

Tropical and Subtropical Fruits
Newsletter n°5
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Foreword

More than one year has passed since has been released the 4th issue of this newsletter. One of the main reason was my strong involvement in the preparation of the first Global Conference on Agricultural Research, GCARD, which was held in Montpellier, France by the end of March 2010. You will find here a short feed-back of this Conference which was the starting point of new pathways for Agricultural Research for Development to better address the huge challenges of today which are food security and poverty alleviation.

It is essential to advocate for enhancing the role of horticulture to address these challenging issues; In fact and in spite of declarations and campaigns claiming the importance of Fruits and vegetables for balanced diet and as source of incomes, they are recurrently forgotten in development agendas where most emphasis is put on cereals, staple food and calories. I do hope that my involvement in GCARD will help to raise this issue and that ISHS and GlobalHort would play a key role for a better recognition of horticulture.

The All Africa Horticulture Congress held in Nairobi by the end of August 2009 was very instrumental in this direction and it is very important to keep alive this momentum through a strong GlobalHort.

With my best wishes

Jacky Ganry

Global news

- From GCARD

The Global Conference on Agricultural Research for Development

A major event during these last weeks was the Global Conference on Agricultural Research for Development, GCARD, which was held in Montpellier, France, from 28th to 31st of March, 2010. This conference brought together more than 1,000 researchers, policymakers, farmers, donors, and members of civil society from every region of the world to develop a new agricultural research for development (AR4D) architecture that is geared toward reducing both hunger and poverty through innovative approaches far from business as usual. It is the

first time all key players, from farmer to donor, have gathered to iron out a roadmap for AR4D.

Failure to prioritize agriculture and rural development at the same level as other sectors like health and education has left many developing countries with gaps in capacity needed to meet the Millennium Development Goal of reducing hunger and poverty. It has also left them unprepared for coping with rapid climate change and a population explosion expected to occur by 2050. Some key issues for change were highlighted. One of them is a stronger involvement of the civil society and private sector in the AR4D process. Food providers and consumers must be at the center and in the governance of agricultural research at the international, regional and national levels.

Another one is the role of women. A key sentence was: “Investing in gender is non-negotiable”. If not, a key leverage will not be activated for effective development as women are the key actors for a lot of its components including education, nutrition and health amongst others

For addressing such a challenge all the research community must be mobilized globally and a key-word is partnership. International centers of the CGIAR must work much more closely with national institutions; industrialized countries must much more interact with developing countries on a mutual interest base; farmers, civil society, private sector and consumers must be integral part of the process.

GCARD is the first step of a long trip. For moving from declarations to actions it is necessary to keep the “spirit of Montpellier” and continue to build on it.

But it is clear that fruits and vegetable, even if claimed as essential for nutrition and health and key drivers for income generation, employment and livelihood, are still too often relegated behind staple food in the final action plans, and this conference will not have made it possible to reverse the tendency.

- From GlobalHort :

Exciting Meeting of the first All Africa Horticulture Congress: A new African Spirit “Grown under the Sun”

Published on 9th Oct 2009

The Kenya Agricultural Research Institute (KARI), in collaboration with GlobalHort and FPEAK (Fresh Produce Exporters Association of Kenya), organized the All Africa Horticulture Congress on the basis of gathering participants from all parts of Africa from public and private sectors. This first objective was successfully achieved with more than 330 registered participants from 42 different countries amongst which 30 were African.



With the All Africa Horticulture Congress (AAHC) an old dream became true which was in the minds of African horticulturists gathered during the former IHC of ISHS, Toronto 2002 and Seoul 2006. The first meeting in Nairobi (31 August-3 September 2009) was the signal of maturity for an African community driven by dynamic leaders from Kenya, South Africa, Nigeria and Ghana. It has been facilitated by GlobalHort and ISHS, both placing the event under a double challenge: (1) providing a platform of interaction between different stakeholders of the horticultural sector in Africa where the role of science

can be discussed and a common strategy formulated, and (2) achieving the scientific quality of ISHS events.



The policy and decision makers addressing the Congress clearly and thoroughly enunciated the global challenges of horticulture in Africa. The Kenyan Minister of Agriculture, Hon. William A. Ruto, and NEPAD representative, Dr. Bibi Giyose, formulated the major question for Africa's development: Where and how to invest public money so that it will benefit entrepreneurship of small and middle-scale stakeholders and the health of all African consumers on a long-term and sustainable basis? One answer was suggested by the representative of the Netherlands Embassy, D. Bruinsma, who described the Dutch horticulture investments in East Africa. The representative of the Tanzanian Ministry of Agriculture, G. Kirenga, concluded that there was a need for events such as this Congress that allow thoughts, views, experience and information exchanges to reveal common constraints and expectations, and thus generate joint strategies and recommendations to be considered by decision makers and influence African governance. All the other keynote speakers from the hosting country (KARI and HCDA) or from international organizations (FAO, GFAR, GlobalHort, ICIPE, HCA and ISHS) highlighted horticulture as a key sector for the employment of small-scale farmers and women in particular, for diversified and higher incomes, for added value, and for improved nutrition.

In order to offer a large overview of the on-going research activities in Africa, in the formats of presentations, papers and posters, the AAHC organized four parallel thematic sessions: (1) Food security, (2) Human health, nutrition and lifestyle, (3) Environment and natural resource management and, (4) Socio-economics, food safety and market issues. These sessions and their presentations will provide the basis for full papers to be published in the proceedings of the Congress, a volume of the *Acta Horticulturae* of ISHS. In addition to the parallel sessions, a series of side-events were also hosted by the AAHC in the form of mini-symposia that wanted to highlight and exemplify one specific horticultural challenge: food city supply (FAO), integrated pest management (ICIPE) and, vegetable seed industry (AVRDC-The

World Vegetable Center) successfully managed by convener A. Hodder, C. Borgemeister and J. Hughes, respectively.

Field excursions were offered to the congress participants to showcase the horticultural industry in Kenya. These tours were coordinated by FPEAK, KARI, ICIPE and the Ministry of Agriculture. These included a tour to the Thika and Mwea areas to see small-scale and large-scale production, a tour of post-harvest fruit or vegetable processing facilities in Nairobi, and a tour focused on integrated pest and disease management (as exemplified by Dudutech company), flower and vegetable growers in Naivasha region. It was very nice to see so many success stories in the horticultural industry of Kenya and the wish to share best practices with other African countries.

On the whole the first All Africa Horticulture Congress went extremely well. Clear outputs, resulted from the three working groups whose task was to brainstorm on horticultural success and failure stories in Africa under the moderation of R. Voss (UC Davis, USA), A. De Jager (WUR, The Netherlands) and R. Kahane (GlobalHort). The participants were able to capture and analyze case studies which were summarized in the last plenary session which led to an intelligent and informed discussion dedicated to finding a way forward.

This first AAHC was introduced as a first step toward a coordinated forum of horticulturists in Africa, to become more visible, more connected, and more productive. Several milestones for such a joint objective have been listed, briefly debated and established as resolutions of the Congress. The full set of resolutions is available in the AAHC [Communique](#) and the [GlobalHort Newsletter](#). The main points are as follows:

On the way forward for the AAHC

- The AAHC shall continue to represent all stakeholders of horticulture: science, education, development, production, industry, policy and consumption. The AAHC acknowledged the need to ensure that its deliberations and resolutions provide a basis for guiding policy agenda for the development of horticultural sector in Africa.
- Such a continental event shall follow the International Society for Horticultural Science standards. Therefore, the next AAHC shall be in 2012 and thereafter on a 4 year and regionally circulating basis; the Republic of South Africa will organize the next AAHC in 2012 on behalf of the Southern African Region.

African Horticulture Journal

There is a strong need for better information flow on horticulture in Africa, and the first step should be the consolidation of what already exists. AAHC agreed to ensure that AAHC deliberations and recommendations be packaged and transmitted to policy makers at continental and national and sub-national levels.

- GlobalHort agreed to bring together the African and associated editors in order to develop an initiative around having an African journal on horticulture. This will be implemented through, but not limited to, meetings and workshops.

African Horticulture Forum

AAHC, through its various institutions, will strive to work with national horticultural organizations to ensure increased visibility of horticultural issues in the formulation and operationalization of agricultural, health, trade, education, and other developmental policies relevant to the horticultural sector in Africa.

- NEPAD agreed to give more legitimacy to a forum on horticulture, with regional entities.
- GlobalHort agreed to facilitate networking between the existing networks, and strengthen them; it invited all partners in formulating a proposal for Co-Ordinated Regional Innovation Platforms on Horticulture for Africa (CORIPHA).

Towards a pluralistic and independent organization

Although no big sponsor has ensured the financial basis of this first meeting of the AAHC, the organizers have proved being able to carry out a continental event using resources from Kenya Agricultural Research Institute (KARI), Horticulture Crops Development Authority (HCDA), Fresh Produce Exporters Association of Kenya (FPEAK), the Ministry of Agriculture (Kenya) and Kenya Plant Health Inspectorate Service (KEPHIS). Several institutional donors like CTA, FAO, GlobalHort, AVRDC and ICIPE sponsored participants from very diverse African countries, whereas Kenyan authorities (Ministry of Agriculture, HCDA, KEPHIS and KARI) ensured logistics and core budget. The private sector strongly contributed through the exhibition fair with more than 30 booths, and a few grants for participants (Nunhems Foundation, Rijk Zwaan, Africa Harvest). Special mention goes to Crops for the Future for offering the welcome cocktail party and to the Kenyan Ministry of Agriculture that hosted the gala dinner. The ISHS Executive Director, J. Van Assche, awarded the conveners of the Congress, L. A. Wasilwa (KARI), S. Mbithi (FPEAK) and R. Kahane (GlobalHort), during the gala dinner. Tanzanian, Nigerian, South African and Ghanaian delegations competed in a friendly manner with Senegalese, Cameroonesse, Ivorian and Guinean representatives to organize the next meeting of the AAHC. Everyone accepted the well prepared candidature of the South African Society of Horticultural Science in 2012. The past and future meetings will be highlighted during the IHC2010 Lisbon, at the Symposium on Horticulture for Development, in order to sustain the African spirit formulated during the 4 days of the first AAHC in Nairobi.

- Crops for the Future has a new director

Hannah Jaenicke says Good-bye



Dear friends and colleagues,

After 4.5 years at the helm of ICUC, now CFF, it is now time to say good-bye to the many friends and supporters of underutilized crops and the organisation itself. Over the past years, we have been able to raise the profile of underutilized crops worldwide considerably, although a lot more remains to be done. The most important achievement of the past years is the creation of **Crops for the Future** from a merger of the International Centre for Underutilized Crops and the Global Facilitation Unit for Underutilized Species. This new entity will assist in further increasing the profile of underutilized crops for food security, nutrition and health and environmental sustainability. It will be in good and experienced hands with **Dr Michael Hermann**, the incoming Global Coordinator of Crops for the Future. With the changes in leadership comes also a change in location. From 1 April 2010 onwards, Crops for the Future will be hosted by Bioversity International, at their Regional Office for Asia, the Pacific and Oceania, in Serdang, Malaysia. I wish to take this opportunity to explicitly thank the International Water Management Institute for their cordial hosting of ICUC/Crops for the Future for the past 5 years in Sri Lanka. I also wish to thank the members of the Scientific Advisory Board of ICUC and later CFF Board of Directors: Prof. George Rothschild, Dr Ruth Oniang'o, Dr N.G. Hegde, Mr John Palmer, Prof. Frank Rijsberman and Dr Colin Chartres, for their guidance and support. Last but not least, we could not have managed to achieve what we have without the support of the many research and development partners around the world to whom I say an especially warm thank you.

With best wishes,

Dr Hannah Jaenicke

The new coordinates of Crops for the Future are:

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- CIAT: Fruit project could accelerate scientific research "by decades"



An ambitious new project to record the experiences of thousands of smallholder farmers in Colombia to help establish optimum growing conditions for tropical fruits in the country, is to begin imminently, following an US\$1.6m grant from [ASOHOFRUCOL](#) (the Association of Fruit and Vegetable Growers in Colombia).

The Site-Specific Agriculture based on Farmers Experiences (SSAFE) project aims

to document the planting decisions of more than 2,000 Colombian fruit farmers, and collect detailed information including production constraints, soil properties, and yields. The initial focus of the 3-year project by CIAT's Decision and Policy Analysis ([DAPA](#)) Program, will be on high-value fruits including lemon, mandarin, orange, mango, avocado, and plantain. The project will be jointly led by CIAT and ASOHOFRUCOL, with support from the Colombian Corporation of Agricultural Research ([CORPOICA](#)).

Scientific research to improve tropical fruit production is notoriously difficult as it can take up to 5 years for some plants to begin bearing fruit. It means small producers often face enormous risks in diversifying production, or responding to changes in market demand or growing conditions. By encouraging farmers to share their experiences, the project will gather important information about crop suitability in different areas in a fraction of the time needed to achieve the same results under controlled conditions.

The use of the latest GPS (Global Positioning System) technology, together with specially-developed software to process the information, will help scientists to build-up a detailed picture of the production constraints and opportunities for fruit producers in very specific areas. It could help establish farmers' options for addressing future challenges, such as climate change adaptation—including the suitability of diversifying into alternative crops.

"It's fantastic that after 6 years in the making, we've received the approval," said CIAT's Andy Jarvis, leader of the institution's DAPA Program, [who also received the Ebbe Nielsen Award in 2009](#) for the innovative use of computer technology in biodiversity research.

"This is participatory research on a phenomenal scale—but it involves changing the way we think about farmers' fields. The project recognizes that every time a farmer plants a crop, it's an experiment. If we can compile information on hundreds of thousands of these experiments, we could accelerate the rate of scientific research by decades.

"This approach is actually as old as agriculture itself with farmers constantly experimenting, observing, and innovating," he continued.

"What's new is the power of modern information technology to exploit this approach to the full. It's now feasible—and possible—to bring together and process those individual experiences."

The CIAT team will take to the road in the coming weeks to begin the process of meeting Colombian farmers and recruiting them into the scheme.

"Colombia lags behind other countries in the fruit industry," continued Jarvis. "This is one way for the farmers themselves to contribute to the future success of a sector that has tremendous potential."

Alonso González, leader of CIAT's [Tropical Fruits Program](#), believes the project will set the basis for developing analytical tools and research methodologies that could be applied to many other tropical fruits in the region.

"Latin America has more than 1200 species of edible fruits, but very few are receiving attention through traditional agricultural research," he said. "Due to the perennial nature of many fruit species, traditional research will take an extremely long time to produce results—and will only be validated in a few places. The approach of this project will help to overcome these difficulties, and capitalize on the research and needs of many growers who know their crops very well."

Contact:

Andy Jarvis (a.jarvis@cgiar.org)

From the working groups

Pineapple: The last Pineapple Newsletter was published on last July 2009 – Go to www.ishs-horticulture.org/workinggroups/pineapple

From the countries

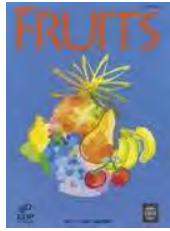
Citrus Greening in Jamaica

Amongst several events during the past two months, I would like to highlight the spreading of the citrus greening disease in Jamaica, which has been just confirmed by the Ministry of Agriculture of this country, indicating that if not properly managed the citrus greening disease could destroy the \$3.7 billion citrus industry. This new epidemics would affect directly the citrus industry of this country, one of the oldest in the Western world, in addition to the crisis it was faced after the spreading of the Citrus Tristeza Virus in the 1990's.

Jamaica is one example of the economic and social impact of such devastating crop diseases could have without any preventive measures and risk anticipation.

After Brazil, Florida and California and now Jamaica, we know that the risk is very high for the Mediterranean region where the citrus industry is a key element of the economy of these countries.

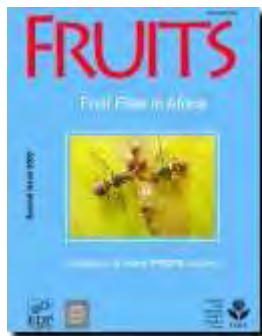
Publications



- Scientific journals : **FRUITS**

Editorials published online:

- **Special edition 2009 on Fruit Flies in Africa edition**



Many tropical or subtropical areas of the world, as well as some temperate areas, are confronted in a similar way with the problems arising from fruit flies (Diptera, Tephritidae), although each area presents, in this respect, a group of species which is peculiar for it. The species most harmful to agriculture are responsible for direct damage, but also for losses to export markets related to the quarantine restrictions, which can be considerable. This document presents the advantage of showing the diversity of the recent studies devoted to this group of pests and the principal orientations of these works. Thirteen papers dedicated to these pests are collected in this special issue *Fruits flies in Africa*. Five of them focus on the fruit flies biology; two articles concern the polymorphism of the allozymes within the populations of the *Ceratit* sp. in the Mediterranean basin; control methods are presented in four documents while populations' displacements and interspecies competition receive special care in the two last articles.

Contents

- Biodiversity of fruit flies (Diptera, Tephritidae) in orchards in different agro-ecological zones of the Morogoro region, Tanzania.

Maulid W. Mwatawala, Marc De Meyer, Rhodes H. Makundi, Amon P. Maerere

- Ecological relationships between *Ceratit* spp. (Diptera: Tephritidae) and other native fruit tree pests in southern Mozambique.

Sílvia David Maússe, Romana Rombe Bandeira

- Inventory of the fruit fly species (Diptera: Tephritidae) linked to the mango tree in Mali and tests of integrated control.

Jean-François Vayssières, Fatogoma Sanogo, Moussa Noussourou

- Inventory of fruit fly species on guava in the area of Yaounde, Cameroon.

François-Xavier Ndzana Abanda, Serge Quilici, Jean-François Vayssières, Lazarre Kouodiekong, Noé Woin Fruits

- The mango tree in central and northern Benin: cultivar inventory, yield assessment, infested stages and loss due to fruit fly species (Diptera: Tephritidae).

Jean-François Vayssières, Sam Korie, Ousmane Coulibaly, Ludovic Temple, Serge Patrick Boueyi

- Allozyme polymorphism in populations of *Ceratit capitata* from Algeria, the northwestern Mediterranean coast and Reunion Island.

Salah Oukil, Robert Bues, Jean-François Toubon, Serge Quilici

- Allozymic variability in Spanish populations of *Ceratit capitata*.

Carmen Callejas, M. Dolores Ochando

- Development of citrus fruit fly control strategies for small-holders in Nigeria.

Vincent C. Umeh, Abayomi A. Olaniyan, James Ker and Joseph Andir

- Fruit flies: disinfection, techniques used, possible application to mango.

Marie-Noëlle Ducamp Collin, Cécile Arnaud, Valérie Kagy, Christian Didier

- Fruit flies of sweet oranges in Nigeria: species diversity, relative abundance and spread in major producing areas.

Vincent C. Umeh, Loyd E. Garcia, Mark De Meyer

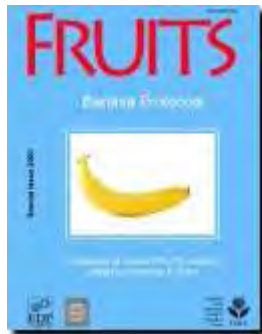
- Monitoring and managing Ceratitis spp. complex of sweet orange varieties using locally made protein bait of brewery waste.

Vincent C. Umeh, Lloyd E. Garcia

- A new Bactrocera species in Benin among mango fruit fly (Diptera: Tephritidae) species.

Jean-François Vayssières, Georg Goergen, Orphée Lokossou, Paulin Dossa, Cyrille Akponon

- Special edition 2009 on Banana Protocols



This special issue of *Fruits, Banana Protocols*, gathered together various methods useful for the researchers, engineers and technicians who devote themselves to the study and the cultivation of the banana and plantain. These articles provide a detailed description of the methods applicable to the banana, more documented than that generally presented in the chapter the *materials and methods* of the scientific publications. They are written by specialists in the various disciplines, who use and improve regularly the methods presented. The described protocols relate to a large field of application from the genome study until the installation of the forecasting techniques for controlling the banana diseases, while passing, for example, by biochemistry methods, and different physiology, phytopathology and nematology techniques applied to the banana trees.

Contents

Methylation-sensitive amplification polymorphism (MSAP) protocol to assess CpG and CpNpG methylation in the banana genome.

Franco-Christophe Baurens, Sandrine Causse, Thierry Legavre

Extraction and purification of total RNA from banana tissues (small scale).

Didier Mbéguié-A-Mbéguié, Bernard Fils-Lycaon, Marc Chillet, Olivier Hubert, Colette Galas, Rose-Marie Gomez

Construction of bacterial artificial chromosome (BAC) libraries of banana (*Musa acuminata* and *Musa balbisiana*).

Pietro Piffanelli, Alberto D. Vilarinhos, Jan Safar, Xavier Sabau, Jaroslav Dolezel

Haploid induction: androgenesis in *Musa balbisiana*.

Frédéric Bakry, Akym Assani, Florence Kerbellec

Zygotic embryo rescue in bananas.

Frédéric Bakry

Chromosome count on banana root tip squashes.

Frédéric Bakry, Kenneth Shepherd

Mechanical characterisation of banana fruits.

Marc Chillet, Luc de Lapeyre de Bellaire, Olivier Hubert, Didier Mbéguié-A-Mbéguié

Measurement of banana green life.

Marc Chillet, Luc de Lapeyre de Bellaire, Olivier Hubert, Didier Mbéguié-A-Mbéguié

Biochemical characterization of pulp of banana fruit: measurement of soluble sugars, organic acids, free ACC and in vitro ACC oxidase.

Bernard Fils-Lycaon, Didier Mbéguié-A-Mbéguié, Marc Chillet, Philippe Julianus, Colette Galas, Rose-Marie Gomez, Olivier Hubert

Measurement of ethylene production during banana ripening.

Marc Chillet, Luc de Lapeyre de Bellaire, Olivier Hubert, Didier Mbéguié-A-Mbéguié

Nematode extraction from banana roots by the centrifugal-flotation technique.

Jean-Louis Sarah, Marc Boisseau

In vitro rearing of Pratylenchidae nematodes on carrot discs.

Marc Boisseau, Jean-Louis Sarah

Distribution and host plants of Bactrocera cucurbitae in West and Central Africa.

Jean-François Vayssières, Jean-Yves Rey, Lanciné Traoré

Diagnosis of Mycosphaerella spp., responsible for Mycosphaerella leaf spot diseases of bananas and plantains, through morphotaxonomic observations.

Marie-Françoise Zapater, Catherine Abadie, Luc Pignolet, Jean Carlier, Xavier Mourichon

Artificial inoculation on plants and banana leaf pieces with Mycosphaerella spp., responsible for Sigatoka leaf spot diseases.

Catherine Abadie, Marie-Françoise Zapater, Luc Pignolet, Jean Carlier, Xavier Mourichon

A laboratory method to evaluate Pseudocercospora musae's sensitivity to fungicides.

Luc de Lapeyre de Bellaire, Jean-Michel Risède

Method for early quantification of quiescent infections of Colletotrichum musae on bananas.

Luc de Lapeyre de Bellaire, Marc Chillet, Yolande Chilin-Charles

Determination of banana fruit susceptibility to post-harvest diseases: wound anthracnose, quiescent anthracnose and crown rot.

Luc de Lapeyre de Bellaire, Marc Chillet, Yolande Chilin-Charles

Measurement of fungicide efficacy on post-harvest diseases: wound anthracnose, quiescent anthracnose, crown rot.

Luc de Lapeyre de Bellaire, Marc Chillet, Yolande Chilin-Charles

A laboratory method to evaluate the sensitivity of Colletotrichum musae to postharvest fungicides.

Luc de Lapeyre de Bellaire, Yolande Chilin-Charles

Isolation of Cydrocladium spp. in roots and soils from banana cropping systems.

Jean-Michel Risède

Long-term maintenance of Cydrocladium strains and procedures for inoculum production.

Jean-Michel Risède, Béatrice Rhino

Methodology to forecast the harvest date of banana bunches.

Jacky Ganry, Marc Chillet

A biological forecasting system to control Sigatoka disease of bananas and plantains.

Jacky Ganry, Luc de Lapeyre de Bellaire, Xavier Mourichon

A biological forecasting system to control Black Leaf Streak disease of bananas and plantains.

Éric Fouré, Jacky Ganry

Meetings

IX International Mango Symposium (Sanya, Hainan Island, March 8-12, 2010)

III International Symposium on Loquat (Anatakya, Turkey, May 3-6, 2010)

III International Symposium on Tomato diseases (Ischia, Italy, July 25-30, 2010)

X International Conference on Grapevine Breeding and Genetics (Geneva, USA, August 1-5, 2010)

28th International Horticultural Congress (Lisboa, Portugal, August 22-27, 2010)

I International Symposium on Tropical Horticulture (TropHort2010) (Kingston, Jamaica, November 22-26, 2010)

