



Fairchild Tropical Botanic Garden

Adam R. Rose and Peter R. McQuillan Arts Center

Friday, July 13, 2018

9:00 a.m. - 5:00 p.m.

www.fairchildgarden.org

The mango world continues to evolve and we are facing a number of important challenges in order to remain profitable in the mango business. Fairchild Tropical Botanic Garden will hold the International Mango Conference, a 1-day event, as part of the International Mango Festival. This is an opportunity to network with growers and to take an in-depth look at quality mango production worldwide.

AGENDA

- | | |
|------------|---|
| 9:00 a.m. | Registration |
| 9:30 a.m. | National Mango Board, <u>Manuel Michel</u> , USA |
| 10:20 a.m. | <i>Current Status of Mango Industry in the Subtropics with Emphasis on Spain</i> , <u>Dr. Victor Galan</u> , Spain |
| 11:10 a.m. | <i>The Mango in Haiti</i> , <u>Ena M. Derenoncourt</u> , Mango Growers Association, Haiti |
| 12:00 | Lunch |
| 1:00 p.m. | <i>The Mango in the Americas</i> , <u>Dr. Noris Ledesma</u> , Fairchild Tropical Botanic Garden |
| 1:40 p.m. | <i>Mango Production in China</i> , <u>Dr. Ping Lu</u> , ISHS Mango Working Group of International Society for Horticultural Science |
| 2:30 p.m. | <i>Mango Production in South Africa</i> , <u>Pieter Buys</u> , SAMGA, South Africa |
| 3:20 p.m. | <i>Mango Production in Israel</i> , <u>Dr. Yuval Cohen</u> , Volcanic Research Center, Israel |
| 4:10 p.m. | Mango Forum |
| 5:00 p.m. | First Look and Discussion of "Mangos of the World Display" |

OUR SPEAKERS



Dr. Víctor Galán Saúco

Born in Cádiz, 1946, Master of Science (Horticulture) at the University of Honolulu (1973-1974), Ph.D. (University of Cordoba (1981), President of the Spanish Society of Horticultural Sciences (SECH) from 1996 till 2003, Research Professor and Head of Research Department of Tropical Fruits of the Canary Island Agriculture Research Institute from 1980 till 2007, FAO Consultant missions in Tropical Fruits in 13 countries, Consultant for Oman Government, EMBRAPA (Brazil) and Merensky Foundation (South Africa). Very active relations with ISHS, the most relevant as Co-president of the 28th IHC Congress, Lisbon 2010.



Dr. Ping Lu

Ping is the current Chair of the Mango Working Group of the International Society for Horticultural Science (ISHS). An expert in mango physiology, irrigation, and canopy management. Was the organiser of the 9th and 12th International Mango Symposia. Associate Editor of international journal *Fruits*. Working on establishing the World Mango Association.



Ena M. Derenoncourt

With more than 30 years of experience in the agribusiness industry, Mrs. Derenoncourt is now a leading expert in the field. She graduated as an Agricultural Engineer. Mrs. Ena M. Derenoncourt is a businesswoman but also an entrepreneur. She is Board member of AGROTECHNIQUE S.A. group, a 40-year-old family business, involved in the promoting of improved genetic materials, crop protection and the sale of agricultural inputs in Haiti. Also an avid researcher, she is the national coordinator of the Caribbean Agribusiness Research & Training Fund (CARTF) in Haiti. Founding member in 1998 of the Caribbean Agribusiness Association (CABA), she took the lead of the banana chapter within this association in 1999. In 2004, she became CEO and Chairman of the Board of Fruits & Légumes S.A. (F & L), CEO of Société d'Exportation Fruits et Légumes EO of Société d'Exportation Fruits et Légumes



Dr. Noris Ledesma

A Horticulturist specializing in tropical fruits, with work experience throughout Latin America, Asia, Indonesia, Malaysia, Africa, and India. For over 18 years she has been working at Fairchild Tropical Botanic Garden as a Curator of Tropical Fruit and is a courtesy professor at the University of Florida, Tropical Research and Education Center, Homestead FL, and an Adjunct Researcher at the United States Department of Agriculture-ARS SHRU (clonal germplasm repository United States), Miami, FL. Her work includes collecting *Mangifera* species, undergoing research includes creating interspecific hybrids between *Mangifera indica* and selected species. She recently received The Florida State Horticulture Society Outstanding Commercial Horticulturist Award for having made significant contributions to commercial horticulture in Florida.



Manuel Michel

Manuel Michel has been with the NMB since 2014 as the executive director, where he is responsible for developing and overseeing strategic goals, plans, and program initiatives that promote higher awareness and consumption of mangos in the United States. Manuel joined the NMB with a broad background in agriculture and experience on issues that affect the produce industry, including crop production, management, business development, marketing, food safety and government relations. Before joining the NMB, Manuel was a specialist for the U.S. Department of Agriculture's Marketing Order and Agreement Division, where he provided regulatory oversight to federal government commodity programs in the Pacific Northwest. Prior to this, he was a managing associate attorney with the Whittenburg Law Firm in Texas, and has been a member of the Texas State Bar since 2008. In addition to his legal and policy experience, Manuel has also worked in field production, harvesting, and has managed produce quality assurance and food safety programs in the Salinas Valley of California and the Treasure Valley of Oregon and Idaho. Manuel received a bachelor of science degree in agricultural business management, a bachelor of arts degree in international studies in agriculture, and a minor in crop science from Oregon State University; and earned a Doctor of Jurisprudence from Texas Tech University School of Law.



Pieter Buys

Pieter is the Chairman of the South African Mango Growers Association (SAMGA) and has been the Managing Director of the fast growing Nyalani Estates for the last 10 years. Under the leadership of Pieter, Nyalani Estates started to specialize in the production and marketing of mangos whilst incorporating their policy "farming in balance with nature" that was the brainchild of Pieter in early 2015. His plan was simply to try and keep the necessary balance in nature within their farms while bringing certain elements of nature back to their orchards and through that reducing their use of harmful chemicals, fertilizers and farming practices. Pieter together with all the people from SAMGA are focusing their energy on the development of new cultivars and expanding their marketing strategies to ensure the longevity of the mango industry in South Africa. Pieter still enjoys guiding people in the African bush and never misses an opportunity to learn from nature.



Dr. Yuval Cohen

At University of California Berkeley with sabbatical leave at the University of California Davis, Dr. Cohen's research is focused on subtropical fruit crops, especially on date palms and mangos. He combines horticultural studies with physiological as well as molecular biology approaches. Yuval has studied different aspects of date palm biology and physiology including research projects on date palm fertilization and fruit settings, fruit quality, effects of plant regulators on vegetative growth and on reproduction and date propagation. He collaborated with other research groups to promote solutions for efficient irrigation, precision agriculture and plant protection of date palms. Yuval coordinates the Israeli mango breeding project and is involved in identification and commercialization of several new Israeli cultivars. He leads several research projects on mango flowering physiology and biology of mango fruit quality traits. He is a collaborator in projects to develop genomic resources for mango.

ABSTRACTS

Current Research & Promotion efforts in the United States,

Manuel Michel, National Mango Board, USA

EMAIL: mmichel@mango.org

The National Mango Board's (NMB) mission is to increase the consumption of fresh mango in the U.S. by inspiring and educating consumers about the culture, flavor, and nutrition of mangos, while bringing the industry together. Manuel Michel will present key highlights from the 2018 Research and Promotion efforts of the NMB in the United States. Learn how the NMB is working towards its vision of transforming mangos from an exotic fruit to a daily necessity in every U.S. household.

Current Status of Mango Industry in the Subtropics with Emphasis on Spain,

Dr. Victor Galan, Spain.

EMAIL: vgalan46@gmail.com

Although the mango is grown mainly in tropical climates, there are significant advantages to cultivating mangoes in the subtropics, where cooler winter temperatures improve flower induction, and both early bearing and lower annual growth rates favour higher-density plantings and easier pruning control leading to high economic yields. Obviously not all are advantages about mango cultivation in the subtropics. While cold spells can damage vulnerable young trees and sustained low temperatures can provoke alternate bearing phenomena in late season cultivars, the chief disadvantages of cultivating mangoes in the subtropics are the need of avoiding flowering in young trees until they reach an appropriate branch structure and the need to control annual flowering so that it coincides with temperatures conducive to good fruit set. To avoid some of these constraint and obtaining also fruits of high quality fruits free of fruit fly pests and some other diseases mangoes are also cultivated under greenhouses, in Spain, Portugal and Japan. The cultivation of mangoes in the subtropics is largely based on monoembryonic cultivars, which, due to their cooler area of origin are, in principle, better adapted to subtropical conditions. Efforts of the breeding programmes for subtropical mangoes are also concentrated in these types of mangoes. Much research has been dedicated to cultural techniques specific for the subtropics with density considerations and training practices deserving special attention. as a consequence of the fact that the reduced number of flushes annually produced favours shorter distances between plants and even the possibility of high density plantings. Special pruning practices to obtain a biennial production of an excellent crop of fruits with the appropriate size and colour demanded by the market are also conducted in some plantings in the south of Spain.

The Mango in Haiti,

Ena M. Derenoncourt, Mango Growers Association, Haiti

EMAIL: enap.derenoncourt@agrotechnique.com

Haitian mangoes' history goes back to the triangular trade linked to slavery. Commodities were exchanged from one country to another to meet the needs of people involved but also to deal with the scarcity of various products consumed. Due to temperatures in Haiti fluctuating from a very warm and then a temperate climate, the mango has mutated and more than 200 different varieties are counted on the Haitian territory today. The results of adaptation tests realized on varieties recently introduced demonstrate that the Haitian mango is continuously evolving especially with varieties such as "Kesar" in Plateau Central - Industrial Plantation and "Zilat" in the South. The data collected through the research carried out over the last twenty years show the phenotypic and organoleptic characteristics of Haitian mangoes, their availability and the colonization of new production areas. Result of the initiative of the Foundation Haïtienne pour l'Agriculture et la Relance de l'Économie (FHARE), a catalog was produced this year to present the most popular

mangos, their favorite habitat and their central role in the environment of Haiti. Indeed, mango is a cultural and economic emblem for the Haitian population that depends on it to pass through the periods of food scarcity that are between March and July each year. Responsible for the livelihood of more than 300,000 people each year, the export of mangoes in Haiti is a growth tool, although the only variety exported remains the Madam Francis. Export have been between 1.5 to 2.5 million cases of 4 kgs per year for the last 10 years averaging at 2 million cases. Other favorite mango varieties typical to Haiti include the “Baptiste”, “Corn” and “Rosalie”. The current challenge for mango exporters lies in maintaining the positioning of Haitian mango on an international scale in order to guarantee the expansion of the mango sector in compliance with standards and modernity. This presentation will share with you the true significance and symbolism that mangos hold in Haitian life, economy and culture.

The Mango in the Americas,

Dr. Noris Ledesma, Fairchild Tropical Botanic Garden, USA.

EMAIL: nledesma@fairchildgarden.org

Red-skinned cultivars continue to dominate commercial export in the Western Hemisphere, relying heavily on their eye-appeal in the consumer marketplace. The predominant cultivars in the Western Hemisphere remain ‘Tommy Atkins’, ‘Ataulfo’, ‘Kent’, ‘Keitt’ and ‘Haden’. Volumes are small but increasing and if concerns over proper picking and handling can be addressed, production will increase. Cultivars such as ‘Edward’, ‘Mallika’, and ‘Nam Doc Mai’ are grown and test marketed based on their superior flavor, but realistic commercial yields are low (23 to 45 kg/tree 50 to 100 lb/tree) and there are challenges in harvest, handling and shipping (Campbell et al 2005). New alternative mango cultivars are available, but they must be tested across a range of climatic zones. This is a long term project, but will avoid the large-scale planting of cultivars that are not suited for an area and also will help to determine the longevity of a cultivar in the market. Rootstocks/scion interactions can also be tested in this way and will become increasing necessary as the grower returns continue to decline in mango. Breeding programs around the world have labored to create new cultivars for the mango industry and are based on sound breeding and selection criteria; yet, increased effort must be made to include field production criteria, such as tree size, natural disease tolerance of the bloom, young and mature fruit, flavor, productivity and commercial yield efficiency. The opportunity for breeding improvement in the mango is significant and interspecific of *Mangifera indica* and related species are in process at Fairchild Tropical Botanic Garden.

Mango Production in China,

Dr. Ping Lu, ISHS Mango Working Group of International Society for Horticultural Science

EMAIL: ping.lu@era.riotinto.com

Currently China is the second most important mango producer in the world and also one of the top importers of the mangoes. There has been rapid development of the mango industry in China over, in 2014 it was at 7th but just over 3 years it reached the 2nd place. Urbanisation of the Chinese population and especially the development of the Chinese online business facilitated by the cheap and rapid courier services made the direct sale of fresh fruits including mango to general consumers possible and tremendously increased mango consumption thus lifted the rapid development of the industry. The main production regions (provinces) are Guangxi, Hainan, Yunnan, Sichuan and Guangdong. The main cultivars are Tainong #1 (Taiwan Agriculture #1), Guifei (aka Hong jinlong or literally Red golden dragon), Jinhuang, Guiqi, RiNong 82, Keitt, and Sensation. Jinhuang is currently gaining popularity in China. Large corporations such as large fresh fruit sellers are acquiring mango farms or develop startegical alliance with key producers to further improve the productivity and ensure the fruit quality including the food safety. However despite the quick adoption of many innovation technologies such as drone chemical sprays, cool chains, product tracking systems etc, the mango industry is still suffered from lack of diverse quality cultivars. The

industry still do not have a national body to coordinate its sustainable development.

The production and processing of mangos in South Africa,

Pieter Buys, SAMGA, South Africa

EMAIL: pieter@nyalani.co.za

Mangos are being produced in South Africa in a wide area and on different intensity levels. Mango producers vary from commercial, self-sufficient and informal farmers down to someone that has one or two mango trees at their homestead. Due to the fact that mangoes are being produced on such different scales, levels and in part in such remote areas resulted in various problems including proper pest and disease control, distribution, access to markets and availability of better and more suited cultivars. This on the other hand opened up the door for the processing of mangoes, either through the cutting of atchar, drying of mangoes or simply the juicing of some of the lesser quality fruit. Over the last two decades the production of mangoes has been unstable and relatively declining because of a few social and natural difficulties and at one stage was threatening to bring the South African mango industry to its knees. However, over the last 3 years the South African mango industry has made an incredible comeback with production volumes growing by an average of 40% a year. This great growth spurt was brought on by new research on better and more suitable cultivars, a breakthrough in the control of blossom malformation, the creating of new markets for processed mangoes, better implementation of new irrigation and fertilization technologies and strategies as well as implementing the new "farming in balance with nature" policy.

The Israeli Mango Industry,

Yuval Cohen, Department of Fruit Tree Sciences Agricultural Research Organization, Volcani Research Center, Rishon LeZion, Israel

EMAIL: vhyuvalc@volcani.agri.gov.il

Mango is an important fruit crop in Israel. It is cultivated over approximately 2,500 hectares. Average annual production is 50,000 tons; approximately 40% are exported. Israel is one of the world's most Northern countries having commercial mango production. Weather conditions in Israel are different from those present in most other mango growing countries: The warm and dry summer conditions during fruit development and ripening enables high quality fruits clean of diseases, dense planting and especially high yields. On the other hand, lower temperatures during winter, and reoccurring events of frost limit mango orchards to restricted areas, and occasionally cause sever damages. Unpredictable weather conditions (both very warm and dry events and cold periods) during spring may affect mango flowering and fruit settings. Limitations in quantities and qualities of irrigated water, and Calcareous, basic soils are challenges facing the industry. A close collaboration of growers, extension specialists and researchers promote the success of the crop. Israeli Mango production focuses on European tastes and demands. Traditionally, the industry was based on the Floridian cultivars 'Tommy Atkins', 'Kent' and 'Keith' together with the Israeli 'Maya'. An Israeli mangobreeding program focuses on generating new elite mango cultivars with high fruit qualities, high yields, and long shelf life that will fit the growth conditions of Israel and the international trade demands. Selected cultivars have appealing fruits, moderately large, with bright and colorful peels, no fibers, gentle aroma and sweetness and long shelf life. A number of high quality new cultivars were registered in Israel and Europe as well as additional growing and importing mango countries.

FAIRCHILD TROPICAL BOTANIC GARDEN®

Exploring, Explaining and Conserving the World of Tropical Plants
10901 Old Cutler Road, Coral Gables, Florida 33156-4296 USA
305.667.1651 • www.fairchildgarden.org