

Final Technical Report

Title Page

R7187 Fruits for the Future

Executive Summary

Tropical fruits are important multipurpose species for the poor. Fruits are harvested from homesteads and the wild to supplement family income and nutrition. However the potential of underutilised tropical fruits for nutrition and the generation of rural income has not been fully realised. At present, productivity and utilisation of tropical fruit trees is not efficient.

Lack of information has been identified as a major constraint for development and promotion of underutilised tropical fruits, shown by surveys with farmers, traders, field workers, NGOs and small-scale entrepreneurs, and in consultation with NARS scientists in Asia, Africa and Latin America, ICRAF, IPGRI, FAO including members of UTFANET and SEANUC. These meetings led to the prioritisation of 10 species which could be of particular use in poor farming and small holding communities as potential sources of food and income. By collecting and disseminating information on these species, to maximise their productivity, income generation in these groups could be improved.

The objectives of the project were to collate, publish and widely distribute information in a range of materials to assist in research, development and promotion of prioritised underutilised tropical fruit trees.

The information gathering initially took the form of a monograph series on the selected fruits, *Tamarindus indica*, *Ziziphus mauritiana*, *Adansonia digitata*, *Dacryodes edulis*, 5 *Annona* species, *Garcinia mangostana*, 3 *Pouteria* species, *Strychnos cocculoides*, *Artocarpus heterophyllus*, and *Ricinodendron heudelotii*. Each monograph was written by an author or team of authors from a region where the species is indigenous. The project has involved gathering and collating information from database searches, internet searches, internal technical reports, research theses, conferences and local anecdotal information by the team at ICUC, Southampton and the author. This information was compiled to bring together information from diverse sources on each fruit, covering taxonomy, distribution, ecological requirement, properties, uses, ethnobotany, agronomy, fruit processing, marketing, genetic resources, and breeding. Collation of the material allowed the identification of gaps in knowledge and research needs, which could then be taken up in policies of research groups. Manuscripts were edited by staff from ICUC, the Editorial Committee and subject to review by ICUC and FRP appointed reviewers.

The information on each species has also been used in the production of practical manuals on all aspects of fruit production through to marketing, and has been summarised in a factsheet on each fruit tree. Propagation and processing techniques for 2 fruits, jackfruit and tamarind, have been demonstrated in films in DVD form. The monographs, manuals, bibliographies and specialists' list have been disseminated online and included on a series of 3 CD-ROMs, for those who do not have internet access.

All products are being disseminated via IPGRI, ICRAF, FAO, stakeholders, specialists, research organisations, NGOs and CBOs to reach the widest possible audience. They are advertised in journals, newsletters, newspapers and radio broadcasts in UK and overseas. They are distributed at conferences, training workshops and in response to individual enquiries. This contributes to DFID's poverty agenda by encouraging small-holders to maximise land use, integrate fruit trees into cropping systems and increase nutritional security.

Background

Many rural people cultivate fruits in home gardens or orchards or collect the produce from the wild as a source of valuable supplemental nutrition and additional income. In certain seasons poor farmers are largely sustained on fruits. Many species provide foods which supplement and improve the quality of diets. The nutritional importance of fruits is appreciated, although per capita consumption is low in many developing countries due to low production and high price in non fruit-growing areas.

Previously many developing countries have given priority to increasing the production of cereals and other staple foods. In recent years more emphasis has been given to fruit production since income is potentially higher than that from field crops. Fruit trees play a vital role in crop diversification programmes to reduce the risks which are inherent in the monoculture of staple food crops.

Tropical fruit trees are also important multi-purpose species for small-holders. They provide non-food products such as fuel, timber, fodder, medicines and industrial products. Fruit trees also have positive environmental benefits as they provide perennial cover protecting the soil and store and recycle plant nutrients and organic matter. Although currently found in the wild, in homesteads and small holdings, they may however be grown in diversified agroforestry systems for better land use and income generation.

Many of these species provide are part of the social traditions of poor communities. As women often take the lead in the production and trading of fruits gender equity is improved and additional income is generated for household and domestic purposes.

One constraint to development is the lack of information as a whole, and dissemination of information to encourage small holders to maximise the land use by incorporating a range of fruit trees which can contribute to food security, nutrition and income generation. Although information is available locally on fruits, it is not made use of due to lack of wider dissemination.

This project arose out of regional meetings of the networks, UTFANET (Under-utilised Tropical Fruit Trees Network in Asia) and Fruit Trees section of SEANUC (Southern and Eastern African Network for Under-utilised Crops), and follow-up discussion with national and ICRAF, IPGRI, FAO and NARS scientists and surveys with farmers, NGOs, traders, field workers and small-scale entrepreneurs (Anthony et al., 1993, 1995; Maghembe et al., 1997, ICRAF, 1998, Clement, 1997). They identified a number of priority species for development, by improving information on selecting, growing and making use of the fruits, and by identifying research gaps and constraints to maximising their productivity. They identified the need for dissemination of information by producing and distributing monographs, extension materials and bibliographies on underutilised tropical fruit trees.

The series included the prioritised species: *Tamarindus indica* (tamarind), *Ziziphus mauritiana* (ber), *Adansonia digitata* (baobab), *Dacryodes edulis* (safou), *Annona spp.* (annona), *Garcinia mangostana* (mangosteen), *Pouteria species* (sapote), *Strychnos cocculoides* (monkey orange), *Artocarpus heterophyllus* (jackfruit), and *Ricinodendron heudelotii* (ndjanssang) in book forms. The contents of the books, for each species includes history, ethnobotany, distribution, taxonomy, ecology, genetics and breeding, morphology and physiology, chemical composition, uses, agronomy and production, post-harvest technology and processing, trade and market development, future research. Each book is accompanied by an Extension Manual and a factsheet. The extension manual consists of practical guidance on selection of quality planting material, growing, through to processing, and marketing.

Further research and development activities have to be based on supplementing nutrition and income generation by developing and marketing products from them. Farmers, policy making bodies and scientific communities recognise that these species need properly managed research accompanied by extension facilities and development support to small holders.

Project Purpose

The purpose of the project is the improved sustainable livelihoods and income generation for small-scale poor farmers developed and promoted through production of books, extension manuals, media materials, and bibliographies on selection, production to processing and marketing of underutilised tropical fruits in order to raise productivity for poverty alleviation, stabilise income and improve nutrition.

The monograph series and extension materials produced by this project assist NARS, NGOs CBOs, policy makers of Asia, Africa and Latin America to utilise existing research and to identify gaps in research, where the results could have a significant impact on the utilisation of the fruit.

Research Activities

The project activities were to produce books, manuals and other media on tamarind, ber, safou, baobab, annona, sapote, mangosteen, ndjansang, monkey orange and jackfruit. The process was as follows:

1. Specialist editorial committee

An Editorial Committee was established and they were selected on the basis of their expertise in areas of agroforestry, food, nutrition, security, genetic resources, development, processing, marketing and utilisation and availability to meet the deadline of the project. They included representatives from partner organisations and editors from ICUC. The Committee provided an advisory role and monitored the progress through project reports to ensure high quality publications. After completion of Phase I the Editorial Committee decided to appoint a small editorial board with Prof J.T. Williams as a chief editor. The board consisted of R.W. Smith, J.T. Williams, N. Haq and the project coordinator.

2. Identification of authors

One author for each species was sought to write a monograph, based on internet and literature searches of researchers on the selected fruits, conference contacts and advice from network members. The authors were contracted to write according to an agreed structure.

3. Production of monograph series

Information was gathered using searches of CAB Abstracts and Biosis literature databases, and internet searches by the project co-ordinator, and collection of literature locally, by writing to researchers and at conferences by the authors. This information was used by the author in the preparation of a monograph, which was compiled by the project co-ordinator and edited by the Editorial Committee. It was reviewed by a specialist reviewer appointed by ICUC. Any further changes to the manuscript were made. It was sent for further review by an FRP-appointed reviewer. After any final changes were made, the book was printed. Significant portions of the preparation were carried out in house at ICUC, particularly where references were not readily accessible and further addition of information and editing was required.

For the first 10 species one author or a team of authors prepared the manuscripts. For the revised editions of ber and tamarind, the chapters were written individually by different authors. ICUC were careful to include experts from different countries to ensure that experience from different potential growing areas was included. Authors from Africa and Asia were contracted to write the revised editions.

4. Production of manual series

In association with the monograph, manuals were designed and written, to use the information from the monographs in training programs, targeting extension services with a user-friendly format for farmers and producers. The initial style used was a booklet with line drawings. This was later improved and developed into a two-part format, with background text in a booklet, and separate colour leaflets with annotated drawings, intended for use in demonstration and field work. Each manual was written by the same authors as the monographs and then were further improved by external experts. The manuals focussed on the practical aspects of selection, propagation, production and processing and marketing of these fruits.

5. Website, bibliography and database

The information collated was made available on the ICUC website, initially at www.civil.soton.ac.uk/icuc. As they were available, publications were made accessible on the website, hosted at Southampton University. References gathered in the course of literature searches were entered into a database which could be queried via the website. Annotated bibliographies were compiled and printed using this data. The researchers working in the field of the selected fruits were also collated in a database, available on the website.

The website was transferred to be hosted at the International Water Management Institute in Colombo Sri Lanka at www.icuc-iwmi.org. The electronic versions of project publications, and data on references and specialists was also transferred to be made available on this website. However all this will also be available from the Southampton Centre for Underutilised Crops.

6. Launch in Asia

Launching of Publications and Uptake of Outputs of Phase 1 of the Fruits for the Future project. 6-7 February 2002 in Bangkok, Thailand. The Tamarind, ber and annona monographs were officially launched and the uptake and impact of information on underutilised fruit trees was discussed. Papers were presented by specialists, NGOs, community groups and private companies.

7. Launch in Africa

Further promotion of the projects was carried out at a launching workshop in Lusaka on 8-9th March 2004. Presentations were made on safou, baobab and monkey orange and presentation of safou and baobab books. Action reports on underutilised fruits were given from participating countries of SEANUC.

8. Training courses

Training was given as workshops in Cameroon and India on the use of the project materials. Training aimed at farmers and extension officers involved background information on the fruit, propagation, production and use and field visits to orchards.

Feedback was sought to establish their uptake, by questionnaire sent to participating partners. Response in Asia was favourable, and the products were found to be beneficial. The response to questionnaires in Africa was limited, but those who responded expressed their opinion that the information was essential for small-holders to raise income and they identified the need for product diversification and marketing.

9. CD

For those without internet access, the project outputs material is also put onto CD-ROM, and includes for each species, the monograph, manual, specialist list and bibliography. The species are split between three CDs, broadly, Asian, African and Latin American indigenous species.

10. Video

In addition two species, tamarind and jackfruit were selected and the information developed into film scripts by a private company, AgriMedia Services, and edited by staff at ICUC. Filming was done in Bangladesh on propagation at the Bangladesh Research Institute (BARI) and on fruit processing at the Centre for Integrated Social Development (CISD), with the involvement of staff at these sites. Filming was edited at ICUC, Southampton.

11. Dissemination

Monographs and manuals are distributed through the offices of ICRAF, IPGRI and FAO, as well as sent directly to extension offices, cooperatives, universities, individual scientists and policy makers. ICRAF received 200 copies of monographs and manuals as they became available, IPGRI received 100 and FAO received 100 (first 5 monographs and manuals (Phase 1) only). The publications are also disseminated through specialist training institutes, both in UK at the Eden Project and abroad during courses on tropical fruit species.

Examples of some recent recipients (not exhaustive list):

FAO, Rome

IPGRI, Rome

Oxford Forest Information Services, UK
 University of Basrah, Iraq
 ICRAF Kenya
 ICRAF Cameroon
 IERA-CRREA Ouest, Burkina Faso
 Institute of Rural Economy, Mali
 Ministry of Agriculture, Kenya
 CATIE
 Crop Protection Dept. IARABU, Nigeria
 Krim Community Development Project, Sierra Leone
 Texas A&M University
 Embrapa Cerrados Research Center, Brazil
 Annona Grower Association, Campinas, Brazil
 Embrapa Biotechnology and Genetic resources Center, Brazil
 Embrapa Tropical Agroindustry Centre, Ceara State, Brazil

12. Field testing

Field testing of extension materials was carried out by two partners, BAIF (India), CIRD (Bangladesh) and ICRAF, (Cameroon).

13. Model

The project was supported by the development of a model, which will allow the planning of planting in areas where the selected species are not normally found. This involved a survey of tamarind, jackfruit and ber, through 4 states in India in order to validate areas suitable for growth of these species. At each location at which a species was found, the location was recorded using a GPS (Global Positioning System), the height and girth of the trees were measured and recorded and farmers questioned on the age and yield of the trees. The locations recorded during the survey were added to a species point distribution map. Other sources of locations data came from herbaria and germplasm records. The species point distribution map was overlaid onto the various climate and soil maps and the climate and soil information at each site extracted to produce a profile for the species. The profile describes the statistical distribution for climatic and soil factors for the locations where the species is present. Statistical modelling of this data allows the prediction of further suitable areas for planting of these species.

Outputs

1. 10 monographs and 2 revised monographs on underutilised tropical fruit tree species:

Publication	Stage
Tamarind	<i>completed</i>
Ber	<i>completed</i>
Safou (French)	<i>completed</i>
Baobab	<i>completed</i>
Annona	<i>completed</i>
Three species of sapote (Spanish)	<i>in press</i>
Ndjansang	<i>in press</i>
Mangosteen	<i>preparing for printing</i>
Monkey orange	<i>preparing for printing</i>
Jackfruit	<i>with CUC reviewer</i>
Tamarind, second edition	<i>being compiled at CUC</i>
Ber and other jujubes, second edition	<i>with CUC reviewer</i>

Publication	Total No. distributed	Plus, with ICUC, Colombo
Tamarind	1860	140
Ber	1233	-
Safou	630	255
Baobab	563	266
Annona	368	500

2. **10 Manuals for extension workers and farmers** on selection, production, fruit processing and marketing for 10 fruit species:

Publication	Stage
Tamarind	<i>completed</i>
Ber	<i>completed</i>
Safou (French)	<i>approved for printing</i>
Baobab	<i>with FRP</i>
Annona	<i>with FRP</i>
Three species of sapote (Spanish)	<i>in press</i>
Ndjanssang	<i>with FRP</i>
Mangosteen	<i>with FRP</i>
Monkey orange	<i>preparing for printing</i>
Jackfruit	<i>with FRP</i>

Manual	Total No. distributed	Plus, with ICUC, Colombo
Tamarind	914	30
Ber	773	190

3. **Extension material - Factsheets** on 10 species completed and distributed.

Factsheet	Total No. distributed
Tamarind	997
Ber	998
Safou	987
Baobab	994
Annona	988
Pouteria	774
Ndjanssang	753
Mangosteen	989
Monkey orange	714
Jackfruit	979

4. **Policy brief** on baobab completed and distributed.

Distributed 600

5. **Training DVDs on propagation and processing** of jackfruit and tamarind, completed and delivered to FRP and partner organisations.

Distributed to BAIF (India), ACUC, SEEDS, HORDI and ICUC (Sri Lanka), AEC, WEAN, AHI (Nepal), RIFAV (Vietnam), CISD, CMES, Chetona, GUK, HRC, (Bangladesh)

6. **Website:** Publications available initially at www.civil.soton.ac.uk/icuc, then www.icuc-iwmi.org

Details of database records of fruit specialists and references

Specialists

Tamarind	104
Ber	8
Safou	35
Baobab	40
Annona	230
Pouteria	33
Ndjanssang	22
Mangosteen	26
Monkey orange	18
Jackfruit	41

References

Tamarind	1005
Ber	1143
Safou	276
Baobab	294
Annona	1651
Pouteria	96
Ndjanssang	75
Mangosteen	258
Monkey orange	419
Jackfruit	556

7. **CD ROM** encompassing monographs, manuals, bibliographies and lists of specialists divided into 3 CDs covering Africa, Asia and Latin America. The species included on each CD:
Latin America – sapote, annona
Africa – baobab, safou, ndjanssang, monkey orange
Asia – tamarind, ber, Mangosteen, jackfruit
These are being produced as material is approved by FRP. (**Not completed.**)
8. **Training** in Asia and Africa completed. Information gathering (survey) in 5 countries using local partners completed and feedback received.

India

6 training courses were carried out in association with staff from BAIF in 2001 and 2002 for extension officers and farmers, covering ber and tamarind.

Area	Number trained	
Maharashtra (2001)	Extension officers	18
	Farmers	32
Gujarat (2001)	Extension officers	17
	Farmers	31
Karnataka (2002)	Extension officers	15
	Farmers	25

Posters and manuals on tamarind and ber in English and 3 local languages were published through BAIF and distributed (No. of each in brackets), including to BAIF state offices.

Tamarind: English (225), Marathi (200), Gujarati (500), Kannada (500)
Ber: English (200), Marathi (500), Gujarati (500), Kannada (500)

Cameroon

2 training courses were carried out in association with staff from ICRAF-African Humid Tropics in 2003, focusing on safou. Posters were produced for the events.

Outputs

- Provide extension materials and demonstrate their use.
- Bring together representatives from extension organisations, NGOs, farmers etc. for evaluation of the extension materials.
- Produce recommendations on the future production of extension materials.
- Provide information to extension organisations.

<i>Area</i>	<i>Number trained</i>
Bamenda (English-speaking Cameroon)	18
Mfou (French-speaking Cameroon)	23

UK

Training workshop, 2004 - Beyond Wood: the value of non-timber forest products. Workshop for young foresters held at the Eden project, Cornwall, 2-5th December 2004. ICUC representative participated in this workshop as a resource person.

9. **Model to identify the biophysical limits of production** of selected species, Tamarind, Ber and Jackfruit using GIS as a tool developed as a postgraduate project at Southampton University. Completed and a report sent to FRP.

Dissemination of products

- Launches in Bangkok in 2002 and Zambia in 2004 assisted in disseminating project outputs.
- Radio broadcast by Wren media.
- Television and newspaper coverage at launching events.
- The monographs were reviewed in the journals *Agroforestry Today*, *Fruits*, *New Zealand Journal of Crop and Horticultural Science*, *New Crops*, *Spore*, *Journal of Biogeography*, *Agroforestry Systems*, *Forest, Trees and Livelihood*, *New Agriculturalist*.
- Newsletters have been regularly produced by ICUC to keep partners and interested organisations informed on the project and new publications and workshops. Organisations including EFTRN, BAIF, IPGRI have disseminated information through their newsletters.
- Project flyers, factsheets and posters distributed with ICUC Global Newsletter and at meetings and conferences.
- Further information has been sent to NGOs, CBOs and extension agencies. Information has been sent to national and international policy makers to incorporate these trees into agroforestry systems and ecosystems for alleviation of poverty and rural development, increasing nutrition security and industrial use.
- IPGRI, ICRAF, FAO as partners of the project have been distributing the monographs and extension materials.

Asia launch (Bangkok 5-7th February 2002)

Outputs: Described in workshop proceedings (Haq and Hughes, 2002).

Africa launch (Zambia 8-9th March 2004)

Outputs: Executive summary of meeting disseminated.

Contribution of Outputs

The project outputs contribute to DFID's poverty agenda in the areas of food security and improved nutrition, with information on efficient fruit growing, harvesting and processing, income generation, maintenance of crop biodiversity and environmental sustainability and the promotion of women's contribution to rural communities.

It allows technology transfer to poor farmers through monographs, extension manuals, DVDs, and CDs. The project encourages the poorest small-holders to increase productivity in land use by incorporating a range of indigenous fruit trees, reducing risk and increasing productivity through crop diversification. Information disseminated to farmers, traders, industries, policy makers and scientific organisations assists in decision making and land use planning.

The outputs enhance strategic and adaptive research by NARS scientists, extension departments, NGO's, CBO's and industries. The areas of fruit properties and potential uses, genetics, and propagation of quality planting materials and offer targeted areas of research which directly relate to improvement of productivity and development of products and articulated management practices. The collation of scattered information in the monographs allowed the clarification of research gaps and guidance for developing research programs.

Multi-format information dissemination

To ensure the maximum uptake and impact of the information provided, the dissemination mechanism must be suitable. Hence the various formats in which this information is presented and disseminated appeals to different sectors of the target audience.

Rural farmers may learn best by demonstration, discussion, video, radio, through resource centres and interaction with extension workers. This has been demonstrated by the enthusiastic response to workshops which included practical demonstration of techniques and use of manuals.

Traders can be assisted by improved information on fruit supply, processing, marketing and distribution provided in the monograph, manuals and factsheets.

Hard copies are of particular interest to researchers and teachers. The monographs can be treated as text or reference books. They are detailed and in some cases very technical in content. Manuals are intended as teaching aids for extension workers, NGOS and for guidance to farmers when supplied via resource centres. The leaflets which form part of the manuals have the added value of being suitable for photocopying and distributing to farmers as summary guides to practical tasks.

Factsheets, consisting of one piece of A4 paper, provide summarised background information on the distribution, climate requirements, propagation, economics, processing, marketing and uses of the fruits. They are easily disseminated due to their low weight and cost, serving to prompt interest in the species.

Online services are becoming increasingly accessible and is a good medium for dissemination of project outputs, bypassing some of the logistical problems of supplying hard copies. However access the internet is variable, due to computer, network or electricity availability. It can be limited to researchers, policy makers and industry. Resource centres may also provide access to the internet, as well as guidance on the use of materials. For the poorest, to whom it is unavailable, emphasis must be placed on hard copy and teaching.

Networks

The project assists regional activities, such as, UTFANET, SEANUC and Latin American programmes on underutilised tropical fruit trees. Workshops have been run, bringing together network members and others in the field, and proceedings published on the outcomes. Discussion was found to be animated and in depth and gaps in knowledge and topics for development were quickly highlighted.

Environment

The project will contribute to the understanding of the importance of maintaining species biodiversity. The taxonomy and distribution of fruit species are areas clarified in the monographs. Some selected fruits have a history of semi-cultivation or are cultigens. With information on their relation to other species and the attributes of cultivars, best use can be made of the available plant material and their quality improved, such as in growth, fruit nutrition, yield and resistance to pest and disease attack. Biodiversity is presented also in relation to sources of planting material, such as good rootstocks and productive scions.

The use of mixed farming systems and home gardens is promoted particularly the manuals, with guidance on potential species of both cash crops and food crops. The project contributes to sustainable systems of agriculture by introducing crop diversification, livestock fodder and wood, and where trees are planted on erodable ground, contribute to soil conservation.

The hazards of chemical use are emphasized and alternatives suggested where possible. Even when the processing industries of these fruit species develop they will not involve the production of polluting wastes or other environmental problems.

Feedback

Uptake of the project outputs has been assessed by the requests received, by the inclusion of up-to-date references in the revised monographs, indicating continuing development of these fruits, by enhanced propagation skills learned in training workshops.

Feedback from the series has been promising. The compilation of the *Strychnos* monograph presented the opportunity to include the little presented work on the domestication and socio-economics of this underutilised species by ICRAF, as well as the more commonly reported *Uapaca kirkiana* in southern Africa. Field assistants at a co-operative for fruit and vegetable production in Suriname (Koöperatie van Groenteverbouwers van de Van Pettenpolder) responded favourably to the tamarind extension manual, commenting on its clear illustrations and language.

Uptake of information was increased after review in journals and magazines. Advertising in Spore journal has lead to repeated requests for the monographs, such that all copies of the tamarind monograph were distributed and further requests will be supplied with the revised edition.

Women's role

The project is important for women's development, and will improve female participation in improving social, economic and environmental welfare and in sustainable agricultural development. Women will benefit from their involvement in production and trading of crop produce which will enable them to generate extra income.

The role of women in agriculture has been highlighted in the monographs, particularly in wild harvesting of fruits, in their preparation and trade. This role can be developed with the information made available on nutrition and marketing. Where an income is being generated by the sale of fruits and fruit products, it has been seen that this is returned to the family unit as household goods, particularly during low season for traditional agricultural crops.

Product development

The project accelerates technology transfer to poor farmers through reference and extension materials. Propagation techniques, description and sources of germplasm and planting materials, contacts for advice and the extent of knowledge on the species can be used to direct the efficient set-up of a planting area and fruit processing scheme. The development of fruit production also benefits national agro-industries in processing and packaging.

Further work

Further activities could be taken up by NARS, NGOs and the private sector to stimulate commercial development of fruit products. Support in setting up small businesses, in marketing and transport was highlighted in the monographs.

The translation of monographs and manuals into local languages has been suggested in meetings and workshops. This could be carried out by partner organisations for greater dissemination of this information. Factsheets of some fruits and posters used in training workshops were translated into Indian languages.

The use of the GIS (Geographical Information System) based model will ensure that these species can be developed into new areas and expand the production capacity, when taken up by NARS and scientists. Analysis of variation within morphological traits in relation to particular environments will allow for selection of high quality material, suited to specific locations.

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Monographs

- Tamarind (*Tamarindus indica*) H.P.M. Gunasena and A. Hughes
- Ber (*Ziziphus mauritiana*) O.P. Pareek
- Safou (*Dacryodes edulis*) J. Kengue (French)
- Baobab (*Adansonia digitata*) M. Sidibe
- Annona species A. de Pinto, M. Cordeiro, S. De Andrade, F. Ferreira, H. de Filgueras, R. Alves, D. Kinpara
- Three species of sapote in tropical America (*Pouteria* species) C. Azurdia (Spanish)
- Ndjansang (*Ricinodendron heudelotii*) Z. Tchoundjeu
- Mangosteen (*Garcinia mangostana*) O. bin Osman and A.R. Milan
- Monkey orange (*Strychnos cocculoides*) C. Mwamba
- Jackfruit (*Artocarpus heterophyllus*) N. Haq
- Tamarind (*Tamarindus indica*) Second edition - multiple authors, edited by J.T. Williams
- Ber and other jujubes Second edition - multiple authors, edited by J.T. Williams

Acronyms

- ICUC – International Centre for Underutilised Crops
- NGO - Non-Governmental Organization
- CBO - Community Based Organization
- NARS - National Agricultural Research System
- UTFANET - Under-utilised Tropical Fruit Trees Network in Asia
- SEANUC - Southern and Eastern African Network for Under-utilised Crops
- ICRAF- World Agroforestry Centre
- IPGRI - International Plant Genetic Resources Institute
- FAO - Food and Agriculture Organization
- BAIF - Bharatiya Agro Industries Foundation
- ACUC - Asian Centre for Underutilized Crops
- SEEDS - Sarvodaya Economic Enterprises Development Services
- HORDI - Horticultural Crop Research and Development Institute
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AEC - Agro Enterprise Center
WEAN - Women's Enterprise for Agriculture in Nepal Co-operative and Associates
AHI - Alternative Herbal Products Ltd
RIFAV - Research Institute for Fruits and Vegetables
CISD – Centre for Integrated Special Development
CMES – Centre for Mass Education in Science
Chetona – Chetona Woman and Child Organisation
GUK – Gana Unnayan Kendra
HRC – Post-harvest Technology Group
