Tropical and Subtropical Fruits Newsletter n°3

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Foreword

Fruits: a key challenge in arid zones for generating value-added and preserving biodiversity in spite of increasing drought.

With the emerging issue of climate change, arid zones are more than ever becoming a major challenge.

In order to preserve some sustainable agricultural activity apart from cattle, there is a need to look for drought resistant species, to put emphasis on "deficit irrigation" and to promote crops that can give maximum added value to the farmers when at the same time enabling food security.

In that context fruits and vegetable are playing an increasing role and are becoming a priority of organisations such as ICARDA, which used paying more attention to staple food crops.

The last issue of Caravan, the review of ICARDA of agriculture in the dry areas is strongly reflecting this trend.

The focus is put on high-value crops, value-added crop and livestock products.

It relates an "expert consultation workshop on horticulture" held in March 2007, a new project on commodity chain analysis for horticultural exports, both being supported by IFAD.

Fruits and nuts are playing a major role in these areas: date palm, citrus, pomegranate, cactus, olive, apple, ….

A first paper is presenting Cactus as a crop with a great range of opportunities for value addition: fruits, juice, pigments,…..

A second one is presenting a new approach in Morocco, helping to connect remote mountain communities to profitable markets, and fruit trees are considered of "considerable potential. The climate is favourable, fruit trees are profitable"…replacing gradually potatoes. "If link can be established to markets outside the valley, and its producers can be organized and supported, this expansion will continue and even accelerate, leading to a significant reduction in poverty levels in the valley"

The title of a third article is self explanatory: Fruit Trees: conserving Biodiversity in West Asia, demonstrating that value-addition can help conserve biodiversity.

A last one is dealing with "Olives: The fruits of partnership". Olive plantations are expanding into marginal areas, increasing pressure on fragile resources. In West Asia, a participatory approach is helping to find solutions.

Such case-studies from the NENA are experiences that can be shared with other areas in the World, particularly sub-saharan Africa and Southern Africa, where tropical and subtropical fruits trees can play a major role in term of natural resources and biodiversity management, poverty alleviation , food-security and health of the local populations

Jacky Ganry, Chair SETSF

Climate change: its impact in agriculture

People's ability to grow enough to feed themselves is determined by the weather. Short or long-term fluctuations in weather patterns can have extreme impact on agriculture production, slashing crop yield and forcing farmers to adopt new agricultural practices in response to altered conditions. Climate, therefore, has a direct impact on agriculture and thereby on food security.

Climate and its effect on agriculture

Climate change over the long term could affect agriculture in a number of ways, the majority of which would threaten food security for the world's most vulnerable people these include:

- The overall predictability of weather and climate may decrease, making planning of farm operations more difficult;
- Climate variability might increase, putting additional stress on fragile farming systems;
- The sea level may rise, threatening vulnerable coastal agricultural land, particularly in low-yielding small islands;
- Biological diversity might be reduced in some of the world's most fragile environments, such as mangroves and tropical forest;
- Agro-ecological zones may shift, forcing farmers to adopt as well as threatening natural vegetation and fauna;
- Distribution and quantities of fish and seafood's may change dramatically;
- A warmer world may impact yields of staple crops, increase the incidence of pest attacks, and exacerbate drought, all with profound effects on the well being of small farmers in developing countries.

Mitigating climate change

In the context of climate change, mitigation refers to human intervention to reduce the "sources" of greenhouse gasses. Climate change mitigation in agriculture includes measures that prevent greenhouse gas emissions such as reducing energy demand and using biomass energy and other alternative energy sources. Other measures include avoiding deforestation, afforestation, improving soil, and crop and grazing land management. Offset measures include planting trees to capture carbon dioxide.

There is no simple or ready-made solution that can be applied to reduce the source or enhance the sinks of greenhouse gases in agriculture. Organization like FAO is making efforts to address such challenging issues.

References: FAO; World Bank, Agri-Export Advantage

S.K.Mitra
Vice-Chair
ISHS Section on Tropical and Subtropical Fruits

Global news

- **From GlobalHort : A portal website is now operational : http://www.globalhort.org/.** The Tropical and Subtropical Fruits Newsletter is available on this website, and other relevant information such as a section devoted to the challenge programme on High Value Crops: Fruits&Vegetables

- **Events**:

  - **The VI International Pineapple Symposium** was held in João Pessoa, State of Paraíba

in November 18-23, 2007. The Symposium was organized by the Brazilian Agricultural Research Corporation (EMBRAPA) through its National
Research Center on Cassava and Tropical Fruits (Embrapa Cassava & Tropical Fruits), located in Cruz das Almas, Bahia, and the Secretary for the Development of Agriculture, Livestock and Fishery (SEDAP) of the Paraiba State Government, under the auspices of the International Society for Horticultural Sciences (ISHS). About 220 participants from 30 countries representing all five continents and eighteen Brazilian States provided an exceptional audience with active participation during the Symposium held at the convention center of the Tropical Tambaú Hotel, located at the famous beach of Tambaú.
The central theme of the event was Pineapple -Diversity and Sustainability. The genetic and botanical diversity of this species was shown in several talks and posters, addressing from the evolution of the genus Ananas and the domestication of pineapple to the rich composition of many germplasm banks, as for example the one kept by Embrapa Cassava & Tropical Fruits with about 700 accessions of the genus Ananas and other Bromeliaceae, representing the diversity existing in Brazil, the country of origin of thepineapple plant. Diversity of uses of the pineapple plant was also pointed out in a special session. Very recent and already rather successful research efforts carried out in Australia and Brazil are exploiting the ornamental potential of this plant. Embrapa's research team intelligently used the presence of people from so many different countries and cultural backgrounds to make a survey on consumer preference of ornamental pineapples. In addition was shown the work done in Brazil on the "carauá" (Ananas comosus var. erectifolius), a hygrophilous species from the Amazon region, which has been classified as a newcomer fiber for industrial applications. Crop management diversity, although rather natural and common due to many factors, was shown to be very evident in Brazil. Sustainability of pineapple production and business was addressed in several sessions of the Symposium. Concerns on the reduction of negative environmental impacts of the activity, together with the improvement of all aspects of
fruit quality, with emphasis on its healthiness, could be observed as the main background of many papers presented by scientists coming from different countries and continents. New production systems were shown that may minimize or even totally avoid the application of synthetic pesticides, as for example the integrated pineapple production system being developed in some Brazilian States, such as Tocantins, Paraiba and Bahia, carried out under
the auspices of the Ministry of Agriculture, Livestock and Food Supply, or the South African and French strategies towards the production of organic pineapples or "zero pesticide" pineapples. A major help for reaching these goals
could be the use of natural plant extracts, such as tannins and other substances, instead of synthetic products in the control of pests and diseases, as those mentioned in some studies on fusariosis and black rot diseases, as well as
the development of new cultivars with genetic resistance or tolerance to important pests and diseases, as for example the new Brazilian cultivars 'Imperial' and 'Vitória', which are resistant to fusariosis. In addition was emphasized
the need of non-chemical prophylactic measures for reduction of risks of nematode incidence and of losses due to mealybug and viruses associated wilt incidence. Important advances have been obtained by biotechnological studies and approaches towards a better knowledge on some of the most common problems faced by pineapple growers all
over the world, such as natural and irregular flowering and the mealybug wilt associated viruses. Fortunately it seems that those long-term research efforts have opened the perspectives for a much more effective control of those problems in the future. In this context has also been proposed a new interesting strategy to control plant parasitic nematodes using host delivered RNAi. In the post-harvest management session were shown the new challenges in production and maintenance of quality offered by the introduction of low acid types of pineapples

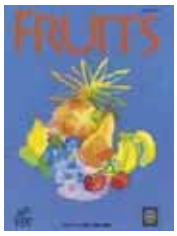
in the fresh fruit markets of USA, Japan and Europe, as well as the main results already obtained to make adjustments in the pre- and post-harvest management practices of those fruits. And the last technical session of the Symposium brought interesting information on general aspects of the Brazilian pineapple agribusiness, traditional and new marketing strategies and on the trends and perspectives of pineapple processing.
The ISHS Working Group on Pineapple held its traditional meeting during the Symposium, with the presence of Dr. Jacky Ganry, Chair of the ISHS Section Tropical and Subtropical Fruits. Obeying the criteria of rotation among countries and continents, Johor Bahru in South Malaysia was approved as the venue for the VII International Pineapple Symposium in 2010 to be organized by the Malaysian Pineapple Industry Board (MPIB) and the Malaysian Agricultural Research and Development Institute (MARDI) and supported by the Ministry of Agriculture and Agro-based Industry Malaysia (MOA).

From Domingo Haroldo Reinhardt and Getúlio Augusto Pinto da Cunha
CHRONICA, vol 48, N°1, 2008

➢ Underutilized Plants Symposium: *recommendations*

Over 200 delegates from 55 countries gathered in Arusha, Tanzania 3-7 March 2008 for an International Symposium on "**Underutilized plant species for food, nutrition, income and sustainable development**". The Symposium was co-convened under the umbrella of the **International Society for Horticultural Science (ISHS)** by the **International Centre for Underutilised Crops (ICUC)** with the **Global Facilitation Unit for Underutilized Species**, **Bioversity International**, **GlobalHort**, **Plant Resources of Tropical Africa**, and the **World Vegetable Center**, whose Regional Center for Africa was the local host.
The symposium was a resounding approval of the need for a working group on underutilized plant species to provide a voice to those who are working on these plants. The delegates endorsed the International Society for Horticultural Sciences' working group on underutilized plants, which is co-chaired by Dr Hannah Jaenicke of the International Centre for Underutilised Crops (ICUC) and Dr Irmgard Hoeschle-Zeledon of the Global Facilitation Unit for Underutilized Species (GFU), and filled it with life and suggestions for future collaboration on research and development projects. A report will be published and circulated in the near future.
Following three days of over 150 scientific presentations, the participants developed a series of recommendations around four pertinent issues.
1. On the opportunity of using underutilized plant species as risk buffers in times of climate change:
Build a database on climatic adaptability of underutilized species
Identify underutilized species that tolerate various stress situations
Involve communities in the conservation, information gathering, knowledge sharing and dissemination
2. On the opportunity of using underutilized plant species for better nutrition:
Establish a database of existing information of nutritive values of underutilized species
Develop a local/regional based priority list of top ten underutilized species
Create awareness of the importance of diets with nutritional underutilized species
Build capacity at all levels throughout the value chain
Policy support should be sought from Government agencies (Ministries of Agriculture, Education, Health) to mainstream underutilized species in school and hospital feeding programs
3. On the challenge of enhanced and sustained market access for underutilized plant products:
Share and disseminate successful case studies on market access (reasons for success and failure)
Develop and implement an advocacy and lobbying strategy
Promote partnerships between value actors
Carry out and document economic and market studies of different aspects of value chains
4. On the challenges regarding using underutilized species without undermining agrobiodiversity:
Strengthen research on benefits of diverse farming and ecosystems
Carry out risk analyses of invasiveness of new species and pressure on biodiversity through promotion of particular species / varieties
Develop guidelines and good practices for sustainable use of underutilized species
Create awareness at school and community level on importance of biodiversity for their environment, farming systems and eco-systems
Set up working groups at national and international level involving researchers, policy advocates and farmer organizations
These recommendations are now being taken forward by the Working Group chairs and thematic sub-groups will be set up to enhance communication and specific collaboration. Further details will be circulated soon.
You can become a member of the Working Group on Underutilized Plants by registering on www.ishs.org.
Posted: March 20th, 2008 under **ISHS Meetings**, **Meetings**.

Publications

- Scientific journals : FRUITS 

Editorials published online:

December 2007

Effects of the Fruit and Vegetables on the human health

The second international symposium on the *Effects of the Fruit and Vegetables on the human health* allowed to once again measuring the enormous stakes that this topic carries.
Whereas explode obesity and the diabetes in the majority of the areas in the World, with alarmist projections of WHO for certain countries like India, the fruit and vegetables represent a hope potentially very high to limit the harmful effects of them.
It is the same for the cardiovascular diseases and cancers.
Nevertheless, much of way remains to be made for better knowing the impact of the fruit and vegetables, their components, their derivatives and their diversity, on the health and the prevention of the principal chronic diseases.
More and more emphasis is put on the importance of the diversity of food, and in particular of the fruit and vegetables, like on synergies being able to exist between the components of a same food and between foods. In the meantime, it is critical to see that the majority of the epidemiologic or clinical work concerns the effect of an active ingredient on a particular pathology. *A contrario*, very little work is dealing with synergistic effects, making it possible to argue scientifically and without faults on the impact of the fruit and vegetables on health.
Such a situation can be an argument making it possible some to say that, in the absence of scientifically validated evidence, it is not possible to prove the role of fruits and vegetables in the prevention of obesity, diabete, cardiovascular diseases and cancers. Is it a reason to let develop these true epidemics in the developing countries, in particular, where they can have devastator effects? Is it necessary to wait for all the scientific evidence for delivering such an effective answer, but which is likely to arrive too late? What means "being in good health"? How to really convince the consumers of the interest of fruits and vegetables? How to convince the public authorities to promote the production and consumption of them? As many questions whose answers are not simple and who require a very holistic and multi-sectorial approach.
Beyond the consumable part of the fresh product, an emphasis was also put on the valorisation of the by-products, such as the fruit peels, that could represent precious layers for food, medicinal or cosmetic purposes and thus generate complimentary added value.
The Review *Fruits* intends not to miss of this debate and for this reason will deliver very soon a special issue on "Fruits, Nutrition and Health", collecting the articles published during the five last years on the topics. In same time, we ask the concerned scientific community to propose articles which will make it possible better to objectify the choices in this field mobilizing at the same time the professionals of the horticulture and those of health and education.

January 2008

New: publication of researchers' know-how in *Fruits*

Capacity building in the field of research and expertise is regarded as one of the essential pillars for enhancing innovation in developing countries, and in particular for agriculture, which is now considered

as a key engine for the economic development in these countries. This is what comes out from recent reports of the World Bank or the European Commission.
It is thus important to mobilize the maximum of resources to go in this direction, while trying to use the existing ones as well as possible, leading to a better efficiency of implemented actions.
With such an idea in mind, the *Fruits* editorial board decided to launch the publication of a series of documents whose objective is to make an exhaustive review of the methodological protocols relevant for research and expertise on the various tropical and Mediterranean fruit species.
Banana is the first species considered, taking into account its great economic importance in the tropics, even in subtropical areas. The fields of genetic diversity, varietal creation, and control of the main pests and diseases - Black and Yellow Sigatoka, nematodes, soil fungi - as well as postharvest practices and treatments will be covered.
The six issues of the year 2008, fed by the publication of these protocols, will have the value of a test with the participation of you, the readers. We propose that you freely deliver your opinion to us on this initiative by transmitting your comments to the address chantal.loison@cirad.fr.
We would like in particular to get your opinion on this *Banana protocols* experimental phase, and on the opening up of these pages to other fruit species as well.

We hope thus, through this interactive process initiated by *Fruits*, to have the capacity to contribute our modest share to research and expertise capacity building, but also more widely to international scientific co-operation.

March 2008

Promotion of fruits and vegetables in countries of sub-Saharan Africa and the Indian Ocean

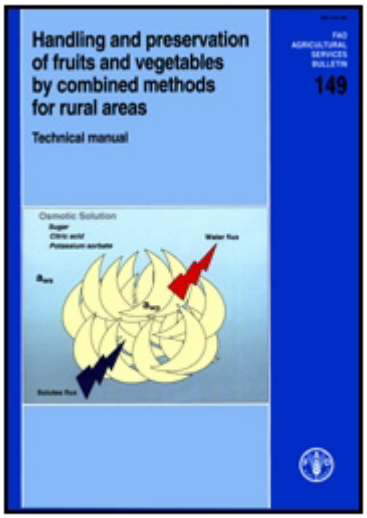
In a very recent editorial, we gave a report on the increasing importance of chronic diseases such as obesity, diabetes, cardiovascular diseases and cancers, and on the now recognized interest in reinforcing the place of fruits and vegetables in the diet to face these true "epidemics".
These diseases are not a monopoly of industrial countries. They also now concern the countries of the South, especially in urban environments where the nutritional transition is critical. According to the World Health Organization (WHO), the number of diabetics will increase by 170% in these countries by 2025.
Many factors contribute to a fast increase in these new forms of malnutrition. Greater awareness and multilevel actions are required for addressing these trends. They must be integrated into agriculture, food, health and education policies. It is with this objective that 76 experts from 16 African countries and many representatives of international agencies met recently within a workshop organized in Yaoundé, Cameroon, from October 23rd to 25th, 2007, on the initiative of the FAO and WHO, co-organized by the IRAD and CIRAD and sponsored by GlobalHort and the CTA. At the center of the debates: the promotion of fruits and vegetables in the French-speaking countries of sub-Saharan Africa and the Indian Ocean.
Whereas minimal consumption should be 400 g of fruit and vegetables per day, the inhabitants of the Sahelian countries consume on average ten times less; among the principal restraints are: the prices of these products, their accessibility and their availability, but also their quality, as many fields which require organization and innovation.
It appears essential to merge sectors of intervention. The fields of health, horticulture, transport, environment and education must operate together. FAO, WHO and GlobalHort initiatives are jointly acting in that direction.
The goal is to mobilize around concrete actions the political representatives of these countries, but also the producers, the fruit and vegetable stakeholders, research, health and education professionals and, of course, funding agencies. In order to maintain the dynamics engaged, annual workshops will be organized in each place through innovation platforms where all the implied stakeholders will be able to exchange and thus promote these productions with a double stake: economic growth through their added value, and public health through their nutritional value.

Selected News from Hortivar

Handling and Preservation of Fruits and Vegetables by Combined Methods for Rural Areas

This manual is intended to serve as a guide to farmers and processors of fruits and vegetables in rural areas. It contains basic but valuable information on post-harvest handling and marketing operations and storage of fresh and processed products. It provides practical examples of preserving fruits and vegetables addressing a combination of factors, highlighting technology which, when combines, has a positive and synergistic effect in preventing biochemical and physico-chemical reactions and microbial growth -the main causes of quality losses in fruits and vegetables.

The suggested methodologies combine technologies such as mild heat treatment, water activity reduction (aw), lowering of the pH and use of anti-microbial substances to realize the potential of minimally processed, high-moisture fruit products. These relatively new technologies have been successfully applied to several important tropical and non-tropical fruits in different countries of Latin America and are considered appropriate and recommended for use in other fruit-producing countries around the world.

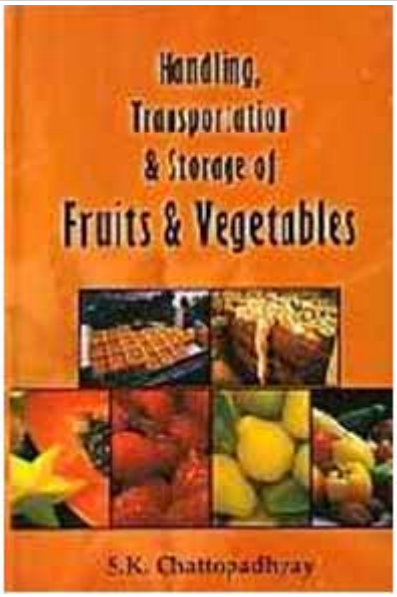


Author	Jorge Welti Chanes,Aurelio Lopez-Malo,Maria S. Tapia,Stella M. Alzamora,Juan J. Fernandez-Molina,Gus
Year	2007
For more info	[Internet link]
Author/Source	FAO
Message by	Hortivar desk (hortivar@fao.org)

Handling, Transportation and Storage of Fruits and Vegetables

This book has been written with the purpose of covering all biological and physical aspects of the post harvest physiology of fruits and vegetables. Assembling a substantial amount of information from a wide variety of sources, the book is a compilation of knowledge pertaining to post harvest technology of fruits and vegetables. It expands, in comprehensive detail, on technology relating to maturity determination, harvesting, packing, post harvest treatments, controlled atmosphere storage, ripening and transportation.(jacket)

Contents: Preface. 1. Handling of fruits and vegetables harvesting. 2. Microbial hazards in fruits and vegetables. 3. Transportation of fruits and vegetables. 4. Preservation of fruits and vegetables. 5. Drying fruits and vegetables. 6. Storage of fruits and vegetables. 7. Quality in fruits and vegetables. 8. Hygiene and sanitation. 9. Selling fruits and vegetables. 10. Preparation for the fresh market. Bibliography. Index.

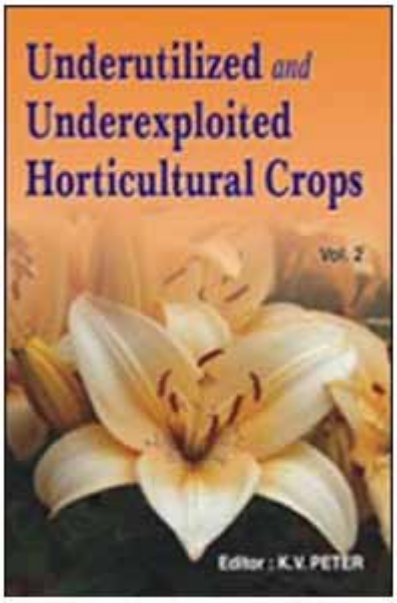


Author	S.K. Chattopadhyay (Ed. by),
Year	2007
For more info	[Internet link]
Author/Source	Vedam Books
Message by	Hortivar desk (hortivar@fao.org)

Underutilized and Underexploited Horticultural Crops, Vol. 2

The present book is the second volume in the series Underutilized and The present book is the second volume in the series Underutilized and Underexploited Horticultural Crops edited by Prof. K.V.Peter. As in the 1st volume the present volume also covers 6 chapters on underexploited fruits, 5 on vegetables, 1 on tuber crops, 3 each on flowers and trees and 2 on spices. Dr. Bhuwon Sthapit, IPGRI, Malaysia contributes a chapter on In Situ Conservation of Horticultural Crops.

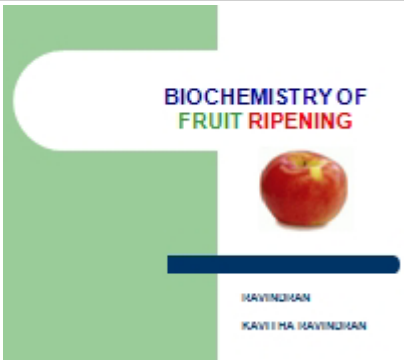
Underutilized fruits of Andaman and Nicobar Islands are dealt with in detail by Dr. D.R. Singh, Giant Granadilla, Apricot, Low Chilling Peaches, Aonla and Ber are dealt by eminent scientists in respective crops. Dr. Umesh Srivastava, ICAR, New Delhi deals Genetic Resource Management in Cucurbits. Dr. Samadia from Central Institute of Arid Horticulture, Bikaner writes on Arid Vegetables. Dr. S.K. Pandey, Director, CPRI, Shimla elaborates Taxonomy of Temperate Underutilized Root and Tuber Crops. Underutilized flowers surrounding the homesteads are narrated by Dr. U. Sreelatha, Kerala Agricultural University. An overview on Liliums is given by Dr. K. Valliappan, Mahua, Chironji and Drumstick is the trees dealt with. Turmeric and Long Coriander are elucidated by Dr. A.M. Rao and Dr. P. Indira respectively. The foreword to the volume is by Dr. M.L. Chadha, Director, AVRDC - ICRISAT Programme, Hyderabad. Dr. M.L. Chadha is a world authority on underutilized leafy vegetables.



Author	K.V. Peter (Ed.by),
Year	2007
For more info	[Internet link]
Author/Source	Akhil Books Pvt. Ltd.
Message by	Hortivar desk (hortivar@fao.org)

Biochemistry of Fruit Ripening

This book biochemistry of fruit ripening has been prepared primarily to serve as textbook for undergraduate students of biochemistry and horticulture especially in the field of fruit science. Most of the available books on the subject are of American and European origin. They cover a wide range of subject, yet a student is required to go through several books to complete his course requirement. Besides, examples cited in those books are not easily grasped due to unfamiliarity with deep knowledge in subject. Some Indian books are available on the subject, but are not up-to-date. It was therefore thought that students should be provided a comprehensive book as per their course requirements. While preparing this book it has been assumed that as a prerequisite, students have acquired fair knowledge of biochemistry and fruit ripening. The chapters arranged in a sequence to give the reader an idea of the science of biochemistry of fruit ripening. Chapters on importance of fruits on health and nutritional security, classification of fruits based on respiration and ethylene production, role of ethylene on fruit ripening, reviews of ripening related changes in different fruit crops are profusely illustrated. Written in simple and lucid English, up to date examples of biochemical changes during fruit ripening have been cited to illustrate the points. Thus, this book would serve not only undergraduate but postgraduate students of biochemistry and horticulture especially in the field of fruit science of various universities, also, as a source of revision.



Fruits constitute a commercially important and nutritionally indispensable food commodity. Being a part of a balanced diet, fruits play a vital role in human nutrition by supplying the necessary growth regulating factors essential for maintaining normal health. Fruits are widely distributed in nature. One of the limiting factors that influence their economic value is the relatively short ripening period and reduced post-harvest life. Fruit ripening is a highly coordinated, genetically programmed, and an irreversible phenomenon involving a series of physiological, biochemical, and organoleptic changes, that finally leads to the development of a soft edible ripe fruit with desirable quality attributes. Excessive textural softening during ripening leads to adverse effects/spoilage upon storage. Carbohydrates play a major role in the ripening process, by way of depolymerization leading to decreased molecular size with concomitant increase in the levels of ripening inducing specific enzymes, whose target differ from fruit to fruit.This book contain Fruit science and its important in food and nutrition, Chemical composition and nutritional values of important fruits,Classification fruits based on parts used ,maturity indices ,major sugars, acid, pigments and volatile compounds,respiration behavior ,ethylene production ,internal ethylene concentration and Growth pattern.Fruit ripening,Biochemical changes during fruit ripening ,Role of ethylene in fruit ripening,Biosynthesis pathway of Ethylene: Mechanisms And Regulation,1-MCP ? A New Chemical For Regulation of fruit ripening ?A report,Hormonal Control of Grape Berry Ripening- A Report, Reviews of Biochemistry Fruit ripening in some important fruit crops etc..

Author	RAVINDRAN and KAVITHA RAVINDRAN
Year	2007
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Message by	Chandran Ravindran (ravi_hort@yahoo.com)

1st International Fruit and Vegetable Summit 2008

Dear Friends and Colleagues,
On behalf of Saida Barnat, we call your attention to the forthcoming **1st International Fruit and Vegetable Summit 2008**.

Please visit our website for further details: www.aprifel.com
More information will be available soon. We hope to see you in Paris!
The Scientific Department of APRIFEL
(The Agency for Research and Information on Fruit and Vegetables).
www.aprifel.com

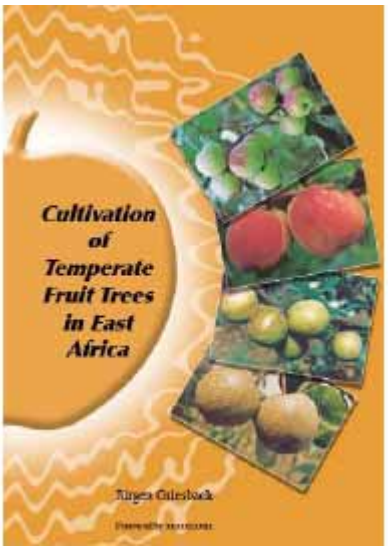
Cultivation of Temperate Fruit Trees in East Africa

East Africa's cultivation of temperate fruit trees, which include apples, plums, peaches/nectarines and pears can be traced back to the arrival of European settlers. It has since been shown that with knowledge and skill, temperate fruit trees and grapevines can be grown successfully in the region's cool highlands.

This volume taps into the author's half a century's experience growing temperate fruit trees in Kenya and Tanzania, during which he carefully experimented with and observed different fruit types and cultivars, to arrive at those best suited to specific local environments, and their management for best returns. The insights garnered from long experience are invaluable reading for any orchard owner, or anyone planning to cultivate temperate fruits in East Africa.

The supply of locally produced temperate fruits in East Africa is limited in quantity and quality, with the vast and growing demand being met primarily with imports. This publication proposes important measures that would promote the local temperate-fruit-growing industry. Clearly, strengthened local cultivation of these high-value fruits would save precious foreign exchange, improve the nutritional status of the population, and generate income and employment.

The author discusses in detail the elements of successful production of temperate fruits in East Africa, including orchard layout, propagation, planting, pruning, fertilization, pollination, pest control, fruit picking, storage and marketing, with 16 appendixes serving as a handy reference. The cultivar descriptions, accompanied by full colour photographs, make for interesting general reading.

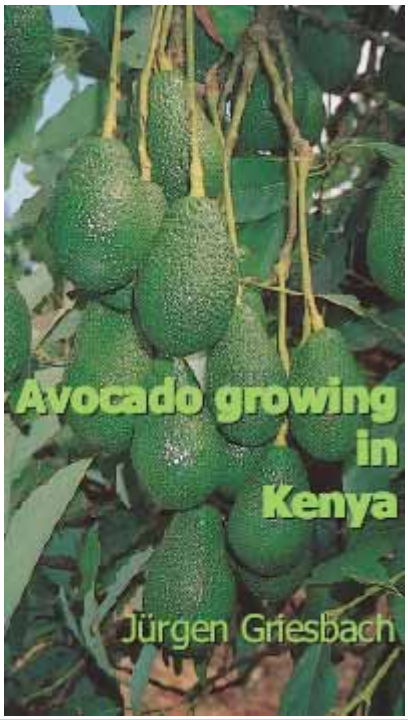


AVOCADO GROWING IN KENYA

The World Agroforestry Centre (ICRAF) envisions a large increase in the cultivation of trees in farmland as natural forests decline in area and demand for tree products increases. Smallholder rural households may particularly benefit from increased tree cultivation to help ensure security in food, health and income. To make this agroforestry transformation happen the millions of poor farming households require access to a portfolio of well-adapted and productive trees that can improve their livelihoods. This portfolio will contain both established commercial species and lesser developed indigenous trees. One of the most eligible commercial trees to include in such portfolios around the world is the avocado.

Few tree species can claim such universal appeal as the avocado in terms of bioclimatic suitability and human benefits. The diverse environments in which the avocado developed in Meso-America and the Caribbean have provided a broad range of distinct genotypes that can grow throughout the temperate and tropical zones. In many ways Kenyas diverse climate and topography were made for avocado cultivation with the Mexican highland races and Caribbean coastal races finding corresponding agroclimatic zones here. The high protein, vitamin and anti-oxidant contents of avocado provide a large health benefit to cultivators and urban consumers alike. The world recognition and demand for avocado also offer current and future export opportunities.

The aim of this book is to familiarize extension staff, trainers, farmers and marketers with avocado cultivation in Kenya. Even though the content is based on research and development information obtained in Kenya, there is no doubt that other countries in Eastern and Central Africa that have similar ecological conditions can also benefit from the information. Its main focus is on varietal selection for different parts of the country since this is very much needed if producers want to supply local and international markets with a timely and varied supply of good quality fruits.



Author	JÜRGEN GRIESBACH
Year	2005
For more info	[Internet link]
Author/Source	Jurgen Griesbach, ICRAF
Message by	Hortivar desk (hortivar@fao.org)

CactusNet is an R&D network, created by FAO in 1993, to promote the cultivation of cactus pear.

It aims to collect and disseminate information on production, processing and trade; promote and facilitate germplasm exchange; develop new food and carminic acid uses; and strengthen the technical capacity of partner institutions.

CactusNet is coordinated by Dr Ali Nefzaoui, an ecologist with ICARDA-Tunisia. Together with other FAO programs, the network has provided support to cactus R&D efforts in Angola, Argentina, Chile, Iran, Eritrea, Iran, Italy, Mexico, Peru, South Africa and Tunisia. Three more countries ? Namibia, Mauritania and Pakistan ? are soon expected to join this group.

Author/Source
FAO - ICARDA
Message by
Hortivar desk (hortivar@fao.org)

Meetings

ISHS symposiums:

- From SETF Section :

Year 2008

August 25-28, 2008, Fuzhou - Fujian Province (China): **III International Symposium on Longan, Lychee and other Fruit Trees in Sapindaceae.** Info: Prof. Dr. Pan Dong-Ming, College of Horticulture, Fujian Agric & Forestry University, Dept. Of Horticulture, Fuzhou, Fujian Province, China. Phone: (86)59183789299, Fax: (86)59183735681, E-mail: pdm666@126.com

- September 21-25, 2008, Baoding (China): **I International Jujube Symposium.** Info: Prof. Dr. Mengjun Liu, Research Center of Chinese Jujube, Agricultural Univesity of Hebei, Baoding, Hebei, 71001, China. Phone: (86)312754342, Fax: (86)3127521251, E-mail: kjliu@hebau.edu.cn
- November 3-7, 2008, Bogor (Indonesia): **IV International Symposium on Tropical and Subtropical Fruits.** Info: Dr. Roedhy Poerwanto, Jl. Abiyasa Raya No. 1, Bantarjati, 16143 Bogor, Indonesia. Phone: (62)251328942, Fax: (62)251326881, E-mail: roedhy@indo.net.id
- November 8-13, 2008, Firenze, Faenza and Caserta (Italy): **IV International Symposium on Persimmon.** Info: Prof. Dr. Elvio Bellini, University of Firenze, Horticultural Department, Viale delle idee 30, 50019 Sesto Fiorentino, Italy. Phone: (39)0554574053, Fax: (39)0554574017, E-mail: elvio.bellini@unifi.it or Dr. Edgardo Giordani , Department of Horticulture, University of Florence, Viale delle Idee 30, 50019 Sesto Fiorentino)FI), Italy. Phone: (39)0 55 4574050, Fax: (39)0 55 4574017, E-mail: edgardo.giordani@unifi.it Web: http://www.4persimmon2008.it
- November 10-13, 2008, Mérida (Mexico): **II International Symposium on Guava and other Myrtaceae.** Info: Dr. Wolfgang Rohde, MPIZ, Calf-von-Linné-Weg 10, 50829 Koeln, Germany. Phone: (49)2215062101, Fax: (49)2215062113, E-mail: rohde@mpiz-koeln.mpg.de or Dr. Jose Saul Padilla Ramirez, INIFAP-Campo Experimental Pabellon, Km. 32,5 Carr. Aguascalientes-Zacatecas, Apdo Postal No. 20 CP 20660, Pabellon de Arteaga, Aguascalientes, Mexico. Phone: (52)4659580167, Fax: (52)4659580167
- December 9-12, 2008, Madurai, Tamil Nadu (India): **II International Symposium on Papaya.** Info: Dr. N. Kumar, Department of Fruit Crops, Horticultural College & Research Institute, Priyakulam, 625 604, India. Phone: (91)4546231726, Fax: (91)4546231726, E-mail: kumarhort@yahoo.com Web: http://www.ishs-papaya2008.com/

- From other ISHS Commissions and Sections, but relevant for SETF

Year 2008

- May 19-21, 2008, Faro (Portugal): **VI International Symposium on Mineral Nutrition of Fruit Crops.** Info: Prof. Dr. Pedro José Correia, Universidade do Algarve, FERN,, Campus de Gambelas, 8005-139 Faro, Portugal. Phone: (351)289800900, Fax: (351)289-818419, E-mail: pcorreia@ualg.pt or Maribela Pestana, Universidade do Algarve, FERN,, Campus de Gambelas, 8005-139 Faro, Portugal. Phone: (351)289-800900, Fax: (351)289-818419, E-mail: fpestana@ualg.pt Web: http://eventos.ualg.pt/mnutrition6

- June 16-17, 2008, Vignola, Modena (Italy): **II ISOFAR Conference on Organic Fruits & 16th IFOAM Organic World Congress.** Info: Dr. Franco Weibel, Res. Institute for Orgnic Farming, FIBL, Ackerstrasse, 5070 Frick, Switzerland. Phone: (41)628657272, Fax: (41)628657273, E-mail: franco.weibel@fibl.ch or Dr. Robert K. Prange, Agriculture and Agri-Food Canada, Atlantic Food and Horticulture Research Centre, 32 Main Street, Kentville, NS B4N 1J5, Canada. Phone: (1)9026795713, Fax: (1)9026792311, E-mail: pranger@agr.gc.ca Web: http://www.isofar.org/modena2008/fruit.html

- August 4-8, 2008, Geneva, NY (United States of America): **IX International Symposium on Integrating Canopy, Rootstock and Environmental Physiology in Orchard Systems.** Info: Dr. Terence L. Robinson, Dept. Horticultural Science, 630 W. North Street, Geneva, NY 14456, United States of America. Phone: (1)315-787-2227, Fax: (1)315-787-2216, E-mail: tlr1@cornell.edu

- September 1-5, 2008, Dresden, Pillnitz (Germany): **I International Symposium on Biotechnology of Fruit Species.** Info: Dr. Viola Hanke, Baz, Institute for Fruit Breeding, Pillnitzer Platz 3a, 01326 Dresden, Germany. Phone: (49)3512.616.214, Fax: (49)3512.616.213, E-mail: v.hanke@bafz.de Web: http://www.biotechfruit2008.bafz.de

- October 22-24, 2008, Sevilla (Spain): **VII International Workshop on Sap Flow.** Info: Dr. José Enrique Fernandez, Inst. de Rec. Nat.y Agrobiol., Campus de Reina Mercedes, Apartado 1052, 41080 Sevilla, Spain. Phone: (34)954624711, Fax: (34)954624002, E-mail: jefer@irnase.csic.es

- December 7-11, 2008, Chiang Mai (Thailand): **XVI International Symposium on Horticultural Economics and Management.** Info: Peter J. Batt, Horticulture, Curtin University of Technology, GPO box U1987, Perth, WA 6845, Australia. Phone: (61)8 9266 7596, Fax: (61)8 9266 3063, E-mail: p.batt@curtin.edu.au or Prof. Dr. Peter P. Oppenheim, Deakin Business School, Deakin University, 336 Glenferrie Road, Malvern, VIC 3144, Australia. Phone: (61)3 9244 5549, Fax: (61)3 9244 5040 Web: http://www.muresk.curtin.edu.au/conference/ishsem

- December 7-13, 2008, Bangalore (India): **IX International Symposium on Acclimatization and Establishment of Micropropagated Plants.** Info: Dr. Jitendra Prakash, In Vitro International Pvt. Ltd., #12/44, Rajiv Gandhi Nagar, Bommanahalli, Bangalore 560 068, India. Phone: (91)80 41109273, Fax: (91)80 25727030, E-mail: invitro@bgl.vsnl.net.in

- December 7-11, 2008, Chiang Mai (Thailand): **V International Symposium on Horticultural Research, Training and Extension.** Info: Peter J. Batt, Horticulture, Curtin University of Technology, GPO box U1987, Perth, WA 6845, Australia. Phone: (61)8 9266 7596, Fax: (61)8 9266 3063, E-mail: p.batt@curtin.edu.au or Associate Professor Dr. David Aldous, University of Melbourne, Burnley College, Swan Street, Richmond VIC 3121, Australia. Phone:

(61)0392506800, Fax: (61)0392506885 Web: http://www.muresk.curtin.edu.au/conference/ishset

Year 2009

- September - , 2009, Bologna (Italy): **XI International Symposium on Plant Bioregulators in Fruit Production.** Info: Prof. Guglielmo Costa, Ordinario di Arboricoltura Generale, Dipartimento di Colture Arboree, Via G. Fanin 46, 40127 Bologna, Italy. Phone: (39)051 20 9 6443, Fax: (39)051 20 9 6401, E-mail: guglielmo.costa@unibo.it