

GLOBAL NEWSLETTER ON *UNDERUTILIZED* *CROPS*



June 2000

Editorial

Hello and welcome to the fourth Global Newsletter of Underutilized Crops. We are very pleased that for the first time we are able to publish the Newsletter on time. The credit goes to Sonia Bryant who worked hard to get this out as planned. The Newsletter publication was also possible because of part sponsorship from FAO and we sincerely thank FAO, particularly Peter Griffiee for continued support to ICUC.

In a recent meeting of Global Forum on Agricultural Research (and Development) the underutilized crops are highlighted for research and development through sub-regional and regional fora. ICUC in collaboration with international and national partners have taken steps to link up with these stakeholders to strengthen the national research on underutilized crops. This will help poverty alleviation and income generation which is the main principle of donor agencies including the Department for International Development (DFID). ICUC's collaborative initiative over the last decade has been paying the dividend now.

ICUC focuses its activities in three areas:

- **Knowledge based information and dissemination** on underutilized species.
- **Research and development** - our work is concentrated in the areas of South Asia and Sub-saharan Africa in the context of sustainable livelihoods.
- **Human resources development** for the promotion and sustainable production of underutilized crops.

This Newsletter includes some of the News, which would be useful to develop your national programmes on underutilized crops.

WE WOULD LIKE YOUR NEWS ON UNDERUTILIZED CROPS, OR ON ANY RELATED SUBJECT, WHICH COULD HELP OTHERS TO STRENGTHEN THEIR NATIONAL PROGRAMMES. PLEASE SEND YOUR NEWS FOR THE NEXT ISSUE, WHICH WILL BE PUBLISHED IN DECEMBER 2000.

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Mission Statement

Food Security, improved nutrition and economic welfare of human beings raised through sustainable and increased economic production of food and industrial raw materials. This to be achieved by developing and utilising the untapped biological diversity of underutilized crops.



This issue of the Global Newsletter on Underutilized Crops is part-sponsored by FAO (Food and Agriculture Organization).

Dresden 2000

The potential contribution of underutilized crops to poverty reduction, improved human health, biodiversity conservation and natural resource management, empowerment of women and disadvantaged members of societies, and raising the level of food production to feed the World has been recognised by the meeting of the Global Forum on Agricultural Research (for development): GFAR, and the mid-term meeting of the Consultative Group on International Agricultural Research: CGIAR. The MTM and GFAR meetings were held back-to-back in Dresden, Germany, from May 21st to 26th, 2000.

The ICUC Chairman, Roger Smith and Director, Nazmul Haq represented ICUC at the meetings. Dr Haq presented the ICUC proposal to establish a Global network on Underutilised crops (GNUC) during a Group Discussion on Underutilised and Orphan (those not adopted by the CGIAR or other International research organisations) Commodities, and the outcome was presented to the GFAR Plenary session. The conclusion underlined the importance of underutilised and orphan crops, but considered that R and D programmes and projects should be organised at National and Regional levels, rather than at the Global level, in accordance with the principles of subsidiarity. However, it was recognised that co-ordination at the Global level was needed, a role which ICUC is best placed to undertake. ICUC has been instrumental in establishing several Regional networks (e.g. UTFANET, SEANUC and WAFNET) - a model that appears to have received general acceptance.

However, it was recognised that first funding is necessary if we are to progress in this important matter.

Other recent developments are the establishment of a regional office in PCARRD, Los Banos, the Philippines that is now managing the UTFANET activities. This office has been made possible by a generous grant from the National Lottery Charity Board (UK). There is also an offer on the table to establish an African Regional office in the Vegetable and Ornamental Plants Institute (VOPI) in the Republic of South Africa - an offer which ICUC would like to accept, but this is dependant on obtaining funding from an appropriate donor. The office would take over the management of SEANUC activities and will work closely with SACAAR and ASERECA.

Discussions with CIRAD (France) which would have led to the secondment of an officer to a proposed new office in Montpellier, where facilities are on offer from Agropolis, have unfortunately had to be closed, as CIRAD has declared that underutilised crops are not a priority for them. However, this adds increased importance for a European Office to be retained in the UK. Discussion continues with this objective in view. The Board of trustees of ICUC in the UK, as a registered charity will continue to work, but will operate possibly from an office in London, rather than be specifically housed at the Southampton, UK Centre.

ICUC has not yet commenced operating in the Latin America and Caribbean region, although there is interest from FAO for ICUC to hold a meeting in the region, which could be organised jointly with IICA. Dialogue has commenced with the International Potato Centre (CIP), in Lima, Peru, with a view to embarking on joint work with underutilised Andean root and tubers.

ICUC thank the FAO for part support in publishing this edition, which we hope will update all recipients on developments in ICUC

and, generally, in the field of underutilised species and crops.

Roger W. Smith
Chairman, ICUC

Organisations Concerned with Underutilized Crops

ICUC News

Since the last report there are several activities which have been launched by ICUC. The UTFANET Secretariat has now been moved to the Phillipine Council for Agriculture Forestry and Natural Resources Research and Development (PCARRD) - please see the UTFANET section in the network part of this newsletter. We are very pleased to announce the appointment of Dr F Tiamzon as a co-ordinator for the UTFANET programme. The phase 2 programme, developed by the Steering Committee of UTFANET has now started from April 2000 and this has been possible because of a grant from the National Lottery Charities Board, UK (NLCB).



Dr Flordeliz D Tiamzon
New Co-ordinator for UTFANET

ICUC has been participating in an ADB-IPGRI project on Tropical Fruits Conservation project through its UTFANET programme. This collaboration has been very useful for both IPGRI and ICUC as well as

for the donor agencies to avoid duplications and effective use of funds.

The substantial progress in implementing indigenous vegetables in Southern and Eastern Africa under the network SEANUC has been made (please see the SEANUC part in the network section of this newsletter). The project is again supported by a grant from the National Lottery Charities Board, UK (NLCB) to ICUC. Annual review was carried out for the project and the participants of the project agreed to follow the recommendation made by the Reviewer.

The Fruits for the Future project, funded by DFID, is now in its second year. The project aims to overcome the constraints of access to information on propagation and production methods, postharvest, processing and marketing with the production of monographs, extension manuals and annotated bibliographies on the following tropical fruit tree species: *Tamarindus indica*, *Ziziphus mauritiana*, *Dacryodes edulis*, *Adansonia digitata* and *Annona spp.* The first monograph in the series, *Tamarindus indica* and its accompanying extension manual will be published soon with the next three in the series being published by the end of the year. Factsheets and extension materials are also being produced for each of the species. This information is being distributed to NGO's, CBO's, extension organisations, traders and farmers. Further information on the project and access to annotated bibliographies for the above species can be found on the ICUC web site: <http://www.soton.ac.uk/~icuc>

ICUC, in collaboration with IPGRI, has been preparing a Global Strategy for Underutilized Crops. This activity has been funded by DFID, UK, IPGRI and ICUC. Professor J T Williams has been preparing the report which will provide a strategic

plan of action for Sub-regions, Regions and possibly Globally.

ICUC has participated actively in the GFAR meeting in Dresden (please see previous article in this Newsletter) held on 20-23 May 2000. We were delighted to see that GFAR has given priority to Underutilized Crops. BMZ has announced half a million DM for Bambara Groundnut Network and this will be very useful for the African programme on this important underutilized crop. Underutilized Crops have also been discussed at the MTM Meeting of CGIAR (held back-to-back with the GFAR meeting – see previous article in this Newsletter) and it was felt that an institutional umbrella is necessary for Underutilized Crops, and ICUC has the capability to pursue this.

Dr. N. Haq. Director. ICUC.

APAARI

The Asia Pacific Association of Agricultural Research Institutions (APAARI) was established on the recommendations of FAO Regional Conferences held between 1990 and 1994. It was formally launched in 1990 with the adoption of its constitution by the General Assembly of apex research and co-ordination organizations of various countries of the region at the FAO Regional office for Asia and the Pacific (RAP), Bangkok, Thailand.

APAARI is committed to promote the development of national agricultural research systems (NARS) in the Asia-Pacific region, through:

- promoting intra-regional, inter-institutional collaboration
- assisting to strengthen research, organizational and management capabilities of institutions of member countries
- strengthening networks

- improving linkages between national, regional and international research centres.

Many NARS in the Asia-Pacific region have gained valuable experiences in establishing and operating their research systems suiting to varying diverse socio-economic/ cultural, political, and agro-ecological conditions. Some significant agricultural breakthroughs viz. Hybrid Rice in China; Oil Palm in Malaysia; Tilapia Production in Philippines; Cotton and Milk Production in India; Baby Corn in Thailand; to cite a few, have taken place in the region mainly on account of individual national research and development efforts. Many of these have great relevance for others in the region. It is often realized that the spread of technologies to other countries of the region has been restricted not so much for the geographical reasons but mainly for want of knowledge sharing and effective collaborative mechanisms. Linkages and communications among the countries are often weak and the NARS are invariably faced with shortages of funds, human resource, institutional facilities and lack of research strategies and regional collaboration.

The concept of networking of research activities in agriculture is finding better acceptance both within and among NARS in the Asia-Pacific region. It has also been increasingly felt that learning from each other's experience in the region through collaborative research and human resource development can be highly rewarding and cost effective.

The Networks could be most effective in crops and areas that cut across countries and on problems of wider interest to NARS. A large number of such networks are operating presently in the region. Some are quite effective, whereas sustainability is a major concern for others. It is in this context that APAARI has decided to play a catalytic role in order to facilitate

their effective functioning and coordination. It would pursue this approach so that benefits of regional research collaboration are available to our resource poor farmers.

ICUC's UTFANET is part of the APAARI programme and endorsed by APAARI.

<http://www.cgiar.org/isnar/hosted/apaar/i/>

Centre for Ecology and Hydrology - Edinburgh

Since the 1970's, the Tropical Forests Section of CEH Edinburgh has worked on the development of techniques to domesticate "Cinderella trees"; underutilized indigenous trees overlooked by science. The research has been done in many countries of the tropics, with particular emphasis on the capture of genetic variation in wild populations, through the use of low-technology vegetative propagation methods.

In recent years, this research has focussed on the domestication of indigenous fruit trees, which could become important new crops for integration into agroforestry. Dr Roger Leakey, Head of Tropical Ecology, sees this integration of trees into farming systems as a means of developing agroforests, which are climax agroecosystems. He describes these agroforests, which typically are very diverse, as win:win landuse systems that provide subsistence households with the food they need, with products which are marketable locally, regionally or even internationally, while at the same time also providing numerous environmental benefits, including such international public goods as carbon sequestration, reduced emissions of greenhouse gases and biological diversity. In this way the domestication of underutilized crops to diversify farming systems and the local economy, can play important

roles in poverty alleviation and environmental rehabilitation.

CEH Edinburgh has produced numerous publications on the domestication of underutilized tree crops, including three books and a set of Nursery Manuals with a supporting video.

Email Bush@ceh.ite.ac.uk
Web. www.ceh-nerc.ac.uk

DFID

The Department for International Development (DFID) is the British government department responsible for promoting development and the reduction of poverty. The government elected in May 1997 increased its commitment to development by strengthening the department (formerly the Overseas Development Administration) and increasing its budget.

The policy of the government was set out in the White Paper on International Development published in November 1997. Its central focus is a commitment to an internationally agreed target to halve the proportion of people living in extreme poverty by 2015. In addition, associated targets include ensuring basic health care provision and universal access to primary education by the same date.

DFID aims to work in partnership with other governments committed to these targets, and with business and the private sector, civil society and the research community, supporting progress to reduce world poverty. It also works with multilateral institutions, including the World Bank, UN agencies and the European Commission.

The bulk of DFID's assistance is concentrated on the poorest countries in Asia and Sub-Saharan Africa. In addition, DFID contributes to eliminating poverty and supporting sustainable

development in middle-income countries, as well as helping countries in Central and Eastern Europe ('transition countries') to try to ensure that the largest number of people benefit from the process of change.

Alongside headquarters in London and East Kilbride, DFID has offices in New Delhi, Bangkok, Nairobi, Harare, Pretoria, Dhaka, Suva, Bridgetown and Kathmandu. In other parts of the world, DFID works through staff based in British embassies and high commissions.

<http://www.dfid.co.uk>

Food and Agriculture Organisation (FAO)

Access portal to ecology knowledge for natural resource managers

In 1998 FAO created a Global Plant Production and Protection Information System (GPPIS) which established a network of individuals and institutions who agreed to share their separate knowledge to create a communally-owned database on the Internet.

Each contributor received a username and password that enabled all of us to write information into the shared database, much as a group of authors write chapters for a book, except that the 'book' we are writing is a public database on the Internet. This process uses methods and tools invented for GPPIS which allow users (not only webmasters) to write hypertext.

Data quality is maintained by the same process of peer review that has, as a free, volunteer service by individuals, kept scientific publishing going ever since it started. Each contributor's shared information is displayed under a banner and logo that reflects ownership and responsibility, and we clearly demonstrated that sharing and generosity does not threaten identity.

As we put sharing ahead of copyright

and many other territorial aspects that unnecessarily increase the transaction costs associated with using data, our pooled knowledge grew very rapidly. And, because many users either do not have Internet access or have slow and expensive connections, we distributed the whole database on a free CD-ROM as well.

Very soon we realised the limitations of seeing the world only in terms of pests and crops, and decided that we need to **practice** holistic ecology as comprehensively as we **preach** it.

Accordingly, we and the National Museum of Natural History of the Smithsonian Institution (SI) in the USA joined a consortium established by the University of Florida (UF), to build EcoPort: a service similar to GPPIS, but this time widened to **ecology as cause** and the pooled information power and institutional perspectives and mandates of FAO, UF and SI as a foundation to exploit and deliver the benefits of the Internet.

EcoPort went public on 1 January 2000. Since then, the members of the global EcoPort family have made more than 12,000 technical additions to the shared pool of knowledge. In March, visitors downloaded 15,000 web pages.

<http://www.ecoport.org>

For further details and guidelines contact: peter.griffee@fao.org

Source: Peter Griffee, FAO

TELEFOOD

TeleFood is FAO's annual campaign of broadcasts, concerts and other events dedicated to reducing the number of hungry people in the world. The aim of TeleFood is to raise awareness about the scourge of hunger and to mobilize resources for hundreds of hunger-fighting projects. The spirit of this demonstration of global solidarity is captured in the TeleFood slogan: "Food for All".

TeleFood was launched in 1997 as a follow up to the World Food Summit where Heads of State and government and high officials from 186 countries pledged their political will and national commitment to the continuing effort to eradicate hunger in all countries.

Since TeleFood began three years ago, thousands of people around the world have generously contributed to the fight against hunger. Approximately 6 million dollars has been collected. Every dollar donated to the TeleFood Fund has gone directly to finance more than 500 small grassroots development projects for the rural poor in over 100 countries. The beneficiaries are poor farmers, especially women and young people, and the money has been used to pay for tools, seeds and other essential supplies required to grow the food families and communities need. No money has been diverted for administrative costs, experts, training or meetings.

TeleFood 2000 kicks off at FAO Headquarters in Rome on 16 October with the celebration of World Food Day. International, regional and national events will highlight the World Food Day 2000 theme "A Millennium free from Hunger". The activities for TeleFood and World Food Day are being planned right now. More information will soon be available on the Website:

<http://www.fao.org>

Henry Doubleday Research Association (HDRA)

HDRA, the organic organisation, was conceived as an organisation for experimenting gardeners and now has a membership of nearly 27,000. HDRA's Information and Education Department provides advice to members and regularly helps the media and statutory bodies. It runs a consultancy service on organic garden design and landscaping:

large-scale composting and waste management and organic product retailing.

Third World Organic Support Group

Soil is the basis for life on earth. Destruction of this precious resource can be catastrophic, causing famine and civil strife. It need not be this way. Organic farming and gardening stem from the belief that the health of the soil is paramount, and are considered by the HDRA to be the only long-term, sustainable way of cultivating land and creating a secure future for the world. For many years we have been working with individuals and groups in Africa and India and helping with hundreds of reforestation and small scale organic agriculture projects. Following this, HDRA formed the Third World Organic Support Group to keep members in touch with HDRA's work in developing countries and to raise funds so that this vitally important activity can continue. Contact Jackie Gear for more details

Heritage Seed Library

HDRA's Heritage Seed Library is one of Europe's largest non-government genetic conservation bodies. The library contains over 700 varieties of interesting and traditional vegetables that can't legally be traded in Europe. Many are family heirlooms nurtured from generation to generation; others were once commercial varieties, now no longer offered by seed companies, the seeds being victims of commercial pressures and draconian European rules.

<http://www.hdra.org.uk>

ODI

The Overseas Development Institute is Britain's leading independent think-tank on international

development and humanitarian issues.

Mission - to inspire and inform policy and practice which lead to the reduction of poverty, the alleviation of suffering and the achievement of sustainable livelihoods in developing countries by locking together high-quality applied research, practical policy advice, and policy-focused dissemination and debate. They work with partners in the public and private sectors, in both developing and developed countries.

The Institute regularly provides advice on development issues to a wide range of organisations including governments, international agencies, and non-governmental bodies. ODI provides research support and advice to Parliamentary Select Committees, MPs and Peers. Since 1984 the Institute has provided research and administrative support to the All Party Parliamentary Group on Overseas Development. The Group's recent activities have covered aid, debt, Southern Africa, EU development policy and the workings of the UN/Bretton Woods system in development.

As a registered charity, the Institute is supported by grants and donations from research foundations, international organisations, NGOs and business.

<http://www.odi.org.uk/odi/>

TROPIS

TROPIS, the Tree Growth and Permanent Plot Information System, seeks to help forest scientists make better use of existing tree growth information by:

- supporting a network of people willing to share permanent plot data and tree growth information through a variety of ways, including the sources

hosted at this site (newsletters, links, etc.)

- maintaining a searchable index of people and institutions holding permanent plot data in both plantations and natural forests
- making a database management system available to assist more efficient management of permanent plot data (Mirasilv, developed by CATIE and currently under beta test)
- providing a way to identify comparable sites in other regions, allowing data from elsewhere to be used when no local growth information exists (under development, more information)
- offering access to an inference system to allow growth estimates to be made in the absence of empirical data (Plantgro and Infer).

The TROPIS index contains details about the objectives of experiments and plot systems; about the location, nature and species composition of plots within these systems; and details about relevant contact people. It does not contain any raw data, growth data, or information likely to infringe intellectual property rights. It includes information on re-measured plots, including species/provenance trials; thinning, spacing and other silvicultural experiments; and continuous inventory systems. The plots need not be current, but the location of the plot must be known, and the data should be available (any reproducible and durable media, from paper records to computer databases).

<http://www.cgiar.org/cifor/research/tropis.html>

Networks

CUCURBIT NETWORK

The Cucurbit Network was formed in 1994. Its goals are to:

- disseminate news of recent developments concerning cucurbits (from *achoccha* to *zucchini*)
- promote the conservation and understanding of this plant family through education and research
- foster communication among cucurbit workers through the publication of the newsletter, The Cucurbit Network News and through the Web site

The newsletter called The Cucurbit Network News (ISSN 1078-2419) comes out twice a year (a spring and fall issue). Members are encouraged to submit short articles (less than 1000 words) which range from reviews of efforts being made to preserve cucurbit germplasm to a world survey of cucurbits depicted on stamps. Every issue of TCN News has a section called "Profiles in Cucurbits" where a lesser-known cucurbit or lesser-known aspects of a better-known cucurbit is featured. There are articles on people (better known as cucurbitologists) in the "Meet..." section. Also included are book reviews and a listing of recent publications. A bulletin board is available for members to post messages, brief news items, and advertisements including items for sale. Other organizations of interest to cucurbitologists are often listed along with a calendar of upcoming cucurbit-related events from around the world.

<http://www.cucurbit.org>

TFNET

Tropical Fruits Network (TFNet) is an independent global network set up under the auspices of the Food and Agriculture Organisation of the United Nations (FAO). It is set up for the promotion, processing, marketing, consumption and international trade of tropical fruits. The TFNet is both intergovernmental and inter-institutional in nature and reports its activities to the Sub-Group on Tropical Fruits of the FAO Intergovernmental Group (IGG) on Bananas and on Tropical Fruits.

Tropical Fruits Network (TFNet)
Email: TFNet@mardi.mv
Web: <http://www.mardi.mv/TFNet>

Africa

PROTA

Plant Resources of Tropical Africa Ressources Vigiales de l'Afrique Tropicale

The contract between the Commission of the European Union and Wageningen University for the preparatory phase (2000-2002) of the PROTO project was signed on December 29, 1999. This made the start of the project possible on January 1, 2000, an excellent beginning of the Millennium indeed!

The building up of a network in Africa and Europe is one of our priority activities. Visits of PROTA staff to Montpellier (France) and London (UK) have paved the way for close cooperation with Agropolis and Kew Botanic Gardens, respectively. A next step is the identification of African partners.

At the same time, two other important activities have been initiated: the definition of a functional databank concept, and the listing of all useful plants of

Tropical Africa with their primary and secondary uses. The comprehensive experience gained from similar activities in the PROSEA programme is of great help in performing these tasks.

It is a real challenge to lay sound foundations for such a new ambitious programme, and there is good hope that PROTA will be as successful as PROSEA. The enthusiastic reactions of potential partners give confidence that this can be achieved.

Source: Roel Lemmens,
PROSEA Newsletter, Number 24
April 2000. ISSN: 0853-2958.
PROSEA Network Office, c/o
Herbarium Bogoriense, RDCB-LIPI,
P O Box 332, Bogor 16122, West
Java, Indonesia.

SANCRA

The mission of Southern African New Crops Association (SANCRA), founded in Pretoria in 1998, is to promote the development of potentially novel crops and products derived from them with the aim of enhancing the socio-economic status of all southern Africa's people.

Objectives

- examine current and developing issues in the production and marketability of new food and industrial crops.
- provide a podium through which multi-disciplinary and multi-institutional scientific co-operation in new crop research in southern African and Africa can be enhanced.
- promote improved, sustainable, environmentally-friendly cultivation practices for new crops.
- support and foster new crop development and utilization

through symposia, workshops, newsletters and publications.

- present information to the general public on the place and value of new crops in agriculture and to encourage and contribute to education and training in this regard.

2nd SANCRA Symposium - Combined Congress 2000

The 2nd SANCRA symposium was held jointly with the South African Society for Crop Production (SASCP) and the Southern African Weed Science Society (SAWSS) in Bloemfontein, South Africa from 18-20 January 2000. Billed the Combined Congress 2000, it was a great success and firmly established SANCRA as the most significant organization involved in the promotion of new crop development on the African continent.

Abstracts of papers and posters, Minutes of the 1st AGM and the President's report 1999 can be obtained from the website:

<http://www.uovs.ac.za/lib/agric/sancra/index.html>

SEANUC

As reported in the last Newsletter a project on Improvement of Indigenous Vegetables has started under the network and South Africa and Tanzania are taking part in the project. The project is funded by the National Lottery Charities Board, UK. Annual review of the project was carried out and the following is the summary of the review:

South Africa has completed eco-geographic studies of Cucurbits *Amaranthus* and is almost completing *Plectranthus*. 20 Accessions of *Amaranthus* were used for evaluation trial. A basic descriptor list of *Plectranthus* has been produced and needs to be tested. *Plectranthus* yield has been evaluated. Trials at Bathurst

(multilocational) have been harvested and bulked. *Plectranthus* has been introduced to 14 communities in the Northern Province (Spitskop). Collection of *Amaranthus* has partially been completed, and Collection of cucurbits will continue. Multiplication of cucurbits is still under way, this is due to germination problems.

Tanzania has also completed an Eco-geographical study of cucurbits. Since there was a shortage of seeds for the field trial, a seed multiplication has been programme started to raise more seeds. Cucurbits were characterised during the multiplication trail. It was not possible to evaluate *Amaranthus* this year due to problems with the isolation cages.

Nutritional analyses have been completed for *Amaranthus* and *Plectranthus* collected from South Africa, and the materials from Tanzania will be analysed next year. Both SACAAR and ASERACA have been keen to develop programmes on underutilized crops through SEANUC and ICUC is linking up with stakeholders of SACAAR and ASERACA to strengthen national programmes on Underutilized Crops.

Asia

UTFANET

The fifth (5th) Steering Group Meeting of the Underutilized Tropical Fruits in Asia Network (UTFANET) held last August 1999 at the Philippine Council for Agriculture Forestry and Natural Resources Research and Development (PCARRD) had paved the way for UTFANET to take off... really take off from the ground. This is due to the considerable effort and perseverance, over the years, by Dr Nazmul Haq, Director of the International Centre for Underutilised Crops (ICUC) to fulfil the mission of ICUC with UTFANET as one of its major programmes. Dr Haq's strong collaborative linkages with international organizations such as FAO (Food and Agriculture Organizations of the United Nations), IPGRI (International Plant Genetic Resources Institute), DFID (Department of International Development, formerly ODA), CSC (Commonwealth Science Council) and APAARI (Asia-Pacific Association of Agricultural Research Institutions), have been an important factor for UTFANET to be fully operationalized. ICUC's Board of Trustees, whose

names appear at the backpage of this global newsletter have been very supportive of ICUC's direction for global concerns by harnessing the potential of the underutilized tropical fruits in different parts of the world.

With funding support provided by the National Lottery Charities Board (NLCB) based in the United Kingdom, nine member participating countries (Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam) had joined hands and committed themselves to pursue the goal and objectives of UTFANET and these are:

- improvement of economic and social development through increase in production of tropical fruits, through conservation and use of genetic resources
- assemblage and dissemination of relevant information
- improvement in propagation, production and management
- appropriate and efficient post production technologies
- improved farming systems and nutrition as well as strengthening local, regional,



**5th UTFANET Steering Committee Meeting
12-14 August 1999. Los Banos, Philippines.
UTFANET Chairman is holding the NLCB cheque.**



**Regional Workshop Traditional Vegetables
10-12 August 1999. Los Banos, Philippines.**

and international capabilities through appropriate training.

Last February, a Memorandum of Understanding (MOU) between PCARRD and ICUC on the establishment of a Regional Office for Asia to be based at PCARRD Headquarters in Los Banos, Laguna, Philippines, was signed by both parties. PCARRD, with its Executive Director, Dr Patricio S Faylon, Director, Richard M Juanillo of the Planning and Development Division (PDD), and Dr Crisanto R Escano, Director and Scientist III of the Crops Research Division (CRD), have been vigilant in supporting such an establishment of another regional office at PCARRD which has likewise been the seat of other

well-known international and regional programmes such as ACIAR, INIBAP, CIRAD, ISNAR, CIP, SAPPRAD, ASPPRAD, UNDP-FAO programmes, among others.

Last April 2000, the UTFANET Regional Office was formally approved by PCARRD and a Coordinator was appointed by ICUC. Starting up a regional office was not an easy job and it could not be realized overnight but it was indeed a very challenging one. Relevant information materials were air-speed mailed from ICUC and these are currently on display at the Regional Office.

Today, for many, the UTFANET Regional Office and the UTFANET mission had become an 'eye-catching' entity, particularly for the Science Community, for they see the potency and vigor of underutilized tropical fruits in less developed and developing nations.

Funds in the form of a grant were already accepted and received from ICUC by most of the participating member countries. Formalities in the acceptance of the grant are still in progress for some other countries that have signified interests in pursuing the UTFANET activities.

A training programme on jackfruit and pummelo propagation was pursued by Bangladesh from 23 April to 4 May 2000 and another training programme is currently being organised by the Philippines on mangosteen propagation.

There lies ahead so many challenges and opportunities for UTFANET and all these require a much concerted and harmonious effort from among participating partners. To all participating countries: ...the future of UTFANET lies in our hands...what has been started is a big challenge....Good Luck to all of us!

Dr. Flordeliz D Tiamzon
Co-ordinator, UTFANET
Email: ftiamsom@ultra.pcarrd.dost.gov.ph



Regional Training Programme on Jackfruit and Pummelo propagation. 23 April – 4 May 2000. Bangladesh.

Europe

ACTIN

The Alternative Crops Technology Interaction Network is an industry-led initiative to promote the use of renewable raw materials derived from agricultural crops (industrial oils, fibres, starches and speciality chemicals), as sustainable, biodegradable, non toxic and CO₂

neutral replacements - for petrochemical feedstocks. These materials may be produced by the chemical, physical or genetic modification of established crops such as wheat, oilseed rape, flax or hemp, or through the introduction of novel crops such as crambe, calendula or camelina.

The network now extends globally to 34 countries, with over 2100 contacts in 1200 organisations, more than 80% of which are in industry

and span the industrial crops supply chain (bioscience, plant breeders, farmer / crop growers, feedstock & intermediate processors and manufacturers / end users). There are extensive links with universities / institutes (as providers of research, development and technology) and Government. An independent agency, ACTIN also acts as information provider, facilitator and centre of knowledge / excellence through events, publications and its

extensive databank - supported by a novel internet based Database, a dedicated Help Desk and a newsletter ACTIN News.

The unique ACTIN approach and its generic hub facility, complete with World Wide Web publishing interface, is also provided to third parties, such as MEDCIN, for facilities management.

Gateway to Renewable Industrial Feedstocks (GRIF'99)

2/3 November 1999

The John Innes Centre Norwich, UK

This conference was organised by ACTIN and provided an opportunity to debate recent developments, technical, commercial and regulatory, in non-food crops. This second ACTIN Conference sought to identify 'drivers for change' in the move towards greater reliance by industry on crop-derived raw materials. The keynote address was provided by Lord Sainsbury, Under Secretary of State for Science, and key 'drivers' debated included innovation, the need for regulatory compliance and sustainability.

GRIF'99 provided the ideal forum for networking in the non-food crops arena and to learn of industry's views on the opportunities and challenges ahead. Delegates included representatives from all areas of industry (including the manufacturing sector), researchers, farmers and Government officials from UK and the rest of Europe.

International experts from industry, universities and research institutes in UK, Europe and the USA presented papers and posters on:

- new aspects of research in starch metabolism and the underlying genetics in cereals
- new polymers and plastics being developed by industry
- new composite materials for the automotive and building industries

- the potential to produce speciality chemicals and high added value bioactive molecules in plants including milder detergents, inks and dyestuffs, flavours and fragrances

Key individuals from organisations across the supply chain (MAFF, John Innes Centre, NFU, ERRMA) led an alternative crops forum at which 'issues of the day' were discussed including the role of genetic engineering in the non-food sector and the need for appropriate incentives, financial and/or regulatory, to encourage industry to place greater reliance on plant products. There was an opportunity to visit the John Innes Centre and learn more about research underpinning the industrial uses of vegetable oils, novel starches, plant fibres and complex proteins.

The conference:

- highlighted opportunities for developing businesses in a sustainable way.
- identified where future research is needed to overcome technical barriers
- provided farmers with an indication of the crops they could grow competitively on the world market

<http://www.actin.co.uk>

ECP/GR

European Cooperative Programme for Crop Genetic Resources networks (ECP/GR) is a collaborative programme among most European countries aimed at ensuring the long term conservation and facilitating the increased utilization of plant genetic resources in Europe. The Programme operates through ten broadly focused networks dealing with groups of crops or general themes related to plant genetic resources.

The network was founded in 1980 on the basis of the recommendations of the United Nations Environment Programmes (UNEP), the Food and Agriculture Organization of the United Nations (FAO) and the Genebank Committee of the European Association for Research on Plant Breeding (EUCARPIA).

ECP/GR is a collaborative programme among most European countries aimed at ensuring the long-term conservation and facilitating the increased utilization of plant genetic resources in Europe. The Programme, which is entirely financed by the participating countries and is coordinated by the International Plant Genetic Resources Institute (IPGRI), operates through ten broadly focused networks dealing with groups of crops or general themes related to plant genetic resources.

Established for ECP/GR by its Steering Committee during its seventh meeting in 1998, the objectives of Phase VI are:

- to facilitate the long-term *in situ* and *ex situ* conservation of plant genetic resources in Europe;
- to facilitate the increased utilization of plant genetic resources in Europe;
- to strengthen links between all plant genetic resources Programmes in Europe and promote the integration of countries
- which are not members of ECP/GR;
- to encourage cooperation between all stakeholders, including NGOs and private breeders;
- to increase the planning of joint activities including the development of joint project proposals to be submitted to funding agencies;
- to encourage the sharing of conservation responsibilities for plant genetic resources for food and agriculture (PGRFA) in Europe;

- to increase awareness, at all levels, of the importance of PGRFA activities including conservation and sustainable use, and to seek collaboration with other relevant regional and global initiatives.

In January 1999, ECP/GR entered into its Phase VI, which will last five years. The contribution of participating countries to the budget is established on the basis of countries' contributions to the United Nations. Currently 33 countries are members of ECP/GR (March 1999).

<http://www.cgiar.org/ecpgr>

ETFRN

The needs and requirements of countries with low forest cover have been high on the international forest policy agenda since the early days of the Intergovernmental Panel on Forests. Countries with small amounts of forest, in relation either to their land area or to their population (or both), have distinct problems meeting their needs for forest goods and services and managing the forest resources they do have wisely. Some of these countries never had much forest cover for climatic and other ecological reasons, others had substantial forest resources that have been destroyed by pressures of human use either in the historical or the recent past. All have the need for scientific knowledge of their forests and appropriate ways of managing and/or restoring them. If you are doing research of relevance to countries with low forest cover, the next issue of ETFRN News can provide you with an ideal way to disseminate information about your project and its results and to identify others working on common themes. ETFRN News is the quarterly publication of the European Tropical Forest Research Network (ETFRN), and has a distribution of over 3,600

copies world-wide. It is also available online at <http://www.etfrn.org/etfrn/resource/news.html>

ETFRN co-ordination unit:
etfrn@iac.agro.nl

EUFORGEN

EUFORGEN (European Forest Genetic Resources Programme) operates through networks in which forest geneticists and other forestry specialists meet and work together to analyze needs, exchange experiences and develop conservation methods for selected species. The networks also contribute to the development of conservation strategies for the ecosystems to which these species belong. Network members and other scientists and forest managers from participating countries carry out agreed workplans with their own resources as inputs in kind to the Programme.

Activities of the networks focus on inventories of genetic resources, development of joint databases and lists of descriptors, identification of common research needs, efforts to submit joint project proposals, development of joint conservation strategies, and promotion of the establishment of national gene reserve forests and complementary measures as part of national conservation programmes. Network meetings are held regularly with members of each network meeting at an average once per year.

The second EUFORGEN Steering Committee meeting, held in Vienna, Austria, 26-29 November 1998 reviewed the progress made in the four years since the establishment of the programme and recommended that a second Phase of five years be launched starting from 1 January 2000. During the first phase, 30 countries participated in the activities of the EUFORGEN networks.

Most of the activities of EUFORGEN are carried out within five species networks and as the interest to participate is growing, so is the scope of the networks themselves. The following networks were developed during the 1995-99 period: Norway Spruce (*Picea abies*), Cork Oak (*Quercus suber*), Black Poplar (*Populus nigra*), Noble Hardwoods and Social Broadleaves.

The first meeting of the new Phase was the sixth *Populus nigra* Network meeting, which took place in Avignon, France, in February 2000.

The first meeting of the newly established Conifers Network was held in Brdo, Slovenia in March 2000. The participants set priorities and established a work plan for the coming year.

Following the decisions taken at the steering committee, the *Quercus suber* network now covers all Mediterranean Oaks. Priority species are being identified and will be discussed at the next meeting that will be held in Antalya, Turkey in October 2000.

<http://www.cgiar.org/ipgrideploy/networks/euforgen>

FRUIT NETWORK

The first meeting of the Fruit Network Coordinating Group involving the ECP/GR *Prunus* and *Malus/Pyrus* Working Groups' Chairs, Vice-Chairs and database managers was hosted by the Agricultural Research Centre in Gembloux, Belgium on 7 November 1999. This Group is in charge of increasing coordination within the Fruit Network, by establishing priorities for action. The Group started working towards the implementation of decentralized European collections. On the basis of the draft agreement, curators will offer to maintain a number of European accessions for long term

conservation, to provide characterization data and to make the samples available in response to reasonable requests from within Europe. Although the scope of the Fruit Network will still be limited to the *Malus*, *Prunus* and *Pyrus* crops, links will be established with fruit experts of the ECP/GR Minor Crops Network. Documentation and conservation activities will remain priorities for the Network. Efforts will be directed to further develop the European *Malus*, *Prunus* and *Pyrus* databases and to make them available on the Internet. Task forces were established with the purpose of defining accepted accessions names and their synonyms. The databases will be used to analyse genetic diversity and to identify gaps and duplicates in the collections. The Group also intends to promote agreement on uniform standards of optimal conservation of fruit germplasm. A strategy to include molecular data will also be elaborated in the near future.

A meeting of the full Network, involving the participation of the *Prunus* and *Malus/Pyrus* Working Group members, is planned for 2002 and will possibly be organized together with a meeting of the EUFORGEN Noble Hardwoods Network, to take advantage of possible synergies. More information on the Fruit Network Coordinating Group and its activity is available from the ECP/GR Secretariat.

IENECA

IENICA, an Interactive European Network for Industrial Crops and their Applications, is a project funded by DGXII of the European Commission for three years and began during February 1997. The principal objectives of IENICA are:

- to create synergy within the EU industrial crops industry by developing an integrated network linking key individuals

from industry, government and science in all member states;

- to identify and create scientific, industrial and market opportunities for specific industrial crops or applications;
- to identify the strengths of each EU member state in order to maximise the efficiency of RTD funding for industrial crops and encourage industrial and scientific collaboration between member states.

In support of these primary objectives IENICA will also:

- determine the current state of scientific, industrial and commercial knowledge of industrial crops or their applications at member state and later at EU level;
- identify barriers to the progress of industrial crops - these could be scientific, technical, legislative or economic;
- identify and evaluate the environmental benefits arising from industrial crops or their applications;
- identify European RTD priorities and make recommendations to policy makers on the basis of that analysis.

By its actions IENICA will play a major role in promoting and harmonising RTD work on all industrial crops or applications of those crops, whether carried out at EU or member state level.

It will create and maintain close links between the agricultural sector, research scientists, processing industries and end-users of industrial crops and provide a platform for debate and discussion between these groups in order to encourage greater collaboration and co-operation, and best use of resources.

Additionally, by integrating RTD work within the needs of industry and consumers, IENICA will identify new markets for industrial crops and applications, and enable

targeted research funding to bring potential markets to fruition.

It is recognised that many industrial crops bring environmental benefits over traditional sources of industrial products. IENICA will identify and evaluate the environmental benefits of industrial crops and applications in order to stimulate new markets and support policy decisions.

The work content of this project has three component parts, called activity streams:

- Preparation and delivery of a report by individual states and then at a combined EU level on current knowledge on industrial crops and their products.
- The development of the IENICA database and production/dissemination of newsheets.
- The preparation and presentation of three seminars.

In March 2000, the IENICA partners submitted a bid to the EU Commission's DG Research, under Framework V, for funding for a further three years under the title IENICA MILLENNIUM. 21 Countries will be involved.

There is a pressing need for continuing research, industrial and political focus and co-ordination at the EU level. IENICA is quite literally the feedstock of that process. The ongoing project can play a major part in realising the full potential of non-food crops to replace fossil derived materials in the European Union and beyond.

IENICA MILLENNIUM will enlarge the current project to include seven additional accessing and associated States, enable the web site database to be extended and include the production of market specification databases for key crops.

<http://www.csl.gov.uk/ienica>

MEDUSA

A Network on the 'Identification, Conservation and Use of Wild Plants in the Mediterranean region' called MEDUSA, was formally established in June 1996, by CIHEAM (Centre International des Hautes Etudes Agronomiques Mediterraneennes) and its constituent organ MAICH (Mediterranean Agronomic Institute of Chania). The Network is financially supported partly by the Directorate General I of the European Union and partly by CIHEAM.

Objectives

- identification of native and naturalized plants of the Mediterranean Region, used as; food, food additives, animal food, bee plants, invertebrate foods, materials, fuels, social uses, vertebrate poisons, non-vertebrate poisons, medicines, environmental uses, gene sources.
- creation of Interactive Regional Information System, IRIS
- preliminary evaluation of the conservation status and potential utilization of these plants in agriculture as alternative minor crops.

A database documenting the plants, their uses and extent of use, together with information on the habitats and conservation status of the plants, is being assembled through the collaborative efforts of participants from all the Mediterranean countries and regular workshops are held. Information and MEDUSA Newsletter can be found at <http://medusa.maich.gr> or from Chris Johnson (MEDUSA Co-ordinator: cjohnson@maich.gr) or Melpo Skoula (MEDUSA Executive Secretary: melpo@maich.gr).

Crops News

ANDEAN TUBERS

The Foundation for the Promotion and Investigation of Andean Products (PRIONPA) is custodian of the Bolivian Andean tuber germplasm collection. Its focus has shifted from *in situ* conservation and resolving specific production constraints to promoting the sustainable use of Andean tubers in the context of a complex local social, economic and political environment. PRIONPA has joined the San Simon University's (Cochabamba) programme of Food Technology and Natural Products (PAPN) and the Institute for Socio-economic Studies (IESE) in forming the Integrated Candelaria Project (PIC). PAPN had already developed and evaluated a range of food products derived from Andean tubers and IESE had carried out studies on the market, price and demand for them. Within the PIC, realistic, interdisciplinary proposals for the sustainable use of biodiversity are being developed.

Much diversity has been lost with increasing market integration. Monocropping tendencies and poor use of modern agricultural inputs have affected agro-ecosystem viability and increased pest damage. Rotations and associations with other crops (faba beans and tarwi) help reduce pests. Specific problems confronting farmers, such as blight, viruses, and attacks by weevils, have been identified, prioritised and investigated. PRIONPA on-farm research has moved from developing interventions to target specific problems to studying the interactions of rotations, fertility and pests.

Accessing better quality germplasm and resolving production problems using an agroecosystem approach must be combined with identifying new markets for oca, ulloco and

mashua. As PIC project members analysed market bottlenecks, farmers explained the detrimental effect of gluts on prices. Because ulloco does not store well, it has to be marketed immediately after harvest when prices are low. Farmers wanted to be able to take advantage of off-season prices. PAPN, together with farmers, concluded that improved storage and dehydrated flakes might solve the problem. PAPN developed and tested the technology for flakes and a pilot product, sold in the University store, was well received by consumers. Market studies revealed a potential demand of 437 tonnes per year, easily absorbing current production in Candelaria

PRIONPA has helped farmers select and grade high quality ulluco and oca and IESE has sold well-presented, 100kg bags with ease at local supermarket where consumers were prepared to pay several times the local market price of the loose ungraded product. IESE has also developed new recipes that do not require sun exposure and these are supplied with the packaged product.

Mashua has very high yields of up to 90 tonnes/h and requires little input. It could replace maize in commercial balanced animal feed, at an estimated 150,000 tonnes per year

The PIC Project is basically a research initiative. To reach more farmers and have a greater impact on biodiversity it must work with other institutions including local government institutions responsible for rural development. PIC Project members have helped Colomni municipality to organise an agricultural workshop where NGOs, local institutions, private sector food processors and farmer groups can analyse the problems associated with the major crops and explored solutions. As these also work with other crops and livestock, good co-ordination should make it possible to implement an agroecosystem approach.

Franz Terrazas and Rolando Oros, Fundcion POINPA, Casilla 4285, Cochabamba, Bolivia.

Source: LEISA ILEIA Newsletter Dec 1999 Volume 15 No 3 / 4.

ANTI-MALARIAL PLANTS

In February 2000, Kew-funded student Jonathan Steele was awarded a PhD for his research on the anti-plasmodial activity of plants used in the treatment of malaria by indigenous peoples of South America. Working at Kew and the London School of Hygiene and Tropical Medicine, he confirmed that many of the species had anti-malarial activity and was able to identify some of the active compounds. His PhD forms part of a wider collaboration with Brazilian institutes. Contact Prof Monique Simmonds (020-8332 5328).

Source: Kew Scientist April 2000. Issue 17. ISSN 0967-8018.

BUSH MANGO OR DIKA NUT (*Irvingia gabonensis*) AND AFRICAN PLUM OR SAFOUTIER (*Dacryodes edulis*)

Two indigenous fruit trees of west and central Africa, *Irvingia gabonensis* (Bush mango or Dika nut) and *Dacryodes edulis* (African plum or Safoutier) have been the focus of a detailed study in Cameroon and Nigeria by a research consortium funded by the UK's Department for International Development (Project R7190). The consortium is made up of the Overseas Development Institute in London, CEH Edinburgh (see Organizations concerned with underutilized crops), the International Centre for Research in Agroforestry in Nairobi and the Institute for Agricultural Research for Development in Yaoundé. The project has examined the biophysical and socio-economic constraints to domestication and tree planting. This has included a

detailed study of the tree-to-tree variation in fruit characteristics in several villages in each country.

Source: Dr Roger Leakey
Email: rrbl@ceh.ac.uk

CASTOR

Castor is cultivated because of the commercial importance of its oil. India is the largest producer of castor seeds in the world (75.6%, 0.9 million MT). Gujarat produces 86% of the total castor seeds in India.

Castor is traded in the form of castor oil and its derivatives and de-oiled castor cakes. Almost 85% of castor oil produced in India is exported (194 thousand MT). The rest is either domestically consumed or used in the preparation of derivatives. The leading importers from India are USA, Europe, Japan, China and Brazil. Indian export of castor oil is growing at a rate of 19% per annum. Gujarat is the only state which export castor cakes from India (for use as natural manure) to the European countries, Singapore, Taiwan, China and U.A.E. As a rich source of raw material, Gujarat provides the opportunity for investment in castor oil and derivatives manufacturing plant, which have a booming export market.

Source: A F Ferguson & Co – Management Consultancy Division

CAT'S CLAWS

Cat's Claws (*Uncaria tomentosa*) is an anti-inflammatory agent that protects against oxidative stress and bacterial toxins and is effective for the treatment of arthritis, gastritis and various dermatological infections. Various Peruvian companies plan to cultivate on a very large scale which may lead to the market being flooded and the livelihood of the Amazon collectors could be in jeopardy. Exports are sure to continue to grow as research

on the therapeutic value of Cat's Claw is brought forward.

Recent efforts by Peru to ban the export of raw bark have forced US and European extractors to search for alternative sources of raw bark. Denzil Phillips International has been approached by interested parties from Guyana to explore the possibility of developing their Cat's Claw supplies. *Uncaria guianensis*, which grows in secondary forests and at slightly lower altitudes of the Amazon than *Uncaria tomentosa*, is a very similar although not botanically and chemically identical product. Before sales can begin, trials will have to be undertaken to see whether it will be a suitable substitute.

Source: Plantwise Newsletter
Email: info@denzil.com

CONSERVATION AGRICULTURE

Conservation Agriculture (CA) aims to conserve, improve and make more efficient use of natural resources through integrated management of available soil, water and biological resources combined with external inputs. It contributes to environmental conservation as well as to enhanced and sustained agricultural production. It can also be referred to as resource-efficient / resource effective agriculture.

Conservation Agriculture maintains a permanent or semi-permanent organic soil cover. This can be a growing crop or dead mulch. Its function is to protect the soil physically from sun, rain and wind and to feed soil biota. The soil microorganisms and soil fauna take over the tillage function and soil nutrient balancing. Mechanical tillage disturbs this process. Therefore, zero or minimum tillage and direct seeding are important elements of CA. A varied crop rotation is also important to avoid disease and pest problems.

Rather than incorporating biomass such as green manure crops, cover crops or crop residues, in CA this is left on the soil surface. The dead biomass serves as physical protection of the soil surface and as substrate for the soil fauna. In this way mineralization is reduced and suitable soil levels of organic matter are built up and maintained.

Conservation Agriculture is being practiced on about 45 million ha, mostly in South and North America. Its use is growing exponentially on small and large farms in South America, due to economic and environmental pressures. Farmers practicing CA in South America are highly organized (in regional, national and local farmers organizations), and are supported by institutions from North and South America. In Europe the European Conservation Agricultural Federation, a regional lobby group, has been founded. This body unites national CA associations in the UK, France, Germany, Italy, Portugal and Spain.

<http://www.fao.org/waicent/faoinfo/agri/cult/ags/AGSE/MAIN.htm>

At the turn of the millennium, conservation agriculture was being practiced on about 45 million hectares, mostly in North and South America. In South America in particular, both smallholders and big farmers are rapidly adopting the new technology. In some states in Brazil, it is official policy. In Central America, Costa Rica has a Department for Conservation Agriculture in its Ministry of Agriculture.

Figures available show that no-tillage - the basic technology for conservation agriculture - is used to cultivate 52 percent of the arable land in Paraguay, 32 percent in Argentina and 21 percent in Brazil. Although in absolute terms the biggest area under no-tillage is in the United States of America, it is

only slightly over 16 percent of the country's cultivated land.

www.fao.org/NEWS/2000/000501-e.htm

CUCUMIS spp (Salad kakdi)

The natural combinations of *Cucumis* species, resembling cucumber and longmelon (salad kakdi) are found in the arid region. The following selections have been made for sowing in February-March and June-July.

AHC 2 - is a very early-maturing variety, bearing uniform, medium long fruits, which are without furrows and with light green skin. Harvesting of tender fruits for salad or for garnishing vegetables can be done 8-12 days after fertilization. Mature fruits are ready for harvest in 53-55 days after sowing, and harvesting continues up to 90-100 days. Fruits weighing 275-300g are suitable for slicing: when their length is 30-35cm and diameter is 3-3.5cm. Their flesh is crisp textured, solid and 1.4-1.5cm thick. About 12-15 tender fruits can be harvested per vine, giving a yield of 4kg per vine and 17.5-20.2 tonnes/ha.

AHC 13 - is a very early and highly productive variety with profuse hermaphrodite flowering. For slicing, fruits can be harvested at a very early stage (3-6 days after fertilization). First harvest can be had 50 days after sowing, and harvesting continues up to 90-100 days. Continuous picking results in higher yield. About 20-25 fruits are borne per vine. Tender fruits weighing 75-100g are harvested; when length is 5.5-7.0cm and diameter is 4.4-5.0cm. Fruit flesh is crispy and tasty and is about 1.0cm in thickness. On average 2.15kg tender fruits can be harvested per vine, giving a yield of 85-125 tonnes/ha. This variety also shows high tolerance to heat. Source: ICAR News Volume 5 No 3 July-September 1999. Email: rsp@icar.delhi.nic.in

ESSENTIAL OILS

Aromatherapy has physical effects, and can have subtle effects on the mind and the emotions.

Essential oils have been used for thousands of years, not only in aromatherapy, but also in perfumes, pharmaceuticals and food flavouring - and, as a more recent innovation - in bio-pesticides. The market is well established, at an estimated 1.2 billion Euro per year and demand is rising steadily.

Essential oils are found in the cells of various plant organs, ranging from the roots, bark and leaves to the seeds, fruits and flowers. There are more than 3,000 essential oils known today, of which more than 500 are sold commercially.

The traditional artisan methods of production, usually by distillation, expression and solvent extraction, cannot easily provide the consistent levels of quality demanded on the export market. Traders in essential oils are now demanding the use of modern, and capital-investment equipment.

As an agro-industry, the essential oil sector is an important contributor to a nation's agricultural economy, and balance of trade. This is well understood by several ACP countries (African, Caribbean and Pacific): investment projects are currently underway in Benin, Ghana, Malawi, Mali, Rwanda, Togo and Zimbabwe. Great potential exists for many ACP countries to produce and market essential oils, but a lot of work is required to get the sector operating smoothly. Between 1992 and 1997 millions of dollars were invested by local banks and companies: the World Bank, the UN Industrial Development Organisation, the ACP-EU Centre for the Development of Industry, and the German, United States and European development cooperation agencies. In the apparent gold rush, dozens of enterprises were set up,

but many failed through lack of attention to consistent supply of plant materials, quality control, plant diseases, and technology selection. One lesson learned was the need to better organise the sector with the assistance of a professional association, SYPEAM (Syndicat Professionnel des producteurs d'Extraits Aromatiques alimentaires et médicinaux de Madagascar), which now provides support to producers through training and technical information.

Source: Spore Number 86 April 2000.

Email: cta@cta.nl

Web: <http://www.cta.nl>

DYE PLANTS

Natural colours are mainly used in the food industry. They are also employed in other industrial products such as cosmetics, pharmaceuticals, papers, textiles and paints. Their use has increasing opportunities in numerous potential applications e.g. in the bio-building industry and restoring works of art.

Advantages of natural colours:

- renewable resources
- potential to be available in large quantities.
- low environmental impact
- possess biological properties
- good range of colours

But are not competitive in terms of:

- cost
- supply
- standardised quality

An integrated chain must be established:

- evaluation of future market
- growing strategies to meet demand
- correct conservation techniques
- suitable extraction techniques and analytical methods

The Department of Agronomy of the University of Bologna activated research on dye plants as part of a

project on 'non-food crops' (PrisCA) supported by the Ministry of Agriculture, with the to develop and/or investigate aspects:

- adaptability of different species and genotypes to different environmental conditions
- modern and environmentally safe growing techniques
- influence of different variables (species, varieties, environments & fertilizers) on the accumulation and composition of useful components
- effects of crop residues on soil
- knowledge of the chemical nature and properties of dye substances
- techniques of extraction and analysis to characterise natural dyes
- rapid method to assess the dye content for screening experiments

Experimental field trials showed that many dye plants possessed a good adaptability to environment and good agronomic yields, some species were chosen and tested for further agronomic experiments and for characterisation and quantification of colouring compounds. Plants were discovered which are very rich in secondary metabolites of potential interest, which may be exploited. These aspects could contribute to the introduction of cultivated dye plants. Work is ongoing to evaluate the content of active substance in each species and/or genotype and to determine the optimal time of harvest to maximise the dye content.

Source: Newsletter number 10 (November 1999) in the IENICA (Interactive European Network for Industrial Crops and their Applications) series. Please look at the IENICA website for further details:

<http://www.csl.gov.uk/ienica>

GUAR GUM

Guar gum is produced from Guar (cluster bean) seeds that have about 28% gum content. It is used in textiles, food processing, cosmetics, mining and oil drilling. India and Pakistan are the two main producers and exporters. India produces around 1 million of the 1.6 million MT total Guar seed production in the world. The main Guar producing states are Rajasthan (68-70% of total India production), Haryana, Gujarat and Punjab. USA is the largest importer (37% total exports from India) followed by Germany, UK, Hong Kong and Japan. There are good opportunities for integrated processing plants producing derivatives for world as well as domestic markets.

Source: report by A F Ferguson & Co – Management Consultancy Division

HERBS

Herbs are seed producing annual, biennial or perennial plants that do not develop a persistent woody tissue. They are particularly valued for their medicinal, savoury and aromatic qualities. They have a high market potential as the world demand for products is growing at 7% per annum and trade is estimated at several billion dollars. There is growing awareness and support from consumers increasing concerned about the environment and the possible side effects of conventional medicines. There are 1,500 species of Indian herbs used for production of medicines globally. The countries to which India exports Ayurvedic and Unani herbs are USA, Chinese Taipei, Japan, Germany, Pakistan, France, UK etc.

Source: A F Ferguson & Co – Management Consultancy Division

HIREHALLI DWARF x SUMANGALA – A PROMISING DWARF HYBRID OF ARECANUT

Arecanut (*Areca catechu* Linn.) palms normally attain a height of 18-20m. Such tall palms are not only difficult to manage but are also prone to frequent wind damage. On evaluating hybrids obtained from crosses, involving Hirehalli Dwarf (natural mutant) released high-yielding varieties, Mangala, Sumangala, Sreemangala and Mohitnagar, at the CPCRI (RS), Vital, a promising dwarf hybrid could be identified from a cross between Hirehalli Dwarf and Sumangala. This hybrid has shown promise in yield by recording 0.2 kg ripe-nuts per palm in the first year of bearing (fifth year after planting), which is 56% more than Hirehalli Dwarf palm. Such dwarf hybrids with high yield potential will definitely have multidimensional benefits to arecanut-growers.

Source: ICAR News Volume 5 No 3 July-September 1999.

Email: rsp@icar.delhi.nic.in

ISABGUL

Isabgul (*Psyllium*), produced and exported only from India, is mainly consumed in husk form. Husk, the most valuable constituent (25% w/w) of the seed, is mostly used as a laxative. Isabgul is also very useful for heart and diabetic patients. It has US FDA approval and is used in some cereals in the USA. This will boost consumption and will probably double the export market in the next five years, as the US imports around 75% of exports.

Source: A F Ferguson & Co – Management Consultancy Division

KENAF

This is an environmentally friendly, robust, subtropical crop and has low cost multi-purpose applications.

These include twine, burlap, a substitute for glass fibre, as a filler in recycled moulded plastic items and as a soilless compost mix.

For more than 20 years the US Department of Agriculture has been trying to promote Kenaf fibre as a new industrial crop. Despite the injection of considerable amounts of venture capital its worldwide acceptance has been slow.

Reports from Kenaf International, Texas indicate that the company has successfully developed ways of using Kenaf fibre in the manufacture of mouldings for automobile interiors. This is where the greatest hope for the future lies.

Source: Plantwise Newsletter

Email: info@denzil.com

KIGEZI HIGHLANDS

Small-scale cultivation to meet household consumption and a little trading characterises livelihoods in most rural households in this area. Land holdings are very small because of high population density and many households live off less than 1 ha. In addition, land is highly fragmented making it difficult to expand and manage agricultural activities. The bimodal rainfall pattern allows two cropping seasons. The main crops are sorghum, sweet potatoes, Irish potatoes, beans and maize. Plantains are dominant in the lower and drier eastern parts of the Kigezi highlands.

Farmers use many local trees and shrubs as traditional and cheap medicine for both humans and animals. For example, farmers treat cows with the leaves of *Sesbania sesban*, *Vernonia amygdalina* and *Dodoaea angustifolia* to cure intestinal diseases like worms and diarrhoea.

Source: ILIEA Newsletter Dec 1999 Volume 15 No 3 / 4.

KUNCI PEPET

The following information forms part of a paper presented by Soedarsono Riswan at the XVIIth National Seminar on Indonesian Medicinal Plants, held on 28-30 March 2000, in Bandung

‘Kunci pepet’ is a Javanese vernacular name for *Kaempferia rotunda* L., and *Kaempferia angustifolia* Rosc. Both species belong to the family of Zingiberaceae and traditionally used as medicinal plants. Another species with the Javanese vernacular name ‘Temu kunci’ (*Boesenbergia pandurata* (Roxb.) Schelcht. – Zingiberaceae) is used for spices, condiments and vegetables.

Those local names have posed problems to scientists in the study of those plant species. This problem is particularly faced by non-botanists or non-taxonomists, e.g. phytochemists and pharmacists, but this is also experienced by sellers of medicinal plants in traditional markets or traditional drug stores.

To make those plant species more familiar to the audience, Riswan showed living specimens to them. He informed them that the information given in the PROSEA products (Handbook and Derived Products) very useful and interesting and recommended them to the delegates at the seminar and scientists in each ASEAN country.

Source: PROSEA Newsletter, Number 24 April 2000. ISSN: 0853-2958. PROSEA Network Office, c/o Herbarium Bogoriense, RDCB-LIPI, P O Box 332, Bogor 16122, West Java, Indonesia.

LUPINS

News from South Africa Lupin Network:

During the 1999 season well over 50 ha of lupins were planted in the North West Province. Irrigation farmers in the Swartruggens area, who planted lupins for the first time, were remarkably successful. Several blocks with a yield of over 3 t/ha were harvested. Farmers in this area would like to develop lupin as a grain crop in this area, as finches in wheat are proving to be an increasing problem in this area.

Near Brits three test plantings were planted in 0.45 rows with the cultivar Hantie (*L. albus*) and the two Australian narrow-leaved cultivars Merrit and Wonga. The yield of Hantie was over 3 tons and the other two about 2.5 ton/ha.

During the winter planting in the Eastern Free State no anthracnose occurred there. Lupin plantings were however negatively affected by a late start of the summer rains, while harvesting is now delayed by an abnormally high rainfall delaying the ripening process and harvest.

Sweet white lupin plantings in the Western Cape have been provisionally estimated at 16000ha. Narrow-leaved lupins, especially Australian cultivars, are on the increase, because of their better resistance against anthracnose.

Source: Jan/Feb edition (no 30/31) of LUPTEC. Contact: Dr J A M van der Mey (Editor), LNR-IGG/ARC-GCI, Private Mail Bag X1251, Potchefstroom 2520.

NATURAL EXTRACTS

These are the substances separated from natural matters (plant or animal origin) through various extraction techniques that provide the desired properties (e.g. odour, taste) in highly concentrated form. It includes essential oils, resinoids, oleoresins,

concretes and absolutes. The most important extracts are essential oils e.g. spice oils. Natural extracts are intermediary products to flavour, fragrance and colour. These in turn are intermediary products to consumer industries such as soap, detergents, pharmaceuticals, cosmetics, food, dairy, bakery and confectionery. Major exporters of natural essential oils are China, EU, USA, Brazil, Indonesia and India.

Source: A F Ferguson & Co – Management Consultancy Division

POCKET DIAGNOSTICS FOR MORE PLANT VIRUS DISEASES

Following successful trials by MAFF's Plant Health and Seeds Inspectors CSL is extending the range of its new Pocket Diagnostic rapid field-test kits. The extended range now covers the potato viruses Y, X, A, S and V, with nine other plant disease kits under development.

Pocket Diagnostic tests take less than two minutes, require no refrigeration for storage and are extremely simple to use. Accuracy is a very impressive 99%. Available from the end of March 2000 from CSL directly and via Farming On-line in packs of four tests complete with extraction bottles. Pocket Diagnostic tests are competitively priced at £15 plus VAT per pack.

Contact: Chris Danks, Central Science Laboratory.
Email: c.danks@csl.gov.uk

PRIMARY PROCESSING AND PROPER PACKAGING OF HORTICULTURAL PRODUCE

According to a recent joint study, by the management consultancy firm McKinsey & Co. and the Confederation of Indian Industry (CII), at least 50% of the production of the fruits and vegetables in India is lost due to wastage and value

destruction. The wastage costs the country an estimated Rs 230,000 million.

Existing practice of transporting cauliflower without primary processing results in the shipment of 60% inedible parts, which ultimately convert into city garbage. If the inedible parts are removed at the packing station the product will be in a 100% edible form.

Traditional post-harvest practice of shipping whole banana-bunch along with leaves and unwanted parts to the city market, either by truck or by train, without primary processing or adequate packaging results in every truck/wagon of bananas containing 15% city garbage. Experimental findings support shipping banana-hands in crates as against whole bunches in truck/train.

Existing practice of shipping fruits in bamboo baskets, wooden boxes and gunny bags carries additional weight of 15-25% in terms of baskets, wooden boxes, straw, leaves, newspapers, paper shreds from production to consumption centre; ending up as city garbage. An environment-friendly corrugated fibreboard box (CFB) with ventilated partition has been developed at the IARI. This package does not generate any garbage since it can be recycled *in toto*.

Source: ICAR News Volume 5 No 3 July-September 1999.
Email: rsp@icar.delhi.nic.in

PRIZE FOR SUSTAINABLE AGRICULTURE

The annual sustainable agriculture award (SARD Prize) endowed at US\$10,000 has been presented at the 6th Trade Conference of the International Federation of Organic Agriculture Movements in Florence, Italy. It is the fourth time that three grass-root organisations from developing countries were singled out for their exemplary work in promoting an agroecological

approach to agriculture and food production. To apply no chemicals and no gene-manipulated material are the main criteria for the nomination together with demonstrated concern for the poorest peasants and women. The 1999 Prize winners are the Indian Institute for Integrated Rural Development (IIRD) based in Maharashtra State, the Infanta Community Development Administration (ICDA) in the Philippines, and the African Network for Development of Ecological Agriculture together with the Ghana Organic Agriculture Network located in Agomeda.

The German founder and sponsor of the award, Dr Friedrich Mumm von Mallinckrodt, emphasised in the award-giving ceremony in Florence that regenerative and indigenous-technology-respecting agriculture based on agroecological principles will make the fundamental difference to the conventional farming practices which can be socially and ecologically disruptive. The first winner of the SARD Prize in 1996, an innovative organisation from Cuba, has received the 1999 Alternative Nobel Prize which, in the opinion of the SARD founder, demonstrates the good instinct of the Selection Committee and the encouragement the Prize gives to the budding organic movement.

SEED FAIRS

The Project 'Promotion of small-scale seed production by self-help groups' is a technical cooperation project between the Southern Africa Development Community (SADC) and Germany. The project seeks to develop an approach to achieving seed security at household level given that commercially-oriented seed enterprises will do very little to supply quality seed from open-pollinated crops to farmers. To achieve its objectives, the project cooperates closely with NGOs, the extension service, farmer associations and other projects

already working in the field with individual farmers and farmer groups. The project offers to supplement their activities with a seed component.

To maintain farmers' interest in seed security concerns, the project finds it helpful to suggest that farming communities make an inventory of crops and varieties used at the local level. The whole community then displays its seed inventory at a 'seed fair'.

Seed fairs in Zimbabwe began in the early 1990s and followed the most devastating drought to affect Southern Africa this century. Acting as an informal inventory, the seed fairs were quick to establish the resilience of traditional farming systems in the face of such major catastrophes. The seed fairs revealed that seeds, even of very old varieties, were still to be found in the farming communities.

Main objectives of seed fairs are to:

- enable farmers in the area to share information regarding the performance of various varieties
- give access to a wider range of crops and varieties so they can meet their food requirements
- develop a competitive spirit in food production and
- share skills and knowledge on how to produce the crop.

Differences between seed fairs and agricultural shows:

- Farmers pay to display their goods at agricultural show, at seed fairs they can display their seeds for nothing.
- Produce is judged at shows in terms of quality. At seed fairs, the diversity of displayed varieties and their uniqueness is what is most important.
- At shows only registered varieties can be judged, while at seed fairs all crops and varieties are accepted, irrespective of their origin.
- It is easier to get seed from an exhibitor at a seed fair who

lives in the vicinity, for payment or barter can be arranged any time before the planting season starts.

Most of the farmers involved are women and they play a crucial role in setting up the fairs and exhibiting crops and varieties. Many of the crops displayed are the women's responsibility and they play an important role in securing household food security. It can be said that making sure seed is available at household level is mainly women's business. The present abundance of crops and varieties being displayed at seed fairs is, however, under threat. The advent of crop commercialisation brought with it the use of improved varieties. Their apparent qualities and uniformity made them seem very attractive and many farmers no longer saw any reason to maintain the old varieties. There is an indication that a more market-oriented crop production infringes on diversity. Still, we may yet witness a gradual change towards an increased use of traditional varieties as depressed commodity markets push farmers towards a farming system that is primarily geared to household food security. This may lead to farming systems that thrive on diversity of crops and varieties. New chances may also come as the demand from affluent societies for long forgotten indigenous vegetables, herbs, root, tubers, and grain increases.

Ortwin Neuendorf, Project Manager
SADC/GTZ Small Scale Seed
Project, P O Box 4046, Harare,
Zimbabwe. Tel/fax: +263 4 722724,
Email: oneuendorf@fanr-sadc.co.zw

Source: LEISA ILEIA Newsletter
Dec 1999 Volume 15 No 3 / 4.

SMALL SCALE CULTIVATION

Small-scale cultivation to meet household consumption and a little trading characterises livelihoods in most rural households in the area. Land holdings are very small

because of high population density and many households live in less than 1 ha. In addition, land is highly fragmented making it difficult to expand and manage agricultural activities. The bimodal rainfall pattern allows two cropping seasons. The main crops are sorghum, sweet potatoes, Irish potatoes, beans, and maize. Plantains are dominant in the lower and drier eastern parts of the Kigezi Highlands.

Source: LEISA ILEIA Newsletter
Dec 1999 Volume 15 No 3 / 4.

SPIRULINE

Madagascar has started to produce spiruline from the alga *Spirulina*, which is rich in plant proteins and is used as a food additive. Initial production levels are modest, but by the end of 2000 are expected to reach 50 tonnes of powdered spiruline. It is produced industrially at a plant in Tulear, in the southwest of the island. All reports are of a very high quality product, able to command a price twice that charged for Chinese spiruline, the best-known product on the market to date.

Source: Spore No 86 Apr 2000.
Email: cta@cta.nl
Web: <http://www.cta.nl>

UNDERUTILIZED FRUITS TO ENHANCE FOOD AND NUTRIENT SECURITY

At a Workshop on "Fruits for the Future" held in November 1999, Mr. DM Jayaratne, the Hon. Minister of Agriculture and Lands, in his inaugural address emphasized on the need to select and improve the fruit species that remain under-utilized for many years for the benefit of the rural population. He indicated that while the other countries of the region have embarked on commercialization of some of these species such as Jackfruit, Guava, Durian, Rambutan, Tamarind, we have not recognised their potential

and given the deserved priority in our research programmes. He said that if we could improve them and integrate with agricultural systems, these fruit species could supplement the household food security and improve the living standards.

This Workshop was organised by the National Multipurpose Tree Research Network based at the Faculty of Agriculture, University of Peradeniya, jointly with the Department of Agriculture, and the National Science Foundation. The inaugural session was addressed by Prof. H.P.M. Gunasena, National MPTS Coordinator, Dr. S.D.G. Jayawardene, Director-General, Department of Agriculture and Mr. M. Watson, Director, National Science Foundation. The academics of the University and research officers of the Department of Agriculture, and the Institute of Industrial Technology discussed the potential of several underutilized fruit species. These included Woodapple, Mangosteen, Rambutan, Kitul, Avocado, Annona, Durian and Tamarind. The present status of the above fruit species, their agronomic and industrial potential was discussed by the participants of this workshop.

At this workshop it was revealed that tropical fruits are important multipurpose trees which could supplement and improve the quality of diets, provide fodder, fuelwood, timber and medicine for the rural populations. The consumption of these fruits enable, particularly the rural people, women and growing children to obtain nutrients for a balanced diet, supplement family incomes and improve household food security. These fruit species, however, have not been well managed by the rural people for economic returns due to various reasons, primary the lack of technologies for processing, storage, product development and marketing. Some of these species have not been included in the agricultural development programmes of the country as they are considered

unimportant and are in a state of complete neglect. Many of these fruit species are felled for agricultural development, urbanization and timber etc., some of them due to these reasons are at the point of extinction. The local institutions have not taken adequate action to collect and conserve them for future use.

There are several underutilized fruit species in Sri Lanka, and they also grow in other neighbouring countries of the Asian region. Major species include Tamarind, Divul, Bell, Durian, Mangosteen, Anonas, Rambutan, Jackfruit, Goraka, Galsiyambala, Kitul and Avocado. In Sri Lanka, due to its favourable climate these fruit species thrive well and produce fruits. Although they are often left unattended, they produce fruits in large quantities in many ecological regions and appear in the markets during the season. They are never processed or preserved and most of them are wasted. A very clear example is the jackfruit, which remains unharvested on trees. In the other countries like Thailand, Indonesia, Philippines and India the tree improvement has been undertaken by selecting outstanding species from natural populations. These improved trees produce good harvests and have been incorporated into the agroforestry systems. They are also grown on a plantation scale in some countries such as Thailand. In Thailand improved varieties of sweet tamarind, guava, durian and rambutan are cultivated by small scale farmers not only for local consumption but also for export. It is a common feature to obtain dried, processed and packeted tamarind, durian, mango, etc. in those markets that help the rural populations to enhance their incomes and improve the living standards.

In Sri Lanka, many of these species have been neglected over the years. The agriculturists have failed to recognize the fact that they are a good source of food and nutrition. Their wide adoption, income

generating ability, nutritive value, contribution towards food security, diversification with other crops, use in agroforestry systems, environmental conservation etc. are not properly understood. Unlike other neighboring countries, selection of suitable, high yielding cultivars has not been undertaken, germplasm collections have not been carried out extensively for any of the species that are grown naturally, propagation techniques have not been studied and germplasm production and distribution pathways have not been established. Many of these species have commercial markets both locally and abroad but processing and storage technologies have not been subjected to any organized research and wasteful traditional methods are still being practised by rural populations. Although improved techniques for processing, preservation, storage and product development have taken place in some neighboring countries such as India, these techniques have not been disseminated to local people.

These fruit species also have medicinal properties. Some, like tamarind, are used to cure various types of disease in traditional medicine. Therefore they could be used to prepare herbal medicines which are in the forefront of world's commercial markets. These fruits have industrial applications too, such as adhesives, gums, resins etc. which if judiciously used could be developed into agro-based industries.

In this Workshop several papers were presented by the academics and research officers of the Department of Agriculture. Dr. S.D.G. Jayawardene, Director General of Agriculture emphasized the importance of developing these fruit species for commercial purposes, and the on-going programmes of the Department of Agriculture towards their development. His emphasis was to select certain species with high priority for development rather than

embarking on an extensive programme involving many species, as the number of potential underutilized fruit species exceed well over twenty.

The participants also noted that although the potential of underutilized fruit species has been well recognized they have not entered into the research agenda of concerned institutions. They have been given low priority. This is an area that should receive the attention of the Department of Agriculture, Universities and other concerned institutions and industries. The genetic resources of these species have been threatened due to urbanization and agricultural development. Hence steps should also be taken to collect, characterize, evaluate and conserve such germplasm. Although no conscious effort has been made on breeding, the selection process could be used for identification of cultivars with desirable traits. It will be necessary to identify characteristics for suitable ideotypes for various utilization purposes such as plantation, home gardens and other niches of the farming systems.

When desirable selections are identified germplasm distribution pathways have to be developed to make them available to the farmers. Germplasm production and distribution pathways should include the participation of farmers to encourage them and increase opportunities for employment.

Processing and product development are areas that are highly neglected. These are essential to promote underutilized species for commercialization. The collaborative arrangements with the industry will be required to accelerate product development and diversification.

The most important aspect for the popularization of the fruit species will be the availability of markets. Therefore economic aspects of production and marketing will be crucial to their development. It is

emphasized that market surveys are conducted and the potential in international markets explored.

Prof. H.P.M. Gunasena

Director, Postgraduate Institute of Agriculture, Peradeniya.

Recent Meetings

The Ninth International Lupin Conference, 20-24 June 1999, Klink-Muritz, Germany.

170 delegates from 23 countries attended this conference which had a high scientific standard combined with a very pleasant social programme. Supported by a generous donation of the PRT, Dr Jan van der Mey of the AARC-Grain Crops Institute and Herman Agenbag of the PRT-Western Cape could attend. Dr Jan van der Mey was elected as Vice-President on the condition that the 10th Conference would take place in South Africa. It will be held in Stellenbosch in September 2002. The conference was followed by a short visit to two research stations, the private station Wiatrowa and the state station Przebudowa, in Western Poland. Details of the Agronomic Aspects of this conference by Herman Agenbag, PRT Elsenburg, Western Cape and a paper on Anthracnose, Plant Protection, Breeding and Physiology by Jan van der Mey, ARC-GCI, Potchefstroom are given in the Jan/Feb 2000 edition (no 30/31) of LUPTEC which is a bi-monthly newsletter of the South African Lupin Network (SA LUPNET)
Contact: Dr J A M van der Mey (Editor), LNR-IGG/ARC-GCI, Private Mail Bag X1251, Potchefstroom 2520.

International symposium on participatory plant breeding in Latin America & the Caribbean, Aug-Sept 1999, Santa Catalina Experiment Station of Ecuador's National Institute of Agricultural Research (INIAP), nr Quito

75 scientists and farmers from 12 countries took part in this 4-day event which was organised by the Participatory Research and Gender Analysis (PRGA) Program of the Consultative Group on International Agricultural Research (CGIAR). More than 40 presentations were given on participatory work with a variety of crops and on related topics, such as low-cost seed production using tissue culture. The workshop also included field visits to two local agricultural research committees (CIALs) and a half-day 'teach-in' on themes such as gender analysis and strategies for communications with farmers. Plant breeders made presentations on basic genetics and taught farmers how to make crosses in various crops. The workshop was an innovative step toward bringing farmer-led research into closer contact with formal research in the public sector.

Workshop on Geographic Information, September-October 1999, CIAT Headquarters, Cali, Colombia.

The 18 participants were information professionals representing government ministries of six Central American countries. They are partners in the 'Central American Project on Geographic Information for Development' (PROCIG), which is coordinated by CIAT and funded by the World Bank's Information for Development, or InfoDev, Program. A central aim of the project is to strengthen national capacity to

develop and deliver geographic information linked to digital maps.

Toward this end, the workshop covered new developments in geographic information systems (GIS), remote sensing, mapping technology, relational databases, three dimensional terrain modeling, and web site development. The workshop also provided an opportunity for participants to share experiences and define the project's work plan for the coming year, specifying the information products that each country will develop.

Commonwealth Heads of Government (CHOGM) meeting, November 1999, Durban

The British Council promoted the concept of Commonwealth Knowledge by demonstrating how the new information and communication technologies can make a real difference to the way people live and work. The Council's stand at the People's Fair had the theme 'Commonwealth Knowledge – Making a Difference'. This focussed on the role of Commonwealth Knowledge in improving people's quality of life and in strengthening human rights. The stand featured interactive exhibits, multimedia case studies, and a rolling programme of events to showcase practical examples of Commonwealth Knowledge in action. These included demonstrating how the new technologies can be used to:

- create new wealth
- improve services to remote and deprived communities
- strengthen freedom of expression
- develop cultural self expression.

There was interactive electronic debate on freedom of expression between journalists at CHOGM and their peers throughout the Commonwealth, and a high-level workshop examining the case

studies in-depth and exploring the opportunities and implications of the new technologies for the Commonwealth.

Forthcoming events

EXPO 2000 - World Exposition

1 June –31 October 2000. Hannover.

EXPO2000 Projects
Presentations of the Nations
Events Programme
Thematic Area

Tel: ++ 49-2000
Web: <http://www.expo2000.de>

Food Safety Symposium: Risk Assessment and Communication for Food Safety

20-22 June 2000.

The Central Science Laboratory (CSL) and the Joint Institute for Food Safety and Applied Nutrition (JIFSAN), USA are launching the first in a range of symposia on various themes relating to food safety and applied nutrition. Speakers from CSL, US FDA, the EU, University of Maryland, General Mills (USA) and PSD will make presentations in answer to the questions:
Why Assess Risk?
How do we obtain Appropriate Data to assess Risk?
How do we communicate risk?
What are the Future needs?

Contact: Maggi Churchouse
Tel: 01904 462387
Fax: 01904 462111
Email: m.churchouse@csl.gov.uk

Cultures and Biodiversity Congress 2000

21-31 July 2000. Kunming, PR China.

The specific objectives of the CUBIC congress are:

To provide the opportunity for researchers to exchange experiences with each other, as well as with representatives of local cultures, policy makers and development staff, on the interactions of cultural values and practices and the management of biodiversity. What insights have been gained about these interactions and what impact so external forces have on these processes?

To create a dialogue with one another and an image of the future that supports prosperous local cultures using and sustaining biodiversity in traditional and innovative ways. What do we think a better world would look like with regard to local cultures and the management of biodiversity?

To develop appropriate approaches in which 'outsiders', government and non-government, can act differently and ways in which 'insiders' and local communities can be strengthened in their ability to govern their natural resources and secure their livelihoods.

The ten-day programme will combine presentations, workshops, group work, field trips, and arts and crafts.

Contact: Therese Grinter
Xu Jianchu

Email: Xujc97@public.km.yn.cn.or
CBIK@public.km.yn.cn

Breeding and Seed Production of Vegetables in XXI Century

24-27 July 2000. Research Institute of Vegetable Breeding and Seed of Russia (VNISSOK).

Contact: vnissok@cea.ru

XXI IUFRO World Congress

7-12 August 2000. Kuala Lumpur, Malaysia

Contact: XXI IUFRO World Congress Organising Committee. Forest Research Institute Malaysia, Kepong, 52109 Kuala Lumpur, Malaysia

Fax: 60-3-6367753

Email: iufroxxi@frim.gov.my

Web: <http://frim.gov.my/iufro.html>

International Crop Science Congress

17-22 August 2000. Hamburg, Germany.

Contact: www.cch.de/CROPSCIENCE/

Biodiversity and Dynamics of Ecosystems in the North Eurasia: Informational Mechnologies and Modeling

21-23 August 2000. Russian Academy of Sciences Novosibirsk Akademgorodok, Russia.

Contact: kol@bionet.nsc.ru

2nd International Seminar 'Organics in the Supermarket'

25-26 August 2000. Convention Centre, Basle, Switzerland.

This is the second event organised by the prestigious International Federation of Organic Agriculture Movements (IFOAM) with technical and managerial support from the Swiss Research Institute for Organic Agriculture (FiBL). It will include talks by leading organic suppliers like HIPP and the Coop as well as visits to the BioMarche show at Zofingen (25-27 August 2000)
Contact: ifoem2000@fibl.ch

IFOAM 2000 The World Grows Organic

28-31 August 2000. Basle, Switzerland.

Organised by the Research Institute of Organic Agriculture (FiBL), it will explore ways in which organic agriculture can gain global momentum in production, processing and trade. Seminars, exhibitions, excursions and public events will accompany the conference.

Contact: IFOAM 2000 c/o FiBL, PO Box, CH-5070 Frick, Switzerland.

Fax: +41 62 865 7273

Email: ifoam2000@fibl.ch

Web: <http://www.ifoem2000.ch>

Quantitative Genetics and Breeding Methods: the way ahead

30 August - 1 September 2000. EUCARPIA Congress, Paris, France.

Contact: gallais@moulon.inra.fr

Predicting Field Performance in Crop Protection

10-12 September 2000. University of Kent, Canterbury, UK.

Organised by the SCI Crop Protection Group with the support of the British Crop Protection Council.

Contact: SCI Conference Secretariat, 14/15 Belgrave Square, London, SW1X 8PS, UK

Tel: +44 (0) 207-235 3681

Fax: +44 (0) 207-235 7743

Email:

conferences@chemind.demon.co.uk

**Bioactive Molecules
Plant Products for the
Pharmaceutical and Healthcare
Industries**

2-3 October 2000. The University of York, UK.

A seminar, organised by ACTIN and the Plant Protein Club, to highlight novel applications of recombinant and endogenous plant products in the pharmaceutical and healthcare industries.

Contact: Stephanie Grant, Plant Protein Club, University of York, P O Box 373, York, YO10 5YW, UK.
Tel: +44 (0) 1904 434327
Fax: +44 (0) 1904 432928
Email: ppc@york.ac.uk

**International Symposium on
Animal, Agricultural, and Food
Processing Waste**

7-11 October 2000. Marriott Hotel, Des Moines, IA.

Contact: moore@asae.org

AgriFare 2000

12-15 October 2000. Drive-In Road, Ahmedabad, Gujarat.

Organised by Confederation of Indian Industry (CII), it aims to bring together technology and direct investment to accelerate development of agriculture and food processing industry through equity investment to accelerate investment, joint venture arrangements, strategic alliances, technology tie-ups, buyback arrangements and relevant commercial linkages. The AgriFare 2000 hosts 3 events simultaneously in an effort to comprehensively capture the food and agro potential: the AgriFare Exhibition, the AgriFare Investment Meet and the Agri-Fare Conference.

Contact: CII, Gujarat Office, 203-204 Sears Tower, Gulbai Tekra, Nr. Panchwati, Ahmedabad – 380 006
Tel: +91+79+6469346
Fax: +91+79+6462878
Email: cii@gujarat@ad1.vsnl.net.in

**International Conference
Biotechnology and Trade Show**

22-25 October 2000. Munster, Germany.

Contact: Ms Odette Jansen, P O Box 822, NL-3700 AV Zeist
Tel: +31 (0)30 6933489
Fax: +31 (0)30 6917394
Web: <http://www.europoint-bv.com>

**Land Conservation and Food
Production in the Third
Millennium**

22-27 October 2000. National Institute of Agricultural Technology and the Faculty of Agronomy, University of Buenos Aires, Argentina.

Four main themes have been defined in this 11th International Soil Conservation Organisation Conference:

- Extension and intensity of land degradation processes. The challenge of the new causes of degradation.
- Scientific and technological advances for the protection of the environment and sustainable land use.
- Socioeconomic factors of human interventions and their consequences for food production and the environment
- Policies for environment conservation. Scientific cooperation, education and extension

Contact: Secretaria Cientifica ISCO 2000, FAUBA, Av. San Martin

4453, (1416) Buenos Aires, Argentina.
Tel/fax: +54 11 4481 1688
Email: isco2000@cirn.nta.gov.ar
Web: <http://www.agro.uba.ar>

**10th ASOMPS (Asian
Symposium on Medicinal
Plants, Spices and other
Natural products): Research
and Development of Natural
Products for Human Survival
in the 21st century**

19-23 November 2000. Dhaka, Bangladesh.

Contact: Prof. Nilufar Nahar, Secretary Organising Committee ASOMPS X, Room 305, Khundkar Biggan Bhavan, Dept of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh

**International Symposium on
Globalisation and Local
Development: Challenges to
Small-Scale Production.**

27-29 November 2000. Santiago, Chile.

The conflicts and opportunities existing between local and global processes, and their impact on rural communities will be the main themes for discussion.

Contact: International Farming Systems Association (IFSA), Casilla 228 Correo 22, Santiago, Chile.
Fax: +56 2 236 4558
Email: ifsa@rimisp2.cl
Web: http://www.rimisp.cl/ifsa_ies2000.html

**International Symposium on
Tropical and Subtropical Fruits**

27 November -1 December 2000. Cairns, Queensland, Australia

The major theme of the symposium will be the conservation of genetic resources and the facilitation of regional and global networks for the conservation of tropical and subtropical fruit germplasm.

Contact:

Dr Rod Drew, International Society for the Horticultural Science (ISHS) Fruits Symposium, School of Bimolecular & Biomedical Science, Faculty of Science, Griffith University, Nathan Qld 4111, Australia

Fax: +617-3875 7656

Email: R.Drew@sct.gu.edu.au

Natural Fibres for the Automotive Industry

28 November 2000. UMIST Conference Centre, Manchester, UK

The Textile Consultancy have completed a scoping study (commissioned by MAFF) of the potential for the use of natural fibres such as flax and hemp by the automotive industry.

The aim of this one-day seminar is to present the findings of this study and to highlight ways in which these natural fibres could replace fibreglass in the Automotive Industry's drive towards the totally recyclable car. Such developments have been a recent feature of German car manufacture and this seminar will seek to identify specific commercial opportunities for all sectors of the UK material and component supply industry concerned with the Automotive market.

Contact: ACTIN, Pira House, Randalls Road, LEATHERHEAD, Surrey, UK, KT22 7RU

Tel: +44 (0)1372 802054

Fax: +44 (0)1372 802245

Web: <http://www.actin.co.uk/>

New Crops: a Decade of Achievements and The Way Forward

April 2001.

Contact: Dr Nazmul Haq

Tel: 02380 594229

Fax: 02380 677519

Email: haq@soton.ac.uk

4th European Conference on Grain Legumes

8-12 July 2001. Cracow, Poland.

Contact: Agricultural University of Krakow, International Congress Centre, 31-425 Krakow, al. 29 Listopada 46, Poland.

Web:

<http://www.rol.ar.krakow.pl/kongr/kongres.htm>

Publications of Interest

ICUC Publications

Anon (1997) **Annotated Bibliography of Jackfruit, Pummelo and Mangosteen**. ICUC, Colorline Printers, Dhaka. 68p.

Anthony K. Haq N. Cilliers B. (eds.) (1995) **Genetic Resources and Utilization of Underutilized Crops in Southern and Eastern Africa. Proceedings of Symposium held at the Institute for Tropical and Subtropical Crops Nelspruit, South Africa, August 1995**. FAO, ICUC & CSC. Dynamic Ad CC, Nelspruit. 175p. (ISBN: 0-9529572-05)

Anthony K., Haq N. (eds.) (1997) **Underutilized Tropical Fruits**

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ACTIN 2020 Members Bulletin, March 2000, Issue 6 (circulation 150) Help Desk Tel: +44 (0)1372 802054, Web: <http://www.actin.co.uk>

Andrews S., Leslie A. and Alexander C. (eds) **RBG Kew. Taxonomy of Cultivated Plants**. Diverse interests of growers, breeders, scientists and those concerned with the legislation of cultivated plants. The book covers intellectual property rights, national collections, breeding, molecular techniques, genetically modified crops, plant databases, International Registration Authorities and patenting of new cultivars. ISBN 1 900347 89 X. £27. Contact Susyn Andrews. Tel: 020-8332 5275.

Bell K. (Ed) **Paths to Prosperity Science and Technology in the Commonwealth 1999/2000**
Produced for the Commonwealth Secretariat by Kensington Publications Limited 111 Southwark Street, London, SE1 0JF, UK. Tel: +44 (0) 207 717 0077. Fax: +44 (0) 207 717 1000. Email: postmaster@kenpubs.co.uk Web: <http://www.kenpubs.co.uk>

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Agricultural Systems examines the environmental and social conditions that affect the roles and performance of trees in field- and forest-based agricultural production systems from social and political factors to regional climate variations, soil conditions, and biological controls. This book shows how agroforestry can be managed within the larger context of sustainable livestock and crop management. 432pp. Cat no. L1294. ISBN: 1-5667-0294-1. CRC Press, Email: orders@crcpress.com

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of genetic resources, especially for insect resistance. This is the first book to combine germplasm preservation with use for insect resistant crops. No other book on the market deals with size and locations of plant genetic resource collections and their use for entomology-based research. 320pp. Cat no. 2695. ISBN: 0-8493-2695-8. CRC Press, Email: orders@crcpress.com

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Agriculture and Rural Development. ISSN 0343-6462. Published twice a year. Editor Angelika Wilcke, DLG-Verlags-GmbH, Eschborner Landstrabe 122, 60489 Frankfurt am Main,

Germany. Tel: ++49 (0) 69-24788-465. Email: A.Wilcke@DLG-Frankfurt.de

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Forest Action News is published quarterly by the Forest Action Network and is a networking tool intended to facilitate information exchange/sharing between different actors in the field of forestry. Forest Action Network, P O Box 21428, Nairobi, Kenya. Tel/fax: 254 2 718398, Email: tropicalbbs@attmail.com

ICRAF Updates. Joan Baxter (Editor), ICRAF, P O Box 30677, Nairobi, Kenya. Tel: +254 2 521 450, Fax: +254 2 521 001, Email: icraf@cgnnet.com

Mutation Breeding Newsletter ISSN 1011-260X. Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture and FAO/IAEA Agriculture and Biotechnology Laboratory, Seibersdorf. International Atomic Energy Agency, Wagramer Strasse 5, P O Box 100, A-1400 Vienna, Austria.

Plantwise Newsletter published by Edit UK in collaboration with Denzil Phillips International Ltd, 25 Stanmore Gardens, Kew, Richmond, Surrey, UK. Tel: 44 (0)20 8940 7857, Fax: 44 (0)20 8948 2673, Email: info@denzil.com

Underutilized Crops and the Internet

There are a growing number of sites for those working on underutilized crops, assuming you have access to an internet linked computer. The

following is a summary of some sites that may be of interest. This is not an exhaustive list, but many bigger sites have useful links to related pages. Some sites also have interactive databases.

African Publishers Network (APNET), set up to promote local publishing in Africa, now brings together national publishers' associations in more than 27 countries in Africa. It organises short-courses on publishing techniques.
<http://www.africanpublishers.org>

Central Science Laboratory, Sand Hutton, York. YO41 1LZ, UK
<http://www.csl.gov.uk>

COMPAS Newsletter (bi-annual) covers the culture, indigenous knowledge and cosmovision in agriculture and rural development.
http://www.etcint.org/compas_news.htm

Confederation of Indian Industry (CII) is the apex industry body with over 4000 members covering all sectors of the industrial economy of India. CII has been very active in Agro and Food Processing and hosts two flagship events, regarded as landmark events in this sector of India, every alternate year i.e. Agrotech and Foodpro.
<http://www.indianindustry.com>
<http://www.ciionline.org>

CTA (Technical Centre of Agricultural and Rural Cooperation). The Netherlands
<http://www.cta.nl>

CTVO-net (Chemical-Technical Utilization of Vegetable Oils) Fats and oils and their derivatives can be found in a wide range of industrial and consumer products. In the European Union, the annual consumption in chemical and technical applications is estimated at 2.45 million tons. To find new

market outlets for natural fats and oils requires a better co-ordination of research efforts and more exchange of information at European level. Since 1998, this EU funded network has organised a series of targeted workshops for different application areas. Selected results are available on their website: <http://www.fnr.de/ctvo>
Cucurbit Genetics Cooperative
<http://genome.cornell.edu/cgc/>

Demeter's Genomes - Dedicated to the world's harvest and its enhancement through crop Genomic research.
<http://genome.cornell.edu/>

European Initiative for Agricultural Research for Development (EIARD) is a policy instrument to promote coordination among its 18 European partners (15 EU member states, European Commission, Norway, Switzerland) at various levels (information exchange, concentration of activities, common strategy/vision), and partnerships between all stakeholders in Europe and the developing countries as well as to enable more coherence between relevant policies in research and development.
<http://www.dainet.de/eiard/homepage>

Essential Oils World, PO Box 72, Chipping Norton, Oxon, OX7 6JU, UK.
<http://www.cotpubco.demon.co.uk/cosweb/eswhome.html>

EXPO 2000
<http://www.expo2000.de>

ILEA is the Centre for Research and Information on Low-External -Input and Sustainable Agriculture (LEISA). It seeks to exchange information on LEISA by publishing a quarterly newsletter, books and bibliographies. ILEIADOC, the database of ILEIA's documentation

centre, is also available:
<http://www.oneworld.org/ileia>

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) recently launched the Sorghum Tutorial Online. This service is entirely dedicated to sorghum: its biology, current breeding techniques and how these work, and the pests and diseases of sorghum and how these are controlled or prevented.
<http://www.198.93.234.24/maha/sorgh.htm>

International Federation of Essential Oils and Aroma Trades (IFEAT),
<http://www.ifeat.org.uk>

International Society for Horticultural Science (ISHS), an international network of horticultural scientists, students, and researchers looking for international cooperation. Currently has around 3800 individual and 270 organisational members in more than 100 countries, with a modest but active representation in ACP countries. Six sections currently cover major horticultural crops grown throughout the world (fruits, medicinal plants, root and tuber crops, vegetables etc.) and twelve commissions focus of different scientific and technical aspects such as biotechnology, economics and management, education and training, plant protection, post-harvest, urban horticulture, and plant genetic resources. These sections and commissions have established almost 90 working groups to study specialised areas.

<http://www.ishs.org>
Some of these groups are more active than others and have their own symposia, magazines, and websites, such as the **Commission Post-harvest Newsletter**
<http://www.ishs.org/sci/ph12000.pdf>
and the **Fruit Section Newsletter**
<http://www.ishs.org/sci/frtnwslt.htm>
or they form part of other networks, such as the **Cucurbit Network**

<http://www.cucurbit.org>

New Media Laboratory provides short and long term courses in communication in Southern Africa.
<http://www.nml.ru.ac.uk>

Participatory Research and Gender Analysis for Technology Development and Institutional Innovation (PGRAP Program). The purpose is to assess & develop methodologies and organisational innovations for gender-sensitive participatory research and to operationalise their use in plant breeding and in crop and natural resource management.
<http://www.praprogram.org/prga/>

SCI (Society of Chemical Industry)
<http://www.sci.mon.org>
<http://www.ci.mond.org>

SEPASAL (Survey of Economic Plants for Arid and Semi-Arid Lands) database. Of the more than 40 developing country organisations using SEPASAL, 20 are African.
<http://www.rbgekew.org.uk/ceb/sepasal/internet/>

SYPEAM (Syndicat Professionnel des producteurs d'Extraits Aromatiques alimentaires et médicinaux de Madagascar), a professional association, which now provides support to producers of essential oils through training and technical information.
<http://www.sinergic.mg/sypeam/default.htm>

TRIOPS – Tropical Scientific Books is one of the leading suppliers of literature in the field of natural sciences for tropical and subtropical scientific books and all literature regarding development aid.
<http://www.booksell.com/Triops>

Tropical Fruits Network (TFNet) is an independent global network set up under the auspices of the Food and Agriculture Organisation of the United Nations (FAO).

<http://www.mardi.my/TFNet>

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