



Indian Coconut Journal

XLV COCOTECH MEETING “Inclusive growth & Sustainable Development of the Coconut Industry”



THEME XLV COCOTECH MEETING

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Post XLV Cocotech Meeting...

Dear Coconut Farmers,

India got the opportunity to host the XLV Cocotech meeting this time. The meeting was successfully conducted at Kochi from 2nd to 6th July 2012. India was getting this opportunity after 12 years, since the 37th COCOTECH meeting held at Chennai in 2000. APCC and its member countries have adjudged this meeting as one of the best Cocotech meetings ever held. Apart from the 18 member countries of APCC, the Food and Agriculture Organization (FAO), USA, Brazil, France, Singapore, Mozambique and Kenya also attended the meeting.

This Cocotech meeting was unique in many other ways too. It witnessed the strong presence of private sector. Representatives of private equity funds expressed willingness to invest in coconut processing sector. Representative of Coco Cola, one of the soft drink giants also participated in the meeting. Hon'ble Ministers of Agriculture from Samoa and Fiji too blessed the session with their esteemed presence.

Coconut palm sugar, a product made from neera tapped from coconut inflorescence with low glycemic index was the star of the event and was in the lime light. Similarly branded coconut ice cream 'So Delicious' was another product which grabbed the attention of the media and gathering.

The manufacturers of these products viz. 'Big Tree Farms', Indonesia and 'Turtle Mountain LLC', USA have captured the niche market and are reaping success through the sale of these products. Such ventures are good models which can be emulated by Indian entrepreneurs for making Indian coconut industry competitive. The Cocotech meeting provided an opportunity to the Indian farmers, farmers' collectives, processors, entrepreneurs and officials to get acquainted with latest technologies in cultivation and processing, value added products and modern machineries for coconut processing.

Farmers in coconut growing countries like Philippines and Sri Lanka are not experiencing severe and recurring fall in coconut price. The very reason is that their coconut industry is much more sturdy, vibrant and broad based and do not strongly depend on copra coconut oil linkage. Instead, they fetch much better income from the export of value added products like palm sugar, virgin coconut oil, packaged tender coconut water, coconut milk and cream and quality cosmetics made out of coconut milk. USA is the main importer of these value added products from Philippines and Sri Lanka. Countries like New Zealand and Australia import coconut products from Pacific Island countries like Fiji, Soloman Islands and Samoa. This positive trend coupled with the growing demand for 'natural products' all over the world need to be carefully tapped for ensuring steady fair and remunerative price to farmers.

World over, tender coconut water, coconut cream and palm sugar are getting wide acceptance as 'natural soft drink' and 'natural products'. This opportunity is opening new vistas to Indian farmers and processors. But individual efforts by farmers alone may not bring success. Efforts shall be made through farmers' collectives and by innovative entrepreneurs in this sector. In Malaysia and Philippines high yielding hybrid seedlings are produced through farmer participatory ventures.

Participants of the meeting were encouraged to replicate the new initiatives of the Board like Friends of Coconut Tree (FoCT), Coconut Producer's Society (CPS), Federation, Producer Companies and Collaborative Research with Educational Institutions for production of high quality hybrid seedlings. The field demonstration of FoCTs triggered their enthusiasm and the delegates from Indonesia and America took samples of palm climbing machines with them. No mechanical device is so far developed for palm

climbing in countries where large scale cultivation of coconut, processing, marketing and export of coconut products are being done. This poses export avenues for the Indian manufacturers of palm climbing machines.

In Philippines, Thailand and Indonesia where large scale coconut processing industries exist, coconut processing is carried out by a vast array of entrepreneurs. In India too, we must encourage and motivate entrepreneurs to coconut processing sector. Once our Producer Companies become active it would be the first model in APCC countries. Therefore it is high time to act at an accelerated pace and make our transition from CPS to Federation and to Producer Companies a reality.

Our farmers can initiate novel ideas from the knowledge gained from the Cocotech Meeting. APCC must coordinate joint initiatives for identifying new market for coconut and its products rather than each member country attempting individually for the same. 'Collaborative Competition' or 'creative competition' is a new idea which needs to be pursued. The example of NASSCOM, the consortium of software companies of India which ensures enough opportunities to all member companies nationally and internationally is a good example that can be emulated in coconut sector. APCC must participate in international exhibitions and fairs and share the business enquiries with all member countries. Information on duties and tariffs, quality control standards and other relevant laws of each country should be published in the website of APCC and in the Cocommunity. From this issue onwards, Board is trying to carry the business enquiries published in the Cocommunity in our journals too.

Indian coconut farmers are passing through a severe crisis due to acute fall in price of coconut. Procurement at MSP has not gained momentum even after four months. Government of Karnataka which is having the third position in coconut production has recently issued Government Order for giving additional Rs.7/- per kg. for the copra procured at MSP rates. We hope that the state governments of Kerala, Tamil Nadu and Andhra Pradesh may also emulate this model. Kerala and

Tamil Nadu which are in the first and second position in coconut production are the worst affected by the price fall of coconut. The suggestion for giving extra support to farmers through MSP procurement has been brought to the attention of these three state governments.

The formation of CPS has gained momentum outside Kerala too. Board has set a target of 1000 CPS each in Tamil Nadu and Karnataka. Initiatives are already taken for forming 500 CPSs and their Federations in Andhra Pradesh too. It is also targeted to form 10 Producer Companies in Kerala, 5 each in Tamil Nadu and Karnataka during this year. During the next year, it is expected to have copra procurement at MSP rates through CPS and their Federations. Many of the problems faced by farmers in MSP procurement of copra can be solved through these routes.

The World Coconut Day 2012 (September 2nd) falls in the midst of this price fall. CPSs and their Federations must make use of this opportunity for raising their concern and recommending plausible solution before the public, people's representatives, Local Self Government Institutions and state governments.

Will it not be more appropriate if World Coconut Day celebrations are conducted jointly by CPS and Federations at district head quarters? This can be a platform for discussing various reasons for price fall, remedial measures and for exhibiting value added coconut products to consumers. Successful coconut farmers and best workers can be honoured. Competitions on palm climbing, coconut based recipes and literary competition for students may also be thought of. Faculties from life science departments and students from colleges and universities may be invited for paper presentation and deliberations. Thus the World Coconut Day celebrations 2012 in India can be made a unique experience.

I solicit the CPS and Federations to come forward and take the lead for such a new venture.

With regards,

T K Jose

 Chairman



Integrated management practices and farm level processing, the need of the hour

Consolidation of farmers at ground level and encouraging them for adoption of integrated management practices and farm level processing is the need of the hour for solving many precarious issues haunting coconut industry, said Prof. K V Thomas, Union Minister for Consumer Affairs, Food and Public Distribution. He was speaking at the inauguration of 45th COCOTECH meeting. The 45th COCOTECH was held at Kochi during 2- 6 July 2012 on the theme, Inclusive Growth & Sustainable Development of the Coconut Industry.

Sustainability of coconut industry is of paramount importance to provide price stability and remunerative price to the coconut farmers. Global competitiveness in

coconut and coconut products can be achieved only through increased productivity. Coconut was predominantly considered as an oil seed crop in India. The potential of coconut as food and beverage crop also has to be fully exploited. Lowering of import tariff, increased market access and the free trade



Prof. K V Thomas, Union Minister for Consumer Affairs, Food and Public Distribution

agreements created impact on our agricultural sector by sudden opening of a closed economy. The climate change on account of global warming and the resultant damages on coconut due to the sudden outbreak of pest and disease, flood and drought aggravated the situation.

Though the coconut sector in the country is beset with many problems, he said, we have with us many strengths and opportunities. Indian coconut products, command good demand in international market. Many products like virgin coconut oil, packed tender coconut water, activated carbon, etc. have access and presence in the world market. Tender coconut water is emerging as the natural health drink of the world and has great export



potential. He called upon the stakeholders to take advantage of this opportunity. Our country should figure in the forefront in all areas.

Aggregation of farmers and their produce will help to make available raw materials at competitive rates. This will also trigger farm level processing for value addition, effective marketing strategies and market promotional activities. He appreciated the bold initiatives of the Board in this direction by forming Coconut Producers' Societies and their Federations which will be further graduated into Producers' Companies. He called upon the APCC countries to make use the platform of this Cocotech to work together, to share their knowledge and expertise to conquer the global markets particularly, USA, Europe and even the non traditional markets.

Shri. Le Mamea Ropati Mualia, Minister for Agriculture and

Fisheries, Government of Samoa released the XLV Cocotech Souvenir and Shri. Kabbali Ranga Gowda, former Chairman, Coconut Development Board received the first copy. In his special address, Shri. Le Mamea Ropati Mualia spoke on the importance of sustainable development of the coconut industry which is vital for the country's economy. The work done today will ensure a continuation and conservation of



Shri. Le Mamea Ropati Mualia, Minister for Agriculture and Fisheries, Government of Samoa

this industry to the next generation. Cocotech meetings are opportunities to discuss the way to sustainability improve and develop the coconut industry.

Shri. S Damodaran, Minister for Agriculture, Government of Tamil Nadu in his presidential address called upon the scientists to identify new technologies for developing new varieties of coconut which are disease resistant and drought tolerant. He further said that the



Shri. S Damodaran, Minister for Agriculture, Government of Tamil Nadu

401 genotypes in the gene bank of Central Plantation Crops Research Institute (CPCRI) can be utilized effectively by all scientists throughout the world.

Shri. A A Jinnah, MP and member Coconut Development Board in his address said that initiatives must be taken for making tender coconut water more popular. The coconut farmers, he said should be well protected and the Government of India must introduce more schemes for the welfare of the coconut growers of India.

Shri. Ashish Bahuguna IAS, Secretary Agriculture, Government of India in his key note address said that 95% of coconut farmers are mostly small and marginal and whatever we are doing for improving the production and



Shri. Ashish Bahuguna IAS , Secretary Agriculture, Government of India

productivity and the forward linkages in the marketing and processing of coconut would be of extremely great help in improving the livelihood and income scarcity of these farmers. So we look upon these sessions to guide the way ahead for the coconut sector to grow. New research and studies indicate that the medicinal properties of coconut oil has made it an extremely significant part of the diet and it has nutraceutical and

medicinal properties and therefore Coconut Development Board is trying to drive home the advantages of consuming coconut oil as a health food.

In his special address, Shri. K. Jayakumar IAS , Chief Secretary, Government of Kerala offered the whole hearted support of the Government of Kerala to make the life of the coconut farmers comfortable. There are many issues like low production and productivity, pest and diseases, threat from other crops and concerns about health issues from the excessive use of coconut. Medicinal uses of coconut is an area where lot of research need to be done. He concluded that from this forum new initiatives and ideas would emanate to improve the life



Shri. K. Jayakumar IAS , Chief Secretary, Government of Kerala

of coconut farmers, to improve the health and economy of coconut sector as such.

Shri. T K Jose IAS, Chairman, Coconut Development Board, in his welcome address thanked APCC for giving India the opportunity to host the 45th COCOTECH meeting. Coconut growing countries are facing various problems during the current period. All APCC countries are looking upon COCOTECH for solving various



Shri. T K Jose IAS, Chairman, Coconut Development Board

problems faced by them. The most important is plant protection measures, pest and diseases, biotic and abiotic stress and helping to produce good planting material.

Shri. Romulo N Arancon Jr. Executive Director, APCC in his opening statement informed that COCOTECH promote professional linkages as well as business partnerships and networks among the stakeholders of the coconut industry worldwide. The recommendations of this meeting will constitute the way forward for the action programme as well as for the projects which APCC will pursue in the years ahead.

He stressed that in the present era where production and productivity of coconut is stagnant; the selected theme is very relevant. He called upon all the developing nations in APCC to take concerted efforts to ensure food security and nutrition by raising agriculture productivity and alleviating poverty. In the coconut sector there is a strong need to increase productivity with a strong advocacy for systematic well funded coconut replanting and rejuvenation programme with the objective of increasing coconut yield and farm productivity.



*Shri. Romulo N Arancon Jr.
Executive Director, APCC*



*Shri. Sandeep Saxena IAS,
Agriculture Production Commissioner,
Tamil Nadu*



*Shri. A A Jinnah, MP and Member
Coconut Development Board*

Growth in the coconut sector must be inclusive and must ensure that all stakeholders especially the small farm holders must reap the benefits of this growth, capacity building, appropriate technologies, better prices, market access and efficient marketing system, higher income, food security and improved nutrition.

He hoped that the farmers interface session would provide the platform for more productive dialogue for exchange of ideas and experiences and promote greater capacity building, knowledge and economic opportunities.

Shri. Sandeep Saxena IAS, Agriculture Production Commissioner, Tamil Nadu in his address told that the selected theme of XLV Cocotech is pertinent for India because majority of the small and marginal farmers have to sustain the livelihood of themselves and their family. There are so many challenges in the coconut industry and he hoped that these challenges will be deliberated in this meeting.

Shri. M Thomas Mathew, Senior Consultant, Coconut Development Board proposed a vote of thanks.



Shri. Le Mamea Ropati Mualia, Minister for Agriculture and Fisheries, Government of Samoa releasing the Souvenir



Shri. Kabbali Ranga Gowda, former Chairman of the Board, Shri. Sivadas Meena IAS, APC, Tamil Nadu, Members of the Board, K. Dharmarajan, Adv. Varkala B. Ravikumar, Shri. Mani. C. Kappan, Smt. Netravathi.

The meeting was attended by Shri. Vasanth Vishnu Limaye, Vice Chairman, CDB, Adv. Varkala B. Ravikumar, Shri. Dharmarajan, Shri. Mani.C. Kappan and Smt. Netravathi, Members of the Board; and Dr. George V. Thomas,

Director, CPCRI and member CDB.

The meeting was followed by technical sessions, field visit and a farmer's interface. A Coconut Festival was also conducted as part of the COCOTECH meeting.

Inclusive Growth and Sustainable Development of Coconut Industry



A view of the first technical session. Seen are Shri. M. Kumaraswamy Pillai, Shri. Romulo N. Arancon Jr., Smt. Yvonne T.V., Shri. John V. Tucker

The XLV COCOTECH Meeting held at Kochi, India from 2nd to 6th July 2012 with the theme “Inclusive Growth and Sustainable Development of the Coconut Industry” deliberated the five topics in technical sessions. The first session on Policies and Programs for Inclusive Growth and Sustainable Development of the Coconut Industry, Market Development and Health Attributes of Coconut was chaired by Mr. Romulo N. Arancon Jr., Executive Director, Asian and Pacific

Coconut Community (APCC). Mr. Uron Salum, Advisor, Kokonas Industries Koporesen (KIK), Papua New Guinea chaired the second session on Technological Developments on Coconut Crop Improvement, Coconut / Agronomy/ Nutrition, and Coconut-Based Farming System.

The third session on Sustainable Integrated Pest and Disease Management Strategies in Coconut Farming was chaired by Dr. Ravi Prakash, Registrar, Protection of Plant Varieties and Farmers’ Rights

Authority, New Delhi. The fourth session on Value-Added Coconut Processing, Coconut Product Packaging, Quality Control Issues, and Updates on Coconut Processing Equipment/Machineries was chaired by Mr. Fonoiaiva Sealiitu Sesega, Chief Executive Officer, Ministry of Agriculture and Fisheries, Apia, Samoa. Dr. P Rethinam former Executive Director APCC and former Chairman, Coconut Development Board chaired the Indian Coconut Farmers Interface.

Work together and grow together for attaining inclusive growth and sustainability in coconut sector



Shri. T.K. Jose, IAS, Chairman, Coconut Development Board, India in his presentation on

Policies and Programs for Inclusive Growth and Sustainable Development of the Coconut Industry in India stated that inclusive growth and sustainability

of coconut economy of the coconut growing countries could be achieved through integrated development of coconut cultivation and industry coupled with a stable market. He pointed out that Indian coconut industry has achieved tremendous progress during the last 3 decades through the unstinted efforts of CDB. He further said that the lost glory of coconut economy

can be recaptured easily through the various opportunities and potential of coconut sector existing globally. He emphasized that achieving higher productivity was the only way out for bringing competitiveness in coconut sector. He also spoke on CDB programmes which has taken a shift in strategy like aggregation of farmers for group activities,

collaborative research for production of high yielding and hybrid seedlings, creating more climbers for harvesting and farming operations, etc. along with the objective of triggering production, processing and value addition. India has targeted a 2-3 fold increase in productivity in the coming five years. India is also aiming a quantum jump in export and look forward to have bigger share in the international markets. He called upon the APCC countries to work together and grow together for attaining inclusive growth and sustainability in coconut sector.

Vast scope for product diversification and export of coconut products

Ms. Yvonne T.V. Agustin, Executive Director, United Coconut Associations of the Philippines (UCAP), Manila, in her presentation on Trade and Market Developments of Traditional and Emerging/Non Traditional Coconut Products in the stated that Philippines has been a major exporter of various coconut products like coconut oil, copra meal, desiccated coconut, coconut shell charcoal, activated carbon etc. She said that more new products have entered the market led by oleochemicals together with a host of non-traditional export products such as glycerine, alkanolamide, coconut soaps, nata de coco, coconut milk, coconut cream, virgin coconut oil, coconut water, coir products, and lately coconut sugar. The export markets have also expanded from the US and Europe to Asian and Pacific countries.

Effective marketing strategies for healthy competition

Shri. M. Kumara swamy Pillai, Director (Marketing), Coir Board spoke on National Policies, Programs and Marketing Strategies for Inclusive Growth and Sustainable Development of the Coir Sector in India. He briefly highlighted the timeline and milestone of Coir Board, India. He said that the first Coir factory was started in 1859 and now there are around 60 Mats & Matting Co-op. Societies, and around 250 exporters and 10,000 small scale manufacturers catering to the requirements of these exporters.

He further spoke on the processing of various products and on the optimum utilization of raw material based on 'zero wastage' concept. The modernisation of spinning and weaving processes has enhanced productivity and quality of the products resulting in an annual growth rate of production of fibre to 13%. He called upon the delegates and APCC to have more effective marketing strategies for having a healthy competition among the member countries for getting the better price for their products.

Coconut coming back to American diet

Shri. John V. Tucker, President, 'So Delicious Dairy Free', Turtle Mountain, LLC, Oregon, USA in his presentation highlighted that coconut is now emerging from the negative backlash of the 1980s when it was wrongly vilified as a leading cause of heart disease. Now coconut is slowly entering into the American diet. As health and wellness continue to play a strong

role in the American diet, the consumer demands have shifted. He further said that the trends represent a double edged sword for coconut based foods due to several factors like the lingering past perceptions, the strong link between saturated fats and heart disease and a weak body of evidence supporting the emerging perception of coconut as a health food.

Fatty acids in coconut oil offer positive health benefits



Prof. D.M. Vasudevan,
Dean (Retd),
Professor
Emeritus,
Department of

Biochemistry, Amrita Institute of Medical Sciences, Kochi, India, spoke on the health aspects of coconut. He said that saturated fats with long chain fatty acids causes heart disease and nearly 50 % of the fat in coconut oil is lauric acid (medium chain fatty acid). He further explained that the medium chain fatty acids directly enter into the cells and are metabolized immediately. He said that the lauric acid in coconut oil is used by the body to make the anti-microbial derivative monolaurin. Coconut oil inhibits various microorganisms and the medium chain fatty acids in coconut oil offer positive health benefits for patients with irritable bowel syndrome and other digestive disorders. He concluded that coconut oil does not affect serum cholesterol level, does not cause clogging in arterial walls, increases serum HDL cholesterol, produces very little free radicals, does not get deposited and helps in resisting invading micro-organisms.

Technological Developments on Crop Improvement and Coconut based farming system



Dr. George V. Thomas, Dr. H.A.J. Gunathilake, Shri. Uron Salun, Shri. Romulo N. Arancon Jr., Shri. David J. Lobo and Dr. Ronald Bourdeix in the technical session

Coconut Research Institute of Sri Lanka for improving crop production, protection and value addition

Dr. H.A.J. Gunathilake, Director, Coconut Research Institute, Lunuwila, Sri Lanka spoke on the Technological Developments on Coconut Crop Improvement, Coconut Agronomy/Nutrition, and Coconut Based Farming System in Sri Lanka. Under the crop improvement programme of Coconut Research Institute of Sri Lanka, the newly developed cultivars like Sri Lanka Tall x San Ramon and Sri Lanka Green Dwarf x San Ramon are performing well and now there is mass production to meet the demand from growers. Sri Lanka Brown Dwarf is the best dwarf variety for hybridization with other tall types. Brown Dwarf x Sri Lanka Tall and its reciprocal and Brown Dwarf x San Ramon are significant varieties. He said that all multi-locational fields established in

different agro-ecological regions revealed 40 – 50% yield increase over the traditional coconut varieties. He also spoke on the renewable energy production technology using animal based farming systems including fuel wood trees.

Better production technologies for coconut and coconut based cropping/farming systems

Dr. George V. Thomas, Director, Central Plantation Crops Research Institute, Kasaragod, Kerala, India in his presentation on Technological Developments on Coconut Crop Improvement, Coconut Agronomy/Nutrition, and Coconut Based Farming System in India stated that coconut production and productivity in India had increased during the last one decade as a result of developmental initiatives and implementation of technologies generated from research institutes within the country. He pointed out that the research efforts at CPCRI,

AICRPP and SAUs had resulted in the development of 32 improved varieties including 15 hybrid varieties for cultivation in different agro-climatic regions within the country, and 3 coconut root (wilt) resistant/tolerant varieties to combat production loss resulting from this phytoplasmal disease. CPCRI had developed coconut embryo culture and coconut cryo preservation technologies to aid germplasm collection and conservation efforts. The institute has also standardized coconut plumule culture technology to develop pure lines of parental material for planting material production. He highlighted the production technology that was developed by CPCRI for coconut and coconut based cropping/farming systems, including integrated nutrient and water management strategies and drip fertigation technologies. These technologies had enabled to achieve higher productivity and resource use efficiency. India is in the forefront in developing organic

farming practices and had standardized technologies for recycling of coconut wastes. The bio-engineering measures standardized by CPCRI for sloppy terrains has enabled to sustain crop production in high rainfall areas of west coast region by conserving soil resources in an effective manner.

Deejay, the pioneer in coconut hybridization in India

Shri. David J. Lobo, Chairman, Deejay Group, Bangalore, India presented his company profile and spoke on his own success story. Deejay with more than forty years of business is into agriculture, aquaculture, processed foods and information technology with 14 patent applications to its credit. Deejay has been also instrumental in bringing McDonald's fast food chain into India. Deejay is one of the pioneers in coconut hybridization in India. Deejay believes that its profit is and must be the legitimate reward for service rendered to

society. Deejay has won several State and Central awards including the award from the National Productivity Council of India for good performance, productivity and rural development.

COGENT for strengthening international collaboration in conservation and use of coconut genetic resources

Dr. Roland Bourdeix, COGENT Coordinator, COGENT/Bioersivity International, Montpellier, France, spoke on the activities of COGENT for strengthening international collaboration in conservation and use of coconut genetic resources, promoting improving coconut production on a sustainable basis, and boosting livelihood and income of coconut stakeholders in the developing countries. Dr. Roland Bourdeix, also presented a paper on Three declinations of the Polymotu Concept: 'Inland ex Situ', 'Ecotourism on Islands', 'Urban'

and their possible applications in Brazil, Côte d'Ivoire, Indonesia, French Polynesia and Samoa'. Polymotu concept (poly=many, motu=island) was to use the geographical isolation of special sites for conservation and reproduction of individual varieties of plants, trees and even animals. The concept was mainly derived from previous initiatives in conservation of coconut palms by ancient Polynesians and some contemporary Thais. In 2009, the Polymotu concept was included in the global coconut conservation strategy developed by the International Coconut Genetic Resources Network (COGENT) and the Global Crop Diversity Trust. He hoped that Polymotu concept would strengthen the links between people, landscape and biodiversity and a significant outcome would be the safe conservation of the representative biodiversity of coconuts and increased availability of certified coconut seednuts for mainland farmers.

Integrated pest and disease management in coconut farming

Dr. Priyanthie Fernando, Head of Crop Protection Division and Additional Director, Coconut Research Institute, Lunuwila, Sri Lanka spoke on Integrated Management of Major Coconut Pests and Diseases in Sri Lanka. Major pests of coconut in Sri Lanka are coconut mite, coconut caterpillar, red palm weevil, Plesispa beetle and black beetle. There were fewer occurrences of diseases in the country. Recently Weligama Coconut leaf Wilt Disease in the southern Province is

threatening the coconut industry in the country. She concluded that in spite of the successfully developed IPM packages the pests still cause serious damage due to the negligence of coconut growers,

shortage of labour and the limited knowledge in management methods.

Dr. (Smt.) K. R. M. Bhanu, Asst General Manager (Research), Pest Control India Pvt Ltd, Bengaluru,



Dr. (Smt.) K. R. M. Bhanu, Dr. Ravi Prakash, Shri. Romulo N. Arancon Jr., and Dr. Priyanthie Fernando during the technical session

India presented a paper 'Integrated Management of Major Coconut Pests Using Pheromone Lures'. The pheromone lures of PCI can be used as a monitoring and

surveillance tool for understanding the pest status to release parasitoids and natural enemies and aggregation pheromones of RPW & RB can be used as management

tools for mass trapping RPW and RB in integrated pest management to manage the pest population under economic threshold levels.

Value addition adds revenue



Dr. Dina B. Masa, Smt. Sarapee Yuodyong, Shri. Estu Susanto, Shri. Fonoiaiva Sealiipu Sesega, Shri. Romulo Arancon Jr., Shri. Amol Pendharkar, and Shri. Lai Kit Mun during the technical session

Dr. Dina B. Masa, Manager, Product Development Department, Philippine Coconut Authority, Philippines presented a paper on 'Technical Updates on Virgin Coconut Oil (VCO), Coconut Flour, and Coconut Water'. She informed that the research and development of the Philippine coconut industry has shifted its focus to product development of functional foods and to efficacy studies on its beneficial effects to human health and nutrition in order to cope up with the fast pace of industry development and to sustain the market demands. The R&D emphasized on enhancing the health benefits of emerging coconut food products such as coconut water, coconut sugar, virgin coconut oil and coconut flour.

Shri. Lai Kit Mun, Director of Coconut Knowledge Center, Tetra Pak South East Asia, Singapore, in his presentation entitled "Marketing

Trends and Tetra Pak Technology Knowledge" stated that coconut water is one of the fastest growing beverages, which is well accepted by the consumers, endorsed by the celebrities for its health and goodness. Brazil is the largest market for packed coconut water and Kero Coco is the country's leading brand. In United States, coconut water brands such as Vita coco, O.N.E. and Zico led the market while in Europe, coconut water is making steady inroads as more people are aware of the health benefits of this nutrient-packed beverage.

Shri. Amol Pendharkar, Marketing Manager, Product Development and Innovation Centre, Tetra Pak India Pvt Ltd, India, spoke on integration of tender coconut and mature coconut water for processing and feasibility of the commercial plant to manufacture

coconut water and other value added products like coconut milk, desiccated coconut powder, coconut virgin oil, coconut juice/milk etc. He concluded that coconut water, coconut milk and virgin coconut oil are dynamic profit zones of the present and future.

Smt. Sarapee Yuodyong, Managing Director, and **Shri. Estu Susanto**, Chiwadi Products co., Ltd. Samutprakan, Thailand spoke on "Organic Coconut Sap Processing, Quality, Issues and Marketing" stated that Chiwadi products has chosen to follow ancient wisdom, incorporated with science and technology for producing coconut sugar syrup organically. Chiwadi is marketing the innovated products to premium affordable local markets. She stressed that Chiwadi lived with passion to drive immortal dream in "Natural Being for Health and Sustainability".

Research institutes of Coir Board for modernization of coir industry



A view of the 4th technical session. Seen are Dr.U.S. Sarma, Shri. Ropate S. Ligairi, Shri. Romulo N. Arancon Jr., Shri. C.R. Devaraj and Shri. Rajarathinam

Dr. U.S. Sarma, Director, Central Coir Research Institute (CCRI), Kerala, India presented a paper on 'Technical Updates on Coir and Coir-Based Products Research and Development in India'. He informed that the two research institutes of Coir Board has developed a number of technologies which would go a long way in the modernization of coir industry and empowering the women folks engaged in the industry for their livelihood to the extent of 80%. To mitigate the acute crisis of coir fibres in the country CCRI had come out with a mobile coir fibre extraction machine which was able to extract about 600 husks per hour by a single woman worker and to make effective use of tender coconut husks. Five equipments have been designed and fabricated so that the husks could be either cut into pieces or pulverized.

Shri. C. R. Devaraj, Managing Director, Charankattu Coir Mfg.Co. (P), Ltd, Shertallay, Kerala, India presented a paper on 'Resurgence of the Global Market Demand of Coir Products Especially Coir Pith and Coir Geotextiles'. He spoke on the coir production method as well as the processing steps. He introduced Soil Bioengineering, a low-tech method of construction using living plants, or plants in combination with non-living organic

or inorganic materials. The living plant becomes in a fairly short period of time the functioning technical component of the system.

Shri. K. Rajarathinam, Proprietor, Essar Engineering, Coimbatore, India in his presentation Engineering of Machineries to Process Products from Coconut Husks stated that Essar Engineering is manufacturing the machines required for coir pith product. He spoke on the Uses of Coco peat & Husk Substrate as a growing media in the Green House industry, as potting soil in the Garden centers, alternative to peat moss in soilless cultivation, and used in landscapes. He highlighted the advantages, properties the use and application of coco peat and husk substrate in floriculture and horticulture.

Shri. Harish Singla, Director and **Shri. Amit Agarwal**, Promotion Head, Goyum Screw Press Pvt. Ltd., Punjab, India in his presentation entitled 'Modern Technologies and Machineries to Extract Copra Oil' presented the machines being used in copra/oil mill. He informed that with his modern machines, it's possible to get oil recovery of about 64% from copra. He presented the parameters for the efficient Oil Expellers namely; low energy consumption, high recovery of the oil, low residual

oil in the copra cake, low maintenance and low production losses.

For the longer shelf life of coconut water

Shri. Narayan Banerjee, General Manager-Project, Gem Allied Industries Pvt. Ltd, Kolkata, India in his presentation entitled 'Modern Machineries in the Processing of Desiccated Coconut, and Coconut Shell (Charcoal) Drying System' discussed the opportunities available for coconut factory, yield, and advantages for investment, market strategy, production process and technology. He pointed out that the major drawback of coconut processing has always been the speed of deterioration once the products are exposed to air; the water rapidly loses most of its organoleptic and nutritional characteristics and begins to ferment. GEM company has created the technology for the longer shelf life of matured coconut water.

Shri. Sreekumar Nair, Consultant, Creative Advisory Services, Chennai, India in his presentation spoke on the specifications of desiccated coconut for export and some of the major quality issues in the manufacture of desiccated coconut.

Shri. K. R. Raghunath, Managing Director South East Asia, KIS Group, Singapore in his presentation entitled 'ZERO PONDS-Total Green Technology for Coconut Industry Effluent treatment' stated that KIS GREEN Technology provides complete solution for Various Effluents treatment without use of any lagoons (Ponds) with consistently higher biogas generation.

Vast potential for coconut sugar



Shri. Somchaiwatanayothin, Shri. Romulo. N. Arancon Jr, Shri. Nuttapon Visuthikraisee and Shri. Benjamin Ripple in the technical session

For the longer shelf life of coconut water

Shri. Nuttapon Visuthikraisee, General Manager, Asiatic Agro Industry Co. Ltd., Bangkok, Thailand in his presentation entitled “Company Profile of Asiatic Agro Industry Co. Ltd. and Research and Development on Coconut Food and Coco-Based Beverage Products” informed that from traditional package (can), his company is moving on to new technology packaging (UHT).

Shri. Benjamin Ripple, Founder/CEO, Big Tree Farms, Denpasar, Bali, Indonesia spoke on the Company Profile of Big Tree Farms, Inc., and Production and Market Trends of Coconut Sugar in Indonesia and in the USA. He highlighted the market opportunities of coconut sugar. Further he presented the revenue analysis of copra, coconut sap, and coconut

sugar. Big Tree Farms organic certified supply chain now encompasses over 7,000 smallholder farmers specific to coconut sugar. His company is open to expanding its programmes outside Indonesia and supporting the training and market bridge through off-take contracts.

Shri. Samu Turagacati, IACT Team Leader and **Shri. Tevita Kete**, Export and Marketing Officer (Value-Added Coconut Products), EU-Funded Facilitating Agricultural Commodity Trade (FACT) and Increasing Agricultural Commodity Export (IACT) Project, Secretariat of the Pacific Community, Suva, Fiji presented a paper, ‘SPC’s Achievements on Value-Added Coconut Products for the Livelihood and Trade of the Pacific Islands’.

Shri. Tevita Kete spoke on the activities of the Pacific Community, an international organization that

provides technical and policy advice and assistance, training and research services to its Pacific Island members. The Community is promoting value added coconut products especially given the new window of opportunity provided in the global markets for high value coconut products. He also spoke on the assistance provided by the EU funded projects

Shri. M. M. Abdul Basheer, Managing Director, Indo German Carbons Ltd, Kochi, India spoke on his own success story as Coconut Processor – Entrepreneur Awardee in India by highlighting his company profile. He presented some of company’s credentials upon the production and product and said that IGCL was the largest manufacturer and exporter of gold grade activated carbon products from the region and their product clientele include the three largest gold mining companies in the world.

Promoting Replanting and Rejuvenation of coconut gardens for inclusive and sustainable growth



Shri. C R Vijayakumar, Shri. Joketani Cokanasiga, Shri. Le Mamea Ropati Mualia, Minister for Agriculture and Fisheries, Dr. P. Rethinam, Shri. Romulo N. Arancon Jr., and Shri. M. Thomas Mathew during the farmers' interface

Shri. C R Vijayakumar, progressive farmer from Karnataka presented the success story of Bagyalakshmi Farms. He owns 130 acres coconut farm from where he gets an average yield of 200 nuts from a palm per year. Since the past 11 years he is selling only tender coconut. In his garden he is having 3000 various coconut varieties, 3000 mango trees, sapotas, aresanut, teak wood and various other plants. Bhagyalakshmi Farm is one of the registered coconut seed grower and nursery to supply seedlings.

Shri. M Thomas Mathew, Senior Consultant, Coconut Development Board, Kochi spoke on promoting replanting and rejuvenation of coconut gardens for inclusive and sustainable growth. He affirmed

that inclusive and sustainable growth in coconut sector is only possible through enhancing rate of return from unit holdings. He further detailed on the Replanting and Rejuvenation programme implemented by the Board, the project as well as the modalities of implementation. He concluded by emphasizing the need for promoting coconut based farming systems and value addition for the inclusive growth and sustainable development of coconut industry.

For uplifting the poor

Shri. P V Saby, Secretary, Kallamkunnu Service Co operative Bank Ltd. Thrissur spoke on the success story of model coconut farmers marketing co operative in India. The Kallamkunnu Service Co-operative Bank uplift the living

condition of the poor people in the area by promoting small savings by starting a bank account and also by giving trouble free loans to small and needy people in the area. The Bank has expanded at a rapid rate and has reached its limit of banking operation and this made the bank venture into new non banking activities. The Bank is now having more than 11000 members.

Dr. P. Rethinam, former Chairman, CDB and former Executive Director, APCC chaired the session. Shri. Joketani Cokanasiga, Minister for Primary Industries, Fiji was also present during the occasion.

60 farmers from across the country took part in the discussion which followed an interaction with technical experts.



Farmer's Interface - A view

From conference venue to coconut field



Delegates during the field visit

India's continuing efforts in developing coconut and coir industries that contribute substantially to its rural economy and foreign exchange earnings, received wide appreciation from a cross section of foreign

representatives of coconut growing countries when they were taken to areas of coconut cultivation, industrial production and research activities, as part of field visit.

The delegates visited Indo German Activated Carbon manufacturing unit at Eloor, a coconut inter-crops plantation at Kokothamangalam, Cherthala, the Central Coir Research Institute (CCRI) of the Coir Board at Kalavoor and a Coir Mats and Mattings manufacturing unit both at Alappuzha.

A demonstration, 'Friends of Coconut Trees' on climbing of coconut trees, was also organized. The delegates, including women, availed the opportunity to try their dexterity in climbing coconut palm, using the climbing device.

Business meet, to explore the global markets - recommendations of XLV COCOTECH

With the objective of exploring collaborative trade between the APCC member countries, a Business Meet with the participants of the 45th Cocotech meeting was convened by the Chairman, Coconut Development Board on 5th July 2012 at Kochi. Chief Executive Officers from more than 25 National and International companies representing various coconut based industries attended the meeting. Chairman in his welcome address informed that the Board would like to bring all the stake holders from among the participants of XLV COCOTECH meeting, to engage in policy business dialogues with the CDB and other agencies in the participating countries. This would formulate a collective vision and mission as well as facilitate business to business linkages for mutual benefit and inclusive growth. Chairman said that the 90 per cent of the global supply of coconut, the raw material for varied coconut products and by-products is the contribution of Asian and Pacific Region and hence we should work together in a 'collaborative competition' rather than destructive competition.

The participants were of the opinion that the modern technologies of product diversification and byproduct utilization of coconut currently available across the globe would be shared and discussed for adopting them on a wider perspective. In order to promote the consumption of coconut and its products both in the

traditional consuming countries and European countries including United States of America, the positive inherent qualities of coconut have to be popularized. More clinical studies are required to establish the goodness of coconut, particularly coconut oil, coconut milk, coconut cream etc. which could leverage its inherent strength for sustainable growth. The possibility of getting international funding for a project through United States Food & Drug Administration (USFDA) need to be explored to remove the misconception on the consumption of coconut oil and saturated fatty acids particularly Medium Chain Fatty Acid (MCFA), which is the major constituents of coconut oil.

It was decided to form a dynamic network for exchange of information such as demand for varied coconut products, international and domestic prices, products availability, export-business opportunities, weather situation in the producing countries etc. Representatives from countries like USA, Brazil, Tanzania, Singapore, Kenya, Thailand, Mozambique, Indonesia, Srilanka, Fiji and Vietnam apart from Indian delegates participated in the meet and expressed their optimism for an emerging coconut culture and industry. The meet resolved to entrust the responsibility of coordination with Shri. M Thomas Mathew, former Chief Coconut Development Officer of the Board and the present Senior Consultant of Cocotech.

Global coconut industry - marches ahead



APCC country representatives

A Committee composed of all heads of country delegations in APCC member countries and chaired by the APCC Executive Director formulated the recommendations after deliberating on the issues raised in the technical presentations and question and answer sessions:

A. Policy Recommendations for APCC Member Countries:

1a. Recognizing the relevance of the theme of the 45th APCC COCOTECH Meeting, the delegates reaffirm the importance of putting the small coconut farmers and farm workers in the center of sustainable development efforts. The meeting recommends that genuine inclusive economic growth and sustainable development should include policies and programs whose benefits must be justly shared by the small coconut farmers who are at the bottom of the pyramid.

1b. The meeting further recommends that the APCC member states adopt enabling policies to promote the cluster approach and the formation of Coconut Producer Societies (CPS) following the Indian model to facilitate community development, capacity building, and provide for an efficient mechanism for technical and logistical support and enhance entrepreneurship and viable coconut-based economic ventures.

2a. Recognizing the stagnant if not decreasing productivity of coconut farms, the meeting recommends that in order to increase coconut farm productivity, the National Governments of the APCC member states must support and provide appropriate budget for a National Coconut Replanting/Rejuvenation Program including intercropping, product diversification and value addition with provisions for technical assistance and capacity building.



APCC country representatives

- 2b. The meeting further recommends that the Communiqué issued by the XLVIII APCC Session/ Ministerial Meeting in December 2011 in Honiara, Solomon Islands be widely circulated to create more awareness, greater advocacy and to gain a critical mass of support from political leaders, policy makers, investors, farmers and other stakeholders including international donor agencies on the need to accelerate the coconut replanting and rejuvenation program in all APCC member states.
3. Recognizing the technological developments in coconut crop improvement through hybridization and proper selection, the meeting recommends that the APCC member countries in collaboration with Bioversity/COGENT adopt a scheme for the efficient and effective exchange of germplasm sufficient enough to enable multi portion to support the coconut replanting and rejuvenation programs in the respective countries.
- 4a Recognizing the value of the “advocacy marketing model” as practiced by various coconut product manufacturers in the member states and abroad, the meeting re-affirms the need for more substantive science-based evidence to support our claims on the health benefits of coconut oil.
- 4b. While appreciating the achievements made by some APCC member states like India, Sri Lanka, Malaysia, Indonesia, and the Philippines, the meeting also reiterates previous recommendations on the need for national policy directions and provisions for appropriate budget to support national medical/ nutritional researches and/or clinical trials on coconut oil. Multi-country clinical trials may likewise be pursued by the APCC Secretariat in

collaboration with reputable medical research institutions/universities and interested stakeholders including private companies in the APCC member states, USA, Australia and Europe.

5. The meeting recommends that APCC Session/ Ministerial Meeting review and evaluate the possibilities of strengthening the APCC as an intergovernmental organization. On this regard, the meeting further recommends that the APCC Session/Ministerial Meeting may consider a policy to allow associate membership of interest groups/ companies to facilitate synergistic collaboration on technical, financial, and other resources to enable the conduct of appropriate clinical trials in the importing countries and create a scientific advocacy group to promote coconut as a health food.
6. Recognizing the importance of private-led growth, the meeting recommends that the APCC member states adopt policies that will promote public-private partnership in areas such as the production of hybrid seednuts for the massive replanting / rejuvenation programme and complements the efforts of the government.

B. Recommendations for Program / Project Formulation by the APCC Secretariat:

- 1a. Recognizing the shifting consumer demands as influenced by health and wellness concerns of the majority of buyers in the world market, the meeting recommends that the APCC continue to pursue generic promotional campaigns and trade exhibitions in the member states and abroad to promote market expansion and further in-roads of coconut products in the mainstream market in the USA, Europe and other major market destinations.



The delegates of XLVIII

The marketing platform may include coconut products as a health food, a super food which can be certified as organic and following fair trade practices. Other coconut products such as coir fibre and coir-based products like coco peat, geotextile, coconut shell charcoal-based activated carbon may be featured as environment-friendly with very low carbon footprint.

- 1b. The meeting also recommends to pursue the strategies towards collaborative competition in the marketing of coconut products and explore further the mutual benefits of Free Trade Agreements (FTA) between and among APCC member states especially for new and emerging coconut products.
- 1c. The meeting likewise recommends that the APCC should facilitate the conduct of Business Forums/ Round table Meetings among coconut product processors, exporters/traders and buyers to address current issues.
2. To address the impact of climate change, the meeting recommends that the APCC pursue projects that will demonstrate how coconut farmers can mitigate, adopt and cope with the effects of extreme variabilities in the environment and address poverty reduction, economic livelihood, food security and additional farm family income. This may includes collaborative research on resistant varieties, integrated pest management, exchange of bio-control agents, carbon sequestration studies in coconut and how to avail of carbon credits, and other technology needs.
3. Recognizing the need for technology sharing and capacity building, the meeting recommends that the APCC Secretariat design, organize and facilitate

practical human resource development programs for training of trainers and other stakeholders in the APCC member states. These training programs must be based on the needs of the member states especially in areas relating to good manufacturing practices (GMP) in coconut product processing and value-addition, pest and disease control, good agricultural practices (GAP), and others. Capacity building programs may also include study-tours and exchange visits in areas of interest between and among the APCC member states.

4. Recognizing the value of coconut related information and the need for efficient technology transfer of newly developed technologies, new research outputs and up-to-date data and statistics on prices including the market outlook and price forecasting models, productivity levels, export volumes and supplies of various coconut products, the meeting recommends that the APCC Secretariat continue to publish these information through Newsletters, R & D Journals, Posters, Brochures, Technical Bulletins, Statistical Yearbooks, Trade Directories and others. Relevant information may also be included in the APCC website and updated regularly.
5. To address the needs of the Pacific coconut growing countries, the meeting recommends that the APCC collaborates closely with the Secretariat of the Pacific Community (SPC) to conduct market surveys an evaluate the economic potential of various coconut products including VCO, coconut flour, coir and coir-based products, coconut sugar, coconut shell charcoal (CSC) and CSC-based activated carbon, coconut water and others.



V Cocotech Meeting

Coconut oil: APCC for more studies

R. Ramabhadran Pillai
COCHI: More studies and strong evidences are needed to substantiate the claims regarding the health benefits of coconut oil, and this will be funded by the APCC.

Special Correspondent
COCHI: A host of presentations highlighted new technology and marketing of coconut at Cocotech-2012, the 45th international conference on coconut here on Tuesday. Jointly organized by the Asian and Pacific Coconut Community (APCC) and the Coconut Development Board (CDB), the five-day meet which saw more than 200 delegates from about 20 countries participate, will conclude on July 6. Union Minister of State for Consumer Affairs, Food and Public Distribution K. V. Thomas, who inaugurated the meet on Monday, called for measures for consolidation of farmers and encouraging them to adopt integrated management practices and farm level processing. Availability of farmers to availability of competitive level

'Fats in coconut oil' technologies

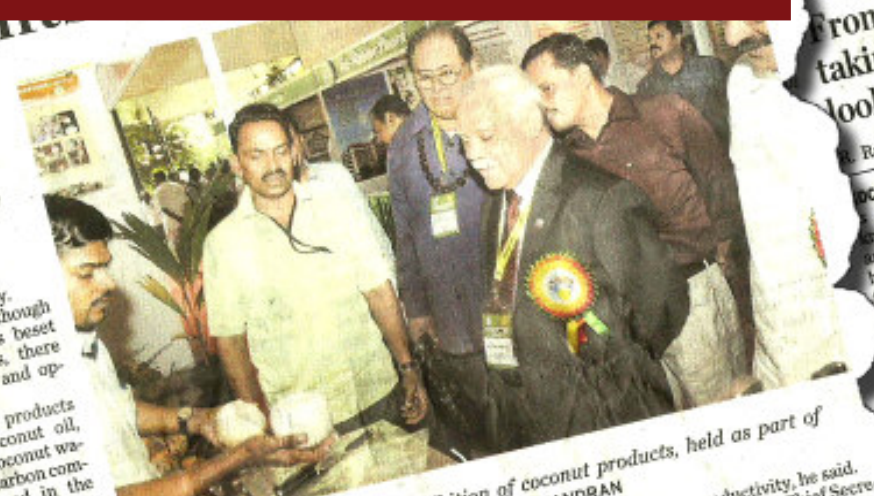
R. Ramabhadran Pillai

XLV COCOTECH - In the Media

Cocotech presentation

Tender coconut water, emerging as the natural health drink of the world, has great export potential.

in lower strata of society. Mr. Thomas said though the coconut sector is beset with many problems, there are many strengths and opportunities. Several Indian products such as virgin coconut oil, packaged tender coconut water and activated carbon demand good demand in the international market. Tender coconut water, emerging as the natural health drink of the world, has great export potential. Coconut Development Board has developed the technology for hygienic packaging and several



CYNOSURE OF ALL EYES: The exhibition of coconut products, held as part of Cocotech-meeting in Kochi. — PHOTO: VIPIN CHANDRAN

Kochi coconut fest is a crowd puller

Our Bureau
 Kochi, July 3
 Festival orga-

Call for value-addition in coconut through farm level processing

Our Bureau
 Kochi, July 2
 Coconut Development Board is committed to making country the global copper production, productivity, using for value addition exports during the 12th Prof K.V. Thomas, Union Minister of State for Food and Consumer Affairs, said. He inaugurated the 45th Co-meeting of the Asian and Pacific Coconut Community (APCC) here on Monday. Board, he said, has out a host of ambitious measures under the Techno-mission on Coconut to manufacture of various products such as coconut powder, tender coconut water, milk concentrate, virgin coconut oil. The basis is mainly on technologies for the production of new value-added products in tune with the leading countries like the Philippines, and Indonesia had. "Agri-farmers and their help to make materials at farm level," he said will also trigger processing for val-



Taking tech to farm: The Union Food Minister, Prof K.V. Thomas, at the 45th APCC Cocotech meeting in Kochi on Monday. The Tamil Nadu Minister Mr S. Damodaran (left) and Mr A.A. Jinnah, MP and Minister are also seen. — Vipin Chandran

ue addition, effective marketing strategies and market promotional activities. Mr S. Damodaran, Agriculture Minister, Tamil Nadu, called upon scientists to identify new technologies and genes for coconut development particularly to evolve new varieties confirming resistance to root wilt disease and to withstand drought conditions. He pointed out that Central Plantation Crops Research Institute has 401 in their gene bank used to develop globally. He also Board to initiate step onstrate new techniques farmers in Tirupur. the Tamil Nadu Govt had allotted 33 hectares production of coconut plants. Mr Romulo N. Aranco, Executive Director, APCC, stressed the need to increase productivity through repla-



Make Concerted Efforts to Raise Agricultural Productivity: Thomas

Express News Service

Kochi: All countries, especially the developing nations in Asia and Pacific region, must make concerted efforts to raise agricultural productivity to ensure food security, said Asian and Pacific Coconut Community Executive Director Romulo Aranco. He was speaking at the inauguration of the 45th Cocotech Meeting here on Monday. "The Food and Agriculture of the United



Union Minister of State for Consumer Affairs, Food and Public Distribution, K V Thomas inaugurating the 45th COCOTECH-2012 in Kochi on Monday. Also seen are Samoan N... Le Mamea Ropati Mualia and Executive Director of APC... Board member MP A A Jinnah and Tamil

Coconut: Price stability is prime concern

Kerala's own coketail for the superstars

pop divas Rihanna and Madonna swear by its



TASTE OF KERALA Samoa agriculture minister Le Mamea Ropati Maulia tastes snowball tender coconut at Cocotech, the international coconut festival which began in Kochi on Monday. Tamil Nadu agriculture minister S. Damodaran (extreme right) is also seen.

keen interest in entering the sector to produce packaging concentrated tender coconut water. They may buy existing tender coconut water concentrate units and have some of our help," CDB chairman Jose told TOI.

The entry of the global giant is expected to give the much-needed push to the ailing sector which is grappling with issues such as low price for the produce among others.

"The entry of the beverage giant will boost the sector and help in our efforts to create a better market for the coconut farmers here. A large section of people who have never used tender coconuts

Low productivity still haunts coconut sector

DC CORRESPONDENT KOCHI, JULY 2

Matters of raising the productivity and going in for a slew of value-added products were the main topics of discussion at the Cocotech International coconut conference which began here on Monday.

Asia and Pacific Coconut Community (APCC) executive director Romulo N. Arancon called upon all the developing nations in the region, to make concerted efforts to ensure food security of coconut, he urged them to raise productivity through a systematic, well-funded replanting programme.

Union minister K.V. Thomas who inaugurated the conference stressed the need for bringing coconut in its varied forms of fresh kernel, milk, milk powder, desiccated coconut etc as part of daily diet.

"Inclusive Growth and Sustained Development of the Coconut Industry" is the theme of the conference. Taking place in the

'Inclusive Growth and Sustained Development of the Coconut Industry' is the theme of the Cocotech international coconut conference

country after a gap of 12 years, it has attracted more than 200 delegates from 18 countries.

Arancon said the growth in the sector should ensure that all stakeholders reaped the benefits.

Among those who addressed the inauguration of the five-day session were central agricultural secretary Bahuguna, coconut development board chairman T.K. Jose, Samoa agriculture minister Le Mamea Ropati Maulia, Tamil Nadu agriculture minister S. Damodaran and secretary K. Jaya

'Coconut: Price stability is prime concern'

Kochi: Sustainability of the coconut industry and ensuring price stability for farmers is of paramount importance, said Union minister for consumer affairs, food and public administration K.V. Thomas on Monday.

He was speaking at the inauguration of Cocotech, a meeting of coconut producing countries, organized by Jakarta-based Asian Pacific Coconut Community (APCC) and the Coconut Development Board (CDB). About 35% of the agriculture income is derived from the coconut sector. The contribution of this sector to the annual income of the state is 15%. About 96% of the coconut holdings in the country are less than 2 hectares, and the average size of a coconut holding in Kerala is 0.2 hectare, Thomas observed.

"The entry of the global giant is expected to give the much-needed push to the ailing sector which is grappling with issues such as low price for the produce among others."



Union minister for consumer affairs, food and public distribution K.V. Thomas inspects a chain made of coir fibre during the inauguration of 45th APCC Coconut meeting in Kochi on Monday. Samoa's minister for agriculture and fisheries Le Mamea Ropati Maulia (extreme left), Tamil Nadu agriculture minister S. Damodaran (centre) are also seen.

Sugarcane

Fiji's major agricultural produce is sugarcane and the country exports sugar. Coconut is yet to emerge as a potential crop. Though paddy is grown in some of the islands, rice is imported from Thailand and other countries.

Mr. Turagacati is happy to see that the Cocotech meeting is providing information to develop coconut farming and processing of products. "We have taken to value-addition only recently. We can go into big scale like India. Nevertheless, the meeting is an eye-opener for the Fiji Community is exploring possibilities of increasing agricultural commodity in the region. "We are to bring together 14 Caribbean group B agricultural aimed at economic extension programme at maximum said.

Apart from focus is on culture and lifestyles from among for special ternal With isation the the (APCC) seen in opt to adopt policies to promote the formation of Coconut Producers' Societies. Next session of Cocotech will be held in Colombo, Sri Lanka in 2014.

Coca Cola contacts Coconut Development Board

V. Sajeew Kumar Kochi, July 5

Coca Cola has sought the support of Coconut Development Board for manufacturing tender coconut concentrate. The company has also evinced interest in buying private units producing tender coconut water products in various States with CDB aid.

Board is trying to tap the potential of tender coconut through different sources. T.K. Jose, chairman, Coconut Development Board, said.

The representatives also interacted with people engaged in processing coconut water, he said.

According to Mr. Jose, the entry of the US beverage giant will boost demand for coconut and accelerate efforts of the board for coconut products in the country.

People who have never tasted tender coconuts have now started realizing its benefits. The changing trend in consumer preference will boost the morale of coconut farmers, he added.

The Board is promoting the

through increased productivity. The potential of coconut as a food and beverages crop should also be fully exploited," he added.

Around 200 delegates from different countries are attending the five-day meet to share their knowledge and expertise as well as deliberate upon the future course for APCC. The conference, with the theme "Inclusive Growth and Sustained Development of the Coconut Industry"



A boy looks at a hand-drawn diagram of a coconut tree at the Cocotech International Coconut Community in Kochi.

Seven nations show interest in CDB's tech

Kochi: Seven countries have evinced interest in securing technology from the Coconut Development Board (CDB) during the Cocotech meeting concluded in Kochi on Friday. "Samoan, Federated States of Micronesia, Fiji, Kiribati, Marshall Islands, Kenya and Mozambique have shown interest in our technology in production, protection and processing of coconuts," said T.K. Jose, chairman of CDB.

The final session of the meeting recommended its 16 member countries to take effective steps to ensure that their policies and programmes achieve genuine inclusive economic growth and sustainable development of the coconut industry. For this, the coconut farmers, who are at the

Cocotech has reaffirmed the importance of placing small coconut farmers and farm workers at the centre of development efforts

importance of placing small coconut farmers and farm workers at the centre of development efforts.

The meeting further recommended the members of the Asian and Pacific Coconut Community (APCC) to adopt policies to promote the formation of Coconut Producers' Societies. Next session of Cocotech will be held in Colombo, Sri Lanka in 2014.



Coconut Festival 2012

The Coconut Festival conducted as part of the XLV Cocotech attracted the visitors with its wide display of various coconut products.

Coconut value added products like virgin coconut, desiccated coconut powder, coconut milk, coconut chips, coconut vinegar, coconut varieties and handicrafts made of coconut wood and shell were displayed in the coconut festival.

Palm climbing machine, coconut dehusker and coconut punch cum cutter were also displayed.

Along with the theme pavilion of the Board, APCC, AMS Pattambi, Directorate of Cashew and Cocoa Development Kochi, CPCRI Kasaragod, Directorate of Spices and Arecanut Kozhikode, Jem



Shri. Le Mamea Ropati Mualia inaugurating the theme pavilion of the Board in Coconut Festival

Allied Industries Kolkata, H & G Technomark Perumbavoor, Kerala Agriculture University, Thrissur, Keratech, Thrissur, Pest Control India Ltd, Kochi, Protection of Planters Rights Authority, New Delhi, Precision Farming Development Centre Malappuram, Pro-Bi Products, Bangalore, Rubber Board Kottayam, State Horticulture Misison Thiruvananthapuram, Surya Sobha Thrissur, T&I Global Coimbatore, KERAFED, Thiruvananthapuram, Farm Information Bureau, Kerala Tourism Development Corporation and Subicsha Kozhikode took part in the Coconut Festival.



Coconut Festival





Kerafed



State Horticulture Mission



Farm Information Bureau



Pest Control India



Pro B Products



H & G Technomark Inc.



Precision Farming Development Centre



Kerala Agricultural University



Surya Shobha



Keratech Coconut oil Mfg. Co.



APCC



AMS, Pattambi



Directorate of Arecanut & Spices Development



Directorate of Cashew & Cocoa Development



Rubber Board



Protection of Plant Varieties & Farmer's Rights Authority



Coir Board



Central Plantation Crops Research Institute

Le Mamea Ropati Mualia – a Samoan Minister with Determination and Commitment

Remany Gopalakrishnan



‘Try this recipe – cook two cups of rice in equal quantity of water-put off the flame when rice is half cooked. Add fresh onion, little spices and one cup of coconut cream and stir. Taste with cocoa drink, a diluted form of cocoa paste. You will feel it as the tastiest food available on earth’.

‘Try another coconut cuisine-mix tender taro leaf with coconut cream, bake it in banana leaf or aluminum foil. A very tasty preparation common in Samoa is ready’.

Are these recipes of a popular chef? Certainly not. These are of the Samoan Minister for Agriculture and Fisheries, Shri. Le Mamea Ropati Mualia, who was at Kochi for a week in connection with the XLV Cocotech meeting of Asian and Pacific Coconut Community held during 2-6 July, 2012.

“There is hardly any food item devoid of coconut gratings or coconut cream in Samoa; Coconut fruit is so dear and emotionally attached to Samoans”- he added.

Stepping in the age of 70s, Shri. Le Mamea utilized every second of his stay at Kochi fruitfully and enjoyed the days with the spirit of a teenager. Visit to India and Kerala was my long cherished wish and that has come true. Cocotech meeting of Asian Pacific Coconut Community has provided an opportunity for fulfilling my wish. But certainly this is not the end of my desire. I want to avail of the technologies of this country in

cultivation and value addition for revitalizing coconut industry.

Sir, we are very much enthused in your strong attachment on coconut crop. Travelling a long distance and taking much pain and strain you are here for a week long stay. What was the stressing need for such a move?

Agriculture has been the most dominant sector in the economy of Samoa accounting for nearly 90%



Shri. Le Mamea Ropati Mualia with Shri. T.K. Jose IAS

of total exports and around 60% of the country's total employment. Samoa's population is around 180,000 and about 39% is employed in agriculture. A gradual and significant reduction in the share of agriculture in the GDP of Samoa is a serious concern. The sector's share in GDP was estimated at 50.8% in 1972, 51.7% in 1978 and 50.5% in 1983. The share of agriculture sector including fisheries in the national GDP has since been steadily declined from 50.55% in the 1980s to 22% in 2000 and 10% in 2010. Employment levels in the sector have also declined over the last two decades from 60% in the early 1980s to 39% in 2006. Three major cash crops, namely coconut, cocoa and banana accounted for about 80% of agricultural export during the same period. These crops, if managed well, will have greater impact on food security, poverty alleviation, employment and export growth.

Coconut is one of the major cash crops of our small country and it is an integral part of the way of Samoan's life by providing food, shelter, fuel, home comforts and cash. With the drop in world prices for coconut products in the 1990s, production of coconut and the harvesting of coconut declined drastically. The total land area of Samoa is 292,588 hectares and 30% of this is devoted with coconut. However, only about 31 % of coconut area is actually being maintained and harvested. In absolute terms, out of the coconut area of 90,000 hectares, only 28,000 hectares are maintained and harvested by farming communities. High density of senility and declining yield is also a concern.

Major reason for Samoans to maintain coconut palms despite the poor terms of trade internationally is due to the open fact that coconut is an integral part of Samoan diet

and way of life. At the subsistence level, harvesting of coconut is less responsive to world price fluctuation, because it is grown as a necessity for consumption and other domestic uses. Coconut can be intercropped with other crops such as taro and cocoa. Pasture under coconuts is also practiced. Coconut in Samoa are traditionally grown without using agricultural chemicals and can easily be certified as organic products. The yield is also reasonably high. Coconut products presently available in the country are virgin coconut oil, coconut oil, coconut

education, along with many other portfolios like land, labour, sports and culture. I made a shift in my party affiliation in 1986 and joined SNDP, the then opposition party. I was opposition leader for a few years. Before long I migrated to my original party HRPP which is the ruling party still now.

Could you make any specific achievements as education minister of Samoa?

As Education Minister I have the credit of starting the first National University of Samoa in 1984. It was started with 47



Shri. Le Mamea with his wife and grand children

cream to copra. We want to increase this number by availing technologies for developing new products.

Could you comment on your career and entry in politics?

I started my career as Chief Pharmacist in the Health Ministry of Samoan Government and worked there for three years from 1971 to 1973. I took a voluntary retirement from government service and entered in pharmacy business in Samoa and New Zealand joined politics in 1979 by forming a new political party HRPP and served public and attained popular image. In 1982 I became minister of

students and now it has grown to the strength of 4000 students. This is because of the support given to me by others and of course, my confidence and determination also helped.

Under Education Policy of Samoa I gave maximum thrust to 100 per cent literacy. I consider education is the most valuable input for the progress of a country. My commitment has fulfilled and at present the country is having 99% literacy out of a population of 1,88,000.

We heard about your new initiatives in the field of Agriculture in Samoa. Can you elaborate?



Shri. Le Mamea at the Coconut Festival 2012, Kochi

For the first time in the history of Samoa, we introduced a Five Year Plan for Agriculture from 2012. Replanting and promoting intercropping and productivity improvement formed the thrust area in coconut which is christened as 'Stimulus Package'. Main objective is to promote replanting of coconut as a base crop, intercropped with cocoa, coffee and other selected fruit crops and pastures as a way to increase farm productivity and thereby increasing farm income and the standard of living of the rural farm communities. The intention is to replace senile trees which account for 25% of the total palm population in Samoa, with new seedlings. Crops like taro, cocoa and coffee and vegetables are grown as intercrops apart from fisheries. Incentive @ 500 Tala (Samoan currency) per acre is extended to farmers who are willing to plant minimum 2 areas. A bonus payment is made to the participating farmers at the end of second, third and fourth year for the proper maintenance of the gardens. Cost of coconut seedlings for replanting and their transportation charge are met by the government. Technical expertise is given through the extension advisory services of the Ministry of Agriculture and Fisheries. Income generation and

improvement of livelihood of rural communities and continuous supply of raw material to the processing units are the outcome expected out of the scheme.

Every year October 16, the World Food Day, is celebrated by organizing Karshikamelas, competitions, and awareness programmes. Next World Food Day will be declared as closed holiday for schools and will be celebrated as Coconut planting day. Students will be given opportunity for planting and nurturing coconut seedlings with the objective of creating awareness on coconut and its wonderful benefits to humanity.

Are you optimistic in bringing a bright future for coconut industry in Samoa?

Yes. One hundred percent I am confident. There are 92,656 small coconut holdings in Samoa, of which 63,144 are active. Above all, intensifying value addition is our motto. Our present products kit is having only copra, coconut oil and oil cake. Many more products are to be added in the kitty. We are interested in your technologies for virgin coconut oil, packaged tender coconut water, and coconut vinegar in the first phase. We want to utilize kernel, husk, shell, and water in their entire potential. *My request to the*

Agriculture Minister of India seeking permission on import of technology has already been faxed instantly during my visit to the office of Coconut Development Board. Thanks to T.K. Jose, Chairman of the Board.

The readers of ICJ would be interested to hear about your family. Anything you want to add?

I have completed my preliminary class in Samoa. Four year pharmaceutical course was completed in University of Otago, New Zealand. My wife Elisa is my strength and motivation. We run a hotel in New Zealand in her name, one of the popular hotels in the city.

I have 7 children, 2 boys and 5 girls. All were given good education and now all are married and settled.

Undoubtedly you are a full time busy Minister with many portfolios. What about other social activities?

I am one of the longest serving politicians in Samoa and I get the affection and recognition. I am the Matai (chief) of 4 villages in Samoa. One of the villages is known by my name. Chief makes the law and dictate. There are no police and no legal issues in villages. I am the chairman of the Finance Committee of all Christian churches in Samoa. I am the Chairman of convocation of Christian churches.

Samoa became independent in 1962 separating New Zealand. But there exists a treaty of Friendship, the only Pacific country with such a treaty prevails with New Zealand.

Our motto is to push our economy to such a level where no Samoan should feel hungry; they should get healthy food and push up the share of our agriculture in the GDP.

Deputy Director, CDB, Kochi-11

Coconut Ice cream Reigns over American Ice cream Industry

Mini Mathew



A Dairy-Free Milk



“For people who can’t or don’t want to use dairy, coconut milk is a healthy alternative. Many people are lactose intolerant or allergic to dairy. Some don’t eat dairy because they are vegetarian or prefer not to consume milk that has been pasteurized, homogenized, fractionated, or otherwise manipulated by modern food processing. Some people who prefer raw foods or don’t drink milk or other dairy products because it has been heated during processing. Regardless of the reason, these people can eat coconut milk and still enjoy the “taste” of dairy products.

Allergies are a major problem with many people. Over 60 percent of all food allergies are to milk and nuts. The good news for these people is that they have an alternative with coconut. While people can be allergic to any type of food, relatively few people have allergic reactions to coconut. Based on medical research and clinical observation, coconut is considered a

hypoallergenic food and, therefore, is recommended as a nutritious substitute in the diet for those who are troubled by allergies. Forty-three percent of all those who have food allergies are allergic to tree nuts – walnuts, peanuts, almonds, etc. People who are allergic to nuts, however, are not generally allergic to coconut. Although it is possible to be allergic to coconuts, coconut allergy in people with tree nut allergy is extremely rare. In fact, only two cases in the entire world have ever been reported. So people with food allergies, particularly nut allergies, can eat coconut and coconut milk without fear.

Eating coconut may actually help relieve symptoms associated with some allergies. Many people have reported improvement in allergy symptoms when they use coconut regularly in their diets. Part of the reason is that coconut oil helps balance the environment in the intestines and heals the intestinal wall – two things that can significantly influence the occurrence of allergies”.

*Dr. Bruce Fife.
Naturopathic Doctor*

Mr. John Tucker, Food Scientist and President, Turtle Mountain LLC launched ‘So delicious dairy free’ branded coconut based products in the market in 2008 by getting inspiration from aforesaid research findings of

Dr. Bruce Fife, Naturopathic doctor and nutritionist. Dr. Fife, is considered as one of the World’s leading experts on dietary fats and oils. Now **Turtle Mountain LLC** company expects sales turnover of Rs103 million US \$ during current

financial year from dairy free products. For the last 5 years the major income of the company has been obtained from coconut based food products (chart1). His passion centers around product innovation, creating specialty foods that meet



Mr. John Tucker with his wife Ms. Tina

emerging consumer needs. Specializing in new product development, John Tucker has worked for a number of food manufacturers where he received patents and prestigious awards for outstanding innovations. Because of his passion towards coconut and coconut based products Asian and Pacific Coconut Community (APCC) invited him to present a paper on his findings in 45th Cocotech meeting held in Kochi during 2-6th July 2012.

Excerpts of interview with Mr. John Tucker

What are the major dairy free ice cream products manufactured by Turtle Mountain LLC Company?

The portfolio of products includes coconut, soy and almond based ice creams, frozen novelties, beverages, yoghurt and creams.

Varieties of coconut products include coconut milk, ice cream,

coconut milk yoghurt, coconut milk aseptic beverage, purely decadent, super premium frozen desserts, coconut milk greek style yoghurt, coconut milk pro-biotic beverage etc with brand name ‘**So delicious Dairy free**’.

The company also develops, manufactures and markets promotion of Dairy free products of Soy and Almond super premium ice cream, purely decadent, soy delicious fruits, sweetened ice cream, premium soy ice-cream. Greek style yoghurts of almond, soy and coconut are prepared more fat free. A pint of ice cream costs 499-599US\$. This is a premium price.

Can you briefly explain about the history and activities of Turtle Mountain LLC?

Turtle Mountain headquartered in Springfield, Oregon, known by its primary brand **SO Delicious Dairy Free**, was established in 1987. The founder and Chief Executive Officer Mark Brawerman saw a void in the market for products that were dairy-free and at the same time he did not compromise on taste and began developing dairy-free frozen dessert recipes. I joined in 1999 as Director of New Product Development and could build a dynamic team focused on creating a world class dairy free foods company. Over the ensuing years the team’s innovation and determination transformed the company that today is recognized as an industry leader in providing premium dairy-free frozen desserts, beverages, cultured products and ice creams. The ‘**So Delicious Dairy free**’ brand is sold throughout the U.S. and Canada, and exports product to South Korea and Australia; The company experienced significant double digit growth for the past five years due to the profit obtained from coconut products only.



Multiflavored coconut ice cream and milk beverages

The destiny of the company reached to this level when Company entered into a strategic direct-store-delivery (“DSD”) distribution agreement with Nestlé to gain entry to the much larger supermarket channel. An initial investment from an affiliate of Wasserstein & Co. in 2005 provided significant growth capital to establish in-house manufacturing capabilities and expand sales, marketing and R&D efforts. These partnerships served as a foundation for *So Delicious Dairy Free*. In 2007 the company redefined its mission to become a premiere dairy free foods company. In 2008, the launch of coconut based products expanded the consumer base and the product portfolio.

What is the present status of your venture on coconut based ice cream industry?

Growth from coconut milk-based (CM) innovations was tremendous. Total Company net sales in 2011 were increased by 30.4% over 2010, driven by coconut milk products. 2012 net sales are projected to be \$US88 million, a 50.5% increase from 2011 sales mainly driven by its coconut milk based innovations. Growth momentum is expected to continue over next 5 years which is driven by expansion of coconut milk based into new categories.

Why are you taking more interest in coconut based items?

I am having a passion towards coconut. My passion centers around product innovation, creating specialty foods that meet emerging consumer needs specializing in new product development. There is a continued growth from coconut milk-based (CM) innovations. Our

2011 sales was mainly driven by its coconut milk based innovations.

Whether coconut is included in American’s diet? What strategy you have taken for promoting coconut as an ingredient in American diet?

Nowadays there is a growing trend of including coconut as food stuff in American diet. Coconut is emerging from the negative backlash of the 1980’s when it was wrongly villified as a leading cause of heart disease. Decades later coconut is slowly climbing back into the American diet where its perception as a whole food is gaining attraction. The company promoted health and wellness of coconut through research findings and clinical studies of Dr. Bruce Fife, Naturopathic doctor and nutritionist and Dr. Mary Enig, American Nutritionist and Biochemist. We promote the current and future growth as a result of shifting consumer demands as health and wellness continue to play a strong role in the American diet. The misconception on coconut stating that it comes under saturated fats which cause heart disease has to be removed. In order to counter mis-propaganda we

should have to create a ‘**Health Halo**’ around coconut. Present Status/Goodness of coconut has to be elevated. For crossing the hurdle we should pursue the model followed by the California Almond Board which is a collaborative effort with growers of almond shifted consumer’s perception of almonds as a calorie laden snack to a super food. On the same way we should have to achieve certified **FDA Health Claim for coconut**. To get the approval of Federal Drug Administration (FDA) of America there should be concrete evidences supported with well-designed studies conducted in a manner consistent with generally recognized scientific procedures and principles. FDA is the reigning authority in United States for providing approval for health and wellness of a product which is approved after public comment. We should push coconut to get the approval from Federal Drug Administration (FDA) of America. Our studies are fragmented. The studies should be united through the joint efforts of APCC and Coconut Development Board. This is a corporate era. Hence all of us act together to get the approval from FDA.

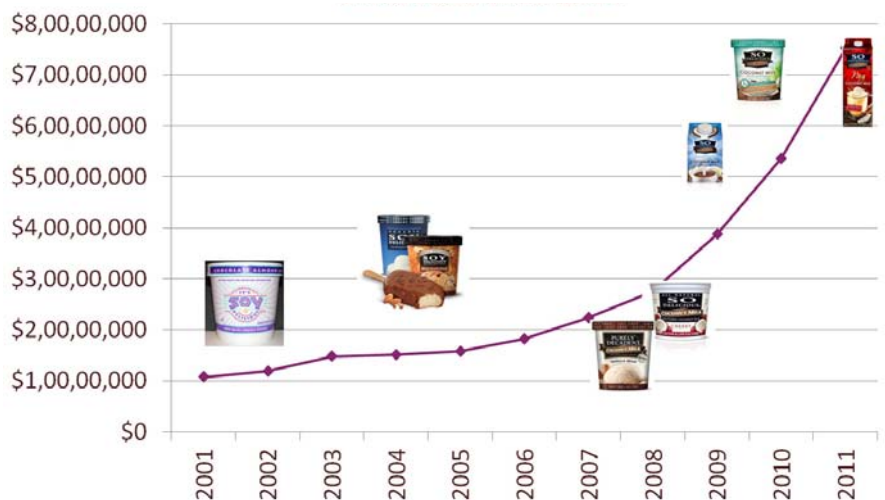


Chart-1. Gross Sales 2001-2011

In the late 1990's the Almond Board of California identified the need to promote almonds as a healthful food. Accordingly they presented series of research studies establishing the healthfulness of almonds focusing on the impact almonds have on cholesterol levels. In 2003, the U.S. Food and Drug Administration (FDA) released a health claim recognizing that California Almond Board can help consumers to maintain a healthy cholesterol level. The results of the health campaign are reflected in almond milk's impressive growth in past few years.

What is the market promotional strategy of Turtle Mountain LLC?

'So Delicious Dairy Free' has positioned itself through the quality of its products and by exceeding customers' taste and health expectations. This combination appeals to the growing population of dairy alternative seekers who wish to change their diet without compromising on taste or quality follows the strategy of **Advocacy Marketing Model**.



Mobile road show

'Advocacy Marketing' model is the right way to build our brand. Football players Drew & Brittany Brees, the brand ambassadors of dairy free products have been successfully managing the field for the last few years.

Growth through Health & Wellness

The North American dairy-free market, which is forecast to continue growing at a strong rate and remain a key growth engine in the broader health and wellness and food and beverage markets.

Consumers purchase dairy-free due to several key reasons:

- 1) Dairy-free products are perceived as benefiting a healthy lifestyle.
- 2) Specific health issues (e.g. lactose/gluten intolerance, food allergies and diabetes).
- 3) Vegetarian / vegan diets and ethical concerns over factory farming and other ecological issues.
- 4) Concerns about antibiotics and hormones in dairy milk products
- 5) Religious reasons.
- 6) Nutritional benefits as consumers move from treatment to prevention of health issues.

Consumer demand for dairy free products is being driven by consumers needs that surround health and wellness.

Our company is carrying out market promotional activities through Natural Food Channel and super market channels in America. Natural food channel is creating more awareness. Our marketing activities are through TV, Magazines, participation in retail exhibitions, Facebook and other social media. For the last 5 years we have spent 30 million US\$ for carrying out promotional campaigns.

Publicity Officer, CDB, Kochi-11



Market chain in America

The wonder syrup from coconut

Jayashree.A & K. Muralidharan

Coconut syrup is a low-glycemic, gluten-free and transfat free syrup. Coconut Sap is tapped from cut flower buds of coconut, located at the crown or top of the coconut tree. The inflorescence of the coconut palm tree is tapped and the sweet nutritious sap that flows from it is collected, filtered and minimally heated under controlled temperatures in order to allow the moisture to evaporate until it turns into sweet, golden brown syrup. 5 to 6 liters of fresh coconut SAP is needed to produce one liter of coconut syrup.

When the coconut inflorescence syrup is allowed to caramelize and then cooled, it forms sugar crystals which are then pulverized and sifted into fine coconut sugar. This sugar is unique in aroma and a delicious alternative to any cane sugar used in tea or coffee, desserts, over cereal or to give cooking a special note.

According to the Food and Agriculture Organization (FAO) coconut sugar is the single most sustainable sweetener in the world. Coconut sap is transformed into syrup when it reaches 115 degrees Fahrenheit (46°C). The liquid is 75 percent sugar, pure coconut syrup. The coconut sap must be slowly dehydrated to evaporate its water content and concentrate its sugar content. It can be prepared by two methods:

The vacuum evaporator method involves controlling the temperature low to a maximum of 115 degrees Fahrenheit or less. This method will produce a raw coconut syrup, the

quality of which is close to the original fresh coconut sap. In open pan evaporation the fresh raw coconut sap only undergoes slow dehydration, which involves boiling the fresh coconut sap. Once the boiling point is reached, the heat is lowered 80 to 100 degrees Fahrenheit for the remaining 40 minutes or so. The total cooking time is one hour and thirty minutes only.

Coconut syrup can be considered a natural raw food with most of its original nutrients retained as such. On boiling for a long period of time, the nutritional value will start diminishing.

The juices / sap from raw fruits such as coconut sap are truly the best way to sweeten the diet because they provide the greatest nutritional benefits. A study conducted by the Philippine Food

and Nutrition Research Institute in 2007 demonstrates that coconut syrup and sugar contain higher amount of nutrients, vitamins and minerals compared to other alternative sugars or sweeteners. According to the study it has greater amounts of nitrogen, phosphorus, potassium, magnesium, calcium, zinc, iron, vitamin C, amino acids, and micro nutrients. It helps balance blood glucose and insulin levels and lowers LDL cholesterol levels. The test also reveals that coconut sugar has a lower Glycemic Index (GI) of 35 compared to cane sugar or honey which has a Glycemic Index of 50. Coconut syrup has a low Glycemic Index of 39. The GI is a ranking system for carbohydrates based on the immediate effect on blood glucose levels. The higher the number, the greater the blood sugar response. Patients suffering from



Desserts topped with coconut syrup

diabetics and hypoglycemia can highly benefit from coconut sugar and coconut syrup since these are of a low Glycemic Index. The Philippine Food and Nutrition Research Institute recommends that individuals who suffer from health conditions such as diabetes, cancer, cardiovascular disease, hypo glycemia and obesity must maintain a diet that is low in GI index. Using coconut sugar and coconut syrup on a daily basis is beneficial for the health of the individual.

Coconut syrup can be used just like other syrups and honey in milkshakes, tea, coffee, as a topper for ice cream, custards, other sweet desserts, pancake and bread. It can be made as a paste with cinnamon powder and spread on breads instead of jelly and jam. It can be best partnered with fresh fruits like strawberries, mango, oranges to enhance their tastes, add to cocktails and other savory dishes including vegetables. There are hundreds of ways to use coconut syrup. Coconut syrup is a healthier

alternative compared to most syrup available in the market and also to conventional sugar and sweeteners.

The major players in coconut syrup production are Tropical Coconut Blossom sugar, Germany, under the brand name Tropicai, Natural Path Entreprises Organic Products, Toronto, Canada, Coconut Republic's Coconut Syrup in Philippines and Chiwadi Products Co. Ltd, Thailand.

**Senior Technical Officer,
** Director, CDB, Kochi-11*

Business Opportunities

COCONUT SHELL CHARCOAL AND VIRGIN COCONUT OIL EXPORTER

Production capacity of coconut shell charcoal is 100 tons per month or more with the quality of 5-6% moisture content and 3% ash. Virgin Coconut Oil production capacity is 100 tons per month. Contact person: Mr. Joseph Jupiter Pardede Kepala Balai Riset dan Standardisasi Industri Badan Penelitian dan Pengembangan Industri Departemen Perindustrian Jl. Diponegoro No. 21-23 Manado 95112 North Sulawesi Email: jos1155@yahoo.com

REFINE COCONUT OIL

An ice coating producer from Poland is looking for Refine Coconut Oil. They annually use approx. 1000 MT. Interested parties may directly contact: Mr. Dorota Hoffmann Import Department Terravita Sp. Z.o.o. ul. Szarych Szerega 48 60-462 Poznan Tel: 48 61 66 88 315 Fax: 48 61 822 19 31 Mobile: 609 479 239 Email: import@terravita.com.pl

GRATED COCONUT

A trade company, who deal with import-export of different raw materials, is looking for Grated Coconut. Interested parties (Exporting companies) kindly contact directly: Mr. Carlos Marin Director of NISA S.A. de CV Cancun-Quintana Roo Mexico Tel: 52 998 886 88 96 Email: carlos.marin@gruponisacar.com Office in Uruguay Montevideo Tel: 00 598 2 901 06 36

COCONUT WOOD

A company is looking for suppliers of wood of red coconut and black palmyra (black palm tree) as lumber/timber/ squares/logs/planks with specification of the thickness: 20/30/40/50 mm, widths: 5 – 15 cm (may be 20 cm), or square: 5x5 6x6 8x8 10x10 cm, Lengths: 1m+, high + medium density, best quality, and dry (AD+KD). Interesting parties may contact: Mr. Mathias Pfeifhofer Email: brainwood@gmx.de

ORGANIC COCONUT MILK

An Australian buyer has approached Pacific Islands Trade & Invest, expressing interest in importing certified organic coconut milk from the Pacific islands. The buyer is currently buying in 20litre containers from Thailand. Product must be certified organic. Mr. Jeremy Grennell Pacific Islands Trade & Invest PO Box 5407 Sydney, NSW 2000 Australia Tel: 612 9290 2133. Email: jeremy.grennell@pacifictradeinvest.com

USED COOKING OIL

A company is looking for used cooking oil. Interested parties may contact: Ms. Fanny Qingdao Aohe Chemical Co., Ltd. Qingdao City Beijing Road 38 Room 703 China, Tel: 0532-80914722, 13698680232 Website: www.qingdaoaohe.com Email: sally@qingdaoaohe.com MSN: liconghui123@hotmail.com

Source : The Cocommunity

XXXII COCOTECH MEETING AT
INAUGURAL FUNCTIONS



COCOTECH - '95

Minister of Agriculture Mr. P. M. V. Jaghar said that coconut production was not being given the productivity it deserves in Kerala. He was inaugurating the five-day XXXII COCOTECH meeting on 17th July in Kochi in Kerala. Cocotech is an annual technical panel of the Asian Coconut Community started in Jakarta, Indonesia. India is a member of this international body. This is the first COCOTECH meeting held in India, for which host facilities were provided by the Coconut Development Board.

Dr. Jaghar disclosed that realising the importance of horticulture, the allocation for horticultural development had been increased from 24 crores in the 10th plan to 1000 crores in the 11th plan, out of which Kerala has been allotted Rs. 160 crores. "Kerala, he said, has the largest chunk of land concerned. By the end of the 11th plan, half the state's land will be under horticulture."

through procurement is unlikely to be a permanent solution to stabilise the prices. Greater stress should be given to coconut processing. In order to compete in the world market diversified coconut products would be necessary, he added.

Presiding over the function Kerala Agriculture Minister Mr. P.P. Thankachan said that the State Government has decided to launch a major programme for the development of coconut covering production, processing and marketing in an integrated manner through farmers' organisations. The coconut farmers' organisations are organised into panchayats.

will be only a small number of farmers at the village level to grow nut growers.

He requested the government to provide financial support to coconut schemes especially for the removal of old coconut trees. He said that coconut production has declined in the year also the price of coconut has gone very low. The coconut price has gone still down.



COCOTECH 2000

Dr. Jon J. Kabara, Professor Emeritus, Michigan State University, and consultant to private industries, Universities and Government agencies, Galena, Illinois, USA, presented a paper on "Nutritional and Health Aspects of Coconut Oil". Dr. Kabara stated that there is nothing more important than the oils obtained from the palm nut. He stated that coconut and palm kernel oils were recognized as health oils in Ayurvedic medicine almost 4000 years ago. He also revealed that the same health

Cocotech Meetings hosted by India- A recap



Coconut



Dr. Mary G. Enig, President, Enig Associates, Maryland, USA presented the paper "Health and nutritional benefits from coconut oil and its advantages over competing oils."

In her paper she reviewed the unique qualities of coconut oil. She disclosed that coconut oil is neutral with respect to atherogenicity and is beneficial for the prevention of some heart diseases. The lauric acid in coconut oil is used by the body to make the disease-fighting fatty acid derivative monolaurin that babies make from the lauric acid they get from their mother's milk. This monolaurin is the substance that keeps off the infants from

bacteria, yeast, fungi and enveloped viruses. The monolaurin solubilizes the lipids and phospholipids in the envelop of the virus causing the disintegration of the virus envelope. Some of the viruses that are inactivated by the lipids are HIV virus, measles virus, Herpes Simple-x Virus-1, Vesicular stomatitis virus, Visna virus and Cytomegalovirus. Dr. Enig stated that both the producers and consumers of coconut oil have under appreciated the health and nutritional benefits that can be derived from consuming coconut oil.



effects were also found in mother's milk. Mention was made that freshly expressed human milk was adopted as an "antibiotic" after eye surgery. Dr. Kabara then explained that modern research has now found a common link between these two natural health products — their fat or lipid content. He said that for over thirty years their lipid laboratory has pioneered finding relationships between natural and synthetic lipids and their biological activity. Their studies indicated that the fatty acids and monoglycerides found in these two natural products had extraordinary antimicrobial properties. He further stated that the medium chain fatty acids and monoglycerides found primarily in these two tropical oils and mother's milk have miraculous healing power. He stressed that it is rare in the history of medicine to find substances that have such useful properties and still be without toxicity or even harmful side effects. He stated that the highly purified mono-glyceride is better known as Lauricidin rather than simply monolaurin since the usual commercial monolaurin is only 45-55% pure and has no antimicrobial properties. He revealed that the first utilization of monolaurin was the addition of it into margarine as a food preservative and as a sanitizer.

property agent was first demonstrated by Dr. Kabara and his colleagues in the 1950s. Since that time, it has been confirmed by others. He has been appearing for the use of monolaurin in showing applications for peptic ulcer, hyperplasia, and C as well as other conditions. He stated that the international conference of the American Oil Chemists Society (AOCS) in 1998 recognized that these tropical oil derivatives were going to be the new health oils of the next millennium. He stated that only does monolaurin have antimicrobial and antiviral activity but also has remarkable activity but also has been shown not to cause resistance in organisms to appear. In addition, he said that it has now been shown that monolaurin can reduce the resistance of germs to antibiotics.

Dr. Conrado S. Dayrit, President, United Laboratories and President Federation of Scientific Academies and Societies, Professor Emeritus, University of the Philippines, College of Science, President, National Academy of Science & Technology, Manila, Philippines, presented

37TH COCONUT OIL CONFERENCE COCONUT OIL CONFERENCE GRT Grand



Journal

VIRGIN is thy name and HEALTH is thy fame

Deepthi Nair S



Virgin Coconut oil is termed virgin because it is pure as white and does not undergo any heating process. It is extracted from the freshly shredded meat of coconut and is not refined or bleached or deodorized. From time immemorial, people in India have extracted virgin coconut oil through traditional methods. It was mainly used for topical application on the soft skin of babies. Virgin coconut oil was known as one of the safest and effective natural body moisturizers available. In Ayurveda this oil was called Urukkuvelichenna since it was made by heating coconut milk.

As technology advanced, modern methods for the manufacture of virgin coconut oil were devised without the application of heat. That made the oil more virgin. Minor components of Vitamin E were retained through the centrifuge method. Virgin coconut oil is composed primarily of medium chain fatty acids or triglycerides. These medium chain fatty acids are quickly digested and transformed immediately by the body as energy. The saturated fats are good and promotes health. Lauric acid which is found in the nature's perfect food, Mothers milk, is found in Virgin Coconut Oil. The high lauric acid content also makes it a natural antibacterial, anti viral and antifungal substance.

Even though virgin coconut oil possesses numerous health attributes, it has not reached the common consumer and people are still reluctant to have intake of virgin coconut oil fearing incidence of heart diseases. World over, many studies are undertaken regarding the health benefits of this virgin oil. It is found to have remedial

properties to reduce the intensity of diseases like Alzheimers, Autism, Dementia, Aids etc and bring the patients back to lead a normal life. This news is like a boon to such patients, but only a scientific base for knowledge will make it ready for adoption.

Under the auspices of the Phillippine Coconut Authority, a study is being coordinated by the Product Development Manager, Ms. Dina.B. Masa on the health attributes of virgin coconut oil. The matter was presented in the 45th Cocotech meeting. The primary objective of the study is to determine the effect of virgin coconut oil on the blood cholesterol level of humans. This study has much relevance in Philippines which stand second in area and third in production of coconut among the coconut producing countries. Virgin coconut oil industry is a well established flourishing industry in Philippines. The general observations of the study are that virgin coconut oil increased the good cholesterol, i.e., HDL, made the subjects less atherogenic, less prone to cardiovascular or cerebrovascular insult. The preliminary studies indicate that

virgin coconut oil is safe for human consumption. It reduces the triglycerides and very low density lipoprotein i.e., VLDL. It improves the cholesterol/HDL ratio which means the subjects are less prone to heart diseases. A longer study spanning 1-2 years is to be undertaken.

The recommendation of the study is that VCO is to be taken as a food supplement and not as a drug. It is safe for human consumption except for people having high cholesterol. It is good for normal blood cholesterol. People having hypertension should avoid VCO. A 3-Day Food Recall will be made on a monthly basis to track any big changes in the diets of the participants in the longer study. The correlation of VCO intake and exercise will also be considered in the next study. Quarterly liver ultrasound will be done to closely monitor and addressed the onset of fatty liver.

Once the scientific community proves the above health attributes of virgin coconut oil, the potential of this crop is going to be immense, **the sky is the limit.**

Marketing Officer, CDB, Kochi-11

Keeping ancient wisdom, the way forward for sustainability

Sarapee Yuodyong, the Managing Director of Chiwadi Products Co. Ltd., Thailand was in Kochi for attending the XLV Cocotech Meeting. Sarapee is following ancient wisdom coupled with science and technology in designing her products. Excerpts of the interview with Sarapee.

With a degree in Microbiology from Kasetsart University and a master's degree in Food Technology from Reading University, UK, Smt. Sarapee Yuadyong spent 26 years in the corporate world. She worked for international companies like Cerebos, CPC Aji, and Unilever in Thailand. In 2009, Sarapee decided to early retire from Unilever and pursue her personal dream and started to work with Baanrimklong community in Ampawa in Thailand.

Sarapee Yuodyong is now the Managing Director of Chiwadi Products co., Ltd. which is leading the gathering of existing coconut sugar makers in Samutsongkram as the starting point to form organic coconut community network covering Maeklong-Thajean region accounting for 4 provinces viz. Samutsongkram, Samutsakorn, Ratchaburi and Nakhonpathom.



Sarapee is so fond of coconut sugar, a good nutrient for human beings used prevalently in Thailand and also available plenty in the market.

She is working with the mandate of transferring the current traditional wisdom to the next generation because she believes that in the next 10 years in Thailand there won't be coconut sugar any more. The existing farmers are between the average age group of 50-60 and as the young generation is not interested in farming or keeping the ancient wisdom. She is trying to restore the ancient wisdom of preparing the coconut sugar

through her innovation.

She has restructured (molecular restructuring) the coconut cake. Instead of crystal, she has transformed it into syrup. According to her, being syrup is charming for the young generation. This syrup is used in making pancake, roti, chapathi, bread, ice cream, tea or coffee and in cooking. Coconut sugar is the secret ingredient of Thai recipe says, Sarapee. This syrup carries beautiful, irresistible and delicious aroma.

She is working with the coconut farmers and educates them with the modern food technologies. She teaches them how to preserve the raw material, using scientific tools. They can stay at home and take care of their land and environment. Farmers are doing it in their household on a community level, of 4-10 people. More than 15 communities are associated with her. Her people visit the community and collect the raw material to her factory. In the factory the product is processed and packed in compliance with all quality parameters of GMP and HACCP.



Smt. Sarapee Yuodyong with Shri. Esto susanto and Smt. Mida Mityanthi

The product goes to export markets around the world viz., Singapore, Malaysia, Thailand. The company is planning to widen the export market soon to Indonesia and even to India.

Chiwadi aims to bring innovations from grass root level to the world and also to make natural products from natural beings thus working for the good health of people and their sustainability. The objective is to form coconut farmers group, applying organic certificates and create more values of organic coconut products from ancient wisdom that fit to everyday life and the next generation. Chiwadi is reintroducing the product in a modern manner so as to compete with other modern products.

Sarapee, basically a food technologist is working for food innovations since the last 28 years. Out of her interest to help community, she is educating the farmers since the last 3 years. The first thing she taught them was to convert food waste, agriculture and food industry waste into organic fertilizer. Organic fertilizer was the first product developed by Chiwadi from food waste and the first product itself received award. Coconut coir is used as microbial immobilized bedding agent to ferment food waste as “continuous solid fermentation stove” converting to fertilizer within 6 weeks.

Her second product was coconut sugar in syrup form. Coconut sugar is a traditional and essential thing in every kitchen. People are using it during the fasting month for breaking the fast.

Farmers / tappers are asked to

put sandalwood into the bamboo container collecting the sap. Sandalwood suppresses fermentation as it is having anti microbial properties. The collected sap is brought into the community and they will boil the sap in big stoves. Chiwadi collects this sap to the factory. The sap is collected from the community on a weekly basis. In the factory the sap undergoes boiling in accordance to the product specification and quality parameters.

Fruii the ready to drink fruit juice was the third product launched by Chiwadi in 2012. This drink in various fruit flavours is sweetened with coconut flower syrup. This product was awarded with Innovation Coupon Programme by Industrial Federation of Thailand.



Fruii in various flavours

Chiwadi has changed the life of farmers of her area. Their life is secure now. A climber gets Rs. 800 per day. Even when the price of raw nut goes up and down, the price of coconut sugar does not fluctuate. Thus from value addition, the farmer is getting 5 times more than his usual income.

Chiwadi is selling 80% of its products in local market and 20% is for export. During the next year the company is planning to export 80% of its products. The biggest market of Chiwadi is Indonesia.

The other markets are USA and Canada. Chiwadi is planning to develop more modern products with traditional wisdom. Vinegar and natural fruit juice sweetened with



Processing of coconut sugar at Chiwadi

palm sugar are the other products the company is planning to produce immediately.

Chiwadi has made an investment of three million Thai bath and the annual turn over of the company during the last year was around 5.5 to 6 million Thai bath. Chiwadi is considering India as a big market, and is optimistic that coconut sugar will be accepted here. Sarapee is willing to transfer her innovative modern wisdom to Indian farmers too and is looking forward for collaborative projects in India. According to her Community level farming does have great scope in India and this must be exploited to the maximum.

Shri. Esto Susanto and Smt. Mida Mityanthi are her partners who are looking after the marketing of the company. Sarapee affirms that Chiwadi live with passion to drive immortal dream in “Natural Being for Health and Sustainability”.

(Interviewed by Sona John, Sub Editor and C. Sasikumar, Technical Officer, CDB, Kochi-11)



Sowing the Seeds of Change

Benjamin Brown Ripple is the founder of Big Tree Farms, Indonesia one of the leading global suppliers of highest quality coconut palm sugar. Benjamin was in Kochi to attend the XLV COCOTECH meeting held from 2nd to 6th July. Excerpts of the interview with Ripple.

Benjamin Brown Ripple, the founder and CEO of Big Tree Farms, a sustainable supply ingredient company based at Indonesia is focusing to create a way for food to move from farm to user. Since his humble beginning in 1996 in Bali in Indonesia, in just under an eighth of an acre, this migrant from America has now grown himself to be the saviour of the small scale farmers of Indonesia. Big Tree Farms has now grown over ten acres of land cultivating more than eighty different crops. From the 'Zero' investment, the company has now grown to 7 million US \$.

Ripple is attracted by the saying of Mahatma Gandhi on coconut sugar that nature has created this product not for processing in factories but in palm tree habitats. Like Gandhiji he too believe that local population can easily turn the nectar into coconut blossom sugar and it is a way to solve the world's poverty.

Ripple is determined in tripling the bottom line. He is actively involved with the creation of farmer organizations, internal control systems and organic certificates for the producers and their product.

It was his passion to learn traditional agriculture that prompted Benjamin to settle in Indonesia. He is an advocate of organic farming too. Benjamin identified the vast potential of the incredible sweetener; coconut palm sugar. Palm Sugar are the world's oldest sweeteners with over 6,000 years of history and these sweeteners are integrated so completely into both cuisine and traditional healing. Coconut palm sugar produce slow release energy, which sustains the human body through daily activities without regular sugar "highs", and "lows". Coconut palm Sugar is naturally low on the Glycemic Index (GI), which has benefits for weight control and improving glucose and lipid levels in people with diabetes. The major component of coconut sugar is sucrose followed by glucose and fructose.

When he began his work with coconut palm tappers over 8 years ago, the producers were considered some of the most marginalized and poor in the country. In Java in Indonesia, the average area owned by a farmer is one hectare. Around 50 palms are being tapped for neera. Small farmers themselves are tappers there. Indonesia currently has well over 100,000 farmers within its population that

rely on coconut sugar as their primary income. Those 100,000+ coconut sugar producers bring over 50,000MT of coconut sugar to market domestically every month. Over 600,000 ton of coconut sugar is produced and consumed domestically in Indonesia every year.

Big Tree Farms is having a separate wing which trains farmers in organic farming. Initially each farmer was making coconut sugar in his own kitchen with the



Benjamin Brown Ripple

traditional technology. But once the product was well accepted in the market and the demand started to grow, Benjamin felt it essential to follow food quality parameters to comply with the various food standards. Thus the idea of community processing center came to his mind and communities having



Neera

50-70 members were formed. Ripple says that this is similar to the Coconut Producer's Societies of India. Big Tree Farms is now working in association with 7500 farmers. The company has executed agreement with the farmers for regular purchase of the product.

This brown coloured sticky product is converted into granules in Big Tree Farms factory which is having most modern equipments. The product is passed through water jacketed tunnels for removing the moisture through evaporation. The remaining process is done manually. The product is poured to big bowls and stirred continuously and later on cooled. The product which is in crystal form now, is dried with dryers. Finally the product is packed for retail as well as for bulk requirements.

The company which was producing only 50 kg coconut palm sugar a month is producing 150 to 200 tonnes now. Big Tree Farms is also producing sugar syrup from neera. 2000 tonne syrup is produced in a year from 12000 tonne neera. While 90% of the palm sugar is consumed domestically, 90% of the syrup is exported. USA, Japan, Europe and Australia are the major markets.



Coconut jaggery

Big Tree Farms is the leading global supplier of the highest quality coconut palm sugar and nectar. After introducing the worlds first certified organic coconut palm sugar to the global market in 2008, Big Tree Farms continues to be the leading supplier for high quality coconut palm sugar and now liquid nectar.

100% of the money from growing, harvesting and primary processing of coconut palm sugar stays in the local communities. Through market access and production training, smallholder sugar-tappers have risen well above the poverty line and are able to earn an increase in personal income of close to 200%. Coconut palm sugar has the single highest potential for lifting these farmers into a better life while creating a net benefit to their surrounding environment.

CocoHydro is another product of Big Tree Farms. Coconut water is evaporated into a powder that can be easily rehydrated with water. This too is an organic certified coconut water supply chain with over 500 small farmers on the island of Java.

Ripple's visit to Kerala for the APCC conference was his first trip to India. He opines that situation with coconut in India is not unlike



Coconut sugar

the other Asia Pacific countries he has visited; small farmers are not getting paid what they deserve for. This is due to the overall reliance on the copra industry. Copra is a commodity with a traditionally heavy swing in prices as copra is ultimately tied to the prices of other plant oils. This situation is high risk for farmers and they need to have some form of alternative market for their product. He feels that coconut sugar is a great opportunity to diversify away from copra. He is getting numerous enquiries from Indian companies looking to import coconut sugar. He is still working through these to determine which companies are the best potential partners. Big Tree Farms would very much like to build coconut sugar manufacturing capacity in India. He is in touch with a few individuals to see how this may best move forward.

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*(Interviewed by Deepthi. R,
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Recollection of my association with Cocotech and Cogent

P.K.Thampan

Technical Panel of Asian and Pacific Coconut Community (COCOTECH)

COCOTECH, formed in the early seventies, is the Technical Panel of Asian and Pacific Coconut Community (APCC) on Production and Research, Processing and Research and Marketing and Research. In the beginning the Panel was known as the Permanent Panel of the Asian Coconut Community (ACC). The abbreviation used was COCOTECH which, however, continues to be in use even now without change. The ACC was subsequently renamed as Asian and Pacific Coconut Community (APCC) in 1975. COCOTECH used to meet once in six months during the seventies with the periodicity subsequently extended to once in a year and, presently to at least once in two years. COCOTECH is an effective forum for researchers and technical experts drawn from both member countries of APCC and non-member countries for discussion and exchange of information on different disciplines of coconut industry. In each session a theme of current relevance will be discussed, which provides an opportunity for participants to become aware of and acquaint themselves with the developments taking place elsewhere in the coconut sector. The theme for discussion is fixed for each session by the previous COCOTECH meeting. My participation in the COCOTECH sessions as a country representative and resource

speaker has spread over three distinct phases, 1972-1975, 1987-2001 and 2002-2003.

First Phase (1972-1975)

I was a participant of the 4th session of the erstwhile ACC held in April 1971 at New Delhi as an observer. My participation was in the capacity of Director, Directorate of Coconut Development and Member-Secretary, Indian Coconut Development Council. Following my participation in this session I was nominated by the Ministry of Agriculture, Government of India as the country representative on COCOTECH for a period of three years. The nomination was in force till 1975 and during that time the periodicity of COCOTECH sessions was twice a year. My early participation in the erstwhile ACC session has given me an opportunity not only to understand the organizational structure and functional spheres of the community but also to establish a close personal relationship with the late Godofredo P.Reyes of the Philippines, the first Executive Director. The relationship was further strengthened during the one week seminar on Coconut Marketing held at Manila in early 1972 in which I was a participant.

My first participation in the COCOTECH meeting was in July 1972 at Jakarta. In that session the country representatives presented technical documents as well as detailed reports covering the coconut situation in each country, the trends in production and productivity, the development

strategy and other related aspects. Such presentations and the discussions that followed provided useful information to all the participants. The technical document presented by me was titled 'Factors and their Priorities in Increasing Coconut Farm Production'. This was subsequently released as an official publication of the community. During the tenure of Mr. Reyes I participated in six COCOTECH sessions, two in the Philippines; two in Indonesia; and two in Thailand. During one of the sessions in the Philippines Mr Reyes suggested that I write a book on coconut covering all modern innovations in farming and processing sectors. I took the suggestion seriously and started writing the book after my return to Kochi. This book titled 'The Coconut Palm and its Products' was published in 1975 with a foreword of Mr. Reyes. In the foreword Mr. Reyes observed '- the author of the present book *The Coconut Palm and its Products* adopts what I consider is an essential and practical approach-an economic development concept based on the realities of Asian culture and technology. Hence, my hope that this book could lead to translating into a reality Asia's expectancy from the coconut industry-'. After this book was released, Dr.T.A.Davis who was the FAO consultant at that time in Indonesia visited me and took 50 copies of the book on his return for distributing among the coconut researchers in that country.

In the COCOTECH session

held at Bangkok during 2-7 June 1975 the agenda items were discussed by two separate panels, for Production and Productivity and the other for Marketing and Processing. I was nominated Chairman of the panel for Production and Productivity. After this session there was a long gap before I could renew my association with COCOTECH. This was the last session I could attend during the tenure of Mr.Reyes.

Second Phase (1987-2001)

The second phase of my association commenced after Dr. P.G.Punchihewa of Sri Lanka took over charge as the Executive Director of APCC. In 1987 a regional study was sponsored by APCC on 'New Varieties of Coconut: An Assessment of Experience', of which I was made the project leader for India. The objective of the study was to assess the suitability of new varieties especially hybrids in new planting and replanting programmes envisaged for coconut farmers in the APCC member countries. In India the study covered four southern States viz., Kerala, Tamil Nadu, Andhra Pradesh and Tamil Nadu. The results of the study were published by APCC in book form in 1988. Again in 1998 APCC in association with the Bureau for the Development of Research on Tropical Perennial Oil Crops (BUROTROP) and the International Coconut Genetic Resources Network (COGENT)/International Plant Genetic Resources Institute (IPGRI), now Bioversity International, has sponsored a regional study under the theme 'Assessment of the Performance of High Yielding Coconut Varieties/Hybrids and Varietal Preference of Coconut Farmers' to cover 18 countries

including India. APCC nominated me as the consultant for India. Among the participating countries the study in India was completed first and the findings were made available to the APCC in early March 1999. As the findings of the study are still relevant, the most important ones are summarized below:

(i) Time series data of the yield record of hybrids show that consistently higher yield at the rate of 15,000 to 20,000 nuts per ha is achievable. This level of production is comparatively much higher than that of the tall variety enjoying the same agroclimatic conditions and management quality.

(ii) The study brought to light the obligatory need to grow hybrids under above average management care as otherwise the performance will be dismal. Optimum levels of irrigation and manuring are necessarily to be provided for the hybrids to perform as expected. In places where this level of management is not possible, locally adapted tall varieties are to be promoted for general cultivation. For this purpose nurseries for the production of quality planting material of recommended tall cultivars are to be encouraged to be set up at local levels under the aegis of Village Panchayate and/or Farmer's Organizations.

(iii) The hybrids especially T×D exhibit many undesirable traits under field conditions such as lack of uniformity in performance, alternate bearing, leaf drooping, bunch buckling and higher susceptibility to pests and diseases. Consequently, farmers hesitate to grow them on large scale. Research has to bestow special attention to evolve new hybrid combinations which are devoid of these unfavourable features. Likewise, it

is important to recommend hybrids for distinct climatic and edaphic regions. To facilitate this, hybrid testing centres are to be opened in different zones using selected combinations in farmer's fields.

(iv) The Coconut Development Board may encourage private sector involvement in hybrid seed production by extending technical and financial support. Encouraging on-farm production of hybrids by farmers is a useful step for the purpose of enhancing the availability of hybrid planting material. For this, technical support has to be extended to them for performing emasculation of the dwarf palms available in their gardens.

(v) The study has convincingly established the economic benefits of intercropping and mixed farming in coconut holdings. These practices have special relevance in Kerala where most of the holdings are small which under monocropping system will not contribute significantly to the household economy. Integrated farming involving woody species of economic importance, field crops comprising fruits, vegetables, root and tuber crops etc. with or without livestock components generates multiple sources of food, income and employment for the members of the practising farm families and also improves the productivity of the palms. It will be worthwhile to promote integrated farming in small holdings and for which farmer's groups may be organized and techno-economic support extended to them to stimulate group action in managing the farming system.

(vi) It is important to promote farm level as well as community level processing of coconut products for value addition. Suitable agencies at different levels may be created for

popularizing appropriate processing technologies and facilitating efficient marketing of processed goods. The setting up of appropriate agencies in the major coconut producing States for technology transfer and market promotion will stimulate the growth of coconut industry and improve its competitiveness.

During the tenure of Dr.Punchihewa I functioned as the country correspondent of COCOMMUNITY, the fortnightly journal of APCC. Since 1975, my participation in COCOTECH session was after a gap of 15 years in the xxviii session held on 22-26 July 1991 in Fiji as a resource speaker. The theme of the session was 'Small Scale Processing of Coconut Products' and in which my presentation was on 'Small Scale Coconut Processing: Indian Experience'. My next participation was in the xxxi session held on 18-22 July 1994 at Chiang Mai, Thailand where the interaction was on the theme 'Coconut Industry into the 21st Century'. My presentation was on 'Coconut and Environment'. I was an observer in the next meeting held at Kochi on 17-21 July 1995 in which the theme 'Global Competitiveness of the Coconut Industry' was discussed. I was a participant in the workshop held at Chumphon, Thailand on 29 September 1996 to discuss on the theme 'User's Perspective to Promote Multipurpose Uses and Competitiveness of Coconut'. In this workshop the paper I presented was 'Need for Suitable Varieties to Promote Multipurpose Uses of Coconut'. The last session of COCOTECH I could attend during the tenure of Dr.Punchihewa was the xxxiv one held at Manila, Philippines on 14-18 July 1997 to discuss on the theme

'Environmentally-Friendly Coconut and Coconut Products'. In this session the presentation I made was on 'Environment-Friendly Coconut in the Background of the Social and Cultural Life of People'.

During Dr. Punchihewa's period APCC brought out many publications on coconut industry. The books I authored and published by APCC were (1) New Varieties of Coconut-India: An Assessment of Experience(1988,1990), (2)Coconut Industry in India(1989), which was reprinted in India in 1990, (3) Processing of Coconut Products in India(1993) and (4) Facts and Fallacies about Coconut Oil (1994,1998) with two Indian editions in 1994 and 2004 respectively.

Third Phase (2002-2003)

After the tenure of Dr. P.G.Punchihewa ended, my association with COCOTECH commenced after Dr.P.Rethinam from India took over charge as Executive Director of APCC. The session I attended first during the tenure of Dr.Rethinam was the xxxix one held on 1-5 July 2002 in Pattaya, Thailand. The theme transacted in this session was 'Strategic Agenda to make Coconut Industry Globally Competitive'. The subject of my presentation in this session was 'A Strategic Development Agenda for Enhancing Income from Coconut-Indian Experience'. My next participation was in the XL session held on 1-5 July 2003 in Colombo, Sri Lanka. The theme transacted was 'New Approaches to Product Diversification, Value Addition and Global Marketing of Coconut Products'. The topic I presented was 'Micro Financing Scheme for Small Holders towards Poverty Alleviation and Higher Income'. This was the last COCOTECH

session I had attended.

Dr. Rethinam took interest in the activities of Peekay Tree Crops Development Foundation (PTCDF) and had visited the project site of the organization at Vayalar in Alappuzha district on three occasions. He arranged financial support of APCC for organizing one Coconut Food Festival in 2004 and in installing one modern copra dryer in the project site. Dr. Rethinam also contributed US\$2,000 for providing support to deserving farmers and poor working women in the coir spinning sector in the Vayalar Panchayat. The contribution made by Dr.Rethinam has been utilized to institute a 10-year endowment for the benefit of model farmers, enterprising women, meritorious students and poor and destitute women. This endowment is known by the name 'Dr. Rethinam Prizes'. In 2003 Dr. Rethinam also participated in the 1st International Coconut Summit-2003 organized at Kochi jointly by PTCDF and Swadeshi Naliker Mission. He has also arranged the participation of the APCC Secretariat in the exhibition organized on the eve of the Summit and has also sponsored the publication of the proceedings of the Summit.

Since 2003 I have no functional association with APCC-COGENT. Mr. Romulo N. Arancon Jr., the present Executive Director of APCC was the chief guest of the 2nd International Coconut Summit-2007 organized by PTCDF and Swadeshi Naliker Mission at Kochi. He had also extended financial support for publishing the proceedings of the Summit.

International Coconut Genetic Resources Network (COGENT)

COGENT came into existence in 1992 under the auspices of

International Plant Genetic Resources Institute (IPGRI), now Bioversity International, with the support of Technical Advisory Committee (TAC)/Consultative Group on International Agricultural Research (CGIAR) and its donors. Subsequent to the formation, COGENT established a coordination unit at IPGRI's Asia, Pacific and Oceania Regional office in Malaysia and developed initial programme priorities and projects. The priority research areas identified for COGENT were: germplasm conservation and improvement; disease and pest control; sustainability of coconut-based farming systems; post harvest handling and processing; and socioeconomics of coconut production. Among these areas, Germplasm Conservation and Improvement was identified as the most strategic research activity. Presently COGENT has 39 members and a Steering Committee comprising country representatives determines programme priorities and oversees the different COGENT activities.

My association with COGENT has begun in 1998 when an IFAD-funded project 'Enhancing the Income and Employment in the Coconut Sector through Conservation and Use of Special Coconut Ecotypes' was sanctioned to Peekay Tree Crops Development Foundation (PTCDF) for implementation. The major components of the two-year project were (1) to conduct a Farmer Participatory Study in Kerala and (2) to identify diversity related areas of economic benefit to small and marginal coconut farmers in Kerala. Following this, a second project funded by ADB entitled 'Developing Sustainable Coconut Based Income Generating

Technologies in Vayalar Community' was sanctioned in 2002. This project continued to be in operation till the end of 2004. Again in 2006 an ancillary project 'Enhancing CBO activities and Microcredit Systems in Coconut Growing Communities in Vayalar' was sanctioned for one year.

The objectives of the 2nd and 3rd projects were to test and demonstrate the technoeconomic viability and environmental sustainability of income generating technologies in the Vayalar Community. The major components of the two projects were: (1) establishment of community based organization (CBO); (2) identification of marketable coconut products based on market survey; (3) production and marketing of high value coconut products; (4) production trials of intercropping and mixed farming; (5) propagation of farmer's coconut varieties and (6) development of farmer's and women's action plans for coconut-based income generating activities.

During my association with COGENT, Dr.Pons Batugal from the Philippines was the Coordinator. A very dynamic and devoted scientist, Dr.Batugal had visited the project sites in Kerala and had also supported the efforts of Peekay Tree Crops Development Foundation (PTCDF) to get sanctioned one UNDP-GEF-SGP Project in 2004. The present Coordinator Dr.Roland Bourdeix had also visited Vayalar Community a few years ago before his new assignment and had interaction with the local farmers. I had participated in four project related meetings of COGENT held in 1999 and 2004 in Vietnam; 2003 in Davao, Philippines; and in 2006 in Bogor, Indonesia. I was an observer in the Steering Committee meeting held at

Kochi on 8-10 July 2012.

Except for the Farmer Participatory Study and Market Survey which were organized in different parts of Kerala, the implementation of all other project components was confined to Vayalar Panchayat. As part of the ADB-funded project one CBO by name 'Vayalar Community Development Centre' (VCDC) was registered to represent the people of Vayalar Panchayat. Over 1,000 socially and economically poor households became life members of the organization by paying membership fee of Rs.105 each. By extending training support to the community members in income generating technologies and by providing microcredit either for strengthening the existing activities or for exploring better opportunities, VCDC had contributed towards creating sustainable income sources in the farming and processing sectors and gainful employment particularly for women. VCDC had also supported the household food and nutrition security by encouraging the production of multiple foods from each farming unit. VCDC through an elected Executive Committee coordinated and monitored all project activities within the Vayalar Panchayat.

Among the CBOs organized under the ADB-funded COGENT project by different agencies in 24 communities spread over eight coconut growing countries in the world VCDC was adjudged the best community by ADB/IPGRI/COGENT. Accordingly, VCDC was honoured in 2004 by awarding a prize of US\$ 2,000 and a certificate of appreciation.

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Coconut Breeding Initiatives in India and Sri Lanka

Remany Gopalakrishnan

In Sri Lanka a crop improvement programme in coconut is on, where farmer himself becomes the coconut breeder, a novel approach that could be considered for adoption by India at the grass root level. Sri Lanka is attempting to such a step with a view to increase the production of quality seedlings consequent to the need for high yielding planting material of coconut and also to evolve a suitable cultivar or hybrid appropriate to the needs of the urban areas. The country is in dire need of quality planting material.

Coconut is grown in 3.94 million ha in Sri Lanka covering all districts in the country and the crop is next to rice in importance. Coconut as a food supplement to Sri Lankans provides 15 % of dietary calories and 5 % protein. Five per cent of Sri Lankan population depends on this crop as the main source of income. The coconut sector contributes significantly to the

employment generation in the country and provides livelihood security to many. The sector also plays a vital role in sustaining a viable economy at village, district, regional and national level.

In technology development in the processing sector Sri Lanka is one of the leading coconut producing countries in the world. Desiccated coconut, Coconut milk powder, coconut cream, coconut water beverage, toddy, treacle and jaggery are the available products in the edible product basket kit, and coir briquettes, cut pieces of husk, geotextiles, shell charcoal, and activated carbon are the non-edible products. Most of these products figure in the export sector of Sri Lanka. Export revenue derived from desiccated coconut alone was Sri Lankan Rs. 13,957 million while the net foreign exchange earned from export of coconut products in 2011 was Sri Lankan Rs.47,306 million (CDA 2011).

Exploitation of Hybrid vigour

India was the first country to exploit heterosis or hybrid vigour in coconut. It was by J.S. Patel in 1934 who had attempted this by evolving a TxD hybrid. This was a breakthrough in crop improvement studies in coconut. Patel observed early germination, increased seedling collar girth, higher leaf number, early bearing and high yield in the progenies of a cross between the local tall and the local dwarf. So far more than 100 cross combinations have been developed in the country for evaluation of yield potential at Central Plantation Crops Research Institute (CPCRI), State Agricultural Universities and the centers under the All India Coordinated Research Projects under ICAR. Already 15 hybrids have been released for cultivation in different states of the country.

Sri Lanka made its kick start in coconut breeding in 1960s. One TxT and DxT combination viz.,

CRIC60 and CRIC65 were developed which subsequently led to the establishment of seed gardens for the mass production of seedlings to cater to the demand of high yielding planting material. Presently more than 50 per cent of seedling requirement is met from these combinations. Two more hybrids were evolved in 2004 by crossing Sri Lankan Tall x San Ramon (CRISL98) and Sri Lankan Green Dwarf x San Ramon (Kapruwana). A seed garden for the production of Tall x San Ramon alone was subsequently established for mass production of this particular hybrid. India maintains the world's largest repository of coconut germplasm with 400 collections (consisting of 268 indigenous and 132 exotic types) from 28 countries covering South Asia, South-East Asia, Caribbean Islands, Indonesian Islands, Pacific Ocean Islands, African countries, Bangladesh and Sri Lanka. Conservation and utilization of coconut biodiversity have resulted in development of 32 improved varieties, including 15 coconut hybrid varieties. The International Coconut gene bank for South Asia established at Kidu (Karnataka) is conserving 90 designated accessions.

In Sri Lanka systematic collection and conservation of coconut germ plasm programme initiated in 1983 which was intensified in 1994 and steps were taken to introduce exotic coconut germplasm from other coconut growing countries including India in 2002-2004. Under the germplasm collection programme, Coconut Research Institute Sri Lanka identified a new dwarf with brown colour nuts, petioles and inflorescence in 1998 which was

later named as Sri Lanka Brown Dwarf (SBD). Evaluation and characterization of this variety showed that it was superior to other forms of dwarfs in the country in terms of nut number, kernel weight and tolerance to moisture stress. Therefore, crosses between Brown Dwarf x Sri Lanka Tall, its reciprocal and Brown Dwarf x San Ramon were made in 2003 with the objective of evolving other high yielding coconut hybrids with added qualification of high nut number and efficient water utilization. The hybrids were planted in four multi-locations during 2004 and 2005 representing different agro-ecological zones and in different soil types. These trials are in the 9th year and the recorded data has reportedly shown that crosses involving brown dwarf are promising and new coconut hybrids will be released to the growers in near future.

Breeding for Resistance

In India root wilt disease was first reported in 1882. The

etiological studies confirmed the disease of phytoplasma origin. Root wilt disease still evades a perfect control measure. But the production and productivity can be improved through proper management strategy. CPCRI has evolved different effective management strategies to contain the disease and to improve productivity of root wilt affected palms and gardens. Breeding for root wilt disease has resulted in a high yielding disease tolerant hybrid variety with Chowghat Green Dwarf as the female parent and West Coast Tall (WCT) as the male parent. This has been evaluated and released for the root wilt affected tracts under the name Kalpa Sankara. Chowghat Green Dwarf (CGD) and Malayan Green Dwarf (MGD) have been evaluated as root wilt resistant/tolerant varieties and have been released by the institute for cultivation in the root wilt affected tracts under the name Kalpasree and Kalparaksha respectively. Phenotypically healthy palms exhibiting tolerance to root wilt has



Sri Lankan Green Dwarf



Sri Lankan Green Brown



Chawghat Green Dwarf



Chawghat Yellow Dwarf



Sri Lankan Red Dwarf



Sri Lankan Yellow Dwarf

also been located in hot spot areas of the disease. Farmers collect seednuts from such 'Elite' palms.

In Sri Lanka a serious outbreak of phytoplasma disease similar to root wilt in India, hit the coconut population in the southern province of the country in 2006. Named after the first place of noticing the incidence, as Weligama Coconut Leaf Wilt Disease (WCLWD), this disease has changed the direction of the breeding programme. Developing WCLWD resistant coconut cultivars with the use of tolerant ones has been identified as the most appropriate and sustainable approach to manage the disease. The preliminary observation

observed lower susceptibility of Sri Lanka Green Dwarf to the WCLWD similar to The Chowghat Green Dwarf in India. Further a survey done in the area showed that there were resistant Sri Lanka Tall palms among the disease affected hotspot areas similar to Elite palms in root wilt hot spot areas. Therefore two experiments were planned and initiated first to screen the available coconut cultivars for tolerance to WCLWD and second to develop resistant hybrids between resistant tall palms and green dwarfs. Under the first experiment the coconut varieties/hybrids and cultivars were planted in the disease hot spot areas and

recorded the tolerance. The seedlings of different varieties expressed disease symptoms. The data are being collected to compare the resistance/susceptibility of the cultivars planted. Under the second experiment a breeding programme was conducted between healthy Sri Lanka Tall (SLT) from the hotspot area and Sri Lanka Green Dwarf previously identified as disease resistant, on par with the research carried out in India for developing Kalpasankara. Seedlings produced from these crosses will be evaluated in the field for the confirmation of the disease resistance.

When infestation of coconut mite became a serious menace in

Sri Lanka in late 1990's causing significant loss of yield, and when chemical and biological control measures were not very much effective, a breeding programme was started to evolve mite tolerant/resistant coconut cultivars as the best possible sustainable answer for coconut mite. In a study conducted at CRISL, coconut varieties, Gon thembili (GT), Sri Lanka Yellow dwarf (SLYD) and San Ramon (SR) were found presumably less susceptible to coconut mite. Thus these coconut varieties were recognized as prospective parents for developing new cross combinations for evaluating in mite infested areas to identify a new mite resistant/tolerant cultivar. Further it has been reported that the round shaped nuts are less susceptible to mite and hence Brazilian Green Dwarf was also used in the breeding programme. The crosses, GT x BGD, SR x BGD, DY x GT, SLT x BGD and BGD x GT were conducted under this programme and field trials are progressing to evolve mite resistant varieties.

The Magic Dwarfs

Coconut breeders all over the world till recently have mainly considered dwarf forms of coconut as combiners for production of inter-varietal hybrids. This attitude is slowly getting changed in many coconut growing countries. Dwarf coconuts have many useful attributes such as prolific bearing, and short stature by making easy for plucking fruits. Therefore, if a dwarf coconut variety can be improved to produce nuts of reasonable size to satisfy domestic culinary need while keeping its smaller stature, it has a great potential for small home gardens in urban areas where space for

coconut planting is getting reduced.

Sri Lanka currently has four local dwarf forms, viz., green, red, yellow and brown and two exotic forms, Cameroon Red Dwarf and Brazilian Green Dwarf. In India all available dwarf forms such as Chowghat Orange Dwarf (COD), Chowghat Green Dwarf (CGD), Malayan Yellow Dwarf (MYD), Malayan Green Dwarf (MGD), Malayan Orange Dwarf (MOD), and Gangabondam (GB) are being utilized as male or female parent in hybridization programme. COD has been found to exhibit a certain degree of resistance to mite infestation and this cultivar has been released as a variety suitable for tender nut purpose.

In India crossing Dwarf x Dwarf is also experimented and progenies have been planted in research stations for evaluation. Sri Lanka is also testing the performance of DxD for evolving a suitable cultivar for home gardens to satisfy daily culinary house hold needs. A crossing programme was initiated in 2008 and progeny planted in 2009. Two Urban Schemes are in vogue whereby 2-3 dwarf seedlings are supplied to house holders for planting in their limited land space for field testing the DxD hybrids. Here farmer or house owner himself becomes coconut breeder for experimenting.

Coconut Development Board in India has initiated a collaborative research for increasing the availability of hybrid seedlings of various combinations through academic institutions where post graduate courses in botany, Zoology or biotechnology are available. Colleges can identify mother palms of desirable Dwarfs in farmers' fields and can carry out



Kalpasankara - a cross between CGD and WCT

hybridization through skilled pollinators. This is in the context that hybrid seedling production from Government farms does not satisfy the growing need of the farming community. Many academic institutions in Kerala, Tamil Nadu and Karnataka and a few NGOs have come forward to undertake research project. It is expected that hybrid seedlings from such project will be available by 2013/2014 planting season. Emulating the Sri Lankan programme India can also involve farmers in such programmes where farmer becomes the breeder. Our farmers should also rise to the occasion considering the need of the hour.

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Deputy Director, CDB, Kochi-11

COGENT to set up international thematic group on coconut genomics



Dr. George V. Thomas, the new Chairman of COGENT receiving certificate from the Former Chairman

The 16th steering committee meeting of Coconut Genetic Resources Network (COGENT) held at Kochi from 8th to 10th July 2012 decided to set up an international thematic group on coconut genomics under the leadership of India. The objective is to sequence coconut genome and develop tools for improvement of coconut varieties. International collaborative projects would also be organised for evaluating dwarf varieties and to develop tender nut varieties.

Representatives from 14 coconut growing countries besides representatives of Asian & Pacific Coconut Community (APCC) and Bioversity International attended the meeting. The meeting decided to develop international collaborative projects on breeding new varieties tolerant to pests and diseases and tender nut water with a view to enhancing the earning capacity of coconut growers and stepping up export of value-added coconut products.

Dr. George V Thomas, Director, CPCRI is the elected Chairman of the COGENT Steering Committee Meeting (SC), for a period of two years (2012-2014). Dr. Kouassi Allou of the Marc Delorme Research Institute, Cote d'Ivoire was the chair of the COGENT SC. The SC is the main decision making body of COGENT, representing 39 coconut growing countries.

The COGENT SC comprises of 13 members with two representatives each from the five major coconut growing regions, including the representatives of the regional ICGs at Indonesia (SE Asia), India (S. Asia), Brazil (Caribbean), Cote d'Ivoire (Africa and Indian Ocean) and Papua New Guinea (Pacific Ocean), Asian Pacific Coconut Community, Secretariat of the Pacific Community and the COGENT Coordinator. The SC plays a pivotal role in prioritization and implementation of projects pertaining to conservation, characterization and utilization of

coconut genetic resources in the member countries.

The 16th COGENT steering Committee meeting at Kochi constituted of 10 technical sessions. Focused recommendations were finalized for shaping research on coconut conservation and utilization in the 39 COGENT country members.

The meeting also recommended to involve the ICGs across the world, in Papua New Guinea, Brazil and India to collect and conserve the crucial traditional coconut diversity in the Polynesian region, threatened by genetic erosion and climate change threats and also to develop international collaborative projects for different aspects of coconut improvement viz. breeding for new varieties with high yield and tolerance to pests and diseases.

Retired



Smt. Cicily George, Finance Officer, retired from the service of Coconut Development Board on 30th June 2012. She joined the erstwhile Directorate of Coconut Development in August 1970. She was promoted as Junior Accounts Officer in January 1989 and as Finance Officer in December 2009. She has served the Board for 42 years.