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

The statisticians tell us that the average amount of food available per person per day is equivalent to 2,700 calories, compared with 2,300 calories in the mid-1960’s. In Western Europe and North America, the average food availability is more than 3,500 calories per person; but in Africa, average food availability is only 2,300 calories. Added to this is the fact that since 1980, the population of Africa has risen by 53%, but food production has risen by only 45%.

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

Waste not, want not

The potential for increased yields lies in a complex mixture of factors including better plant varieties, better use and control of water.
and more use of plant nutrients. Soil fertility is decreasing in many parts of inter-tropical Africa where, in 1983, nine million tonnes of nutrients were lost to so-called 'soil mining', the removal by plants of nutrients in excess of that returned to the land. These losses may lead to yield declines.

New, environmentally sound techniques such as integrated plant nutrition systems (IPNS) and CTA's organic matter management (OMM) offer great possibilities for improved yields, but have yet to become widely available, both physically and financially, to many small farmers. Such systems, together with management techniques, also require more research and dissemination; the work of the agricultural research community must be made much more accessible.

It is access, above all, which features in the three seminars on "The EC's food security strategy and the ACP countries' held in the last quarter of 1997 in Brussels and Wageningen by the Directorate-General VIII for development of the European Commission and CTA.

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

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

**Stakeholder Participation**

A World Conference on Multifunctional Agriculture and Land Management will be held in Benin, The Netherlands, in September 1999. The organisers (the Netherlands government and FAO) wish to make sure that representatives of stakeholders cover all major areas of the conference to identify and prioritise the issues. For more details of how to get involved in their extensive process of preparation and consultation, contact: FAO / SDRN, Viale delle terme di Caracalla 00180, Rome, Italy. E-mail: www.fao.org/sdl/agr99

**Infrastructure**

### Strengthening the backbone

A country’s infrastructure, and its transport system in particular, is very often likened to an obstacle race. The problem is especially acute in many countries of Africa which, as a continent, is renowned for being amongst the most poorly endowed as regards infrastructure in general, and reliable road networks in particular. The user is faced with many difficulties. Unreliable schedules, poor safety, prohibitive costs, not to mention natural disasters, all combine to disrupt the correct shipment of merchandise and the free movement of people.

**The LONG MARCH**

In Cameroon, a farmer often has to walk six kilometres to transport his maize from Toné to Bafousam. If, when reaching the nearest road, he then takes a local truck or taxi to reach 25,000 CFA francs (about $50), with a hefty part of the price belonging to the “informal sector”. Why? The transporter will pass at least three “control points” on the road between Abidjan and Ouagadougou, in addition to the goods in transit. The high costs are aggravated by high risks. Ramshackle vehicles hurtling at speed from pothole to pothole, overloaded with human and cargo, are sometimes a fatal recipe for disaster. Travelling by road is much more dangerous than by air, as the “inland borders” between countries are often likened to an obstacle race.

### Maintenance needed

“Trade and commerce is the motor of economic growth, and it can only flourish when it can rely on transport systems that perform well; only then will farmers’ efforts to ship their goods to market" asserts Veronique Jacobs of the World Bank group. A major obstacle to the development of the African continent is the parlous state of the transport infrastructure. A significant proportion of the investments made in road networks in the 1960’s and 1970’s has disappeared, due to lack of maintenance. The worsening condition of the road system is such that the amount of necessary repairs, or reconstruction, require levels of expenditure between three and five times as much as preventive maintenance would cost. The World Bank estimates that the ‘saving’ of one dollar on road maintenance increases the cost of operating vehicles on that route by two to three dollars. This results in increases of sometimes twice, even thrice, the selling price of certain consumer items. The poor state of roads thus slows down the development of supply systems and food distribution, and it is the users and consumers who suffer, and pay the price.

According to World Bank studies, in 85 countries, one-quarter of rural tarmac roads need to be rebuilt, as well as one-third of non-paved roads. On top of the dilapidated state of the roads, and the deterioration of rural tracks, there is another layer of concern: the human dimension of road system management. Public services, föllie papers around in agonising detail, there are illegal road checks and ‘flying’ squads of enforcers with their associated costs, which add to the inconvenience and expense of road transport (see box). On the road between Abidjan and Ouagadougou, for example, the expenses of informal tolls sometimes amount to 10% of the value of the goods in transit. The high costs are aggravated by high risks. Ramshackle vehicles hurtling at speed from pothole to pothole, overloaded with human and cargo, are sometimes a fatal recipe for disaster. Travelling by road is much more dangerous than by air, as the “inland borders” between countries...
Getting the private sector into the driver’s seat

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

Massive reforms

Airports, roads and ports are all up for privatisation in many countries. Their return to the private sector is taking the form of operational concessions, co-management and leasing. So far, the three different approaches have been used in 20 ACP countries, mainly in Africa, over the last seven years. The principle of user participation in such reforms, and in improving the management of road networks, is now generally accepted. Some African countries, including Benin, Ethiopia, Mozambique, Tanzania and Zambia, have set up (or re-activated) Roads Committees and Roads Funds. Road users thus finance road maintenance through taxes on petrol, road tolls and road licences fees, and can participate in developing strategies ensuring that road development meets their needs.

Desperately seeking efficiency

The efficient flow of agricultural produce requires a good quality system for shipping and moving goods. Allied to this is the need for well-oiled infrastructures for storage, consolidation, and wholesale and retail systems. These are essential for achieving the desired mixture of marketable goods with the right price-quality ratio, minimal postharvest losses and reduced health risks. Most often than not, producers of fruits, vegetables and other fresh products (meat, fish) in developing countries are hindered by weak wholesale and retail marketing systems, so that the systems’ shortcomings are compounded by the decline of some of the basic marketing infrastructure. Which will entice wholesale and retailers alike to operate on a group basis, achieving economies of scale in their sales. Two charges are needed: regulations on marketing food and foodstuffs have to be modified, and physical facilities have to be built (or existing ones modernised). The new wholesale market in Bounkili, in Côte d’Ivoire (see Spore issue 76) is an example.

True, in some countries, main roads are in a good state, and goods can be shipped in reasonable time from rural areas to urban markets, and from the ports to the most isolated areas. There is still plenty to be done. In some countries of the Pacific and the Caribbean, a more fundamental choice has to be faced between allowing the decline of some sectors of the economy because their level of commercial transactions is too low to justify the required investment in transport systems, and encouraging the surge of tourism, which is becoming the dominant, if not sole, source of foreign exchange.

From dilapidation to isolation

‘One of the key characteristics of the Malagasy economy is the isolation of rural areas, due to the sorry state of road infrastructure. Only 18% of the total road network of 20,000 km is passable, and the most recent figures, from 1993, estimate that road repair and renewal was advancing at a mere 900 km a year. Without access to decent roads and appropriate means of transport, farmers in many areas are prevented from supplying nearby markets, or can only do so at prohibitive costs. The same state of isolation deprives the vast majority of farmers of access to inputs and technological advances, with a consequent drop in productivity and a fundamental problem of exhaustion of the soil of Madagascar.’

From: Rade pilote sur le développement de partenariats efficaces entre le CTA et des organisations des pays ACP, Madagascar: February 1998, by Zazah Ravanolona-Tangerina.

O ff-road travel - using local resources

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

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Care for drivers?

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

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Beyond their ‘use by’ date: obsolete pesticides

The estimated 100,000 tons of obsolete pesticides lying unused in developing countries represents a tremendous potential liability to the health of the human environment and the health of the animals that consume them. This is a problem that cannot be solved by the farmer alone. Nonetheless, the farmer would of course benefit from the benefits that the pesticides provide. The FAO, United Nations Food and Agriculture Organization of the United Nations, and the governments of the countries that are affected by the pesticides have a responsibility to prevent the use of these dangerous substances.

FAO PUBLICATIONS ON OBsolete PESTICIDES


The Dirty Dozen pesticides to bite the dust

In 2001, the FAO launched a project in Colombia, Ecuador and Peru to help farmers get rid of obsolete pesticides. The project has helped farmers to identify the most dangerous pesticides and develop plans for their disposal. The project has also helped to increase the capacity of farmers to handle and store pesticides safely.

El Niño hits Somali banana crop

Somali bananas are an important cash crop in the Horn of Africa. However, the recent El Niño event has caused significant damage to banana plants. The El Niño weather phenomenon has led to increased rainfall in the region, which has been beneficial for farmers. However, the increased rainfall has also led to increased incidence of disease and pests that threaten banana crops.

Biofertilizer gives boost to yields

The International Atomic Energy Agency has been helping farmers in Zimbabwe to produce biofertilizers. Biofertilizers can be produced from the nitrogen-fixing bacteria Rhizobium, which are found in the soil. The bacteria can be used to increase the yield of crops such as cowpeas. In Zimbabwe, the use of biofertilizers has increased by 10% in the last five years.

Tea prices continue moving skyward

Strong consumer demand and unusual market conditions in some of the major tea producing countries have pushed tea prices up to the highest levels in decades. Between January and December 1997, tea prices rose into high double digits: in Calcutta, India, up 46%; in Mombasa, Kenya, up 43.2%; in Blantyre, Malawi, up 39%; and in Colombo, Sri Lanka, up 53%. The rising trend is expected to continue for at least until the end of 1998.

Seaweed wealth in Kiribati

Cultivating seaweed as a cash crop is gaining popularity in Kiribati in the Pacific. Production of Eucheuma cottonii started in 1986 and, after several disappointment, reached 1,263 tonnes by 1996. It is estimated that the industry will eventually provide income to Kiribati. A significant start-up support through financial and technical assistance and the acquisition of skills through experience, the results on Kiribati are already encouraging.

IN BRIEF

Have you ever eaten insects? Some people find the idea revolting, while others consider certain insects a gustatory delight. Insects make up a large proportion of the world’s biomass – indeed, scientists don’t even know how many species exist. Recent estimates place their numbers somewhere between 2 to 8 million. There are over 20,000 recorded edible insect species in the world. Beetles, butterflies, moths, bees, ants, wasps, flies and some bugs are most commonly eaten. Although tropical and subtropical countries have the greatest insect biodiversity, they are also preserved in Africa, but they are also preserved in Asia, Europe, and Australia.

Some people find the idea revolting, prepare and conserve insect species in the world. Bee-especially a recent study in Kananer, India, that insects are preserved and stored for later consumption. From a nutritionist’s point of view, it seems ironic that large sums of money are devoted to the killing of insects which may contain up to 75% high quality protein, to save crops that may not be known. Although usually gathered for self-consumption, demand in towns and cities for some species is sufficiently great to warrant commercialization. In Venda, South Africa, the informal insect market is valued at a million $US per year. Exportation of insects as a food source would seem to represent the idea ecologically friendly, sustainable development project. The challenge for the future is to remove the social stigma attached to their consumption.

The International Regional Network for the Sustainable Utilization of Soya beans is an initiative of the United Nations Environment Programme (UNEP) that promotes the sustainable utilization of soya beans. The network works with governments, farmers, processors, and consumers to promote the sustainable utilization of soya beans.

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Guidelines for coconut germplasm movement amended

As part of research into the damaging disease in coconuts caused by the cadang cadang viroid, FAO noted that Pacific coconuts had viroid-like nucleic acid sequences in their genome. Thus, although this appeared to be unassociated with disease, nonetheless, given their diversity and germplasm potential and the disease and the unknown risk posed by the presence of viroid-like sequences, FAO and IPGRI (now International Plant Genetic Resources Institute or IPGRI) published the ‘Technical Guidelines for the Safe Movement of Coconut Germplasm’ (edited by E. A. Frison et al., 1993). The guidelines called for the restriction of coconut germplasm movement from those countries where the viroid-like sequences were known to occur, and to relate germplasm to conservation, research and plant breeding programmes, not trade. Scientific studies have since shown that these sequences are widespread in coconuts in both reporting and importing countries and there is no evidence that they cause any disease. Accordingly, in December 1997, FAO and IPGRI published an amended version of the guidelines saying that viroid-like sequences are not to be considered as a disease or disease-like symptoms. Guidelines restricting coconut germplasm movement still remain in effect for the Philippines (where the cadang cadang viroid is present) and Guam (because of the (Tigna) viroid).

Household water storage tanks

The rainy season is the best time to build up water stocks for the kitchen garden. This simple method of collecting water in barrels offers a cheap way to of bearing heavy weights (in the case of barrels on the foundations, staggered, so that the first one should be right below the overflow pipe, so that the overflow water from one will flow into the next, when full; carry the barrels to the roof without tying it with a rope, on a strip of corrugated iron, to attach the gutter to the roof; three 50-gallon metal barrels; two overflow pipes of non-rust material (bamboo or plate, or metal); three solid foundations, capable of bearing heavy weights (200 kg or more) made of wood, dried earth or concrete; to build the system: slice the bamboo in two along its length, or fold the corrugated iron, to make the gutter; fix the gutter to the roof, with the creapers or wire, at a slight angle so that the run-off rainwater will flow down in two of the barrels, make a hole about 5 cm from the top, slightly wider than the overflow pipe, which you fit into the hole; put, after autoclaving, the foundation on the foundations, staggered, as shown in the diagram; the water will flow down the overflow pipe, so that the overflow water from one will flow into the next, when full; carry the barrels to the roof.

You can install taps in each of the barrels, so that you can take water without emptying the others.

PANIS: Check it out!

Developed and supported jointly by the UN: Food and Agriculture Organization (FAO) and the Secretariat of the Pacific Community (SPC) — formerly the South Pacific Commission, the Pacific Animal Health Information System or PANIS is a database and information system available on the internet and on CD-ROM only for Pacific Island Countries participating in PANIS. The website is maintained by the SPC Regional Animal Health Service in Suva, Fiji, and among other things, Pacific countries may get pest information related to animal health or quarantine on their respective country page. PANIS is related to the foster unity and exchange among Pacific Island Countries. It should be noted, however, that the website is not limited to them: a livestock disease search will yield information on the prevalence of the disease worldwide; making PANIS a truly international project. A sister project is being used in Africa. The website is

Website: http://202.0157.4

Yummy, yummy, cocomilk yoghurt!

One prontuary project for vil-

age enterprises in coconut-grow-

ing areas consists of making cocomilk yoghurt. This product is both delicious and nutritious (on a par with yoghurt made from 100% dairy milk). Some capital investment is required to buy equipment; for example, a freezer, a stove, a blender, stainless steel mixing equipment such as a coconut meat grinder and a presser, an autoclave, refrigerator, incubator, stew pot, oven, blender, stainless steel mixing container and weighing scale. To make cocomilk yoghurt, starter culture (PANIS) is first prepared. To do this, 10% solution of non-fat dry milk (NFDM) is autoclaved for 10 mins at 10 psi, cooled, and divided in half; one half is inoculated with Streptococcus thermophilus, and allowed to incubate for 14 hrs at 38 °C, and the other half with Lactobacillus bulgaricus and incubated for 15 hrs at 42 °C. The starters may now be stored at 5 °C until use. Two textured yoghurts of different curd type can now be made, a viscous one and a soft type. For the viscous, the milk is autoclaved for 44 mins at 10 psi, cooled, and divided in half; one half is inoculated with Streptococcus thermophilus, and allowed to incubate for 14 hrs at 38 °C, and the other half with Lactobacillus bulgaricus and incubated for 15 hrs at 42 °C until the pH reaches 4.5-4.7. Cocomilk yoghurt can now be boiled, a viscous one and a soft type. For the viscous, the milk is autoclaved for 44 mins at 10 psi, cooled, and divided in half; one half is inoculated with Streptococcus thermophilus, and allowed to incubate for 14 hrs at 38 °C, and the other half with Lactobacillus bulgaricus and incubated for 15 hrs at 42 °C until the pH reaches 4.5-4.7. Cocomilk yoghurt can now be boiled, a viscous one and a soft type.
Winnowing is the process by which farmers separate the grain from the chaff, and consequently divide the useful and desirable from the useless and undesirable. The same approach needs to be used by small farmers when dealing with the innovations researchers create for them - they winnow the package by sifting out the useful elements.

**FISHING LAWS MUD THE WATERS**

Mr. N. Djamansingar, of the fisheries office in Logone/Tandjilé in Chad found the leading article ‘Water: will there be conflict’ in Spore 74 very relevant to a recent experience of his: as the fisheries officer in the region, he was involved in a conflict about the management of fish resources. It was between some Ngambaye fishermen who came from the south-west, and the Sarakaba, Nielimm and Tounia peoples, from the mid-Chari region in the south-east of Chad. The Ngambaye are professional fishermen who left their region of origin several decades ago to settle down in mid-Chari. The local people felt that they were undersold, and accused them of depleting the fish stocks in the river Chari, and in other waters in the region. They were forbidden from fishing; horses were exchanged, and their fishing equipment was confiscated. This led to an increase in tension between the two communities. The question was taken to the local authorities several times, but no lasting solution was found. According to the letter of the law, right is on the side of the Ngambaye. Fishing is allowed by law anywhere in Chad, as long as the fisherman has authorised equipment, and has paid for an annual fishing license. However, the letter of the law, right is on the side of the Ngambaye. Fishing is allowed by law anywhere in Chad, as long as the fisherman has authorised equipment, and has paid for an annual fishing license. Unlike the letter of the law, right is on the side of the Ngambaye. Fishing is allowed by law anywhere in Chad, as long as the fisherman has authorised equipment, and has paid for an annual fishing license. Fishing is allowed by law anywhere in Chad, as long as the fisherman has authorised equipment, and has paid for an annual fishing license.

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

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

**MORE EXTENSION WORK NEEDED**

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**MAILBOX**

Please send your correspondence to

Mr. M. Baine, director of a primary school in the province of Haut-Gossou in Gao, has set up small gardening plots in the school.

Help farmers winnow tools and partners

Mr. Osuji asks if CTA could connect readers with individuals or organisations who could finance or sponsor projects. He suggests that this information could be published next to the courses and conferences sections.

Unfortunately, CTA cannot play this role for the countless individuals and organisations involved in agricultural and rural development in the 73 member countries of the ACP Group. We do try to address books, reference books and other useful sources of information. As far as courses and conferences are concerned, there are just too many different possibilities of obtaining scholarships, with varying criteria and schedules, from different organisations. For this reason, we recommend that the reader contact the organisers directly.

Winnowing is the process by which farmers separate the grain from the chaff, and consequently divide the useful and desirable from the useless and undesirable. The same approach needs to be used by small farmers when dealing with the innovations researchers create for them - they winnow the package by sifting out the useful elements.
Integrated Pest Management: 2nd meeting of regional Caribbean network

The Integrated Pest Management Network is one of the collaborative programmes among the networks of the Caribbean Natural Resources Institute (INARI), the Caribbean Food and Agriculture Research and Education Center (CIFAR) and the Caribbean Research Institute (CARI). The meeting was held in Montego Bay, Jamaica, on 9-11 January 1997.

The network was launched in 1993 with the aim of promoting the development of sustainable pest management practices in the Caribbean. The network consists of 14 countries in the Caribbean region, including Antigua and Barbuda, Anguilla, Barbados, Belize, British Virgin Islands, Dominica, Grenada, Guyana, Jamaica, Montserrat, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, and Trinidad and Tobago.

The second meeting of the network was held in Antigua in January 1997, with representatives from 13 of the network’s 14 member states. The meeting was attended by 65 participants, including researchers, extension officers, and representatives from governmental and non-governmental organizations.

The meeting was attended by representatives from all 14 member states of the Caribbean network. The meeting was attended by 65 participants, including researchers, extension officers, and representatives from governmental and non-governmental organizations.

The meeting had three principal outcomes:

- The establishment of a working group to promote the development of sustainable pest management practices in the Caribbean region.
- The establishment of a network of technical advisors to support the development of sustainable pest management practices in the Caribbean region.
- The establishment of a network of technical advisors to support the development of sustainable pest management practices in the Caribbean region.

Each country in the network will have a national IPM Coordinator, who will meet with public and private IPM practitioners in their National Agriculture Research System (NARS), to set up national work programmes. These will form the basis of the regional IPM programme.

Greater Grain Borers

A revised, corrected version of GAGAS/ CTA technical leaflet number 1.

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

The joint CTA/ICT workshop, held in September 1997 in the Netherlands, was reported in Spore 72. The summary report, with an introduction to the discussions and recommendations, has now been published.

CTA’s 1997 Annual Report features Special Paper on policy analysis

CTA Annual Report for 1997 is now available. Dr R. D. Cooke, CTA’s Director, Dr R. D. Cooke, highlights the importance of capacity building and land allocation for agricultural and rural development.

Dr R. Mrema is the chair of the CTA’s Advisory Committee. The report concludes with an account of financial and administrative matters, and details of the management in ACP countries. The report is available in English, French and Spanish.

Weeds of Rice in West Africa

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

On-farm fish culture

This new addition to the Agrodoc collection describes various ways of developing fish culture with crop cultivation and livestock, in order to optimise farm output. For example, canal bank vegetation and composted vegetable residues can be used to fertilise a fish pond and increase the amount of food available to the fish. The pond lining can later be used as a source of fertilizer for cultivated land. The manual, which also offers guidelines for the selection of fish species, and which vegetables to use as fish food, is aimed at extension and field staff who work with farmers, as well as at people who keep fish in small ponds. The book is available in English and French.

INIBAP technical guides

The first issue of this new series in INIBAP’s technical guides for new is devoted to ‘Sporebank and Seedbank’. The guide provides information on disease control, locating and storing spores from different spore sources, such as the ecological services they render to the environment. Part 1, ‘When trees die, stones begin to grow’, examines issues related to the integration of trees into agriculture, including land rights and social and political considerations. Multifaceted farming is presented as a way of reconciling biodiversity, social and economic goals, and of increasing soil fertility and erosion control. This well-illustrated book contains numerous examples and case studies which explain the many ecological services they render to the environment. Part 2, ‘Economic trees’, describes the construction and management of a farm pond (Spore 65, p.33).

Obtaining CTA publications

Publications on CTA’s list are available free-of-charge to subscribers to the Publications Distribution Service. Readers who have applied to become subscribers will, in due course, receive a response to their application and, if admitted, will be sent an application form. Credit values have been assigned to all the publications on CTA’s list. Subscribers can order these publications up to the value of the credit points available to them. Applications can only be requested on the order forms provided.

Non-subscribers who apply by letter, fax or email will be sent an application form. Applications will be considered from agricultural and rural development organisations in the ACP (Africa, Caribbean and Pacific) Group of States; individual scientists in ACP countries may also apply. Organisations which work for agricultural and rural development in the ACP Countries, or which wish to be added to CTA’s ACP Country, should write to CTA giving full details of the publications they wish to acquire and the reasons why they are needed.
From harvest to consumer

Tropical fruits

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


British Pounds 45 (US $80, only in the Americas)

CAB International, Wallingford, Oxon, OX10 8DE, UK.
Fax: +44 1491 833508
Email: cab@cabi.org

Unless otherwise stated, the books on these two pages are not available from CTA. Readers are advised to write to the publishers for further information.
Do you need to know more about the effects of air pollution on local food production? Does your community-based organisation face difficulties in becoming an effective stakeholder in discussions about forestry management with the government? Or perhaps you feel that gender issues are not taken into account in your organisation runs? For answers to these and many more questions, you might want to get in touch with the International Institute for Environment and Development (IIED).

The foci for IIED are the connections between economic development, the environment and human needs. For more than twenty-five years the organisation has worked to improve the livelihoods of poor and marginalised people in ways which lead to the care and regeneration of the environment. IIED can be best described as a 'behind the scenes' policy think-tank. However, it is not a research institute working in isolation. The collaborative style of work, through partners and networks, characterises IIED as a bridging or linking organisation. IIED's aim is to have impact. They have developed approaches to research which are action-oriented, develop capacity, and involve all the major stakeholders around specific problems. It is the getting-hands-dirty approach, from the local level to the international level. Here practical advice, guidance and tools are needed. This is where IIED, through its many networks of partners, has its niche.

IIED's starting point is in rigorous research and policy studies founded in specialist sector programmes and disciplines. IIED's activities currently include programmes in sustainable agriculture, drylands, environmental planning, forest and land use, environmental economics, and human settlements. IIED has several publication series that vary from practical training manuals to reports on programmes. These publications share practical field experiences or new theoretical insights.

The Gatekeeper Series highlights key topics in the field of sustainable agriculture and resource management. Each paper reviews an issue of contemporary importance and draws preliminary conclusions for development that are particularly relevant for policy-makers, researchers and planners. Recent additions to the seventy-plus titles in this series include ‘Gender is not a sensitive issue’, ‘Propelling change from the bottom-up’ and ‘A hidden threat to food production: air pollution in the developing world’. The Hidden Harvest studies focus on valuing species that are not incorporated in formal economic calculations, but which are often part of informal agriculture-based economies. By falling outside official statistics, such species can be implied to be ‘valueless’, thus giving an incomplete description and, therefore, false value to the landscapes in which they are found. Development and natural resource policies based on such incomplete assessments of resource values are likely to be inappropriate, ineffectual, or counterproductive, and the purpose of this series is to avoid such weaknesses in policy formulation and analysis.

Market information: the case of KACE

The Kenya Agricultural Commodity Exchange (KACE) was set up in July 1997 to provide market information and services to buyers and sellers in Kenya, the Eastern Africa region and internationally. Based at the Jamhuri Park Nairobi Show Ground, the KACE trading floor operates three days a week and covers all agricultural commodities. KACE offers the following services:

• Identifying sellers able to guarantee desired products and volumes;
• Finding a buyer without the seller physically bringing the commodity up for sale;
• A clearing house.

Clients of KACE include farmers, traders, processors, buyers, sellers, exporters, importers, wholesalers and retailers.

KACE's monthly publication Commodity Market Outlook includes topical articles, commodity price updates, detailed price trends covering seven markets in Kenya, and a directory of buyers and sellers with volumes and delivery requirements. With the current emphasis on market-led development intended to ensure the growth of the private sector, KACE has proved a valuable reference for initiatives in other regions, including West Africa.