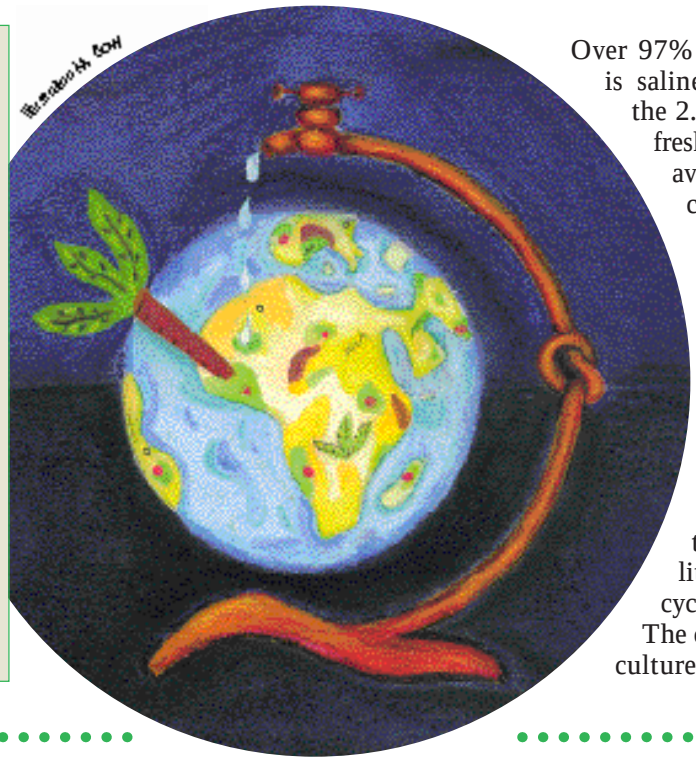
SPORE

Information for agricultural development in ACP countries

No 74 APRIL 1998



Over 97% of the world's water is saline and in oceans. Of the 2.5% of water which is fresh, only 3% is directly available as part of the cycle of rainfall and evaporation, in rivers and lakes; the rest is in ice, permanent snow, and fossil groundwater. The UN Food and Agriculture Organization (FAO) is in no doubt that "human demands are about to collide with the ability of the hydrological cycle to supply water". The consequences for agriculture will be drastic.

Water : will there be conflicts?

The theft of water by farmers from a community water supply project in Kenya made news in the North recently. Water was being diverted for irrigation of mange-tout peas, a chic item on European dinner tables. Along with strawberries and soft fruits, these peas are grown in increasing volumes in many parts of Africa and air-freighted to meet out-of-season demand in European markets.

The export of food crops and other biomass also represents the export of a very scarce resource—water. According to the World Water Council, a global think tank on water issues, by the year 2050, water shortages are forecast in more than 70 countries, including 35 in Africa and several in the Caribbean, resulting in what is called 'water stress'.

Agriculture is the major consumer of water. "Irrigation uses more than two-thirds of the world's available freshwater resources, producing 35% of the world's agricultural output from 17% of the world's arable land. In all, agriculture uses 90% of all the freshwater which is economically accessible", reports A M Shady, President of the International Commission on Irrigation and Drainage. "To produce more food and fibre with less water is the challenge for the 21st century".

In sub-Saharan Africa, virtually all farmers practise rain-fed farming, but this is increasingly subject to unreliable and short rainy seasons, drought and other forms of climate change. Closing the gap between the growth rates of population and a reliable food supply through intensified production requires a two-pronged approach: intensified water harvesting and conservation, and intensified irrigation.

Low-cost methods exist for improved water harvesting: rehabilitation and protection of water catchments to reduce erosion, floods and silting; prevention of loss through evaporation and leakage; management of groundwater resources, and improved storage. Improved attention to conservation measures can also bring important savings.

Major savings can be achieved through more efficient irrigation, such as drip methods, and through changes in cropping patterns, using mixes of less water-intensive crops, shifting the cropping period into seasons where there is less evaporation, and improving the water-holding capacity of the soil.

Using treated waste water in irrigation has great potential, especially in peri-urban agriculture, when water from industrial and domestic sources could be used. It also requires investment. According to the International Food Policy Research Institute (IFPRI) in Washington, USA, this approach could provide the major long-term irrigation supply in those countries suffering from 'water stress'.

'The vision thing'

Overall water policies are slowly emerging at national and global levels, with increased activity during 1998: conferences hosted by the French government in March, and by UNESCO in June. World Water Day (March 22), organised in 1998 by the International Reference Centre on Community Water Supply, focused on groundwater. The United Nations designated the April 1998 session of its Commission on Sustainable Development to be devoted entirely to freshwater resources. Two years from now, on World Water Day

Photo X. Litrico

Photo Y. Hardy

Photo Orstom

The export of food crops and other biomass also represents the export of a very scarce resource—water. Low-cost methods exist for improved water harvesting. Improved attention to conservation measures can also bring important savings.

Water Forum will meet in The Hague, Netherlands, to present a 'Vision for Water, Life and The Environment' to Heads of States and other leaders.

The task of these policy forums is to work out realistic programmes that accept that, in many low-income countries with high water stress, water consumption per head will actually fall. At the same time, water prices are bound to rise. This increases the difficulties of small-scale farmers, says Jacques Diouf, Director General of the Food and Agriculture Organization (FAO), since "other sectors, such as domestic demand and industrial supply, can generally afford to pay more".

It may be necessary, suggests IFPRI, to "help small irrigation farmers, particularly with partnerships that will give them access to capital, technology, know-how and markets". To compete at all, the farmer must first have access and control, and this requires ownership, control and capacity building. As long ago as 1993, in its annual State of Food and Agriculture report, FAO called for farmers to be assisted in obtaining ownership rights and management responsibilities for water supply systems: "Without such developments there will be less scope for farmers and consumers to benefit from existing agricultural technologies."

The choices are clear: if the cost of water is passed on to the consumer, then food prices will rise, with all that this means for food security. If farmers have to absorb the increased cost, then poorer farmers growing relatively low-value products will require support or could be forced out of business.

The market place turns into a battlefield?

The pricing of water will almost certainly lead to a new wave of structural adjustments. Within many countries, including at least half the ACP States, the implementation of pricing policies will have to take account of the possible economic and social impact on the peri-urban and rural poor. It is recognised at national and global levels that many strongly water stressed countries will become less self-sufficient in food production—indeed the idea is already being floated of one country abandoning agriculture.

There is a real danger that water scarcity will lead to local unrest, and even international conflict. The hope of A M Shady that "mankind will never have to fight over water" is not yet a promise that mankind can make to itself.

WHICH COUNTRY IS DESCRIBED HERE?

'Geographical and climatic conditions do not help the work of the water distribution agencies. The chronic lack of rainfall is compounded by the fact that most agriculture is irrigated, and there is not enough water for simple human consumption. In addition, distribution networks often have losses of up to 50% and are often decrepid, the result of old age, poor installation and bad water quality.

The topic of water resources is especially sensitive. The north enjoys an abundant supply, whereas there are serious shortfalls in the coastal areas of the east and the south. Conflicts between farmers, electricity companies and drinking water suppliers are numerous, and lead to painful settlements in court.'

See answer on bottom of page 16.

For more information:

AWN — African Water Network, PO Box 10538, Nairobi, Kenya. Fax: +254 2 555513; Email: awn@elci.gn.apc.org

CSD — Commission on Sustainable Development, United Nations, New York, NY 10017, USA. Website: www.un.org/csd

FAO — Water and Agriculture section, via delle Terme di Caracalla, 00100 Rome, Italy. Fax: +39 6 514 6172; Website: www.fao.org

GWP — Global Water Partnership, c/o Sida, S-10525 Stockholm, Sweden. Fax: +46 8 698 5627; Email: gwp@sida.se; Website: www.gwp.sida.se (for technical assistance issues)

ILRI — International Institute for Land Reclamation and Improvement, PO Box 45, 6700 AA Wageningen, Netherlands. Fax: +31 317 417187; Website: www.ilri.nl

ICID — International Commission on Irrigation and Drainage, 48 Nyaya Marg, Chanakyapuri, New Dehli, India. Fax: +91 11 301 5962; Email: icid@sirnet.ernet.in

Unesco, Division of Water Sciences, 1 rue Miollis, 75732 Paris 15, France. Fax: +33 145 68 5811; Website: www.unesco.org

WWC — World Water Council, 10 place de la Joliette, Atrium 10.3, 13304 Marseille Cedex 2, France. Fax: +33 491 99 4101; Email: council@worldwatercouncil.org; Website: www.worldwatercouncil.org (for policy issues).

INTERNATIONAL FRESHWATER CONFLICT

A study published in August 1997 by Green Cross International—a world environmental group chaired by former Soviet leader Michael Gorbachov—points to at least 16 international freshwater conflicts, with seven rivers in Africa:

- Chobe (Botswana, Namibia, Angola): 'tense'
- Senegal (Mali, Mauritania, Senegal, Guinea) : 'tense'
- Okavango (Botswana, Angola, Namibia, Zimbabwe, Namibia) : 'tense'
- Komati (Swaziland, South Africa, Mozambique)
- Nile (Sudan, Ethiopia, Egypt, Uganda, Tanzania, Kenya, Democratic Republic of Congo, Rwanda, Burundi)
- Volta (Burkina Faso, Ghana, Togo, Côte d'Ivoire, Benin, Mali)
- Saharian fossil aquifers (Libya, Egypt, Chad, Niger, Sudan) : 'open dispute'

A world of bananas!

In 1996, the European banana import regime was under attack by the World Trade Organisation (WTO). The United States, supported by three major multinational corporations in the banana industry along with four Latin American countries, placed pressure on Europe to comply with trade obligations regarding its banana import regime, as they deemed it was functioning illegally. There will be many meetings and consultations in the coming year culminating in a vote on modifying fundamental rules of the Common Market Organization for Bananas (CMOB), which had been adopted at Marrakech in 1995. The new legislation may be very detrimental to member states of the ACP. The possibilities for growth of ACP member states, traditional suppliers to Europe, is dependent upon current negotiations regarding repartition of quotas. The extent of the current socioeconomic crisis, which could prompt WTO to take corrective measures, is already quite alarming for other Caribbean countries where banana production is the main resource (particularly, for example, Dominica, St Lucia, and Jamaica). Indeed, for several years now, these countries have suffered from diminished competitivity because they have not made needed structural changes. However, opportunities for diversification exist, these include: the opening up of other markets, reinvigoration of local markets, amelioration of channels of production and commercialization of high quality products such as organic bananas and the fair trade banana. But it is wise to be realistic, the roads to diversification, although realizable, are not without their challenges.

Photo A. Devouard

A NEW EUROPEAN BANANA REGIME

Photo A. Devouard

The European Union (EU) is currently the main market outlet for imported bananas, with an estimated annual turnover of ECU 2 billion ($1.8 billion) in 1996 (excluding trade between EU members). By 1999, European demand for bananas (excluding EU production) is projected to reach about 3.3 million tonnes annually.

Who are the leading suppliers of bananas to the European Union? In addition to EU producers, suppliers include ACP signatories to the Lomé Convention and some Central and Latin American banana-producing countries.

The Common Market Organisation for Bananas, set up in 1993 and extended by the Framework Agreement endorsed in Marrakech (1994), led to allocation of import quotas based on three different banana origins, with a provision for compensation to make up for any loss of income subsequent to market consolidation. A tariff quota of 2.2 million tonnes was established for dollar bananas from third country origins, at a tariff of ECU 75 a tonne.

In September 1996, USA, supported by Guatemala, Ecuador, Honduras and Mexico, contested the terms of the Marrakech trading agreement and lodged a complaint for violation of trade laws. What is actually at issue? Is the percentages of the third-country tariff quota allocated to four Latin American signatories to the Framework Agreement.

It is the quotas designated for non-traditional ACP bananas (80,000 t) that are being contested. The percentages of the tariff quota allocated to Venezuela and Nicaragua are being disputed, i.e. WTO contends that these two countries do not have a sufficient vested interest in the banana industry. Rejection of the terms of the Marrakech agreements, along with the modified status and increased demands of American multinational corporations (Chiquita, Dole, Del Monte), could create a new order with respect to the import subsector. Many small-scale banana importers or ripeners will be affected by the economic and political implications of the future Common Market Organisation for Bananas.

BANANA ORIGINS

• Community bananas. These are produced by EU countries: Martinique and Guadeloupe (France); Madeira (Portugal); Canary Islands (Spain); Crete and Lakonia (Greece).

854,000 tonnes is the maximum quantity of Community bananas that can be marketed to qualify for loss-of-income compensation.

• ACP bananas. These are produced by African, Pacific and Caribbean countries signatory to the Lomé IV Convention along with the EU. This category includes:

– traditional ACP bananas. These are exported to the EU by traditional ACP supply countries (Belize, Cameroon, Cape Verde, Côte d'Ivoire, Dominica, Grenada, Jamaica, Madagascar, St Lucia, St Vincent/Grenadines, Somalia and Suriname). The quota designated for all of these countries collectively is based on a maximum export volume of 857,700 t of bananas.

– non-traditional ACP bananas.These are exported to the EU by ACP suppliers that have surpassed their quota, or by non-traditional ACP suppliers of European markets. WTO is contesting the 80,000 tonne quota allocated in the Marrakech Framework Agreement.

• Third-country bananas, or dollar bananas.These are produced in Central or South American countries where USA has a strong vested interest (Ecuador, Guatemala, Honduras, Mexico, etc.).

World trade figures for bananas account for only 13.3 tonnes of bananas (FAO, 1996). Whereas 80% of all bananas produced worldwide go to domestic markets. In most producing countries, bananas are very popular and used in a variety of local dishes. Both in terms of production and consumption, plantain is at the top of the popularity hit list. It literally provides food security for millions of people.

Of the 28.3 million tonnes of plantain produced worldwide, 69.4% is destined for human consumption, 11.1% processed and 8% fed to livestock. More than 60% of this world volume is produced and consumed in central and western Africa.

Plantain production is targeted for domestic consumption and thus marketed according to traditional strategies. The plantain trade is closely tied to urban market trends, with demand rising steadily as the population grows. This trade is also dependent on the marketing subsector organisation — transporters, wholesalers, retailers — which varies from country to country.

Plantain is transported from plantation to market in a variety of ways, e.g. on labourers' backs, in a refrigerated lorry, by

The value of local and regional markets is not yet fully appreciated.

Photo Cirad

Illustration M. Bovy

canoe and on bicycles. In Ghana, market retailers and traders go to the plantations or villages themselves to purchase plantain supplies from farmers with whom they have established agreements. Whole bunches are placed in baskets; banana hands and fingers are put in bags and carried out manually to the road. A lorry driver is then paid to transport the fruit to market, and collector-wholesalers often arrange the lorry transport operation. The bananas are sold to middlemen or traders, who sell them to retailers, who in turn sell them to consumers in bunches or separate fingers.

The complexity of the intermediary subsector increases proportionally around distribution hubs with the distance between production and supply markets, especially when the approach routes are in good shape. This trend is well established in Caribbean countries such as St Vincent, whereas it is just emerging in Africa. For instance, jobbers group around important markets in southwestern Cameroon (Mile 60, Bole and Owe). The banana plantations are quite remote from Douala (100-150 km), not easily accessible, and often impassable in the rainy season. Large quantities of plantain are delivered to the city markets on a daily basis via regular distribution channels, and the longest one involves three main types of middleman: collector-wholesalers (purchasing 50-500 bunches from the producers), sedentary wholesalers, who sell to retailers on a per-bunch basis in the wholesale and retail markets of Douala, and these retailers in turn sell to consumers or other retailers on a per-finger basis.

Middlemen have a key role in the plantain marketing subsector — from the wholesaler to the retailer. As this domain becomes increasingly complex, growers are forced to produce greater quantities of higher-quality plantain, more regularly, and at lower cost. Production criteria are gathered by middlemen on the basis of information they obtain on selling prices, consumer demand and market trends. By professionalizing the subsector, the most organized of these go-betweens (dealers, transport agents, etc.) could become key stakeholders and thereby influence domestic market patterns.

Reducing postharvest losses

As domestic consumer demand is constantly increasing, local market dynamics depend on producers' capacity to maintain adequate sustainable production levels, while staving off postharvest banana losses. The most common cropping practice involves extending yearly production over as long a period as possible. Soil potential is crucial for the success of this strategy. In Cameroon and Rwanda, on volcanic soils in the Dominican Republic, and on river alluvia in the humid intertropical zone, plantain growers have adopted a sustainable production strategy, and this crop is often their main source of income.

In Ghana, consumer demand for plantain is high and its retail price is steadily rising, however production has been stagnant for 10 years. This situation could be turned around by planting high yield, strongly pest and disease resistant, cultivars.

Postharvest plantain losses are generally heavy and are estimated at about 3 million tonnes worldwide. These losses are due to poor harvest and handling conditions, in addition to a shortage of distribution channels (e.g. Côte d'Ivoire). The quality of communications networks is also an important factor. In most African countries, access routes to markets are in poor condition and poorly maintained, except around large urban centres. For instance, farmers in Rusitu valley in Zimbabwe produce high volumes of dessert bananas. They lose a substantial portion of their overall production during the rainy season because of the very long distances along poor roads that have to be travelled to the nearest urban markets. The EU has set up a system whereby farmers can rent vehicles to facilitate getting to local markets. Still, asphalting the roads represents the most efficient way of promoting trade to external markets. Cameroon is a case in point, there are now paved roads allowing comparatively easy access to the main markets and the capital.

Who eats the most bananas?

Plantain prices in Douala

What is the market price for a banana bunch (30-40 kg) in Douala (Cameroon)?

That depends upon the time of year. The volatility of banana prices can mainly be explained by seasonal variations in supply, which in turn are dictated by plantation, climate and socio-economic factors (e.g. a shortage of workers at harvest can diminish banana supplies from October to December).

There can also be a drop of around 50% in the per-bunch price from the middle of the rainy season to the middle of the following dry season. Other parameters, such as the practice of inflating prices during the end of the year festival season, can also influence these patterns.

The number of middlemen involved in marketing the product and the different extra expenditures (market fees, transport costs, police inspections during transport, etc.) affect producer prices, which can sometimes be more than 50% lower than the retail price.

The retailer mark-up for banana bunches is constant— 200-250 F CFA (2-2.50 FF)

Organic and fair-trade bananas

Niche markets ready for expansion

Europeans, particularly northern Europeans, increasingly consume organic produce. These consumers place a high value on organic farm products (fresh or processed) because no chemicals are used in their production. For many Europeans, the organic concept is a mark of quality and associated with "healthy eating".

The demand for organic foods in Europe is real. Just as for the pineapple and orange industries, producers could diversify their export production by tapping into the fresh organic fruit market, despite the fact that it is not yet fully developed, by growing organic bananas. The Dominican Republic is cashing in on this trend and has already captured 80% of the organic banana market — the remaining 20% is shared by the Canary Islands, Colombia, Ghana and Israel.

What are organic bananas? Organic Cavendish bananas are produced without chemical fertilizers, fungicides or pesticides. Production, packaging and shipping techniques have to comply with European standards set for organically-grown food products. These standards are applied and monitored through control operations carried out in banana plantations, at the processing, packaging and ripening stations (specific procedures) and in the importer's facilities. These Cavendish bananas have to be certified by a European authority or registered organization before they can be marketed in Europe under the "organic product" label. Produce is transported through the same subsectors as utilized for non-organic bananas and reaches EU markets via the large northern European banana-import ports of Rotterdam (Netherlands), Antwerp and Zeebrugge (Belgium), and Hamburg (Germany).

Cape Verde: The new wave — organic bananas!

Along with seafood, bananas represent one of Cape Verde's few exports. This declining traditional export sector was reactivated by a community-wide desire to find an agricultural means of boosting economic development in the country. For the approximately 450,000 inhabitants, a lot is at stake. Conditions are ideal in Cape Verde for setting up an organic banana industry. This development project involved upgrading a small 80 ha banana plantation having a production potential of around 4,800 tonnes of bananas. The target — the organic food market. The operation is handled as it would be on a regular industrial-scale banana plantation, with the application of international quality standards. The overall aim is to export Cape Verde labelled organic bananas and capture a 30-40% share of this specialised market.

Getting in on the organic banana market

Not all organic banana producers are fortunate enough to have plantations in regions such as Cape Verde, Guadeloupe or Martinique, which are ecologically ideal for growing organic bananas, or producers have no access to dry land or sugarcane fields. They are thus obliged to cultivate their crops in a traditional banana- growing zone which can, ironically, lead to a struggle with nature. How can the challenges of dealing with weeds, weevils, nematodes, Sigatoka and black leaf streak disease be met without recourse to chemical pesticides? Various techniques exist, such as the use of "thermal" or steam weeding when sowing micropropagated plants in fields reclaimed through crop rotations, fallowing or systematic uprooting of old plants; or even trapping weevils through drip irrigation to hinder fungal development. These tactics are not always simple nor rapid: three cycles are needed to obtain sustainable production in an organic banana plantation (there must be sufficient foliage to supress weed growth) and reclaiming a banana plantation takes at least a year without growing any banana trees. Also, nearby cropfields must be considered, these should not be infested with pests, and water runoff has to be carefully monitored for chemicals.

Taking up the challenge

Productivity is not actually a problem when growing organic bananas. In comparison with traditional Cavendish bananas, organic varieties are more fragile at the fruit-bearing stage but show higher vegetative resistance. Organic bananas are not yet being cropped on a large scale. Organic banana production is still generally a small-scale undertaking. Special production and handling techniques are required for this crop, packaging and distribution systems are not yet completely professionalized, and marketing strategies are lacking. Consequently, organic bananas presented on fruit stands in specialized European shops sometimes are not visually appealing. Organic bananas do taste about the same as traditional Cavendish bananas, and they are purchased by discriminating customers (who consider that they are better tasting because of their lower moisture content and firmer texture), for prices that range from 30% to 40% higher than average. The industry should now strive to win over another clientele, one that does not equate organic with unattractive and expensive. Marketing promotion of this product should stress its competitive potential in terms of volume, quality and price.

Meeting industrial, environmental and social standards

The market for organic bananas is currently volatile because of poor trade and monetary flows. Only a few tens of thousands of tonnes are being traded on this narrow market. The core of the clientele is in northern Europe, in a market run by highly specialized leading operators.

There is substantial growth potential for this market, but quality standards similar to those of traditional export bananas will have to be applied throughout the subsector — from producers to consumers. This has been the thrust of research carried out in the Cape Verde archipelago (see box).

Fair-trade bananas offer another possibility for diversification. They are bananas that can be produced using environmentaly friendly techniques similar to those used to produce organic bananas, but the production restrictions are not quite as drastic and some pesticides can be used. The non-nematode bearing volcanic soils found in the West Indies and Guadeloupe are especially suitable for this crop. In addition, a critical social requirement must be met before these bananas qualify for the fair-trade label, which can only be assigned to a product after certifying that no employees were unfairly exploited during any production phase (human respect, social insurance, sanitation, adequate salaries, etc.). Fair-trade bananas fall within the same category as certain silk shirts that customers know have not been manufactured by child-labourers, political prisoners or any other oppressed peoples. An ethical issue that deserves to be followed... (see also *Spore* 67, page 5).

Sources:

CIRAD-FLHOR, parc scientifique Agropolis, 34397 Montpellier cedex 5 - FRANCE.

International Network for the Improvement of Bananas and Plantains (INIBAP), parc scientifique Agropolis, 34397 Montpellier cedex 5 - FRANCE. Fax: (33) 4 67 61 03 34.

SA Bonneterre (trader in organic fruit and vegetables), 1, place des Planteurs, 94150 Rungis - FRANCE. Fax: (33) 1 46 87 91 68.

Revue FruiTrop *No 40 12, square Pétrarque, 75116 Paris - FRANCE. Fax: (33) 1 53 70 21 70.*

Infomusa, *vol. 3, No 2, December 1994. INIBAP.*

Banane, délicieuse inconnue, le livre de la Plantation *Grand Café - Belair. Route de Belair, 97130 Capesterre Sainte-Marie, Guadeloupe - FRANCE. Fax: 05 90 86 91 69.*

Gatsby

Photo Cirad

Women in Cameroon have small group saving schemes which fitted into the research-managed extension scheme

A private foundation has helped develop a system of 'research-managed extension' as an alternative to current nation-wide services in Africa which are constantly hampered by a lack of resources. The Gatsby Charitable Foundation, working with collaborating organisations in countries such as Cameroon, Uganda and Kenya since 1985, has reviewed its experience and believes lessons can be learned for presenting an effective alternative to conventional technology transfer* .

The majority of scientists in research institutes suffer from chronic under-funding, according to Laurence Cockcroft, adviser on African programmes for the Foundation. Their potential contribution, he says, is hardly tapped. Most extension services are barely able to deliver farm-level advice because they are effectively grounded, and few agricultural credit agencies have managed to provide incremental finance to farmers. Most marketing boards have been wound down in the context of economic liberalisation.

The Foundation's approach provides scientists with the power to fund and mobilise small cadres of extension staff in selected areas, and to reward them according to the degree of farmer contact. Targeting resources to carefully defined objectives while recognising the limits of what can be achieved is, says Mr Cockcroft, essential to success. So also is having a 'project champion' within the scientific community - an individual clearly identified to work continuously to ensure the project objectives are achieved.

In Cameroon, a project with IRAD, the Institute for Agricultural Research and Development and the International Institute of Tropical Agriculture (IITA) trialled and disseminated improved varieties of cassava and sweet potato. In its second phase, a Root Crop Fund was established and a project co-ordinator provided grants for research and loans to farmers for multiplication and commercialisation of the new varieties. The support later concentrated on women's group saving schemes ('tontines') which were connected to a network of rural microbanks giving them an opportunity to move into the formal banking system. As this approach worked well, the fund and its board was to be formalised as the Cameroon Gatsby Trust and take the project to a third stage.

A second case mentioned by Mr Cockcroft comes from Uganda where the cassava mosaic virus disease reached epidemic proportions and resistant varieties were urgently needed. A cautious low-cost approach was taken given the uncertain response of the improved varieties to such intense infection. The project had six basic aims: to sensitize farmers, identify target areas, select extension workers to support on-farm trials, to establish a main source of planting material, set up local multiplication centres to serve target areas, and provide training in rapid mulitplication technqiues developed at IITA.

The co-ordinator of the National Agricultural Research Organisation's cassava programme managed the budget. He provided daily allowances for time and fuel, and purchased bicycles, motorbikes and vehicles. Between 1991 and 1996, 1,350 extension workers, 2,000 'opinion leaders', and 16,000 farmers were sensitised to solutions and the availability of planting material. At a district level 20% of the total cassava area came under improvement. The project, supported by the Gatsby Foundation, then moved to other districts and was to look at the feasibility of establishing a self-standing trust or a not-for-profit company instead of working through the public sector.

The benefits of closer integration of research with extension-type activities and the farming population is largely undisputed, and the Gatsby experiences may provide food for thought wherever transfer systems are being reviewed.

See Spore No. 72 (page 8) for more information on the cassava mosaic virus disease.

** Cockcroft, L. 1996. Transferring the benefits of research to resource-poor farmers in Africa: the experience of a private foundation. In: International Service for the Acquisition of AgriBiotech Applications Annual Report. pp17-19.*

Lucid

An electronic package for the delivery and presentation of taxonomic data, LucID, has been produced by the Co-operative Research Centre for Tropical Pest Management (CTPM) in a joint venture with the University of Queensland and the Commonwealth Scientific and Industrial Research Organisation, in Australia. A demonstration of the system, which the publishers claim provides a new approach to dealing with taxonomic data, can be found on the Internet.

LucID is delivered on a CD-ROM and has an accompanying booklet. It provides an identification key system in two modules: a builder to construct the identification sets, and a player to view and interact with the data. According to CTPM, the package provides a comprehensive search and query system for information and the keys can be used as educational and training tools.

LUCID is available for Australian $ 495 from: Software Information Officer, Co-operative Research Centre for Tropical Pest Management, Gehrmann Laboratories, University of Queensland, Brisbane, Qld 4072, Australia. Fax: +61 7 3365 1855, Email: software@ctpm.uq.edu.au, Website: http://www.ctpm.uq.edu.au

Cassava root and leaf flour in poultry feed

In the Brazilian state of Amazonas, the poultry-farming industry is experiencing a number of difficulties due to high production costs brought about by the expense and scarcity of the raw materials used to make feed for domestic fowl. The main ingredient in the feed is maize which, along with soya flour and meat and fish meal, has to be brought in from other parts of the country leading to a consequent rise in production costs.

The total or partial replacement of the main ingredients in conventional feed by locally-produced raw materials (in particular cassava, which is a high yield traditional crop) could bring about a substantial reduction in the production costs of feed thereby making local poultry farming economically viable. With this in mind, the CPAA (Forestry Research Centre of Western Amazonia) carried out a research project aimed at:

- Partially replacing maize in poultry feed by whole flour made from the roots (FRIM) and branches (FRM) of the cassava plant;
- Reducing the costs of poultry feed in order to make local poultry-farming economically viable and to enable poultry farmers to produce part of the feed themselves.

The upper portion of the cassava foliage (branches and leaves) is used in the manufacture of FRM. This is ground and left out to dry in the sun for two days in layers approximately 6 cm thick; this is turned over twice a day to facilitate dehydration. Cassava roots are used to make FRIM. These are washed and cut in pieces approximately 5 cm long and 1.5 cm wide then left to dry in the sun for four days in layers of 7 kg per m^2; they are turned over twice daily for optimum dehydration.

Information available on the manufacture and cost of feed for 1 kg of live chicken indicated that the partial replacement of maize in feed was both economically and biologically viable at all stages of the test (1 to 54 days). Up to 45% of whole flour made from cassava roots and 10% made from cassava leaves can be used.

With a view to practicality and biology, according to the CPAA, the region's poultry-farmers could replace maize with up to 30% of whole flour made from cassava roots and up to 5% of flour made from cassava leaves in poultry feed. This applies both to the early (1 to 35 days) and final (36 to 54 days) stages of life.

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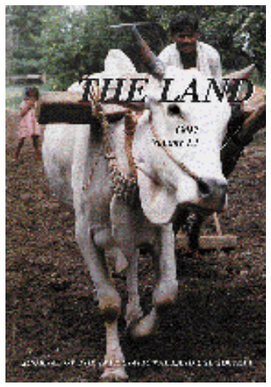
The Land



Land issues are at the heart of many current problems in the world of natural resources. Related to degradation of soil, water, forests and farmlands, natural disasters, pollution, or the shrinking genetic base, the problems impinge on a wide range of disciplines: these call for a substantial base of knowledge upon which informed and balanced decisions can be made. The Land Use Society launched a new journal in 1997 to support this process and to provide a forum for discussion and information about the use and management of land in its broadest sense.

The Land, which is supported by the Food and Agriculture Organization for its first year of production, not only spans all the disciplines involved in land use and management but aims to provide information which is accessible, authoritative and of a high scientific standard. Contents vary from scientific research papers to case studies, interviews and letters.

The move by land use planners to acknowledge the aspirations and perceptions of farmers, and the importance of natural resource information as a basis for sound planning are just two of the issues tackled in the first issue of *Land*. The second issue investigates among other things, several contentious issues in Africa including land tenure, land evaluation for livestock, and land degradation.

The editors are calling for articles, technical notes, research papers and letters, which can be submitted in English, French or Spanish. The Editor's Mailbag is open to receiving queries on practical problems.

Dr Willy Verheye (Editor), Acacialaan 21, 9840 De Pinte, Belgium
Fax: +32 9 282 5413,
Email: willy.verheye@rug.ac.be

Dr David Dent (Editor), School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, United Kingdom. Fax: +44 1603 507719, Email: d.dent@uea.ac.uk

Membership of the International Land Use Society is UK£ 20 per year, details available from: Dr Robert Ridgway, Natural Resources Institute, Chatham Maritime, Kent, ME4 4TB, United Kingdom. Fax: +44 1634 883959, Email: robert.ridgway@nri.org

A Directory for Southern Africa

A new edition of the Southern African Development Directory was launched in November 1997 on the tenth anniversary of the Programme for Development Research at the Human Science Research Council in South Africa which publishes the directory annually.

The directory provides background chapters and a listing of more than 4,000 organisations involved in the Southern African development process. It gives 55 categories of development work and covers the 14 member countries of the Southern African Development Community: Angola, Botswana, Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Special attention is given to important regional, continental and international institutions, such as the Common Market for Eastern and Southern Africa and the African Development Bank.

The directory is available for R200 (US$80) from: Programme for Development Research, Human Sciences Research Council, P O Box 32410, 2017 Braamfontein, South Africa. Fax: +27 11 482 4739, Email: bb@zeus.hsrc.ac.za

CABI CD-ROM

A Crop Protection Compendium giving details of the lastest scientific information for practical pest management has been produced by CAB International on CD-ROM. This module includes text, maps and full-colour illustrations on over 1,000 major pests, natural enemies and crops. It focuses on pests of the Pacific and South East Asia but also includes many of global significance. CABI describe the compendium as a simple tool for pest diagnosis that narrows down possible pests by criteria of country, crop and symptom and also by means of several illustrated diagnostic and taxonomic keys. It can be used as an information resource and a training aid.

Free trial copies and the complete module are available from: The Publishing Division, CAB International, Wallingford, Oxon, OX10 8DE, UK. Fax: +44 1491 826090, Email: marketing@cabi.org

USEFUL NEWSLETTERS LAUNCHED

AGRIFORUM

A quarterly newsletter, *AgriForum*, has been launched by the Association for Strengthening Agricultural Research in Eastern and Central Africa (ASARECA) to provide information about its regional research networks and programmes, and other activities related to co-operative work in the region. It is being supported by a grant from the Swiss Agency for Development Corporation.

ASARECA was established by the 10 National Agricultural Research Institutes of Burundi, the Democratic Republic of Congo, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Sudan, Tanzania and Uganda, which recognized that co-operation was essential if the regional research systems were to be effectively and efficiently maintained. The association has a number of successful research networks, for example, agroforestry, root crops, beans, potato and sweet potato, and banana. In 1997 it established three additonal networks: sorghum and millet to be 'backstopped', or provided with an advisory service in the field, by ICRISAT, the International Crops Research Institute for the Semi-Arid Tropics; maize and wheat, backstopped by CIMMYT, the international centre for research on maize and wheat; and dairy, beef and small ruminants.

ASARECA Secretariat, P O Box 765, Entebbe, Uganda
Fax: +256 42 21126/21070, Email: asareca@imul.com

MEAT AND LIVESTOCK MARKETS IN WEST AND CENTRAL AFRICA

This new quarterly newsletter, entitled "Marchés bétail-viande en Afrique de l'Ouest et du Centre", is the offshoot of work undertaken by the Conference of Ministers of Agriculture in West and Central Africa (CMA-AOC) in the domain of regional livestock. It draws on a network of national contacts (in Benin, Burkina Faso, Cameroon, Chad, Côte d'Ivoire, Ghana, Mali, Niger, Nigeria, Senegal and Togo), who gather information on several market indicators. The newsletter carries a wealth of useful information for public and private decision-makers (supply and prices of livestock, meat prices, news exchange) allowing them to keep in close touch with regional and European markets. Each issue also carries a feature article, examining in depth a specific topic, such as foreign trade policy or poultry production.

Production: CRETES, BP 1965, Yaoundé, Cameroon.

Manure sheds and milk production : encouraging results in Senegal

Raising cattle in cowsheds is proving to be a great success in the cotton growing zone of Senegal. The local textile fibre development company (Sodefitex) is encouraging this type of intensive livestock husbandry as one way the area can better face the combined pressures of unsettled climate, devaluation of the CFA franc, population and over-use of natural resources.

Manure cowsheds, as they are known, are simply shelters having a pit and a feeding trough. In certain cases, the pit is cemented and in others, it is simply a hole dug in the ground. The animals receive a health check and surveillance (vermifuge and trypanocide treatments), are watered once a day, and fed on stalks from the bush and from maize. The major supplement given is cotton seed. The system is seen as a "technology package" which results in organic manure for fertiliser and for producing biogas.

The cowshed system is viable, according to a recent study conducted on twelve family smallholdings in villages around the town of Tambacounda. Sales of milk and the production of manure are well in excess of the costs of the health treatments and the cotton seed. Profits are even higher for farmers that have concreted cowsheds. Still, this system's success depends heavily on Sodefitex's cotton seed price subsidies. Even so, manure sheds help to conserve natural resources, which benefits rural people. For this reason alone this innovation deserves to be supported as an integral part of the cotton production chain, and it should help maintain productivity over the long term.

Contact: Cheikh Ly, Service d'économie rural et gestion, Ecole inter-états des sciences et médecine vétérinaires (EISMV), BP 5077, Dakar, Senegal.

New on the Web

NEW PARTNERSHIP FOR IMPROVED *MUSA* (BANANAS AND PLANTAINS)

PRO*MUSA* (a Global Programme for *Musa* Improvement) is a research network created on the initiative of INIBAP and the World Bank. Launched in 1997, the network brings together researchers into thematic working groups such as genetic improvement, fusarium wilt disease, Sigatoka diseases, nematodes and viruses. Three key objectives founded the creation of the programme: to increase the productivity of bananas and plantains in a sustainable way, respectful of the environment, and with an emphasis more as subsistence food than for local and export markets; to promote the development of improved varieties of *Musa* and to disseminate them to producers through National Agricultural Research Systems (NARS); and to facilitate and encourage partnership between national systems, institutes and international agricultural research centres.

PRO*MUSA*'s Website (http://www.inibap.fr/promusa/) carries general information about bananas and plantains, describes its programmes, and provides links to the multitude of sites covering bananas: producers associations, research centres, etc.

Contact: INIBAP, Agropolis Science Park, 34397 Montpellier cedex, France.
Fax: +33 467 61 03 34
E-mail: inibap@cgnet.com

See also: Frison, E., Orjeda, G., Sharrock, S., editors, 1997 : A Global Programme for Musa *Improvement. Proceedings of a meeting held in Gosier, Guadeloupe, March 5 – 9, 1997. International Network for the Improvement of Banana and Plantain, Montpellier, France / The World Bank, Washington, USA.*

PELUM Association

A "college without walls" is gaining strength in Zimbabwe and in June this year will begin to offer training in sustainable agriculture and community development. This pilot project being established under the auspices of the PELUM (Participatory Ecological Land Use Management) Association is bringing together universities, national NGOs, community based organisations and government departments in a unique alliance to pool resources and offer training that might be beyond the scope of a single organisation. The PELUM College Zimbabwe draws on the resources of 15 organisations to fulfill its role in training NGO staff with an ultimate aim of tackling continuing problems such as land degradation, top-down extension, and ad hoc NGO activities.

PELUM itself was officially launched in 1995 based on a four-year planning period by NGOs in Eastern and Southern Africa. It is optimistic about its long-term survival largely because it believes its roots are firmly in the region and it is evolving as a direct result of felt rather than perceived needs. There are currently around 60 members and a regional co-ordinating desk based in Harare.

The association centres around the joint development of curricula by its members but it has also given itself the task of making existing training materials more easily available in the region. Other objectives include the provision of appropriate accreditation for its courses, the establishment of working groups and the development of an up-to-date inventory of resource peronnnel.

A number of innovative approaches have developed and evolved over the last 30 years, say the organisation. These include, for example, participatory rural appraisal, holistic resource management, permaculture, training for transformation, the organisational workshop, low-external-input sustainable agriculture and the recognition of indigenous knowledge. Using practical activities the aim is to try to bridge the canyon that still remains between awareness raising and action on the ground; PELUM is taking up the challenge to adapt and link them using the experience of people already working in the region. This experience, they say, needs to be put in a form than can be widely shared to avoid it being lost and PELUM's networking approach will help the process.

Publications Catalogue and further information is available from: The coordinator, PELUM Association, Box MP 1059, Mount Pleasant, Harare, Zimbabwe.
Fax: +263 4 726 911,
Email: pelum@mail.pci.co.zw
See page 9 for details of the PELUM training workshops in 1998.

Electronic journal on www

The electronic journal *Livestock Research for Rural Development* whose distribution on diskettes was supported by CTA in its early years, is now available on the Internet's World Wide Web enabling researchers and development workers access to information as soon as it has been approved for dissemination.

The journal is now considered sustainable and no longer dependent on donor agencies, according to Dr Thomas Preston who co-founded it with Dr Andrew Speedy of Oxford University. It was one of the first scientific journals to be made available exclusively in electronic format, he says, and was published by the Centre for Research in Sustainable Agricultural Systems in Colombia. It is now available in 'pdf' and 'html' formats which can be easily downloaded from the Internet for printing or storage.

The tenth anniversary of the journal is being commemorated by the issue of a compilation CD-ROM holding a complete set of back issues, plus a scanned version of a second journal *Tropical Animal Production* which ran from 1976 to 1985.

Website: http://sunny.plants.ox.ac.uk/homepages/

Courses

REPAHA

- Sustainable beekeeping, 20 - 31 July 1998
- Aquaculture production technologies, 20 - 31 July 1998
- Use of computers in livestock programmes, 20 July - 7 August 1998
- Dairy development, 10 - 28 August 1998
- Livestock programme planning, 10 - 28 August 1998

Details of the above five courses in the Caribbean plus details of 'distance mode' courses from: The Principal, Regional Education Programme for Animal Health Assistants (REPAHA), P O Box 10962, Georgetown, Guyana. Fax: +592 20 6557.

INTERNATIONAL COURSE ON VEGETABLE PRODUCTION

26 July - 31 October 1998

With ever increasing pressures to improve the productivity of their existing farmland, farmers need more support from advisers and researchers in production and marketing techniques. This three-month course is for horticultural advisers, lecturers and researchers, and includes: vegetable production and seed technology, variety testing, crop protection and ecology, plant nutrition, mechanisation for small-scale systems, post-harvest handling and marketing, extension methods and strategies, and planning.

The Director, International Agricultural Centre, P O Box 88, 6700 AB Wageningen, The Netherlands. Fax: +31 317 418552, Email: iac@iac.agro.nl

MSc IN FORESTRY EXTENSION

29 September 1998 - 25 September 1999

Lectures, seminars, project work, case studies and practical activities form the basis of this course intended for foresters with a degree or higher diploma in forestry or related subject and whose work involves dealing with rural people. Content includes: theories of development, society and change, understanding human communication, and technology for rural development. Specialist options can be chosen such as: the role of NGOs in rural development, participatory approaches, computer applications and statistics.

Verity Smith, Agricultural Extension and Rural Development Department, University of Reading, P O Box 238, Earley Gate, Reading, RG6 6AL. Fax: +44 118 926 1244, Email: aerrd@reading.ac.uk, Internet Website: http://www.reading.ac.uk/acadepts/ea

PARTICIPATION IN LOCAL DEVELOPMENT

26 - 30 October 1998

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

Agromisa, P O Box 41, 6700 AA Wageningen, The Netherlands. Fax: +31 317 419178, Email: agromisa@worldaccess.nl

CURRENT METHODS IN TROPICAL FORESTRY

July - September 1998

People concerned with the stewardship of trees and forests should be familiar with a range of methods. The Tropical Forest Resource Group, an association of organisations specialising in tropical forestry, education and information, project management and consultancy are therefore offering this course for professional foresters and conservationists, environmental managers, land use planners and forestry research managers.

Nell Baker, course organiser, Tropical Forest Resource Group, Oxford Forestry Institute, University of Oxford, South Parks Road, Oxford, OX1 3RB, UK. Fax: +44 1865 275146, Email: nell.baker@plants.ox.ac.uk.

FARMER TO FARMER WORKSHOP

10 - 21 August 1998

The PELUM (Participatory Ecological Land Use Management) Association is running this two-week workshop in Tanzania.

PELUM Association, P O Box MP 1059, Mount Pleasant, Harare, Zimbabwe. Fax: +263 4 744470, Email:pelum@mail.pci.co.zw

TRAINING PROGRAMMES IN GERMANY

- Peri-urban livestock production in the tropics and subtropics, 19 August - 16 September 1998

For participants from Africa and Asia

- Promotion of rural development in the tropics and subtropics, 20 August - 29 September 1998

For participants from Africa and Asia

- Conservation and utilisation of plant genetic resources in agriculture and forestry, 9 September - 5 October 1998
- Promotion of self-help organisations, 1 - 27 October 1998

For participants from Africa and the Caribbean

- Farming Systems Development, 5 January - 2 February 1999

The above six training programmes are to be held in Germany for participants world-wide unless otherwise stated. They are organised by the German Foundation for International Development and the Food and Agriculture Development Centre.

Applications to be submitted to the local German diplomatic mission administering the German Scholarship Scheme, or, Zentralstelle für ernahrung und landwirtschaft (zel) feldafing und zschortau, D-82336 Feldafing / München, Germany.
Fax: +49 8157 938 777, Email: zel@zelfe.dse.de

SCIENCE AND HORTICULTURE, INTERFACES AND INTERACTIONS

2 - 7 August 1998

This international conference organised by the International Horticultural Congress (IHC), will cover topics such as culture techniques, quality of horticultural products, computers and automation, application of biotechnology and molecular biology. It comprises general and commodity sessions, separate symposia and workshops, poster sessions and exhibitions of equipment and publications.

Hector Willcox, 25th IHC, c/o Ministry of SME and Agriculture, P O Box 182, B-1210, Brussels 21, Belgium.
Fax: +32 2 501 6350, Email: 25ihc98@tornado.be

AGRICULTURE IN THE CARIBBEAN - ISSUES AND CHALLENGES

16 - 23 August 1998

This conference and exhibition will be held at the St Augustine Campus of the University of the West Indies, Trinidad, and will be based on scientific papers on issues and challenges in agriculture; the exhibition will be open to private companies and international institutions; and workshops will be held on agricultural diversification and agricultural productivity.

Professor Lawrence Wilson, programme co-ordinator, Continuing Education Programme in Agricultural Technology, Faculty of Agriculture and Natural Sciences, The University of the West Indies, St Augustine, Trinidad and Tobago, West Indies.
Fax: +868 662 1182, Email: tuf@wow.net

DEVELOPMENT AND USE OF TRAINING EXTENSION MATERIALS TO PROMOTE *STRIGA* AND *OROBANCHE* CONTROL

Last quarter 1998

This two-week course is designed to improve the ability of participants to promote management practices for the control of parasitic weeds. The course will draw on the experience and knowledge of the Regional Ecology and Management of Parasitic Weeds Project. Personnel are encouraged to apply for the course in teams of three: a resource person and a representative from the official and non-governmental organisations active in agricultural extension. The course will be conducted in French and English.

Dr Stefan Kachelriess, Ecology and Management of Parasitic Weeds, University of Hohenheim (380), D-70593 Stuttgart, Germany.
Fax: +49 711 4593843, Email: kachries@uni-hohenheim.de

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

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

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

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

Handover is guaranteed

Mamadou Faye, of the Eaux et Forêts (Forestry department) in Mbacké, Senegal, writes about the results of close collaboration between the NGO SOS Sahel, government services and local villagers. "The area where we live is wooded savannah, now seriously deforested. There are only grazing plants left (*Faidherbia albida*, *Acacia* spp., *Balanites aegyptiaca*); virtually all the species with an industrial value have disappeared. The NGO organised discussion meetings and awareness building sessions to encourage people to plant and nurture young seedlings. Groups were trained in tree nursery techniques. Every year, small enclosed plantations (0.5 to 1 hectare) of *Euphorbia balsamifera* were planted." Mr Faye also mentions the digging of two wells, opening up market garden plots, the purchase of a millet mill, and the construction of two health posts. He concludes by saying that "when the project ended in 1994, this did not stop village leaders from continuing their planting activities, under the leadership of Mrs Cazaty, who, with the support of the Forestry Department, carries on the good work of working for the welfare of our rural people."

More interest in credit

Emile N. Houngbo, a socio-economist in Benin, comments on the article in *Spore* 71 (page 4), because the details given do not, in his opinion, match the everyday realities of the street banking sector in Benin. "Deposits are made on a daily basis; in fact, savers do not really have a choice of days; the banker comes round daily, except on Sundays, to collect deposits. The banker's commission paid for services rendered is the equivalent of one daily deposit, regardless of whether or not the saver continues saving to the end of the agreed saving cycle. These periods are normally monthly, quarterly or annual. Cases of street bankers running off with their depositors' money have now become common, and this has considerably reduced the once-high credibility of these people. Nowadays, large depositors (of more than CFA 400, about 60 US cents, a day) take out an interest-free loan equivalent to the total intended for the whole month, and they do this after just 5 or 10 deposits. For depositors, the availability of this credit has become a criterion for choosing a street banker. The situation is less a case of a depositor accepting to pay heavily for the right to save, and more a case of him wanting to start saving with a street banker in order to get, on the 5th or 10th of the month, a loan equivalent to the total amount he expects to save.

Seeing red

Joseph Mawa Lufuku, of the Centre de promotion sociale et agro-alimentaire (CEPROSA) in Kinshasa, Democratic Republic of Congo, writes about the article in the French edition of *Spore* 65: "The recommendation 'Don't whiten palm oil' is sound advice indeed, but not for the reasons given in the article. The increase in cholesterol is due, in actual fact, to another factor than the process of overheating the oil in order to whiten it. [...] Palm oil cannot be classified as a food with lipids rich in polyunsaturated fatty acids. It comprises saturated fatty acids above all, which means that, whether raw or whitened, it always increases the rate of cholesterol in the blood. [...] The effects of whitening palm oil has more to do with the destruction of carotene (which colours the oil red); this is a provitamin A which allows the body to elaborate its vitamin A. Whitening palm oil also produces a very poisonous and suffocating substance, acrolein, which is carried in smoke. It is the housewives who suffer from this."

Giant snail : the end of the tale ?

Victor Nobime, from CREDAC in Benin, reports having received "a flood of mail" after his message in Mailbox in *Spore* 71 : in one month, he received mail from more than 100 readers in twelve African countries about the giant African snail. He remarks that "the demand for information up to now confirms yet again that the snail is a special sector in livestock development which should be encouraged."

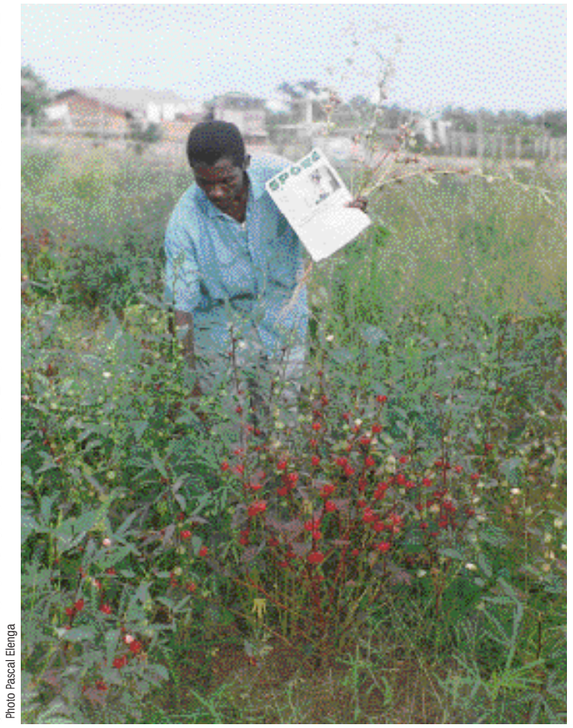


Photo Pascal Elenga

This photo was sent by the "Books and Life" working group (Livres et Vie) (B.P. 20, Owando, Congo) which was formed to help cooperatives and groups of disadvantaged farmers in the Owanda region learn agricultural techniques and improve their agricultural knowledge. The library is open free of charge.

Climate change: can we change our horizons?

Youba Sokona is Energy coordinator at ENDA, an environment and development organisation in Dakar, Senegal. He works extensively on the United Nations Framework Convention on Climate Change (UNFCCC), which aims at persuading governments to modify the impact of human activity on the environment and world climate.

Drastic changes in the world's climate are predicted over the next few decades. Apparently inevitable, they will force whole countries and cultures in ACP States and beyond to adapt their ways of life, and their agriculture. Yet the reality of meeting today's needs stands between them and the overwhelming changes which lie only just over the horizon. Youba Sokona sees the UNFCCC climate change meeting in Kyoto, Japan, in December 1997 as a missed opportunity to deal with urgent immediate and long-term challenges.

Human actions can contribute to climate change, mainly through combustion of fossil fuels, land-use changes and agriculture. These have increased greenhouse gases in the atmosphere (mainly carbon dioxide, methane and nitrous oxides) which reflect back part of the earths warmth to its surface, causing global warming. World temperatures are expected to rise by 2°C by 2100 if human activities continue as they are, perhaps leading to different climate zones, rises in sea-levels and more frequent severe climatic events such as droughts and storms.

For ordinary people and political leaders in Africa, climate change is not an immediate priority; our focus is on immediate needs and problems. Structural adjustment has imposed short-term perspectives upon us; many people in the North have the freedom of longer-term perspectives.

The Kyoto meeting reaffirmed social and economic development and poverty elimination as developing countries top priorities; reduction of greenhouse gas emissions is a second priority. The major efforts to reduce these gases are needed in the industrialised world and the decisions to cut them by 5% over the next ten years compare badly with the reduction of 20%-plus, that is actually needed now.

Sharing the effects, not the blame

Africa is not a major contributor of greenhouse gases; its emissions amount to less than 8% of the worlds total. It is, however, very vulnerable to climate change. Experts on the International Panel on Climate Change predict more widespread drought in Saharan and Sahelian countries. Lower rainfall will lead to soil degradation, lower arable and pastoral production and chronic food supply shortages.

In general, considerable loss of biodiversity and severe damage to transport and communication networks are forecast. Worst of all, large-scale human migration and political instability are predicted, with social unrest and breakdown and impacting other continents through migration and terrorism. How much of this can we prevent?

We can reduce the footprint of African agriculture on the environment and improve production, through better resource management, agro-forestry, and rational land-use. At the same time, our predominantly peasant-based farming has to shift to intensified production. Some approaches can both meet immediate needs and help to minimise the effect of greenhouse gas emissions. ENDA's SysPro programme in Senegal has successfully irrigated seedlings in relatively barren soil, increasing production and creating carbon sinks, which in turn support trees that capture carbon dioxide gases and remove them from the atmosphere.

Despite our disappointments in Kyoto, we have to seize every opportunity, especially for our own capacity building. The Clean Development mechanism proposed by Brazil is one such chance. Since the Rio Earth Summit in 1992, where Heads of State of most nations met for the first time to discuss global environment and development issues, awareness has grown that solutions cannot be imposed, and that in Africa we have to create capacities to allow people to make and take their own decisions. Remember that only a handful of Africans are professionally involved in climate change, compared with hundreds in Europe and thousands in North America. When we have built up our capacities, our decisions including for the future of African agriculture will be very different from those we are locked into now.

The need to know

We have to find ways and means to explain the nature of the changes that will probably happen. It is hard to explain to the small fishing communities on the Petit Côte in Senegal, for example, that their livelihoods will probably disappear as a result of sea-level rises and coastal erosion, but it must be done, and in a positive way that will not sow panic. Many people in the North see climate change as a threat to their way of life, which should be protected at almost any cost. They should look more at their wasteful consumption, and understand that the scenarios in store for Africa will affect them too.

Whether you are in Watagouna, in northern Mali, or Winnipeg in Canada, or Rio or Berlin, you cannot escape climate change. We can be sure that extreme cases of effects will become more common: islands off the African coast will disappear, and massive power losses, such as those in Quebec in January 1998, induced by unprecedented ice storms, will become more frequent.

We are driven by our short-term needs, even sometimes knowingly at the expense of future generations. We also suffer from the short-term vision of our partners in the North. We need more patient investment in success stories, in translating them into policies, and in capacity building. Above all, we must keep our own perspective of optimism: that change can bring benefits.

Website:
http://www.enda.sn/energie/cc/energycc.htm
E-mail: energy2@enda.sn fax:+221 8222695
mail: ENDA Energie, BP 3370, Dakar, Senegal

The views expressed are those of the author and do not necessarily reflect those of CTA

Seminars on new EU measures for food security in ACP States

In the present economic and political context, significant changes are taking place in food security issues. Nowadays, emphasis is being placed on developing seamless and sensible links between various food security programmes, including emergency aid and overall development policies.

In 1996, the European Union adopted a new community programme with flexible, trans-sectoral tools designed to:

– improve market supply through support to local food production (local purchases, and so-called triangular operations);
– facilitate the access of vulnerable groups to basic food supply, instead of simply providing food;
– create a stable and responsive political and economic climate to encourage long-term food security policies.

Between October and December 1997, CTA and the Food Aid and Food Security Unit of the Directorate-General for Development of the European Commission organised a series of three seminars based on this new set of measures. This was done against a background of alarming perspectives, especially with regard to sub-Saharan Africa. The seminars were intended to inform and encourage discussion about the measures with ACP decision-makers (Permanent Secretary level of Ministries of Agriculture, Economic Affairs and Trade) and with representatives of NGOs and regional organisations, all of whom were actively involved in this domain. The four regions of Africa, and the Caribbean, were represented [1].

Each participant approached the seminars with their own particular experience and vision, and together discussed various sections of the new measures and their tools, such as aid in kind, financial aid, counterpart funding and foreign exchange arrangements. A set of case studies underlined just how diverse (e.g. countries in a critical state, in the process of rehabilitation, and with a high level of food insecurity) and complex situations of food insecurity are, as well as the difficulties of implementing corrective steps. It was recognised that it was the role of the State to create an institutional and economic framework to protect the poorest of the poor. Further, the importance of making national, regional and international policies coherent and complementary was stressed. Participants also emphasised the need for communication and consultation between various partners.

[1] *West Africa: Burkina Faso, Cape Verde, Chad, Mali, Mauritania, Niger*
Central Africa and Caribbean: Angola, Democratic Republic of Congo, Haïti, Madagascar, Rwanda, São Tomé and Principe
East Africa: Ethiopia, Kenya, Malawi, Mozambique, Somalia, Uganda, Zimbabwe; Yemen also participated.

Agricultural research: strengthening the contribution of universities

Universities have a significant contribution to make to agricultural development in sub-Saharan African countries. That is the conclusion of an international workshop held in November 1997 at the IITA (International Institute for Tropical Agriculture) station at Calavi in Benin. The workshop was co-organised by ISNAR (International Service for National Agricultural Research), CTA, the German Federal Ministry for development cooperation (BMZ), and the German development agencies GTZ and DSE. It brought together more than 50 professionals, including 18 managers from universities and research institutions who had undertaken preparatory studies in six African countries on the topic. Other participants were representatives of regional organisations (ASARECA, SACCAR and CORAF), of IITA (Ibadan, Nigeria and Calavi, Benin) and of European universities.

Workshop participants examined the factors which reduce the impact of agricultural research on development, and discussed the recommendations and action plans drawn up for the universities of Benin, Burkina Faso, Côte d'Ivoire, Nigeria, Uganda and Zimbabwe. They concluded that universities could and should conduct research which is more relevant to the country's agriculture. They felt that the universities should become part of national agricultural research systems (NARS), which encompass the private sector and non-governmental organisations as well as research institutions. The importance of strengthening links with extension services was stressed as a way to heighten the relevance and impact of university research.

The main obstacle to implementation of the workshop recommendations was perceived to be the low level of funding for university research. Other equally important constraints were short-comings in research planning and management, lack of clarity in institutional mandates and policies, and lack of incentives for researchers.

The workshop concluded with representatives identifying specific activities which could strengthen the contribution of universities to agricultural research in Africa. ISNAR, the institution behind this initiative, will use the conclusions from the workshop and the six case studies as the basis for developing broad guidelines and study methodologies applicable to other countries.

Study visit: livestock systems in humid and sub-humid zones of Africa

In some countries in Africa, significant activities have been developed in livestock systems. The important experiences and know-how gained are worthy of being shared with other countries having similar agro-ecological conditions. With this in mind, CTA organised a two-week study tour in Guinea, in collaboration with that country's Ministry for Fisheries and Livestock. Participants in the study tour were twenty directors of national livestock services and development projects from seven West and Central African States, as well as the coordinator of the Livestock Network of CORAF (the Conference of Directors of African Agricultural Research). They visited 19 sites, and developed an appreciation of the innovative approaches of Guinean colleagues to the sector, and, in particular, of their plans in mobilising stakeholders, institutional development and management of natural resources.

Drawing on lessons learned and the exchanges of ideas that took place during their visit, the participants drew up a list of those activities that could well be extended to other countries in the region: setting up a rural credit programme focusing on animal production; developing a market information system; encouraging the organisation of breeders into groups (with a 'solidarity' contribution that helps gain access to credit); encouraging the participation of women in the sector, and carrying out studies on the environmental impact of livestock. Another experience of interest for all countries in the region was the establishment of management committees that bring together various parties for the maintenance and running of marketing systems for livestock products.

Bilingual atlas of livestock in the Lake Chad basin

Lake Chad lies at the heart of a large basin measuring some 427 300 km². The region has suffered profound ecological change, the product of a prolonged drought that has afflicted the region over the last few decades. The lake itself has shrunk from 22 000 km² to around 7 000 km² over the last thirty years. Annual rainfall in the basin is very variable lending to major uncertainties in livelihood. As a consequence, the amount of fodder available can fluctuate greatly, in a region which is dominated by livestock activities.

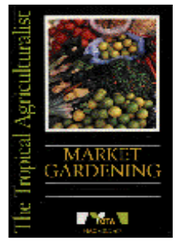
This bilingual atlas (English and French) is a useful reference tool for the development and management of natural resources in the region, and takes into account ecological risks and socio-economics. It was produced in collaboration with the LCBC (Lake Chad Basin Commission) which comprises Cameroon, Central African Republic, Chad, Niger and Nigeria. Its three chapters – environment; livestock and pastoralism; economics and socio-economic aspects – cover fifteen topics in all. Summaries, tables and photographs complement the cartographic information. All in all, it is a veritable mine of data on subjects as diverse as hydro-geology, remote sensing, wildlife and agro-pastoralism.

CIRAD-EMVT / CTA co-publication, 1996, 158 pp., format 40x50cm, ISBN 2-87614-248-1, 120 credit points.

Available from CTA

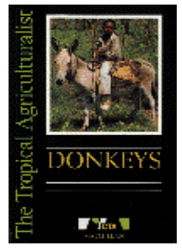
New in *The Tropical Agriculturalist* series

Market Gardening, by R. Kroll, describes the cultivation, management and use of 59 different vegetables. General advice is given on production factors such as climate, soils and the use of fertilizers etc., as well as harvesting and post-harvesting operations. Appendices give an overview of common pests and diseases and suggest methods of control.



CTA / Macmillan co-publication 1997, 176 pp., ISBN 0-333-65449-8, 10 credit points

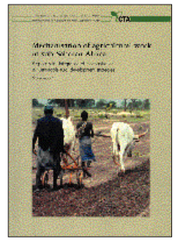
Almost all of the world's 40 million donkeys are to be found in less developed countries, where they serve a variety of purposes, as pack animals, for draft work and riding. *Donkeys*, by D. Fielding and P. Krause, is a guide for anyone involved in using or breeding these animals. Besides giving details of donkey physiology, nutrition, health and husbandry, this book provides practical information on the use of donkeys as work animals, including training and harnessing aspects and descriptions of the equipment needed for transport and cultivation purposes. There is also a chapter on the infertile offspring of the donkey and the horse: the mule and the hinny.



CTA / Macmillan co-publication 1998, 120 pp., ISBN 0-333-62750-4, 10 credit points.

Mechanisation of agricultural work in sub-Saharan Africa: study report

This study report contains past and on-going experiences, together with a brief description of the most common techniques. The study explores the adoption and use of innovative manual tools, cultivation using draft animals and engine driven equipment, in the fields and for transport purposes. The main aims of the study were to identify the most appropriate means of raising the awareness of the various operators (small farmers, policy makers, and research managers) regarding the contribution of mechanisation to agricultural development, and to suggest activities at a national or regional level to promote the mechanisation of small- and medium-sized farms. The study makes a number of recommendations with a view to improving the integration of mechanisation in rural development strategies. These recommendations are addressed to governments, private operators, donors and NGOs.



The report is divided into two major sections. The first is devoted to analysis of lessons learnt from the past and on-going experiences and an analysis of the current status of technology including typology of critical factors in the development of mechanisation. The second section consists of recommendations and subdivided into several parts: conceptual framework, priority for governments, role of private operators and NGOs, and proposals for regional cooperation.

CTA publication 1997, 70 pp., ISBN 92 9081 1749, 5 credit points.

Obtaining CTA publications

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

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

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

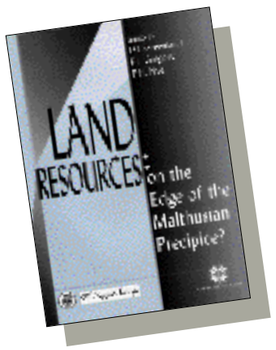
Ethiopia

Ethiopia has suffered from severe soil erosion and land degradation for decades and past attempts at rehabilitation have been seriously disappointing. However, a recognition of past mistakes has led to the design of a participatory approach to agroforestry and a description of this has been published by Wageningen Agricultural University, the Netherlands.

The approach addressed the following needs: improved and holistic production of food, fuelwood and fodder by farmers, appropriate soil and water conservation and reforestation initiatives, and a systems approach for the design of rehabilitation schemes. Farmers were involved in the study, adaptation, implementation and evaluation of the rehabilitation work, and this is reflected in the overall framework and posing of research questions. The recommendations stress the importance of initiatives being carried out in 'conducive environments' — and what makes for such environments is also discussed.

A participatory agroforestry approach for soil and water conservation in Ethiopia. Tropical Resource Management Paper 17. By Azene Bekele-Tesemma. 1997. 229 pp. ISSN 0926-9495. NLG 20.
Wageningen Agricultural University, Liaison Office, P O Box 9109, 6700 HB Wageningen, The Netherlands.
Fax: +31 317 484 292.

Malthus



Exactly 300 years ago, Malthus first put forward the notion that food production cannot keep pace with population growth. This idea still resonates. In 25 years the human population on the planet could reach eight billion. The general concern about the world's ability to support such an increase and whether technical advances, particularly in food production, will be able to keep pace is increasingly under intense discussion. A group of scientists concerned with natural resource management met in 1996 to assess the production potential of the available land. The presentations, discussions and conclusions have now been published and cover: current pressures on land and water resources, the effects of climate on productivity, the need for crop improvement, better management of water, soil and nutrients, economic factors and environmental limitations.

The book will be of interest to practitioners and students of agronomy, forestry, soil science and ecology concerned with natural resource management; and to economists, policy-makers and environmentalists with an interest in global issues.

Land resources: on the edge of the Malthusian precipice? Edited by D J Greenland, P J Gregory and P H Nye. 1998. ISBN 0 85199 235 8.
Publishing Division, CAB International, Wallingford, Oxon, OX10 8DE, UK.
Fax: +44 1491 833508,
Email: cabi@cabi.org.

Gender

The key to sustainable natural resource management is involving all stakeholders, male and female, in the planning process. It is important that development workers recognise and are familiar with such gender issues, and, with this in mind, a Gender Training Workshop was held by the Forest Action Network in 1997 at Nakuru, Kenya. Proceedings of the workshop have been made available with assistance from the Food and Agriculture Organization .

Gender training workshop. By L Nakhone. 1997. Forest Action Network, P O Box 21428, Nairobi, Kenya.
Fax: +254 2 718398,
Email: fan@arcc.or.ke

Biodiversity

Biodiversity is recognised as a key issue in the general debate about the sustainable use of the world's natural resources; the urgent need now is to collect, manage and disseminate information in an efficient and useful way. This book reviews what are the information needs critical to biodiversity and how this information may be efficiently communicated; it is based on papers presented at a workshop held in London in 1996. The workshop focused on the need to let information move between its point of origin and its many points of use, so that global priorities may be met with a rapid assessment and response.

CTA supported the participation of some delegates in the workshop which itself was organised and sponsored by CAB International, the International Union for Biological Sciences, the International Union of Forestry Research Organizations, the UN Environment Programme and the World Conservation Union.

Biodiversity information: needs and options. Edited by D L Hawksworth and P M Kirk. 1997. 194 pp. UK£ 35.
Publishing Division, CAB International, Wallingford, Oxon, OX10 8DE, UK.
Fax: +44 1491 833508,
Email: cabi@cabi.org.

Post-harvest

Tropical and subtropical fruits are becoming more important food items both in countries where they are produced and in an increasing number of importing countries in temperate zones. Production has increased substantially and with it interest in post-harvest issues, especially because post-harvest losses in the country of origin can be considerable. CAB International have published a comprehensive volume dealing with post-harvest storage, physiology and conservation of all the economically important tropical and subtropical fruits. It will be of interest to horticultural researchers and students that work with these crops as well as growers, exporters and importers.

Post-harvest physiology and storage of tropical and subtropical fruits. Edited by S K Mitra. 1997. 423 pp. ISBN 0 85199 210 2. UK# 65.
Publishing Division, CAB International, Wallingford, Oxon, OX10 8DE, UK.
Fax: +44 1491 826090,
Email: cabi-nao@cabi.org

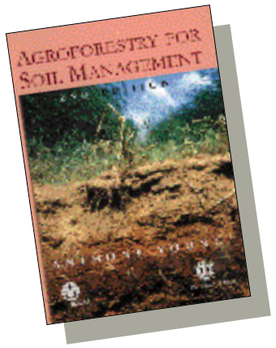
Cytokines

Cytokines are regulating proteins that perform an intercellular communication function in a variety of biological processes. This book brings together a wealth of recent advances in the understanding of cytokines and how this may be applied to diagnosis and therapy of diseases in animals such as cattle, sheep, pigs, horses, cats, dogs and birds. It will be of primary interest to researchers in veterinary microbiology and immunology.

Cytokines in veterinary medicine. Edited by V E C J Schijns and M C Horzinek. 1998.
ISBN 0 85199 209 9
Publishing Division, CAB International, Wallingford, Oxon, OX10 8DE, UK.
Fax: +44 1491 833508,
Email: cabi@cabi.org.

Agroforestry

Agroforestry can make a major contribution to sustainable land use with its potential, in well-managed systems, to control runoff and erosion, maintain soil organic matter and physical properties, and promote nutrient cycling. CAB International have updated *Agroforestry for soil conservation,* published in 1989, by providing a new synthesis that draws on over 700 recently published sources including results of field trials of agronomy systems and research into plant-soil processes. The book, published with the International Centre for Research in Agroforestry, also contains information on soil erosion, conservation, and management. It will be of interest to anyone concerned with agroforestry: students, research scientists, soil scientists, agronomists and foresters.



Agroforestry for soil management. 2nd edition. By A Young. 1998. ISBN 0 85199 189 0.

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

Kenya

A 300-year-old technology developed by farmers in Kenya to preserve milk should benefit from future collaboration between farmers and researchers and lead to improved use and management of trees, according to a study published by the Forestry Action Network.

Milk is often treated before drinking for reasons of palatability and preservation. In the Trans-Nozia District, farmers store milk in gourds that have been coated inside by the burnt wood ash-dust of various tree species. Milk stored in such containers is considered "treated". Trees chosen for this purpose are multipurpose species and *Cassia didymobotrya* was found to be the most popular species for the task, 60% of farmers had planted it around their homes. According to the author, William Mureithi, indigenous knowledge and practices often enhance the conservation of biodiversity and can be used as the basis for developing future forest conservation and tree planting strategies. By documenting and adding to their own knowledge, conventional research can help farmers integrate into mainstream rural and economic development.

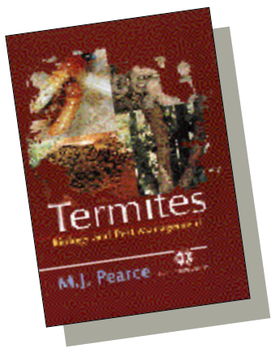
The farmers choose particular trees for the milk treatment using certain criteria but the treatment itself remains subject to trial and error. The study calls for further work to provide a basis for 'horizontal learning' and communication among communities, for example, of the product market potential, and for research to help farmers raise seedlings to ensure their long-term supply of the raw product.

A second study published by the Forest Action Network also sees potential in strengthening linkages between farmers and research and extension institutions to recognise traditional knowledge systems as paramount for progress in agricultural development. The authors of *A Community's Initiatives to Survive in a Semi-arid Area* note the advances made by farmers in solving their production problems. The farmers studied effectively combated particular diseases and pests through the use of wood ash and extracts of pyrethrum, tobacco and Mexican marigold. They devised ways of establishing tree seedlings under conditions of scarce water supplies by using wood flumes and stone quids, inverted bottles, double-digging, perforated cans, sawdust and mulch. Such techniques have promoted a steady increase in the number and species of trees grown in the district.

The authors conclude that traditional knowledge can be strengthened by blending it with modern science on a greater scale than in the past.

Milk treatment using selected tree species: a case study in Trans-Nzoia District, Kenya. 1997. By W Mureithi. Moi University.
A Community's initiatives to survive in a semi-arid area: the case of Kikapu, Njoro location, Nakuru, Kenya. 1997. By E M Njoka and P M Makenzi. Egerton University.
Forest Action Network, P O Box 21428, Nairobi, Kenya.
Fax: +254 2 718398,
Email: fan@arcc.or.ke

Termites



Termites, while a fascinating subject for students of insect behaviour, are major pests of crops and buildings in the tropics and subtropics. An introduction to termites has been written by Mike Pearce, formerly of the Natural Resources Institute, for advanced students of entomology and pest management and professionals concerned with urban and agricultural pest control. Among the subjects he treats are: biology, behaviour, status and control. Moreover, commonly used ecological and laboratory techniques are described in the appendices.

Termites: biology and pest management. By M Pearce. 1998. ISBN 0 85199 130 0

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

Palms

Despite having around 2,500 species worldwide commonly growing in tropical forests and being the source of a vast range of useful products, palms have been largely ignored by foresters when designing and implementing forest management plans. In an attempt to right this oversight the Food and Agriculture Organization have published the results of a study which described palms and their products, linked products to specific species and their conservation status, and provided details for additional sources of information. This publication helps to assess the role palms and their products can play within integrated forestry, agriculture, conservation and natural resource management activities. It will be of interest to forestry technicians, international development workers, policy makers and international conservation and development agencies.

Non-wood forest products: tropical palms. By D V Johnson. 1997. 166 pp.

Distribution and Sales Section, Food and Agriculture Organization, Viale delle Terme di Caracalla, 00100 Rome, Italy.

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.

EMBRAPA

The Brazilian Agro-pastoral Research Company, EMBRAPA, was set up on 26 April 1973. The company possesses modern laboratories and research stations and is organised into two departments and 37 Research Units , which are situated in very diverse ecological conditions all over Brazil. EMBRAPA's workforce numbers 9,500 including 2196 researchers (55% possessing a master's degree, and 35% doctorates).

In addition to work directly related to agro-pastoral research, which is carried out at the Company's headquarters, research units and departments, EMBRAPA also co-ordinates the SNPA (National System for Agro-pastoral research). This is made up of both public and private institutions such as state research enterprises and universities.

Among EMBRAPA's priorities are projects aimed at generating employment and productivity. Moreover, it works alongside its partners to: encourage the creation of small or micro agro-industries in Brazil, maximise the use of production resources, improve the quality and competitivity of agricultural industries, and develop the basis for a sustainable agro-pastoral industry by reducing regional imbalances.

A number of other countries and scientific institutions have also benefited both from EMBRAPA's varied scientific skills and its institutional flexibility. Through agreements and contracts for technical co-operation, EMBRAPA has developed research partnerships, trained research and technical staff, established research and development institutions in developing countries and exchanged or sold genetic materials. It has even registered a number of international patents.

Among EMBRAPA's many partners are institutions such as the Rockefeller Foundation, JICA, GTZ, CIMMYT, CIRAD, ICRISAT and IFPRI. These partnerships extend to over 20 countries, including Argentina, South Africa, Cuba, Egypt, Japan, Australia, Nicaragua, Tunisia and a number of Portuguese-speaking African countries.

Through the SNPA, EMBRAPA is developing programmes in a number of fields, specifically: natural resources; genetic resources; biotechnology; grains; fruit and horticulture; animal husbandry; raw materials; forestry and forest-farming techniques; rationalisation of subsistence and low-yield agriculture; post-harvest, processing and conservation of agropastoral products; environmental protection; agro-pastoral mechanisation; rural and regional development; support information for research and development projects; technical and financial co-operation with national research, management and institutional administration systems. ●

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Finding funds, sharing success

Who do you turn to when you have a promising project and are looking for an appropriate funder? Both ENDS (Environment and Development Service) may be what you need. They act as 'brokers' for projects — in this role they also aid funders who are looking for special projects to invest in.

Independent and professional, with growing support from government, NGOs and international bodies, Both ENDS is not itself a funder, although this is a role it may develop in the future, possibly with a small grants initiative, but its present priorities are to provide information on where to find funds, and – increasingly – where to locate projects with similar experiences in, for example, agriculture, water management, community organisation and natural resource management.

In the last ten years, Both ENDS has helped almost ten thousand development initiatives get started, in its role as a 'support centre' for environment and development organisations in the 'South'. Since its inception in 1986, Both ENDS has primarily played a facilitating and responsive role, in addition to its part in the capacity building of the global environmental movement.

Each year, working contacts are made with more than one thousand organisations in ACP States and elsewhere, and 250 funders and donor agencies.

Both ENDS provides a customised information service, including help in developing and submitting funding proposals, advice on fund-raising and entering partnerships, assistance in locating information and in making contact with decision-makers, and support in capacity building and institutional development.

Another important task is to make successful projects known to a wider audience worldwide, through publications, workshops and seminars. Organisations working in similar fields and conditions can thus benefit from the successes of others.

Under its policy plan for 1988 to 2000, Both ENDS will focus on five areas: sustainable land use, energy, urban sustainability, sustainable production and use of raw materials.

It will continue its service which provides information on funds and expertise, and will develop a global "Encylopaedia of Sustainability", with detailed descriptions of where initiatives have succeeded, the conditions of success, and the risks of failure. The "Encylopaedia" will be published in print form and on the World Wide Web, to become, Both ENDS say, "not a shelf full of inaccessible, dusty books, but a dynamic, interactive collection of lessons learnt at the field front-line of sustainable development, lessons worthy of replication elsewhere, lessons to inspire." ●

Both ENDS, Damrak 28-30, 1012 LJ Amsterdam, Netherlands.
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Website: http://antenna.nl/bothends

Answer : Spain. Quoted from a survey by Générale des Eaux, Paris, 1997.

SPORE is a bi-monthly publication providing information on agricultural development for ACP countries
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