up a successful cooperative is no easy task, requiring time, a degree of financial resources and good management. This guide from the *Agrodok* series offers an introduction to the process of launching such a venture, outlining the advantages and the various stages in the process, but also some of the pitfalls. At the end of the book, there is a section with useful addresses and suggestions for further research and reading. The guide will soon be available in both French and Portuguese.

Starting a Cooperative:
Farmer-controlled economic initiatives
By R Koopmans
Agromisa/CTA, 2006. 86 pp.
Agrodok n°38
ISBN 90 8573 046 5
CTA number 1317
5 credit points

Living with AIDS (continued)

The practical manual presented in *Spore 125* is now available on CD-ROM. It explains the links between diet, environment, hygiene and immunity. Charts and drawings help enliven the workshops, which are full of interactive exercises and discussions.

How to Live Positively
A practical manual for facilitating community action in HIV/AIDS-affected countries
By S L J Page & F Nyakanda
CTA/CABI, 2006
CD-ROM
CTA number 1309
5 credit points

Tackling taro pest

Taro is one of the most important crops in the South Pacific, but it is also one of the most prone to pests and diseases. *TaroPest* is designed to help farmers learn more about the enemy and how to tackle it. This on-line information kit offers fact sheets on organisms such as insects, nematodes, viruses and bacteria, and an identification key so that farmers can decide which organism is causing the problem. While currently web-based, *TaroPest* will eventually be available on CD-ROM, with printable hard-copy options. The product is free to access and use.

Website:
<http://taropest.sci.qut.edu.au>

A virtual library

The CGVlibrary is an internet gateway to an array of leading databases on agriculture, food policy and the environment. Developed by the Consultative Group on International Agricultural Research (CGIAR), this virtual library enables users to retrieve thousands of full-text documents, abstracts or references from the on-line libraries of CGIAR research centres and over 160 other databases. It also gives access to more than 4,000 on-line journals. Visitors can search by pre-selected database themes, such as genetic resources or rice, or create their own database groups, according to their special interests.

Website:
<http://vllibrary.cgiar.org>

ICTs updated

The latest two issues of CTA's e-magazine, *ICT Update*, examine the role ICTs can play in developing urban agriculture and in satisfying requirements for traceability of agricultural products.

Website:
<http://ictupdate.cta.int>

Textbooks at your fingertips

■ Thanks to *Spore*, you have probably heard of Wikipedia, the free on-line encyclopedia. But did you know about its sister organisation Wikibooks, a collection of open content textbooks and a useful source of free on-line information? Searchable by subject or by alphabetical order, the site currently offers more than 20,000 texts in English through this fast-growing portal. As with Wikipedia, visitors also have the opportunity to contribute their own publications and to edit those already posted.

Website:
<http://en.wikibooks.org>

Small water enterprises in Africa

■ The Water, Engineering and Development Centre (WEDC) has a well-deserved reputation for its development work with water and is an excellent source of information on the subject. These four books are outputs from a project designed to identify and test ways of improving the water services delivered to the urban poor through Small Water Enterprises (SWEs). For centuries, SWEs have supplied a large share of the water market in the urban centres of developing countries, extending water services to informal settlements that have little prospect of being supplied with piped water from the local utility. These books explore ways of developing them further.

Small Water Enterprises in Africa 1:
Tanzania: A study of small water enterprises in Dar es Salaam
By L Materu & M Mkanga
WEDC, 2006. 156 pp.
ISBN 1 84380 094 2
GBP19.95 • €30

Small Water Enterprises in Africa 2:
Kenya: A study of small water enterprises in Nairobi
By D Kuria & I Oenga
WEDC, 2006. 108 pp.
ISBN 1 84380 095 0
GBP14.95 • €22

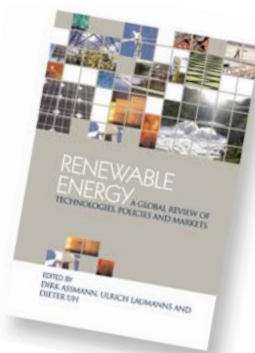
Small Water Enterprises in Africa 3:
Sudan: A study of small water enterprises in Khartoum
By M E Abdel Gadir
WEDC, 2006. 76 pp.
ISBN 1 84380 096 9
GBP14.95 • €22

Small Water Enterprises in Africa 4:
Ghana: A study of small water enterprises in Accra
K M Abrampah & K Sarpong
WEDC, 2006. 160 pp.
ISBN 1 84380 097 7
GBP19.95 • €30

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Loughborough University
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UK
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Website:
<http://wedc.lboro.ac.uk/publications>

Alternative energy

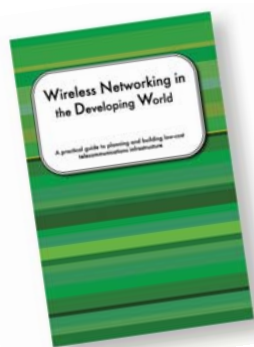
■ Few would dispute that the need to diversify the Earth's energy supply away from fossil fuels is both an economic and environmental imperative. The challenge lies in creating new technologies to supply the world's ever increasing energy needs, and the right policy frameworks to deploy them. This wide-ranging review is an impressive attempt to provide an insight into the current state of renewable energy, and the potential that such sources offer for the future. With contributions from some of the world's leading authorities in the field, it examines both the technological and financial aspects of the issue, as well as assessing the environmental impact. A generous section is devoted to examining renewable energies in developing countries, with examples of solar, wind-powered and biomass sources used to fuel transport and other sectors.



Considerable space is devoted to the issue of mobilising finance for renewable energies, and there is detailed discussion of renewable energy markets and the Clean Development Mechanism as an instrument for encouraging alternative energy sources.

Renewable Energy
A Global Review of Technologies,
Policies and Markets
Edited by D Assmann, U Laumanns
& D Uh
Earthscan, 2006. 224 pp.
ISBN 1844072614
GBP58.50 • €87

Internet on a low budget



■ The growing popularity of wireless networking has caused equipment costs to fall and capabilities to rise, making it a realistic and affordable option for more and more people interested in building their own communications infrastructure. In the developing world, where internet access is frequently problematic, wireless networking has a special advantage, as many communities have already discovered. This guide offers all the information and tools needed to start a network project in a local community, using whatever resources are available. Full of practical hints about how to find or make inexpensive materials as substitutes for costly components, the book shows how to build reliable network links on a surprisingly small budget. It explains how to build

high-speed data networks to connect remote areas with one another, provide broadband network access in areas where even dialup does not exist and hook up communities in the most far-flung locations to the internet. An extensive collection of case studies, from Kenya, Mali and Tanzania amongst others, presents various groups' attempts at building such networks and describes the resources they used and the outcome. An excellent FAQ section provides a wealth of information on technical, social and financial issues relating to wireless networking, and is a good starting point for anyone interested in embarking on this exciting path. Readers are encouraged to contribute to the contents and updating of this book through the website.

Wireless Networking in the Developing World: A practical guide to planning and building low-cost telecommunications infrastructure
By R Flickenger et al.
2006, Limehouse Book Sprint Team.
254 pp.
ISBN 1 4116 7837 0
US\$9.75 • €8
Hard copies available by internet order only: www.lulu.com
Website: <http://lwndw.net>
Email: info@lwndw.net
Downloadable from:
<http://lwndw.net/download.html>

Facilitating markets

■ One of the most frustrating experiences that any farmer can have is to see the hard-earned fruits of his or her labour fetch a low price at market, or worse still, to be unable to shift their produce at all. Yet all too often, this is exactly what happens, as producers learn the hard way that the production chain does not end with harvesting — but that marketing plays a crucial role in



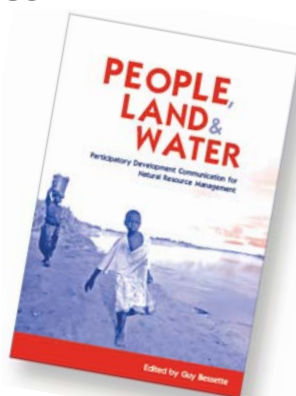
any farming venture. This manual from the International Centre for Tropical Agriculture (CIAT), the results of lessons learned during agribusiness projects conducted in eastern and southern Africa, offers a guide to market facilitators wanting to help farmers engage with markets.

A market facilitator may be an agricultural extension officer, a community development officer, a staff member of an NGO or other organisation, including farmers groups, co-operatives and businesses. But whatever their background, their role can be pivotal in helping producers to identify market opportunities and develop viable agro-enterprises. The book is simple to use. It starts off with some basic explanations of concepts such as supply and demand and market drivers and trends before launching into practical advice on partnership selection, product screening and agro-enterprise design and development.

A Market Facilitator's Guide to Participatory Agroenterprise Development
By S Ferris et al.
CIAT, 2006. 130 pp.
ISBN 958 694 0837
US\$10 • €7.50
Kawanda Agricultural Research Institute
PO Box 6247
Kampala
Uganda
Fax: + 256 41 567635
Email: e.hesse@cgiar.org
Downloadable as PDF file from:
www.ciat.cgiar.org/africa/pdf/eri_guide2/contents.pdf
Fax: + 679 3385 048

Theory and practice

■ Challenging environmental goals such as fighting land degradation, halting deforestation and promoting proper management of water resources stand a much better chance of being achieved if the communities involved take an active role in their planning. Experience shows that the best results in natural resource management are reached when community members work hand in hand with research or development teams and other stakeholders to produce solutions which are relevant, sustainable and realistic. At its most successful, this process takes on its own momentum, with community participants becoming active players rather than passive recipients of



development interventions. Used increasingly and widely in resource management, this is known as Participatory Development Communication (PDC).

Anyone put off by the jargon should take heart and read on,

for in spite of the theoretical reflections, this is also a practical book, with concrete examples of PDC up and running in the field. Based on a series of writeshops, workshops and roundtable conferences, the book offers a wide range of examples where participatory development communication has become a reality in Africa. One chapter examines communication tools in the hands of Ugandan farmers, another looks at rural media and PDC in Burkina Faso while a third analyses the role women are playing in natural resource management in West Africa.

People, Land & Water:
Participatory Development
Communication for Natural Resource
Management
Edited by G Bechet
Earthscan/IDRC, 2006. 314 pp.
ISBN 1 84407 343 2
GBP44.96 • €67
For Earthscan's address, see page 11
For email alerts on new books
published by IDRC, subscribe
to the IDRC bulletin at:
www.idrc.ca/idrcbulletin

Africa's natural wealth



■ A complete and detailed check-up from the United Nations Environment Programme (UNEP) on behalf of the African Ministerial Conference on the Environment (AMCEN) takes an in-depth look at the current state of Africa's natural resources. After analysing the changes that have taken place over the past two decades, the report confirms

the enormous potential that lies in the proper use of the continent's natural resources, though this is currently far from the case. Managed sustainably, with a system which ensures that their fruits are shared fairly, Africa's natural resources could help lift a million people out of poverty.

The book contains a wealth of information divided into chapters, each of which may be downloaded on its own: atmosphere, land, freshwater, coastal and marine environments, forests and woodlands and biodiversity. The analysis focuses on five areas: the implications for human well-being, commercial opportunities, specific problems, political choices and future perspectives.

Throughout the book there is an underlying conviction — that by protecting the environment and its precious resources today, Africa could avoid a great many conflicts tomorrow.

The report is available free on-line.

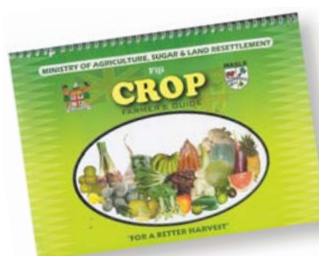
Africa Environment Outlook 2
Our Environment, our Wealth
UNEP, 2006. 576 pp.
ISBN 92 8072691 9
US\$60 • €47
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Email: enquire@earthprint.com
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Downloadable as full version
(21,639 kb) or by chapter from:
www.unep.org/dewa/africa/aeo2_launch/index.asp

No 2007 calendar!

No 2007 calendar! We are sorry to announce that the 2007 calendar on integrated pest management presented in *Spore 125* will not be published after all. Our apologies to anyone who has already placed an order for it.



The bounty of Fiji



■ This colourful publication from Fiji's Ministry of Agriculture offers an at-a-glance guide to crops suited to small-scale, commercial or backyard farming, as well as advice on how to grow them.

More than 70 species are covered, including vegetable crops, fruits and spices. For each entry, there is a good quality photograph, together with clear concise information on sowing, fertiliser, pest and disease control, harvesting and food value.

Fiji Crop Farmer's Guide
Ministry of Agriculture
Sugar & Land Resettlement, 2006.
72 pp.
Free of charge
Ministry of Agriculture
Robinson Complex
Raiwaqa
Fiji
Fax: + 679 3385 048

IDRC on CD-ROM

■ An entire website on a double CD-ROM! This mine of information from the International Development Research Centre (IDRC), available free for those without an internet connection, contains, amongst other things, the full version of more than 100 books and four dossiers on development.

IDRC 2006
CD-ROM
IDRC
PO Box 8500
Ottawa, ON
Canada
K1G 3H9
Fax: +1-613 238 7230
Email: info@idrc.ca
Website:
www.crdi.ca/en/ev-1-201-1-DO_TOPIC.html

The outlook for 2006-2015

■ This 12th edition of the OECD-FAO Agricultural Outlook examines the medium-term prospects for global agricultural markets. It provides figures on production, consumption, trade and prices for cereals, oleaginous crops, meat and dairy products.

OECD-FAO Agricultural Outlook 2006-2015
OECD/FAO, 2006. 208 pp.
ISBN 92 64 02461 1
€60
Full text downloadable free from:
<http://1213.253.134.29/oecd/pdfs/browseit/5106081E.PDF>
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oe.cd.publishing@oecd.org
Website:
www.oecd.org/site/0,2865,en_21571361_33915056_33915239_1_1_1_1,00.html

On-line organics

■ The web-based Journal of Organic Systems offers an opportunity for people committed to an organic approach to publish their work — and for readers to access information about organic production written from a Southern hemisphere perspective. Topics covered include the design and management of production systems, problem solving, produce handling and marketing and research and development. Access is free and the editorial team refereeing the journal comprises some of the most respected researchers in the field from Australia, New Zealand and the Pacific.

Website:
www.organic-systems.org

Learning through sharing

Among the most popular and successful initiatives organised by CTA are the regular study visits, in which participants from ACP countries share information and experiences on a given issue — one on which they all have something to contribute and from which they can also learn. Covering a wide variety of topics, each selected to develop a particular aspect of rural or agricultural development, the study visits offer an interesting mix of theoretical discussion and hands-on discovery. The idea is to give decision-makers, experts and practitioners from a range of settings an opportunity to exchange thoughts and ideas with others working in the same field. With groups generally averaging 20 people, the study visit programme rotates throughout the various ACP regions and targets people who are in a position to upgrade the knowledge they obtain from the experience, so



A study visit and contacts in Kenya

visits between different countries go a long way in exposing microfinance practitioners to new and innovative ways for extending financial services to the poor,” she said. Alache Otowo, of Union Bank of Nigeria Plc., added “A meeting like this performs the extremely important function of sharing and consolidating ideas that help everyone to do their jobs better, and this results in better services for the poor.”

A makeover for Agritrade

After almost 5 years, Agritrade, the CTA web portal on international agricultural trade issues in the context of ACP-EU relations, has had a facelift. Redesigned to be more user-friendly, the portal now offers even more functions. Fans and faithful readers of its monthly e-bulletins should rest assured – the technical content of the site remains unchanged.

<http://agritrade.cta.int/en>



Spore magazine



Spore is the bi-monthly flagship publication of the Technical Centre for Agricultural and Rural Cooperation (CTA) – ACP-EU. CTA operates under the Cotonou Agreement between the countries of the Africa, Caribbean and Pacific (ACP) Group and the European Union.

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Technical Centre for Agricultural and Rural Cooperation (CTA) – ACP-EC Cotonou Agreement.

CTA, PO Box 380,

6700 AJ Wageningen, The Netherlands

Tel: +31 317 467 100

Fax: +31 317 460 067; email: cta@cta.int

Website: <http://www.cta.int>

Editorial staff:

Executive editor: Marie-Agnès Leplaideur

Syfia International

20, rue du Carré-du-Roi

34000 Montpellier, France

Fax: +33 4 67 52 70 31

Editor of English version: Clare Pedrick

Via dello Spagna 18

06049 Spoleto (PG), Italy

Editor of French version: Denise Williams

Syfia International (see above for address)

Contributors to this edition of *Spore*

included: N Ackbarally, J Bodichon,

F Le Meur, D Manley, L Nalugwa,

M Seck, E de Solère Stintzy, with the

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they can pass it on to others in their community.

The most recent event in the programme was an 8-day study visit followed by a 2-day workshop on the Role of Women in the Development of Microfinance in Africa. Thirty microfinance practitioners from 16 countries took part in the initiative, held in Kenya from 18 to 29 September 2006. The visit was jointly organised by CTA and the African Rural and Agricultural Credit Association (AFRACA), an association of banks and microfinance institutions involved in rural microfinance. Participants visited a number of people who had successfully taken out small-scale loans, as well as several of the microfinance institutions (MFIs) themselves.

One visit was to Kalamba FSA (Financial Services Association), a village bank owned and managed by rural smallholder farmers in Makueni district, Eastern Province. Since its launch 4 years ago, the community bank has provided credit, savings and money transfers to people who previously had no access to financial services. Kalamba FSA was started by 411 members with a share capital of Ksh135,000 (€1,500). It now boasts 2,180 shareholders, with a share capital of Ksh12.3 million (€135,000).

At other times during the study visit, senior officials from commercial banks, MFIs and NGOs involved in microfinance debated key issues such as alternative models of service delivery and ways of making financial services available to the rural poor. Among those taking part was Mrs. Lea Bila of the Ministry of Planning and Development of Mozambique. “Exchange

Mailbox

From biofuels to earthworm rearing and beekeeping, this issue's Mailbox is once again testimony to the wide range of your interests, your activities out in the field and your expectations. Thank you for sharing them!

Biofuels and CO₂

Marie Hélène Novak, a specialist in plant chemistry at the Gembloux University Faculty of Agronomic Sciences, Belgium, takes issue on a point made by Harry van den Burg who, in a previous edition, had written in response to our article on biofuels (*Spore* 123). “I agree with him”, she writes “on the fact that agricultural land serves first and foremost to feed people. Regarding the environmental aspects, he should take into account that the atmosphere benefits if a plant replaces petroleum (thereby allowing a reduction in the use of fossil resources).

Whatever the plant, be it a tree or a lettuce, its carbon cycle will be halted, that is to say it will release no further CO₂ into the atmosphere. On the other hand, using petroleum does release CO₂. Replacing petroleum with plants means there will be less CO₂ released into the atmosphere.

Growing plants on bare land therefore has no CO₂ implications as such for the atmosphere, since the carbon cycle is closed. But replacing petroleum with plants does have a positive impact on the environment!”

Website:
www.valbiom.be

Spore on-line

Many readers of *Spore* also visit the magazine's website (<http://spore.cta.int>), either to read the latest version on-line or to consult back issues and find a particular article.

A recent web survey commissioned by CTA on its four web portals — Agritrade, ICT Update, Knowledge for Development and *Spore* — found that the *Spore* site is a popular source, attracting a substantial amount of traffic. With around 3,500 regular email subscribers and a significant number of occasional visitors, the *Spore* site scores more than 9,400 hits a day. Survey results (360 respondents for *Spore* and our heartfelt thanks to all who took part) indicate that those using the on-line version include development practitioners, farmers and producers, people working in the public sector, civil society and universities or research institutes. They appear to value the site as a tool for finding a specific *Spore* issue or article, or as a general source of information about agriculture and rural development. Among the most often visited pages are

those of our 20th anniversary edition, *Spore* 121. But the present website does have its limitations. It is currently more of an on-line archive for the print magazine than a portal in its own right, and some users would like to see it develop into something more dynamic, with greater scope for extra content and features.

Many of the survey respondents said they would like a future *Spore* website to provide access to full-text documents, links to information sources, feature articles, news items, topical dossiers and email alerts. Some of those questioned called for the introduction of discussion groups. Others would be happy to see a regularly updated calendar of events and training opportunities. There were requests for coverage of specific topics, ranging from indigenous medicine to pest control management, and better coverage of specific regions, especially the Caribbean.

CTA is now digesting the results of the survey to see how best to serve users of *Spore* on-line in the future. Watch this space for developments!

Earthworms in the spotlight

A faithful *Spore* reader, **Cécil-Yves Fantondji**, who works as a tropical agricultural officer specialising in livestock rearing, writes from Benin to ask for advice on breeding earthworms. He would also be interested in corresponding and information sharing with producers and farmers' associations.

Cécil-Yves H. Fantondji
01 BP1743
Porto-Novo
Benin
E-Mail :
fantnyes@yahoo.fr

Let's take this opportunity to remind readers of a useful contact for anyone interested in minilivestock breeding: the Bureau for Exchange and Distribution of Information on Minilivestock (BEDIM):

BEDIM
Faculté universitaire des Sciences agronomiques
Passage des Déportés 2
5030 Gembloux
Belgium
Email: goorickx.m@fsagx.be

BEDIM has produced a videocassette, *Minilivestock in the Tropical Forest Habit, which shows successful livestock breeding of grass-cutters (Tryonomys swinderianus), edible giant rats (Cricetomys gambianus), insectivores (Tenrec ecaudatus), bull frogs (Rana catesbeiana), giant African snails (Archachatina sp.), manure or compost worms (Eudrilus eugeniae), termites and butterflies.*

€7.50

Available in English or French

The organisation has also published a technical guide on earthworms (in French only), available free on request or downloadable from the internet:

www.bib.fsagx.ac.be/bedim/production/guide/pdf/6.pdf



For those with internet access, the following website offers a good selection of book reviews on earthworms and related issues:

http://journeytoforever.org/compost_worm-link.html

Money from honey



Would-be beekeepers study the interior of a hive during a farm camp organised by Georgeslemaraicher, a foundation in Cameroon, in August 2006 (the next camp will be held in July 2007). This rural development association, based in Ngaoundéré, has branches in the Adamawa and East provinces. A regularly updated blog reports on its activities, with a good selection of photographs: <http://lfgorgeslemaraicher.blogspot.com>

Reader services

Write to Spore

CTA — Spore redaction
PO Box 380
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The Netherlands
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■ See Spore on a screen

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How to obtain them

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- All other publications, indicated by an orange square, are available from the publishers listed, or through commercial booksellers.

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Agronomy training

Chain reactions

The article in our most recent issue on the 2nd African Regional Youth Congress on Science and Technology held in Accra, Ghana (*Spore* 125 page 14), prompted a response from **Aurélié Nyapeye Yatchou**, an engineer for water and forestry in Cameroon and manager of a community forestry project. In her view, the underlying problem is inadequate training of African agronomists. Her opinion drew reactions from other young professionals present at Accra. The floor is open.

For a very long time, African agronomists have been trained to work in offices (they are known as white-collar engineers). They continue to be trained to work in offices, even though the socio-economic picture has changed dramatically in Africa.

A number of steps need to be taken to rectify the problems outlined in *Spore*. For example:

- There should be a complete overhaul of the training programmes for African agronomists, which were drawn up during independence to answer the needs of the time and have since become obsolete. We need to devise programmes which respond to the new African — or even global — picture. Today's African agronomist needs to be trained so that he can set up on his own and create agro-enterprises, and not, as once was the case, so that he can wait to be drawn into the public sector.

- There should be a rethink of agricultural policies in African countries, which are currently based solely on the principle of aid and funding from wealthy countries, which are swiftly swallowed up by badly planned and inappropriate projects. African governments should focus more on policies which offer land access to young agronomists, and on providing credit for agricultural projects planned and put in place by young people. Steering the agricultural policy of ACP countries in this direction could help solve the thorny problem of Africa's young agronomists."

Calixte Midjanganinou, from Benin, believes that this analysis and these suggestions 'are not wholly justifiable'.

"The training programmes are not as obsolete as Aurélié suggests. If that were the case, what would have been the point of involving teachers in regional and international networks, professional exchange and joint apprenticeship programmes where each person acquires knowledge which he then develops to improve the content of courses and practical work?

New subjects have emerged, which were previously not taught at school or university. Examples include microfinance, civil society, GMOs, etc. It is true that some teachers don't take the trouble to improve the

content of their courses, but these cases are few and one shouldn't generalise.

It seems to me that the content of courses — even if efforts should be made to improve them — are reasonably well geared towards encouraging entrepreneurship. Training directed at the private sector can only be an emergency exit for governments looking for solutions to the problem of unemployment.

The real question concerns agricultural policy, and specifically the means needed to stimulate private initiatives and the market. For agricultural entrepreneurship requires financial investment that African governments refuse to make available. Agricultural banks are either rare or inexistent. Fortunately, a few NGOs with very modest resources are providing financial and material help to agricultural small businesses.

The agricultural entrepreneur also has to deal with the market, which, in almost all African countries, works against him. Government policy consists of opening markets to products from countries of the North in an effort to ensure that there is food security in the South. I agree with Aurélié that agricultural policies in African countries must be reviewed, so that young agronomists are encouraged to set up on their own."

Norindin Bamogo, from Burkina Faso, takes issue with Aurélié on several points.

"Agronomists are not meant to work in offices, but in the countryside. That poses the problem of setting up our schools and agronomy institutes, which are very often located in cities. The best solution would be to put them in places where agronomy students can have first-hand experience of how agriculture really works.

Teaching programmes do not necessarily need to be changed. Some schools go to considerable lengths to keep up with developments. For example, each year the University of Ouagadougou invites lecturers from universities in France and Dakar to teach courses and organise conferences with the students. It is more a question of adapting teaching to the realities of the field in each country.

The setting up of private sector agronomists could prove interesting, in the same way as any other business would. However,

the field of agriculture is a case apart. In a country such as mine, there is the problem of insufficient arable land. There is not enough for the farmers as it is, and this is a serious source of conflict. For this reason, private initiatives often encounter difficulties.

Yes, the agricultural policies of African countries need to be reviewed. New financing policies need to be developed. We need to encourage the setting up of agricultural banks to provide more flexible financing for projects. New marketing policies need to be developed, especially ones which favour the young. All of this will require more inter-African dialogue so we can better defend our output."

Blandine Laure Tientcheu, from Cameroon, disagrees with some of the opinions expressed by Aurélié.

"In Cameroon where I did my agronomy studies, the training programme is far from obsolete. The government has managed to give the training a very practical slant (40% of courses are devoted to practical work). The agronomists are not trained to work in offices, far from it. The Ministry of Agriculture employs them as extension agents in the villages and they work with NGOs and farmers' organisations.

An African agronomist may well want to set up on his own, but he is likely to encounter a number of problems. First and foremost, access to land: land either belongs to the State or is owned by the community. It is not easy for an individual to own several hectares of land which he can farm. Then there is the issue of credit: banks are reluctant to finance agricultural projects because the risk of failure is quite high. Due to his lack of experience, a young agronomist will be seen as a high credit risk by the banks. And even if a bank were to finance his agricultural project, he would have to invest his own capital, which he would be unlikely to have.

Lastly, African agriculture can only develop on the basis of a common policy for African countries. On the domestic front, governments must work to set up and support development companies or agricultural cooperatives which can make good use of our young graduates."