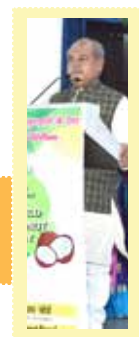


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Message from the Chairperson's Desk

Dear readers,

Hearty Greetings from Coconut Development Board !

Coconut Development Board celebrated 21st World Coconut Day on 2nd September 2019 at KIIT Campus, Bhubaneswar, Odisha. The focus of the programme was a technical session handled by subject matter specialists for creating awareness on the goodness of coconut and also for equipping the farmers with the latest and upto date scientific practices in coconut management, processing, value addition, marketing and export. The meeting had the highest ever farmer participation of around 1000 farmers from all coconut growing states across the country.



Hon'ble Union Minister for Agriculture and Farmers Welfare during his inaugural address assured that the Government of India is committed for the development of coconut cultivation, processing and value addition in the country. He appreciated the laudable services of CDB which plays a major role in the implementation of various schemes and activities for the integrated development of coconut sector in India. The Hon'ble Minister expressed his sincere concern for the farmers affected by natural calamities like Fani cyclone in Odisha and assured all possible cooperation and support of the Government of India for the welfare of farmers. The Minister also reminded the farmers that processing and value addition is most essential for attaining the vision of the Government of India in doubling the farmers income by 2022.

Shri. Sanjay Agarwal IAS, Secretary, Agriculture and Shri. B Pradan IAS, AS & FA, Department of Agriculture, Cooperation and Farmers Welfare, Government of India who spoke during the occasion appreciated the coconut farmers for their hard work and contribution and informed that Government of India will stand by the farmers and will extend all support to the farmers. All the entrepreneurs were also appreciated for their innovative products and contribution to the export earnings of the country.

The prospects of coconut, the wonder crop is diverse and is a gift to mankind. India is the leader in coconut productivity with around 1.2 crore families depending on this crop for their livelihood. Ensuring remunerative and steady price for coconut and forward integration is essential for providing better prospects to coconut farmers.

I call upon my farmer friends and entrepreneurs to tap the potential of this sector.

V Usha Rani IAS
Chairperson



CDB activities for the betterment of coconut farmers are commendable:

Shri. Narendra Singh Tomar

Processing and value addition is most essential for attaining the vision of the Government of India in doubling farmer's income by 2022.

Union Minister of Agriculture and Farmers Welfare Shri. Narendra Singh Tomar appreciated the laudable services of CDB which plays a lead role in the implementation of various activities for the integrated development of coconut sector in India. The Government of India is well aware of the plight of coconut farmers of the state. He called upon the State Government to follow the due process enabling CDB and the Agriculture Ministry to extend more assistance to the affected farmers. The Hon'ble Minister was delivering the inaugural address of the 21st World Coconut Day celebration held on the theme, Coconut for Family Wellness organized by Coconut Development Board (CDB) at KIIT campus, Bhubaneswar.

The Hon'ble Minister emphasized the importance of coconut farming in the agriculture sector of the country. He said that more than one crore farmers of the country are engaged in coconut farming which comprises of 33 percent of total coconut farming in the world. The Government is committed to empower the agriculture sector of the country to add to the Gross Domestic Product (GDP). In order to achieve this, coconut farming needs more attention.

The Centre has decided to form 10,000 Farmer Producer Organizations (FPO) across the country. He called upon the farmers of Odisha to form more collectives in order to avail the benefits extended





A view of the audience

by CDB for development of coconut cultivation, processing and value addition. The need of the hour is to produce quality seedlings for re-plantation in the cyclone-affected areas of the State. He requested the wholehearted support of all for the production of quality coconut seedlings suitable for Odisha conditions.

Stating that CDB is playing a major role in skill development of farmers, The Hon'ble Minister informed that 484 coconut-based industries have been set up so far across the country with the support of the Centre. The Government of India is on a mission to double the farmers income by 2022. The government is in need of more educated farmers to come up with start-ups in the country.

The government is committed for the development of coconut cultivation, processing and value addition. Coconut Development Board is playing a major role in the implementation of same. Around 490 units are already functioning in the country with the financial assistance of the Board which has to be doubled by 2022. Coconut is having high prospects in value addition and an array of products can be developed from coconut. Coconut Development Board is playing a commendable role in undertaking skill development programmes and thereby generating employment opportunities in the sector. He appreciated the state for occupying a prominent position in the coconut map of the country and he offered all possible cooperation and assistance of the Government of India for the welfare of the farmers of the country.

Dr. Arun Kumar Sahoo, Hon'ble Minister for Agriculture, Government of Odisha in his address briefed on the coconut situation in India, particularly



Dr. Arun Kumar Sahoo,
Hon'ble Minister for Agriculture, Government of Odisha

in Odisha. He said that the coconut farmers are affected by frequent natural calamities for the last few years. He emphasized that special care is to be taken to resolve their heavy loss. Around four lakh palms are devastated by these calamities. He called upon the farmers to ensure that their crops are covered under crop insurance. He further spoke on the health benefits of various coconut based products, especially coconut water, coconut oil, virgin coconut oil etc. He requested to implement available schemes of CDB in the state of Odisha.

Shri. Sanjay Agarwal IAS, Secretary, Agriculture, Ministry of Agriculture, Government of India in his address briefed that it is for the first time that CDB is organizing the World Coconut Day celebration with the highest farmer representation from across the country. He appreciated the collectivization of farmers under the aegis of Coconut Development Board, viz. Coconut Producer Society, Coconut Producer Federation and Coconut Producer



Inauguration of exhibition by Hon'ble Minister



Company. He called upon the farmers of Odisha to form more collectives of farmers. He apprised the farmers that the government has waived off all the incidental charges in issuing Kissan Credit Card. He informed that the need of the hour is to produce quality seedlings to replant in the cyclone affected areas and requested for the whole hearted support of all in producing quality coconut seedlings suitable for Odisha climate conditions.

Shri. Susant Kumar Rout, Hon'ble MLA, North Bhubaneswar, Dr. Saurabh Garg IAS, Principal Secretary, Department of Agriculture and Farmers Empowerment, Government of Odisha and Shri. B Pradhan IAS, AS& FA, Department of Agriculture, Cooperation and Farmers Welfare, Government of India also spoke on the occasion as Guests of Honour.

Smt. Usha Rani, IAS, Chairperson, CDB in her welcome address spoke on the prospects of coconut, the wonder crop. India is the leader in coconut production and around 1.2 crore families are depending on this crop for their livelihood. Coconut can be compared to a son or a daughter and as a family member, coconut is a gift to the mankind. She spoke on the various health benefits of coconut and highlighted the healing benefits of lauric acid which is present only in mother's milk and coconut. Dr. Biswanath Rath, Vice Chairman, CDB proposed vote of thanks. Earlier, the Hon'ble Minister inaugurated the exhibition of coconut products arranged at the premises of the KIIT University. The Hon'ble Union

Minister also released various publications in English, Hindi and Oriya during the occasion. The meeting had the highest ever farmer participation of around 1000 farmers from all coconut growing states across the country.

Dr. Anitha Karun, Acting Director, CPCRI, Dr. S C Sahoo, Professor, OUAT, Dr. Amit Ghosh, Associate Professor, AIIMS, Bhubaneswar and Dr. Sreekumar Poduval, Deputy Director, CDB handled various sessions on coconut related topics. Farmer representatives from various states shared their experiences during the occasion.

Along with Coconut Development Board, M/s. Marico Ltd, M/s.K.L.F. Nirmal Industries Pvt. Ltd, M/s.Pure Tropic, M/s.Sakthi Coco Products, M/s. Soukea Enterprises, M/s.Madhura Agro Process Pvt. Ltd, M/s.Dinesh Foods, M/s. Yogic Foods, M/s. Kovai Agro Foods, M/s.Pranshu Coco, organizations under Ministry of Agriculture viz Central Plantation Crops Research Institute, Protection of Plant Varieties & Farmers' Rights Authority and Directorate of Horticulture, Govt. of Odisha displayed their products and services in the exhibition which was held as part of the programme.

All coconut growing countries in the Asia and Pacific region observe 2nd September as World Coconut Day every year. The foundation day of the International Coconut Community (ICC), an intergovernmental organization is observed as the World Coconut Day in the member countries. The objective of observing coconut day is to create increased awareness and importance of coconut and help focus national and international attention to this crop. In India, World Coconut Day is celebrated every year under the aegis of Coconut Development Board.

In Odisha, during the past 10 years, the central government through Coconut Development Board has extended financial assistance for expansion of area under coconut for around 2400 hectare, and more than 7.5 lakh seedlings are produced in state government farms with the support of the Board. Under integrated farming programme, around 3700 hectare is covered with financial assistance of Rs. 18.90 crore. During the last 10 years, the Board has expended Rs. 23.93 crore under various developmental schemes in the State of Odisha. Apart from this Coconut Development Board is extending additional support of an amount Rs. 29.659 crores as financial assistance to the coconut growers affected by the Fani cyclone in the state through the Replanting and Rejuvenation programme. ■



Government is committed for protecting the farmer's interests: Excerpts from the Speech of Hon'ble Union Agriculture Minister

India is an agriculture oriented country but the state of the farmers of our country is not satisfactory. Under the leadership of Prime Minister Shri. Narendra Modiji, concerted efforts are being made to double the income of the farmers and we shall achieve our aim to double the income of the farmers by 2022. Today our farmers are using modern methods in agriculture due to the hard work of the farmers, research work of our scientists and aid from the Government. We have become self sufficient in the food sector.

Coconut is a major segment of the agriculture sector. More than one crore farmers are associated with coconut cultivation and we are cultivating coconut in more than 20 lakh hectare area. India accounts for 33% of the coconut cultivation in the world and we occupy the prominent position in global coconut scenario. Coconut Development Board extends support for the overall development of the coconut industry. Government of India as well the State Governments are committed for strengthening this sector.

Skill development programmes are implemented in this sector. Training is imparted in coconut cultivation and marketing to the youth of rural areas.

Now 484 processing units are functioning in this sector all over the country and by 2022 we have to double the number of coconut processing units. The Government of India is ready to offer every possible assistance to this sector.

Hon'ble Prime Minister Narendra Modiji has told that we have to make India a five trillion dollar economy. The target seems high but if we are determined to achieve, nothing is impossible. If the country is to be made a trillion dollar economy then we have to improve the financial status of the farmers. Agriculture sector, benefit of the farmers and development of the villages are the priorities of the Government of India and we are fully committed to it.

Today farmers get one and a half times of the MSP from the Govt. of India. It is time to change our perspective from product centric to farmer centric.

Every farmer is getting Rs 6000 as financial assistance under the Pradhan Mantri Krishi Yojana. At first only small and marginal farmers were included in this scheme but the Prime Minister has extended the scheme to all the farmers of the country and all are benefitted by the scheme. Around 30 lakh farmers of Odisha are benefitted from this scheme.

Modiji launched the PM MaanDhan Yojana with a view to provide social security to the farmers. Farmers between the age of 18 and 40 can join this scheme. If a farmer is joining the scheme at the age of 18, he has to deposit Rs 55 per month and the same amount will be deposited by the Government of India. If the farmer's age is 40 then he has to deposit Rs 200 per month and the Government will also deposit Rs.200 per month. When the farmer completes 60 years he will be given Rs.3000 as monthly pension.





World Coconut Day - Technical Session





Exhibition stalls of World Coconut Day





ICC Session awarded Certificate of Accreditation to Coconut Farmer Producer Companies, India

The recently held ICC Session and Ministerial meeting held at Manila, Philippines awarded Certificate of Accreditation to Coconut Farmer Producer Companies, India.

The 55th ICC Session & Ministerial Meeting hosted by Ministry for Agriculture and Philippines Coconut Authority, Government of Philippines was held at the Philippines International Convention Centre (PICC) Manila, Philippines during 26-30th August 2019.



National Ministers and Senior Officials viz. Dr. William D Dar, Philippines Minister for Agriculture and Acting Secretary, Hon. Lopao Natanielu Mua, Minister of Agriculture and Fisheries from the Government of Samoa, Hon. Clezy Cleveland Rore, Minister of Commerce, Industry Labour and Immigration from the Government of Solomon Islands, Hon. Henry Jons Amuli, Vice Minister for Agriculture and Livestock from the Government of Papua New Guinea, Hon. Vadivelu Suresh, State Minister of Plantation Industries from the Government of Sri Lanka, Hon. Viam Pillay, Assistant Minister for Agriculture, Government of Fiji, Senior Government Officials of ICC member countries and

Official Observers from the Centre for Agriculture and Bioscience International (CABI), United Nations Conference on Trade & Development (UNCTAD), The Pacific Community (SPC), Centre de Investigacion Cientifica de Yucatan (CICY), Australian Centre for International Agricultural Research (ACIAR), French Agricultural Research Centre for International Development (CIRAD), Caribbean Agricultural Research & Development Institute (CARDI), Melanesian Spearhead Group Secretariat (MSG), International Treaty on Plant Genetic Resources for Food & Agriculture (ITPGRFA), Conservation and Development of Coconut Oil of Thailand Forum (CDCOT), Centre National De Recherche Agronomique (CNRA), Bioversity International, Indonesian Coconut Coalition, (Kopek Kelapa) Indonesian Farmers Association and Tanzanian Agricultural Research Institute (TARI) attended the Session.

Secretary Dr. William D Dar, Philippines Minister for Agriculture and Acting Secretary, Government of Philippines inaugurated the Session in the presence of Mr. Gonzalo T. Duque, Administrator of PCA and Hon. Cynthia A. Villar, Senator, the Republic of Philippines Ministers, dignitaries and plenipotentiary delegates from the member countries.

The 50th Anniversary Commemoration of ICC was also held during the occasion. The occasion was facilitated by Mr. Uron N Salum, Executive Director, ICC. The message of Ms. Armida Salsiah Alisjahbana Executive Secretary, UNESCAP was delivered by video. Mr. Romulo N. Arancon Jr. former Assistant Director and Executive Director and Mr. Muhartoyo, Documentalist of ICC Secretariat delivered anniversary messages.

On the occasion of 50th Anniversary Commemoration ICC acknowledged the contribution and services of Individuals, Corporate Organizations and National Institutions and presented “Tree of Life” award. Coconut Development Board, India and Coir Board of India received the award alongwith other Corporate Organizations, National Institutions which have served 25-50 years or more in the coconut sector and Individuals

Service recognition award was presented to the former Executive Directors and other officers of ICC. Alongwith Farmer Producer Companies of India various other 11 organizations received the Certification of Accreditation.

Mr. Gonzalo T. Duque, Administrator of PCA and Hon. Viam Pillay, Assistant Minister of Agriculture, Government of Fiji presided as over the Ministerial Meeting. The Ministerial Meeting on six specific agenda items was followed by presentations and discussions on various agenda items. Government

of Guyana was approved as the 20th full member country of the Community.

The different Country Delegates, Observer Organisations and Observer Countries presented brief update on the policies and programs for coconut development undertaken by National Governments and link with ICC including the legislations to promote the development of the sector.

The Strategic Plan for 2020-2024 for ICC; Amendments of Establishment documents of ICC and Theme and Venue for the 49th International COCOTECH Conference was approved by the Session. The proposed theme of the Conference is “Promoting Smart Farming and Eco-Friendly Technologies for Sustainable Coconut Development” and the Conference during 2020 would be hosted by Government of Malaysia. The new Executive Director Dr Jelfina C. Alouw of Indonesia was elected by the session who would assume office in January 2020. ■

3rd Coconut Festival at Bali, Indonesia

The Regent of Karangasem Regency in Bali Province organized the World Coconut Day Celebrations and 3rd Coconut Festival during 14 -17 September 2019 at Sukasada Water Palace Karangasem, at the Karangasem Regency of the Bali Province in association with the Coalition of Coconut Association of Indonesia. The theme of the festival was “Coconut Tourism and Economic Development”. 10 prospective entrepreneurs from India participated in the festival.

The festival was inaugurated by Prof. Dr. Ir. Nelson Pomalingo, M.Pd, Chairman and Bupati, Gorontalo Regency in presence of HON. I. Gusti Ayu Mas Sumantri, S.Sos, MAP, Bupati, Karangasem Regency. Ms. Amina Ali, Minister of Trade, Government of Tanzania also graced the occasion.

The festival included technical seminar, exhibition of coconut products and business meeting. The participants from Indonesia, Sri Lanka, Tanzania, China and Timor Leste also attended the festival. The eminent speakers from University of Queensland; Department of Agriculture, Government of Indonesia; Coconut Knowledge Centre, Indonesia and Indonesian Palm Crops Research Institute, Ministry of Agriculture spoke on availability of



planting materials, tissue culture in coconut; processing and marketing of coconut products. Since the theme of the festival was Coconut Tourism and Economic Development, the prospects and scope of coconut tourism and its future development was also discussed. Involvement of farmers’ cooperatives in this sector and providing opportunity to the cooperatives in setting up of small-scale industries and selling their product to the visiting tourists thereby uplifting the economic development of the farmers were also discussed. Business interaction amongst the participants of different countries mainly on supply of quality planting materials, fresh coconut and tender coconut water were also held as part of the programme.



CDB celebrated World Coconut Day across the country

State Centre, Andhra Pradesh

Coconut Development Board, State Centre, Andhra Pradesh organized World Coconut Day-2019 celebration at Sakshinetipalli Mandal, East Godavari District in association with Department of Horticulture, Andhra Pradesh, Dr. Y.S.R.Horticultural University and M/s Mahima CPC.

Smt. Chinta Anuradha garu Hon'ble M.P, Amalapuram, inaugurated the programme. Shri. Oguri Tandonraju garu, Chairman Mahima CPC Ltd, Mori presided over and Shri. R.V.S.K Reddy, Director of Research, Dr.Y.S.R. Horticultural University was the guest of honour. Shri. P. Mallikarjuna Rao, Assistant Director of Horticulture, Amalapuram, East Godavari, Dr. G.Bhagavan, Principal Scientist(Horti & Head) and Dr.N.B.V. Chalapathi Rao Senior Scientist(Entomology)



HRS, Ambajipeta, and all the CPC chairpersons participated in the programme.

Smt. Chinta Anuradha garu Hon'ble M.P Amalapuram in her inaugural address spoke on the theme and its importance. Shri. M.K. Singh, Assistant



Director, DSP Farm and Deputy Director in charge State Centre, Vijayawada Coconut Development Board welcomed the gathering. In the technical session which followed, sessions were held on inter cropping, value addition and marketing. Special issue of Bharatiya Kobbari Patrika was released as part of the programme and Smt. Chinta Anuradha garu Hon'ble M.P Amalapuram released the publication.

More than 200 farmers representing various FPOs, senior officials from Department of Horticulture & Senior Scientists from Dr. Y. S. R Horticultural University attended the meeting. Shri. O Tandonraju, Chairman, M/s. Mahima CPC, Mori proposed vote of thanks.

Regional Office, Assam

Coconut Development Board, Regional Office, Assam celebrated World Coconut Day on 2nd September 2019 at Horticultural Research Station, Kahikuchi, Guwahati in collaboration with Horticultural Research Station, AAU, Kahikuchi.

Addressing the inaugural meeting of the programme as chief guest, Shri. Jayantamall Barua, Chairperson of the Assam Tourism Development Corporation said that coconut is a potential commodity to strengthen the socio-economic status



of rural Assam and urged all the stakeholders to rejuvenate the coconut sector of the state. The acting Vice-Chancellor of Assam Agricultural University, Dr. Ashok Bhattacharya, stated that charting out a scientific and strategic roadmap for development of coconut sector was the need of the hour. Shri. Lunghar Obed, Director of Coconut Development Board briefed on the different coconut-based schemes and programmes of the government and urged the farmers to take advantage of the same.

Dr. Pranab Mahanta, Director of Horticulture and Food Processing Govt. of Assam who spoke during the occasion stressed upon the need for selection of coconut varieties and availability of irrigation facilities for improving the productivity of coconut in the state. Earlier, in his welcome address, Dr. Sarat Saikia, Chief Scientist, Horticultural Research Station, Kahikuchi, emphasized the socio-economic role of coconut in augmenting farm income and the recent trends in value addition of coconut. Dr. J.C. Nath, Scientist-in-charge of All India Coordinated Research Project on Palms, Kahikuchi proposed vote of thanks.

To commemorate the day, a ceremonial plantation



of coconut seedling was undertaken in the campus of the Horticultural Research Station. The programme also included training-cum-field demonstration of coconut-based technologies as well as farmer-scientist interaction. A competition on coconut bunch and coconut products was also organized. Farmers from different CPSs of Kamrup district actively took part in the programme.

Regional Office, Chennai

CDB, Regional Office, Chennai celebrated World Coconut Day at Theni on the theme, Coconut for Family Wellness. Thiru. O P Ravindra Kumar, Hon'ble MP inaugurated the programme and Dr. T Arumugam, Dean HC&RI, TNAU Periyakulam presided over. The Hon'ble MP in his inaugural address called upon the farmers to concentrate more on production and value addition to get maximum return from coconut. He assured the farmers that a neera processing unit will be set up in Theni district so as to tap maximum neera production and convert it to various neera based value added products such as neera sugar, jaggery, drink etc. Smt. Bala Sudhahari, Director, CDB, RO, Chennai delivered the welcome address and proposed vote of thanks.

In the technical session which followed Dr.P.Jansirani, Professor and Head, HC&RI, TNAU, Periyakulam spoke on package of Practices in Coconut, followed by Dr.R.Chitra, Asst.Professor, HC&RI, TNAU, Periyakulam who spoke on Coconut Nursery Management. Dr.M.Kannan, Asst.Professor, HC&RI, TNAU, Periyakulam spoke on Integrated Pest Management in Coconut, Dr.S.Prabhu, Asst. Professor, HC&RI, TNAU, Periyakulam who delivered



lecture on Integrated Disease management in Coconut and Smt. T.Bala Sudhahari, Director, CDB, RO, Chennai, spoke on Value addition in coconut and the importance of marketing in coconut.

State Centre, Andaman & Nicobar Islands

CDB State Centre, Andaman & Nicobar Islands celebrated World Coconut Day at Port Blair. Shri. Krishna Kumar IAS, CEO, Zilla Parishad and Secretary inaugurated the programme and Ms. Anjali Sehrawat IAS, Secretary, Agriculture presided over. Shri. Krishna Kumar IAS in his inaugural address spoke on the importance of world coconut day and Ms. Anjali Sehrawat IAS spoke on the need for taking up value addition in coconut to get maximum income to the farmers and entrepreneurs. In the technical session, Shri. Sasikumar C, Development Officer, CDB briefed on CDB schemes and value addition in coconut. Representatives from Coir Board, NABARD and CARI spoke during the occasion.



ICAR-CPCRI, Kasaragod

World Coconut Day with the focal theme Coconut for Family Wellness was celebrated at ICAR-Central Plantation Crops Research Institute, Kasaragod in association with Krishi Vigyan Kendra Kasaragod, Department of Agriculture Development & Farmers' Welfare and Coconut Development Board.

Mr. A. A. Jaleel, President, Mogral-Puthur grama panchayat inaugurated the programme. In his inaugural address Mr. Jaleel emphasized the need to implement schemes to facilitate adoption of scientific crop management practices to enhance productivity of coconut. Dr. K. Muralidharan, Director-in-charge, ICAR-CPCRI who presided over the inaugural function stressed the need for promoting value addition through product diversification in coconut and also opined that community approach has to be facilitated among coconut growers for enabling them to utilize the available technologies for enhancing income from coconut farming.

A district level seminar on Scientific cultivation and processing technologies in coconut was organised as part of the World Coconut Day Celebration in which about 100 selected coconut farmers who are members of Coconut Producer Societies from all the grama panchayats of Kasaragod district participated. A publication on Scientific Coconut Cultivation titled Thengu Krishireethikal in Malayalam was released by Mr. A. A. Jaleel, President, Mogral-Puthur grama panchayat during the occasion.

The lead talk in the seminar on Effective utilization of technologies for enhancing productivity and income from coconut farming was delivered



by Dr. C. Thamban, Principal Scientist, CPCRI. The session on Micro irrigation and water conservation in coconut gardens for doubling farmers income was handled by Dr. A.C.Mathew, Principal Scientist. The topic on Management of pests and diseases in coconut was dealt by Dr. P.S. Prathibha, Scientist and the session on Technologies for value addition in coconut was handled by Dr. Shameena Beegum, scientist. A Scientist-Farmer interface programme on coconut farming was also conducted as part of the World Coconut Day celebration. Dr. C. Thamban, Principal Scientist welcomed the gathering and Dr. T. S. Manojkumar, Head, KVK Kasaragod proposed vote of thanks.

ICAR-CPCRI , Kayamkulam

World Coconut Day was celebrated at ICAR-CPCRI, Regional Station, Kayamkulam on the theme Coconut for Family Wellness. A group of 20 women farmers from Virudhunagar, Tamil Nadu participated in the programme. The knowledge empowering training programme on Health management and value addition of coconut was inaugurated by Dr. S. Kalavathi, Acting Head. In her message, she highlighted the uniqueness of coconut as an inseparable component in Kerala cuisine, which is responsible for the wellness of the family. She also highlighted the importance of the World Coconut Day celebrations promulgated by "International Coconut Community" to make coconut farming inclusive with system approach to combat climate change rattling in Kerala at this point of time. Dr. S. Indhuja, Scientist welcomed the gathering and Dr. A. Joseph Rajkumar, Principal Scientist proposed vote of thanks.



In the training session on coconut for family wellness, Dr. A Joseph Rajkumar, PS emphasised on the scientific approaches in coconut farming to derive continuous income and employment.

Dr V.Krishnakumar, Acting Head coordinated the participation of the exhibition organized in connection with celebration of World Coconut Day by the Kerala Agricultural University at Vellanikkara, Thrissur. Sri.P.Sreeramakrishnan, Hon'ble Speaker, Kerala Legislative Assembly and Sri. V.S.Sunilkumar, Hon'ble Minister for Agriculture visited the stall and had interactions with scientists about the high yielding varieties of coconut. Dr V Krishnakumar chaired the technical session on Scientific coconut farming and spoke on good agricultural practices for sustainable coconut production.



Chairperson CDB visited DSP Farm, Pitapally



Smt.V. Usha Rani, IAS Chairperson, CDB visited DSP Farm, Pitapally on 3rd September 2019. Chairperson reviewed the activities of the Farm and had interaction with the officials of the Farm. She also planted a coconut seedling in the Farm premises.



Coconut Situation - India*

V. Usha Rani IAS

Chairperson, Coconut Development Board, India

Introduction

Overview of total area under coconut

Coconut is eulogized as the 'Kalpavriksha', the 'Tree of life', due to its multifarious utilization as food, fuel, medicine, timber and other utility purposes of different parts from root to leaves, from tender nut water to outer husk, etc. offers scope for sustaining the livelihood of growers, farm communities and industries in major coconut growing countries of the world. The crop is intricately woven into the socio-economic and cultural background of the Indian subcontinent. As per 2016 statistics of APCC, India is the largest coconut producing country in the world, with 33.02 % share of global production. More than 12 million people in the country depend on coconut for their livelihood. The crop contributes around Rs. 414,279.59 million (US\$ 6427.27 M) to the country's GDP and earns export revenue of around Rs. 42,965.88 million (US\$ 666.59 M). Due to its nutraceutical and health benefits, the crop is gaining importance in various parts of the world, which is realized by the increased domestic and international trade of coconut and coconut products.

As per the All India estimate for the year 2017-18, the area and production of coconut in the country is 2.10 million hectares and 23,798.23 million nuts, respectively. The corresponding figures for the year 2016-17 were 2.08 million hectares and 23,904.10 million nuts. In comparison to the figures for the previous year, the area under coconut cultivation increased by 0.96 % and coconut production decreased by 0.44 %.



Coconut Situation - India

In India, coconut is cultivated in 16 States and 4 Union Territories located in different parts of the country in varied agro-climatic zones. However, about 89.02 % of the area and production fall in the south peninsular region covering 4 States of Tamil Nadu, Kerala, Karnataka and Andhra Pradesh.

Out of the total geographical area of 328.73 million hectares of India, the total agricultural land is 181.95 million hectare. About 2.10 million ha is covered under coconut which is about 1.15 % of the total agricultural area.

It may be noted that Indian agriculture is the home of small and marginal farmers (85%). Coconut is predominantly a smallholders' crop in India. About 12 million people, i.e. 0.99 % of the Indian population are dependent on coconut in the country and very meager portion of them are big farmers.

Major strengths and weakness

The role of research institutions and State Agricultural Universities in developing new high yielding, biotic/abiotic stress resistant varieties, preservation and value addition; role of Government agencies like Ministry of Agriculture & Farmers Welfare, Coconut Development Board, Coir Board under the Ministry of Micro, Small and Medium Enterprises (MSME), other Central & State government agencies, extension agencies in technology dissemination, reaching the developmental programmes to the needed, making necessary changes in the policies; and the role of farmers as the proactive end users to adopt the technologies and their action in collective manner are the strengths of the country that could bring the crop to a better status compared to last decade. Decrease in availability of agricultural land, fragmentation of agricultural lands, climatic vagaries, uncertainty in availability of manpower for farm operations, escalation in cost of cultivation coupled with price fluctuations and long juvenile phase of the crop are the major weaknesses faced by the stakeholders in the coconut sector. Occurrence of new invasive pests like White Fly and its other strains and their wide range of host plants is a future threat to the coconut farmers.

The future thrust would be production and distribution of quality coconut seedlings, increasing production and productivity to meet the demand, promotion of export of coconut and coconut products, replanting and rejuvenation of coconut gardens, entrepreneurship development in value addition, market intelligence, etc.

Coconut production in CY 2017, 2018, 2019 and forecast for CY 2020

► Coconut Production

As per the statistics of APCC for the year 2016, India tops in world production of coconut with 22,167 million nuts. As per the latest data of the Government of India, 23,798.23 million coconuts (3173 MT of copra equivalent) are produced in the country. Over the period from 2014-15 to 2017-18 coconut production in the country increased by 16.43 % from 20,439.61 million nuts to 23,798.23 million nuts.

► Area under Coconut by Region or Province or State

The four southern States of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh accounted for 89.02

% of the coconut area and 93.05 % of the coconut production in the country. Kerala, with the largest area under coconut cultivation and production accounted for 38.49 % of the area under the crop and 35.52 % of production at national level.

The productivity of coconut at national level for 2017-18 is 11,350 nuts per hectare. The highest yield is reported from Andhra Pradesh at 14,038 nuts per hectare followed by Tamil Nadu (13,637 nuts/ ha) and West Bengal (12,484 nuts/ ha). As per the latest statistics, the average productivity in the four major southern States of Kerala, Tamil Nadu, Karnataka and Andhra Pradesh is about 10,000 nuts/ ha.

As per 2016 statistics, India contributes 33.02 % of world coconut production and enjoys the first position in terms of production. 76.38 % of area under coconut and 74.37 % of production are contributed by three leading coconut growing countries viz., India, Indonesia and Philippines. India ranks first in terms of productivity (10,616 nuts per ha) next to Vietnam (8,915 nuts per ha), among the major coconut growing countries.

During the period from 2014-15 to 2017-18, the area under cultivation of coconut in the country increased from 1.98 million hectares to 2.10 million hectares.

► Age Profile of Coconut Trees

Coconut is a traditional crop in the major coconut growing States of the country, which is cultivated over centuries. As coconut is grown as a homestead plant and cultivation is mainly taken up by the small and marginal farmers, the major part of the palms are retained even after their economic life. Hence about 20 % of the palm population in India is estimated to be senile and unproductive. Massive Replanting & Rejuvenation programme is being taken up in the country after the successful implementation of the pilot projects in few areas of the country.

The seedlings of new and improved varieties are also being planted under the area expansion programme assisted by the Central and State Governments in India. It is estimated that about 10 % of the palms in India are still in juvenile phase.

► Constraints/Issues Related to Coconut Production and Farm Productivity

The long juvenile phase of the crop is the main constraint. Non-availability of sufficient quantity planting materials of new and improved high yielding varieties is one of the major obstacles faced by the farmers who are interested in coconut cultivation.

Coconut is a smallholders' crop and the homestead/fragmented nature of coconut cultivation makes it difficult to adopt modern scientific technologies and farm mechanization for higher income and reduced production costs. Dearth of skilled labour for farm operations including harvesting, plant protection measures, crown cleaning, etc. is one of the reasons for lesser productivity. The natural calamities like droughts due to deficit monsoons, cyclones, and climate change factors affect the coconut production and productivity. The incidence of pests and diseases in coconut is increasing due to the constraint that most of the plant protection operations are to be carried out at the crown. This makes the process tiresome coupled with the old/ senile and uncared palms, due to absentee landlordism, serve as breeding sites for the insects and pathogens.

The wild fluctuation in coconut prices due to its seasonal nature and too many middlemen in the supply chain also are the reasons for reduced level of interest in coconut cultivation by the farmers which ultimately leads to reduced production and productivity.

► *Policies to Promote Coconut Farm Productivity and Increase Farmer's Income*

The Government of India is already taking actions for creating awareness about the scientific management practices recommended for coconut in varied agro-climatic zones of the country. More stress is to be given for awareness activities for proper impact of the programme. Formation of farmers' collectives in coconut sector is encouraged by the Government for aggregation, farm level processing and also to facilitate taking collective plant protection measures. Schemes promoting the government and private sector in production of quality planting material, input management, encouraging adoption of scientific plant protection measures, water conservation by developing low cost water harvesting structures and moisture conservation measures to augment soil moisture and thereby mitigating the effect of global warming in coconut farming are being attended duly as part of the productivity improvement and increasing the farmers' income. As part of organic farming, bioagents for management of various pests and diseases are developed and popularized among the farmers for adoption.

Schemes are already in implementation for replanting & rejuvenation of the coconut gardens in India which are widely popular in the major coconut



growing States of the country. The impact of the same on the productivity and the production is estimated to be visualized in near future.

► *Coconut replanting/new planting, rehabilitation and farm productivity programs*

India has already started Replanting and Rejuvenation (R&R) of traditional coconut gardens in the country. To begin with, the programme was introduced in Kerala, the State with the longest history of coconut cultivation where 1/3rd of palm population was old, senile and disease advanced. Apart from the longest recorded history of coconut cultivation, the State is under the grip of a debilitating disease called root (wilt) disease. Cutting and removing the disease advanced palms and giving management care to the balance palm population is the only strategy to manage the gardens. Therefore the R&R programme was implemented in the State from 2009 and is continuing. The main objective of the scheme is to enhance the productivity and production of coconut by removal of disease advanced, old and senile palms, replanting with quality seedlings and rejuvenating the remaining palms by giving compensation to farmers for the three components. The scheme has been extended to other traditional coconut growing States from 2016-17 onwards and nontraditional coconut growing States from 2017-18. So far more than 20.34 million palms have been cut and removed under the scheme and nearly 6.35 lakh ha was rejuvenated.

Production and distribution of planting material

Establishment of Demonstration cum Seed Production (DSP) Farms in different parts of the country for creating infrastructure facilities for production of quality planting materials besides demonstrating and educating the scientific coconut cultivation and processing to various stakeholders in those regions, establishment of Regional Coconut Nurseries by extending support to various participating States for strengthening the seedling production programmes, distribution of hybrids/



dwarf seedlings in Government sector, establishment of Nucleus Coconut Seed Gardens and Coconut Nurseries in private sector are taken up under this programme. During 2018-19, more than one million seedlings were produced and distributed under these schemes. The Board has established 11 DSP farms so far in different agro-ecological locations of the country. During 2019-20, large scale quality seedlings production is envisaged.

Expansion of Area under Coconut

This programme is to extend adequate technical and financial support to the farmers to take up coconut cultivation on scientific lines in potential areas to attain a significant achievement in the future production potential. Massive area expansion programme under coconut in potential pockets of the country is also planned during 2019-20.

Integrated Farming for Productivity Improvement programmes

The objective of the programme is to improve production and productivity of the coconut holdings through an integrated approach and thereby



increasing the net income from unit holdings with the component programmes under 'Laying out of Demonstration Plots' and establishing 'Organic Manure Units' by providing incentives. Scientific integrated management practices including coconut based farming systems are promoted under the scheme.

Publicity and Extension activities

The Board is disseminating information on various aspects of coconut cultivation and industry through various media and publications besides organizing training programmes to impart skills and knowledge to farmers, unemployed youths and rural women





in various fields related to coconut. The Board also regularly participates in exhibitions and fairs across the country and abroad.

Coconut Palm Insurance Scheme (CPIS)



The Coconut Palm Insurance Scheme intends to provide insurance coverage to coconut crop. Under the scheme, all healthy bearing palms in the age group from 4 to 60 years are eligible to get insurance coverage against natural perils leading to death or becoming unproductive. 50% of the insurance premium is borne by the Govt. of India and balance is shared between the concerned State Govt. and the farmers @ 25% each.

Technology Mission on Coconut

The Technology Mission on Coconut programme gives emphasis on the development of technologies for the management of insect pest and disease affected gardens and product diversification besides demonstration and promotion of these technologies for adoption. Under the Mission, research projects and clinical studies are sponsored through reputed institutions in the area of technology development and also to establish the medicinal and nutraceutical properties of coconut products especially coconut



oil. Up to 2018-19, technical and financial support was given to establish 484 processing units with processing capacity of about 2752 million nuts per year.

Performance of the coconut processing industry

Coconut Development Board (CDB) has been designated as the Export Promotion Council for all coconut products other than coir and coir products from 1st April 2009 by the Govt. of India. Since then export of coconut products from India is shown below:

Year	Export value (In INR Million)	Export value (In USD Mil- lion)	% growth over previous year (In USD Million)
2009-10	4323.84	91.19	--
2010-11	5256.50	115.33	21.57
2011-12	8386.47	175.00	59.55
2012-13	10225.33	188.10	21.93
2013-14	11561.19	191.32	13.06
2014-15	13123.80	214.64	13.52
2015-16	14502.36	221.52	10.50
2016-17	20616.96	307.39	42.76
2017-18	17643.06	273.72	-14.42
2018-19	20453.58	292.52	15.93

Exports of coconut products during 2018-19 were valued at US \$ 296.79 M as against US \$ 256.01 M

registering a growth of 15.93 % over the last year. Major items of export are Activated Carbon, Dried Coconut and Fresh Coconut in terms of value. USA is the largest importer of coconut shell based Activated Carbon from India, followed by United Kingdom and Japan whereas Afghanistan is the largest importer of dried coconut followed by Pakistan and Iran. Three Gulf Cooperation Council (GCC) Countries viz., UAE, Oman and Qatar are the major importers of fresh coconut from India. Contribution of Activated Carbon alone to the total export is 65.72 % whereas Dried Coconut contributed 9.78 %, in terms of value.

Details of export of non-traditional products like virgin coconut oil (VCO), oleochemicals, nata de coco, coconut water, coconut sugar, coconut flour, etc. are not available with Directorate General of Commercial Intelligence and Statistics (DGCIIS), Govt. of India as there is no separate HS code for these items.

Summary of Coconut Product Utilization in the Country for 2018

It is estimated that about 16 % of the total coconut production in India is consumed as tender coconut with a meager share utilized by the tender coconut water preserving & packaging units. About 45 % of the production is used as raw coconuts- of which domestic consumption is 70 % and for industries (30 %) for production of desiccated coconut, virgin coconut oil, coconut milk/ cream, frozen grated/ dry coconut, etc. The rest 38 % is converted to copra of which about 23 % is consumed directly for various edible purposes. Coconut oil is extracted for edible, toiletry and other purposes from the balance 77 % of the copra.

The time series price movement of coconut oil (domestic as well as international) for the last 14 years (from the year 2004 onwards) revealed that whenever there is rise in domestic coconut oil price, the international prices exerted a pull-down-force to make the prices integrated. This aspect very well validates the international trade theory on price integration of primary commodities in the trade liberalized regime. The crucial interpretation is that dependency on single commodity like coconut oil will never provide the adequate margin to sustain for a longer period.

Average FOB Price of Major Coconut Products for CY 2016, 2017 and 2018 in US\$

The FOB prices of coconut products are showing an upward trend. The fresh coconut prices have

gone to about 69.77 % i.e. US\$ 780.67 per MT during 2018 compared to US\$ 459.83 during 2016. The desiccated coconut prices have gone to about 47.77 % i.e. US\$ 2065.70 per MT during 2018 compared to US\$ 1397.88 during 2016. The copra prices have increased by 40.0 % i.e. US\$ 1777.36 per MT during 2018 compared to US\$ 1269.46 during 2016.

Since there is no separate HS code for coconut milk/ cream/ powder, coconut water and coconut sugar, there is no possibility of getting precise data on its export from India.



Analysis of price trends and factors affecting the price of coconut products

Price of coconut oil has shown decreasing trend during the year 2012-13. Price started improving from mid of 2013 and the same trend continued during 2014. In the year 2014, the monthly average price of coconut oil which opened at US \$ 159.35 per quintal in January at Kochi Market expressed a bullish trend and attained US \$ 239.09 per quintal in August. Thereafter the price expressed a slight declining trend. In 2015, the monthly average price expressed mixed trend till August and thereafter expressed a declining trend and closed at US \$ 146.82 per quintal and the same trend continued till July 2016. Thereafter price showed an upward trend. The price started rising up from the month of May 2017 and closed at US \$ 289.41 per quintal. In 2018, the monthly average price showed decreasing trend till November and closed at US \$ 233.34 per quintal. In the last 6 months, the highest price was quoted during the month of January 2019 at US \$ 266.91 per quintal.

The price of milling copra was below MSP of US \$ 74 per quintal in all the three major markets in Kerala throughout the year 2012. The year 2013 started with

a mixed trend in the prices of milling copra and the prices remained below MSP of US \$ 76.18 per quintal till the middle of the year. The prices improved from mid of 2013 and same trend continued during 2014. In the year 2014, the monthly average price of milling copra which opened at US \$ 114.79 per quintal in January at Kochi Market expressed a bullish trend and attained US \$ 165.33 per quintal in August. Thereafter the price expressed a slight declining trend and closed at US \$ 129.97 with a net gain of US \$ 15.18 per quintal. In 2015, the monthly average price expressed a mixed trend till June, thereafter expressed a declining trend and closed at US \$ 95.22. In January 2016, the monthly average price recorded at US \$ 87.64 per quintal, expressed a mixed trend till July and thereafter expressed an upward trend and closed at US \$ 106.74 per quintal. In 2017, the monthly average price opened at US \$ 118.99 per quintal in January showed an upward trend and is closed at US \$ 216.74 per quintal with a net gain of US \$ 97.76 per quintal. In 2018, the monthly average price opened at US \$ 203.42 per quintal in January showed a downward trend and is closed at US \$152.51 per quintal at Kochi Market.

► **Number of Coconut Processing Plants and their Capacities for CY 2018 and 2019 are as follows:**

Seventy two coconut processing units were newly assisted during the year 2017-18 (Desiccated Coconut Powder (DCP) -16, Virgin Coconut Oil (VCO)-10, Tender Coconut Water (TCW) -3, Coconut oil-2, Copra making units- 15, Frozen shredded coconut -1, Ball copra-14, Coconut milk powder & Coconut sugar- 1, Coconut chips & Nata de coco & vinegar-1, Coconut shell charcoal-6, Activated carbon-1, Neera-2. The total processing capacity of these 72 units was 303.36 million nuts/ year. The no. of coconut processing newly units assisted during the year 2018-19 is 5 (Decicated Coconut Powder -1, Tender Coconut Water -1, Coconut oil-1, Ball copra -2.) with a total processing capacity of 16.8 million nuts/ year.

A total of 484 coconut processing units were assisted by the Board from April 2002 to March 2019 (Desiccated Coconut Powder-112, Virgin Coconut Oil-58, Tender Coconut Water-29, Coconut oil-65, Copra making unit- 49, Frozen shredded coconut -2, Ball copra-59, Coconut milk powder -2, Coconut milk-1, Flavoured coconut juice-1, Coconut chips-6,

Neera-11, Coconut vinegar- 6, Packing of coconut water-2, Coconut wood products-1, Coconut shell ice cream cup-2, Coconut shell powder-18, Coconut shell charcoal-29 & Activated carbon-31). The total processing capacity of these 484 units was 2752.48 million nuts/ year.

► **Update of Recently Adopted National Quality Standards of Coconut Products**

The Technology Development Centre of CDB is engaged in the development and demonstration of technologies for product diversification and by-product utilization of coconut. The Centre is devoted to product development, microbial analysis of coconut based products, apart from skill development programmes to interested entrepreneurs and self help groups for acquiring technologies on post harvest coconut processing and process demonstration. The centre received



the recognition of National Accreditation Board for Testing and Calibration Laboratories (NABL), a Constituent Board of Quality Council of India. Many value added and novel products were developed by the institute during the previous years and the institute has now been designated as CDB Institute of Technology (CIT).

The Bureau of Indian Standards (BIS) is the National Standard Body of India established under the BIS Act 1986 for the harmonious development of the activities of standardization, marking and quality certification of goods and for matters connected therewith or incidental thereto.

(Will be continued in the next issue).

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Conservation of Biological Control and Bio-scavenging: in Rugose Spiralling Whitefly Management in Coconut

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Biological control is one of the critical components of Integrated Pest Management and owing allegiance to environmental and human safety, this approach formed the centrepiece of sustainable pest suppression these days. It could be Classical Biological Control, Augmentative Biological Control, Conservation Biological Control

a) Classical Biological Control where importation and area-wide release of a specific natural enemy of the invasive pest in the new outbreak location is usually undertaken from the centre of origin of the pest. For instance, bio-suppression of the papaya mealy bug, *Paracoccus marginatus* Williams & Granara de Willink in India through introduction of the encyrtid parasitoid, *Acerophagus papaya* Noyes & Schauff from Puerto Rico during July 2010 and field released after quarantine screening.

b) Augmentative Biological Control, where it could be either inoculative with one time release of natural enemies (e.g. release of green lacewing fly, *Chrysoperla zastrowii sillemi* for the bio-suppression of sucking pests of cotton such as aphid, *Aphis gossypii* and leaf hopper, *Amrasca devastans*) or inundative with frequent release of natural enemies based on the pest incursion status (e.g. systematic delivery of stage-specific bethylid and braconid parasitoids viz., *Goniozus nephantidis* or *Bracon brevicornis* inducing an effective bio-suppression of coconut black headed caterpillar, *Opisina arenosella* which is rated as one of the most successful stories in biological control as early as 1970's).

c) Though Conservation Biological Control is not so prominent and successful in several cropping systems, its silent but significant role in the bio-suppression of two invasive whiteflies, viz., spiralling

The recent invasion of the exotic Rugose Spiralling Whitefly in coconut ecosystem from Tamil Nadu and Kerala had initially alarmed plantation sector. However, the conservation biological control strategy resorting to no pesticide spray by ICAR-Central Plantation Crops Research Institute turned out to be a success.



Black headed caterpillar-infested field



Black headed caterpillar



G. nephantidis parasitising black headed caterpillar



Microscopic view of rugose spiralling whitefly



RSW colony on infested palm leaf



Parasitized RSW pupa

whitefly (*Aleurodicus dispersus* Russell) and rugose spiralling whitefly (*Aleurodicus rugioperculatus* Martin) is noteworthy and highlighted in this article.

A. dispersus and *A. rugioperculatus* got introduced into our country from Central America during 1993 and 2016, respectively and in a span of two years, it had invaded different parts of the country including north-east states (Assam) and Lakshadweep Islands recorded on different host plants including coconut causing moderate to severe damage symptoms.

Conservation Biological Control

The recent introduction and invasion of the exotic *A. rugioperculatus* in coconut ecosystem from Tamil Nadu and Kerala during July, 2016 had initially alarmed plantation sector. However, the conservation biological control strategy advised very efficiently and launched successfully by resorting to no pesticide spray (pesticide holiday) by ICAR-Central Plantation Crops Research Institute turned out to be a real success.

This approach could completely subdue the pestiferous potential of *A. rugioperculatus* in a short period of five to eight months after initial report. There was tremendous build up of the aphelinid parasitoid, *Encarsia guadeloupae* Viggiani completely eliminating *A. rugioperculatus* in the region of infestation. A good monsoon showers and high humidity favoured more parasitism on rugose spiralling whitefly. Un-parasitized healthy pseudo pupae of *A. rugioperculatus* is cream coloured,

whereas, parasitized pupae turn blackened and the vibrating movement of the parasitoid inside the pseudo pupae is quite conspicuous.

Since no pesticides were sprayed against rugose spiralling whitefly, the population build up of parasitoids was enhanced in the natural ecosystem. Parasitism which had initially found to be 10-15% rose to as high as 70-80% in a period of five to eight months. Such an approach of natural and ecologically safe method of management ensured ecological services to the mankind as well as to the environment. Though the strategy by conservation bio-control approach without using any chemicals, initially not well received by the farming community, was finally well appreciated from all corners because of the twin benefits of environmental security and human safety experienced in the long run.

When *A. dispersus* was introduced during 1993 on cassava (*Manihot esculenta*), several approaches adopted to combat the pest, including use of insecticides, failed to suppress the pest population at the initial phase of introduction. However, with the advent of the aphelinid parasitoids, *Encarsia*



Leaf bit containing *E. guadeloupae* parasitized RSW pupae used in augmentative biological control

dispersa and *E. guadeloupae* subsequently into the country during early 2000, could effectively suppress *A. dispersus* in a year's time.

Fortuitous introduction of *E. guadeloupae* from Minicoy, Lakshadweep Island during the last phase of *A. dispersus* incursion into the mainland could effectively suppress *A. dispersus* population and serve as a residual bio-agent which could later get involved in the conservation bio-control of *A. rugioperculatus* infesting coconut. Conservation biological control, has not been felt successful, though in the perennial coconut system, its role in the bio-suppression of *A. rugioperculatus* is very classical.

As a word of precaution, farmers are advised not to carry any infested planting materials or any plant parts from one region to another and should ensure absolute freedom from any invasive pests



Scavenging action by
L. nilgiranus



Pre-pupa of *L. nilgiranus*



Adult tenebrionid beetle



Sooty mould on intercrops

on the planting materials they carry by adopting strict quarantine measures including at domestic level.

Bio-scavenging action

Extensive de-sapping by nymphs and adult rugose spiraling whiteflies from undersurface of palm leaflets produced enormous quantity of honey dew that are deposited on the upper surface of palm leaflets and under storey crops in palm-based cropping system. Such deposits of honey dew deposits attracted sooty mould fungus belonging to *Leptoxylum sp.* and become blackened interfering with the photosynthetic activity of the plants. In certain severe case, the entire upper surface of palm leaflets and under storey intercrops are deposited with a thick layer of sooty mould fungus producing a sick look on palms and intercrops.

In the history of insect as scavengers, discovery of a sooty mould scavenging beetle, *Leiochrinus nilgiranus* Kaszab was reported from Kayamkulam, Kerala, India for the first time by ICAR-CPCRI that is actively involved in the bio-scavenging activity of palm leaflets. Grubs and adult beetles of *L. nilgiranus* devour huge quantum of sooty mould during morning wetness and are generally confined on the undersurface after sunrise indicating the photosensitiveness of the beetle and immature stages. In a period of two months in Kayamkulam, Kerala,

the entire mould deposits on palm surface could be cleansed by the scavenger beetle, mainly attributable to the favourable wet and humid weather conditions prevailed during August-September 2017.

The bio-cleansing action was prompt, sharp and timely in a niche that was experiencing pesticide holiday with no pesticide residue as well. This favoured build up of the scavenger beetle in a short period of time and performing timely scavenging



Release of sooty mould scavenger beetles

action of cleansing palm leaflets and rejuvenating health status of palms by enhancing photosynthetic efficiency as well.

ICAR-CPCRI has made efforts to introduce the sooty mould scavenger beetle, *L. nilgiranus* into different parts of the country such as Andhra Pradesh, Tamil Nadu and Assam in coconut gardens infested by the rugose spiralling whitefly during July-August 2018. The establishment of the tenebrionid scavenger beetle will be monitored during 2019. The beetle that hibernated during summer re-emerged during monsoon showers.

Thus, natural bio-suppression by *E. guadeloupae* in synergy with the cleansing action by sooty mould scavenger beetle, *L. nilgiranus* could bring down the population of non-native *A. rugioperculatus* by both bio-control and bio-scavenging action. Not only the pest population diminished, but the improvement in palm health by cleansing off sooty mould is one of the first instances of natural scavenging on economically important crop by an insect reported so far. This forms a typical example of conservation biological control coupled with bio-scavenging highlighted in a perennial plantation crop, coconut. Considering the environment and human security ensured in this non-chemical approach resulting in the successful bio-control and bio-scavenging, we could save several crores of rupees by protecting the fragile ecosystem and biodiversity with safety to mankind. ■

Virgin Coconut Oil Infused Healthy Cosmetics

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Coconut and its products are important foods for thousands of years in India. Coconut oil is classified as a "superfood." Recently, virgin coconut oil (VCO) is gaining wide popularity among the public. It is believed that VCO is more beneficial than copra oil since the method of extraction retains more bio active components including polyphenols and vitamins.

It is generally recognized that the coconut provides many items of great value to man, such as coconut meat, milk, water, oil, and sugar. Currently, there is a great deal of research and commercial interest in cosmetic production utilizing VCO. VCO infused beauty products such as moisturizer, shampoo, lip balm, mouth wash, sun screen cream, hair oil and massage oil are available worldwide. The aim of this article is to explore the potential utility of VCO for production of cosmetics.

Moisturizer

People in the tropical countries have effectively used coconut oil as a traditional moisturizer for centuries. Mineral oil is the major ingredient for preparation of moisturizer. Recently, the coconut oil was found to have skin antiseptic effects. Coconut oil consists of triglycerides (made up of glycerol), combined with stable saturated medium-chain fatty acids (49% C12 lauric acid, 7% C10 capric acid, and 8% C8 caprylic acid) (Agero and Verallo-Rowell, 2004). Coconut oil has the same occlusive and hydrophobic characteristics that mineral oil has. Unlike mineral oil, fatty acids present in the coconut (particularly lauric acid) have been found to have antiseptic properties (Kumar *et al.*, 2018). A moisturizer with



antiseptic effects has higher value in the market. The obvious risk of mycotoxin contamination is high in oil extracted from copra (Mattie, 1964). The extraction methods for VCO avoid this contamination by processing the coconut meat shortly after harvest. The clinical studies conducted by Agero and Verallo-Rowell (from Makati Medical Center, Philippines) confirmed that coconut oil is as effective as mineral oil when used as a moisturizer.

Shampoo

VCO is used to prepare natural shampoos, in which the extract of amla fruit and soap nut powder are sometimes incorporated to add value (Rethinam, 2002). The shampoo prepared from VCO reported that it is free from sulphate. VCO based



Hair oil

VCO has been widely used for the preparation of hair oil. VCO hydrates and softens the hair. The presence of fatty acids, vitamins and minerals in VCO nourish and restore the hair naturally. VCO has multi-benefits that include moisture retention, smoothing and protecting. The studies show that the VCO can be used as protective medium against hair damage and it blocking about 20% of the sun's ultraviolet rays. Since, coconut oil contains a triglyceride of lauric acid, has a high affinity for hair proteins and, because of its low molecular weight and straight linear chain, it is able to penetrate inside the hair shaft. Mineral oil, being a hydrocarbon, has no affinity for proteins and therefore is not able to penetrate and yield better results (Rele and Mohile, 2003). The research study highlighted that among the coconut, sunflower and mineral oil, coconut oil was found to reduce the protein loss remarkably for both undamaged and damaged hair when used as a pre-wash and post-wash grooming product.



shampoo helps to stimulate the hair growth, lift away the impurities, re-hydrate hair and keeps it shining. A study found that coconut oil helped prevent protein loss from the wet combing of hair when used for fourteen hours (Rele and Mohile, 2003). Viste *et al.* (2013) revealed that the shampoo is highly effective against fleas, ticks, lice and mites. The shampoo contains 80% VCO is the most effective concentration in eliminating and reducing the mite count as early as 6th week of treatment and other ectoparasites in dogs.

Lip Balm

The moisturizing effects of virgin coconut oil have increased the interest in this ingredient as a lip balm. Lip balm enriches with VCO, shea butter, bees wax, herbal extract (Aloe vera and carotenoid), organic sunflower oil, olive oil, vitamin E and calendula. It has formulated without petroleum, phthalates, parabens, and free of artificial flavors and colors. It will protect lip from dryness and enhance soft and moisten lips for delightful and healthy look. Since VCO has potential antimicrobial and disinfecting effects, it may keep the lips germ-free, and subsequently help to protect any cracked skin from becoming infected too. Azwanida *et al.* (2014) formulate the herbal lipsticks with virgin coconut oil, vegetable fat, and olive oil as natural excipients. The authors highlighted that the formulated lipstick offers excellent properties like



smoothness, spreadability, and stable when stored under room temperature. Additional properties of antioxidant and antimicrobials properties added extra market values to the product.

Mouth wash (Oil Pulling)

Oil pulling has been used extensively as a traditional Indian folk remedy for many years for strengthening teeth, gums, and jaws and to prevent decay, bleeding gums, oral malodor, and dryness of throat, and cracked lips (Asokan *et al.*, 2011). Exploitation of VCO for oil pulling is becoming popular. VCO has a favorable fatty acid profile, containing high amounts of lauric acid, which has antimicrobial properties which can kill some of the harmful bacteria in the mouth, improve dental health and reduce bad breath. *Streptococcus mutans* is one of the main bacteria in mouth and a key player in plaque buildup and tooth decay. Also, coconut oil has high saponification index. It contains lauric acid which can react with alkalis present in saliva such as sodium hydroxide and bicarbonates to form sodium laureate-soap like substance, which reduces plaque adhesion and accumulation, and possesses cleansing action (Peedikayil *et al.*, 2015). The clinical study conducted for 60 adults showed that oil pulling using VCO for 10 min at every day for two weeks significantly reduced the *S. mutans* counts in saliva compared to Chlorhexidine mouth wash (Kaushik *et al.*, 2016). An in vivo study conducted by Peedikayil



et al. (2016) observed that there is a statistically significant decrease in *S. mutans* count from coconut oil pulling as well as chlorhexidine group from baseline to 30 days. This study conducted for fifty female children (25 children's for the study group (coconut oil) & 25 children's for control group (chlorhexidine) aged from 8 to 12 years. The participants were routinely performed oil swishing with coconut oil and chlorhexidine and rinse every day in the morning after brushing for 2-3 minutes for 30 days. Hence, oil pulling with VCO is natural, safe and has no side effects.

Massage oil

VCO is an ideal moisturizer for the body which makes the skin smooth and textured. The molecular structure of the VCO allows for easy absorption on the skin. A massage with coconut oil can also help to relax tight muscles in the body. Songkro et al. (2010) characterize the aromatherapy massage oils prepared from virgin coconut oil (VCO) and essential oils (lemon, eucalyptus and lavender oils). Three essential oils (lemon, eucalyptus and lavender oils) at concentrations of 1, 3 and 5% w/w were blended with the VCO to prepare massage oils. Results showed that types and concentrations of essential oils used affected the viscosity, refractive index and three chemical characteristics (acid, peroxide, and iodine values) associated with oxidative stability of the massage oils.

Soap

VCO is an excellent raw material for making soaps as it provides the lathering and active cleaning properties. Using a soap containing VCO is a convenient way to treat the skin for hydration. VCO soap infuses all the goodness of oil into the skin. The fatty acids present in VCO helps to remove blemish-causing dirt and bacteria. The VCO soap can be used for removing makeup and even for cleansing hair without the use of shampoo containing chemical.



Its natural deodourising properties can also help to eliminate body odour. Coconut oil based soap has antibacterial, anti-fungal and anti-inflammatory properties, hence it can help to tackle many kinds of skin issues. ■

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Retirement



Shri. P.X. Raphel retired from the service of Coconut Development Board on 31st August 2019 after rendering around 31 years of service.



Shri. R. Madhu, Secretary, Coconut Development Board delivering the inaugural address during the Hindi Fortnight 2019 celebrations of Coconut Development Board. Smt. S. Beena, Assistant Director (OL) is seen.

Annapoorna-Anu Food India

The Coconut Development Board, participated in International Exhibition "Annapoorna- Anufood India 2019 from 29th to 31st August-2019, held at Bombay Exhibition Centre, Mumbai, Maharashtra. The 14th edition of this exhibition was organized by Federation of Indian Chambers of Commerce and Industry (FICCI), New Delhi.

The participants, both international and local created a vibrant professional platform for the food, drink and hospitality sectors to express themselves in the exhibition. Over 300 National & International exhibitors participated in the fair.

Coconut Development Board's main focus of participation in Annapoorna world Food-2019 was to promote entrepreneurs manufacturing and marketing various coconut products and create a linkage for future marketing opportunities between entrepreneurs/distributors/retailers and end users of coconut products in India & abroad.

M/s. Keratech (P) Ltd. Kerala, manufacturer of Virgin Coconut Oil, Desiccated Coconut Powder, Virgin plus tablets and Coconut Cream, M/s. Madhura Agro Process Pvt. Ltd., Coimbatore, Tamil Nadu manufactures of Tender Coconut water, Coconut Milk shake and Coconut sugar, M/s. Vama Oil Private Ltd, Coimbatore, manufacturing coconut oil, coconut flakes, coconut sugar, M/s. Nata Nutrico coconut food products, Mundapuram, Kerala manufacturing Nata de coco products, M/s. Pollachi CPC Ltd, Coimbatore, Tamilnadu manufacturing cold press coconut oil, VCO, DCP, Coconut sugar,



Pickle etc, M/s. Samraj Wholesome living Pvt.Ltd, Kanyakumari, manufacturing VCO, DC etc, M/s. De Alben manufacturing Coconut sugar, Palm nectar, Chips, Juggery powder etc and M/s. Super Coco Company manufacturing DCP and coconut flakes displayed their products and services in the CDB stall.

Various value added coconut products, like Packed Tender Coconut water, Coconut oil, Coconut Milk Powder, Virgin Coconut oil and well informative charts and posters, Board's publications in English, Hindi and Marathi were displayed in CDB stall. Officials of various National & International companies and business communities visited CDB stall.

Cultivation practices in Coconut Garden - October

Planting

In low lying areas, planting of coconut seedlings can be taken up. Prevent accumulation of rain water in the seedling pits by ensuring adequate drainage. New planting can be undertaken in regions like Tamil Nadu with the commencement of north east monsoon.



Manuring

Under irrigated conditions, one fourth of the recommended dose of chemical fertilizers can be applied if not given during September. For the coconut seedlings planted during June, first application of chemical fertilizers (one tenth of general recommendation ie 100 g urea, 200 g MOP and 200g rock phosphate) can be given. It is always recommended to apply chemical fertilizers based on the soil test results rather than going by the general recommendations.



Wherever Boron deficiency is noticed 100 g Borax may be applied in the basin. For coconut palms showing yellowing of leaves due to Magnesium deficiency, 0.5 kg of magnesium sulphate can be applied in the basins along with other fertilizers.

Irrigation

In non-traditional areas of coconut cultivation in eastern and north eastern states, irrigation to coconut palms can be started when the minimum temperature goes below 20°C as a protective irrigation. Before starting irrigation a thick mulch should be provided in the basin of coconut palm at 1.8 m radius to a height of minimum 15 cm. In the remaining parts of the coconut growing areas irrigation shall be started depending upon the soil moisture available and withdrawal of monsoon.

Green manuring

Regions benefitted by north east monsoon like Tamil Nadu, sowing of green manure crops like Sunhemp *Crotalaria juncea* or Daincha (*Sesbania aculeate*) or Cow pea (*Vigna unguiculata*) or Wild Indigo (*Tephrosia purpurea*) can be done. In the interspace of coconut gardens under monocropping the following seed rate of green manure seeds is recommended. Sunhemp – 20 kg/ha, Daincha – 30 kg/ha, Cow pea -25 kg/ha and Wild Indigo – 15 kg/ha

If intercrops are grown, seeds of green manure crops can be sown in the coconut basin of 1.8 m radius. For Cow pea and Daincha seed rate per basin is 100g while for other green manure crops 75 g seeds can be sown per basin.

Intercultural operations

Ploughing/digging of interspace is to be undertaken to keep the plantation free of weeds if not done during September. Care should be taken to avoid injury to coconut palm while ploughing.

Nursery managements

Weeding should be done in the nursery. Five month old ungerminated nuts and dead sprouts should be removed from the nursery. Mulching with coconut leaves or dried grass or live mulch



by raising green manure crops can be done in the nursery. Irrigation has to be given for seedlings. In localities of Tamil Nadu, which are mostly benefitted by North-East monsoon, sowing of seednuts can be taken up.

Mulching

Mulching of palm basins can be undertaken if not done during September. Fallen dried coconut leaves available in the coconut garden can be used for mulching.

Adopt mechanical method of control by extracting beetles with beetle hooks, without causing further injury to the growing point of the palm. The top most leaf axils may be filled with powdered neem cake/marotti cake (*Hydrocarpus* sp/ *pongamia*) @ 250 g + fine sand (250g) per palm as a prophylactic measure. Filling the innermost three leaf axils with 4 g each of naphthalene balls covered with sand (12 g/palm) for juvenile palms. Placement of two perforated sachets containing chlorantraniliprole a.i. 0.4% (5 g) or fipronil (3 g) or one botanical cake (2 g) developed by ICAR-CPCRI can be done. Incorporation of the biomass of weed plant *Clerodendron infortunatum* Linn. in the cow dung/compost pit can also be taken up. The breeding sites may be treated with green muscardine fungus (*Metarhizium anisopliae*)

Red Palm Weevil

Avoid causing injury to the palms, as they would attract the weevil to lay eggs. Mechanical injury if any, caused should be treated with coal tar. While cutting fronds, petiole to a length of 120 cm is to be

left on the trunk to prevent the entry of weevils into the trunk. Removal and burning of palm at advanced stage of infestation would aid in destruction of various stages of the pest harboured in the trunk. Prophylactic leaf axil filling suggested for rhinoceros beetle is very essential as this pest pave way for red palm weevil. If damage occurs in the crown, the damaged tissue has to be removed and insecticide suspension, imidacloprid (0.02%) @1 ml/l of water may be poured in. In case of entry of weevil through the trunk, the hole in trunk may be plugged with cement/tar and the top most hole is made slanting with the aid of an auger and the insecticide solution is poured through this hole with funnel.

Eriophyid mite

Spraying on the terminal five pollinated coconut bunches with neem oil garlic soap mixture @ 2 per cent concentration (neem oil 200 ml, soap 50 g and garlic 200 g mixed in 10 litres of water) or spraying neem formulations containing 1 per cent azadirachtin @ 4 ml per litre of water or spraying palm oil (200 ml) and sulphur (5g) emulsion in 800 ml of water. Root feeding azadirachtin 10,000ppm @ 10 ml + 10 ml water is also effective. Along with the recommended dose of manures and fertilizers, 5 kg neem cake should be applied.

Coreid bug

Spray neem oil-soap emulsion (0.5%) on the pollinated bunches. The emulsion can be prepared by adding 5 ml neem oil and 8 g bar soap in one litre water.

Rugose Spiralling Whitefly

No chemical insecticide should be sprayed on leaves. Apply of 1% starch solution on leaflets to flake out the sooty moulds. In severe case, spray neem oil 0.5% and no insecticide is recommended. Installation of yellow sticky traps on the palm trunk to trap adult whiteflies can be done. Encourage build up of parasitoids (*Encarsia guadeloupae*) and re-introduce parasitized pupae to emerging zones of whitefly outbreak. In situ habitat conservation of the sooty mould scavenger beetle, *Leiochrinus nilgirianus*.

Integrated Disease Management

Bud rot

Remove the infected tissues of the spindle completely. Two or three healthy leaves adjacent to the spindle may have to be removed, if necessary, for easy removal of all rotten portions and thorough cleaning. After removing the affected tissues apply 10% Bordeaux paste and cover the wound with a polythene sheet to prevent entry of rain water. The protective covering has to be retained till normal shoot emerges. Destroy the infected tissues removed by burning or deep burying in the soil, Spray 1% Bordeaux mixture to the surrounding palms

Stem bleeding

Avoid burning of trashes near the tree trunk can be also undertaken. Avoid injury to the tree trunk. The affected tissues should be completely removed using a chisel and smear the wound with 5% hexaconazole (5 ml in 100 ml of water) and drench the basins @ 25 lit. of 0.1% solution. Smearing paste of talc based formulation of *Trichoderma harzianum* on the bleeding patches on the stem (The paste can be prepared by adding 50 g of *Trichoderma* formulation

in 25 ml of water) can be done. Soil application of *Trichoderma harzianum* enriched neem cake @ 5kg per palm and adopt recommended irrigation/ moisture conservation practices can also be done.



Leaf rot

Remove rotten portion of the spindle leaf and 2-3 successive leaves and pour fungicide solution containing 2 ml hexaconazole 5 EC in 300 ml water/ palm or talc based formulation of *Pseudomonas fluorescens* or *Bacillus subtilis* @ 50 g in 500 ml water/palm into the well around the base of the spindle leaf. Undertake prophylactic measures to prevent rhinoceros beetle attack



Basal Stem Rot/ Ganoderma wilt

Remove dead palms, palms in advanced stages of the disease and destruct the bole and root bits of these palms. Isolate of diseased palms from healthy palms by digging isolate trenches of 2 feet depth and one feet width around the basin. Avoid flood irrigation or ploughing in infected gardens to prevent spread of the inoculum. Additional application of 50 kg of farmyard manure or green leaves per palm per year can be done. Apply of *Trichoderma harzianum* enriched neem cake@ 5 kg per palm and irrigate the palm once in 4 days and mulching around the basin. Raise banana as intercrop wherever is possible. Root feeding of hexaconazole @ 2% (100 ml solution per palm) or soil drenching with 0.2% hexaconazole / 1 % Bordeaux mixture @ 40 litre solution per palm can be done.

Field sanitation

Remove the organic debris/fallen trees etc in the coconut gardens in areas affected by the recent heavy rainfall and flood. ■

(Prepared by: Thamban, C. and Subramanian, P., ICAR-CPCRI Kasaragod and Joseph Rajkumar ICAR-CPCRI Regional Station, Kayangulam)

Market Review – August 2019

Domestic Price

Coconut Oil

During the month of August 2019 the price of coconut oil opened at Rs.14800 per quintal at Kochi and Alappuzha market and Rs.15100 per quintal at Kozhikode market. The price of coconut oil at all three markets in Kerala expressed an overall upward trend during the month, though the price declined by the fag end of the month.

The price of coconut oil closed at Rs.16400 per quintal at Kochi and Alappuzha market and Rs.17300 per quintal at Kozhikode market with a net gain of Rs.1600 per quintal at Kochi and Alappuzha market and Rs.2200 per quintal at Kozhikode market.

The price of coconut oil at Kangayam market in Tamilnadu, which opened at Rs.12000 per quintal, expressed an overall upward trend during the month and closed at Rs.13333 per quintal with a net gain of Rs.1333 per quintal.

Weekly price of coconut oil at major markets Rs/Quintal)				
	Kochi	Alappuzha	Kozhikode	Kangayam
01-08-2019	14800	14800	15100	12000
11-08-2019	15600	15500	16000	13000
18-08-2019	15800	15800	17100	14000
25-08-2019	16700	16500	17650	14000
31-08-2019	16400	16400	17300	13333

Milling copra

During the month, the price of milling copra opened at Rs.9500 per quintal at Kochi, Rs.9400 per quintal at Alappuzha and Rs.9600 per quintal at Kozhikode market. The price of copra at all three markets in Kerala expressed an overall upward trend during the month, though the price declined by the fag end of the month.

The prices closed at Rs.10700 at Kochi and Kozhikode market and Rs.10600 at Alappuzha market with a net gain of Rs.1200 at Kochi and Alappuzha market and Rs.1100 per quintal at Kozhikode market.

At Kangayam market in Tamilnadu, the prices opened at Rs. 8800 per quintal and closed at Rs.9700 per quintal with a net gain of Rs.900 per quintal.

Weekly price of Milling Copra at major markets (Rs/Quintal)				
	Kochi	Alappuzha (Rasi Copra)	Kozhikode	Kangayam
01-08-2019	9500	9400	9600	8800
11-08-2019	10300	10100	10100	8800
18-08-2019	10500	10400	10800	9300
25-08-2019	11000	10800	10700	9600
31-08-2019	10700	10600	10700	9700

Edible copra

The price of Rajapur copra at Kozhikode market opened at Rs. 12600 per quintal expressed an overall fluctuating trend during the month and closed at Rs.13000 per quintal with a net gain of Rs.400 per quintal.

Weekly price of edible copra at Kozhikode market (Rs/Quintal)	
01-08-2019	12600
11-08-2019	12500
18-08-2019	13500
25-08-2019	13600
31-08-2019	13000

Ball copra

The price of ball copra at Tiptur market which opened at Rs.13800 per quintal expressed a mixed trend during the month. The price closed at Rs.13600 per quintal with a net loss of Rs.200 per quintal.

Weekly price of Ball copra at major markets in Karnataka (Rs/Quintal)	
01-08-2019	13800
11-08-2019	13600
18-08-2019	13800
25-08-2019	13400
31-08-2019	13600

Dry coconut

At Kozhikode market, the price of dry coconut opened at Rs.9400 per quintal expressed a fluctuating trend during the month. The prices closed at Rs.11500 per quintal with a net gain of Rs.2100 per quintal.

Weekly price of Dry Coconut at Kozhikode market (Rs/Quintal)	
01-08-2019	9400
11-08-2019	12500
18-08-2019	12500
25-08-2019	12100
31-08-2019	11500

Coconut

At Nedumangad market the price of partially dehusked coconut opened at Rs.13000 per thousand nuts and closed at Rs.15000 per thousand nuts during the month. At Pollachi market in Tamil Nadu, the price of coconut opened at Rs.11000 per thousand nuts and closed at Rs.13000 per thousand nuts. At Bangalore APMC, the price of partially dehusked coconut opened at Rs.14000 and ruled at the same price throughout the month. At Mangalore market the price of partially dehusked coconut opened at Rs.21000 per thousand nuts and ruled at the same price throughout the month.

Weekly price of coconut at major markets (Rs /1000 coconuts)				
	Neduman-gad	Pollachi	Banglore	Mangalore (Grade -1)
01-08-2019	13000	11000	14000	21000
11-08-2019	13000	12000	14000	21000
18-08-2019	15000	13000	14000	21000
25-08-2019	14000	14000	14000	21000
31-08-2019	15000	13000	14000	21000

International price

Coconut

The price of coconut quoted at different domestic markets in Philippines, Indonesia, Srilanka and India are given below.

Weekly price of dehusked coconut with water				
Date	Domestic Price (US\$/MT)			
	Philippines)	Indonesia	Srilanka	India*
03.08.2019	103	106	130	345
10.08.2019	96	121	133	373
17.08.2019	95	121	130	408
24.08.2019	95	128	122	422
31.08.2019	95	128	122	408

*Pollachi market



Coconut Oil

The international price of coconut oil and domestic price of coconut oil in Srilanka expressed an upward trend during the month. Whereas the domestic price of coconut oil in Philippines, Indonesia and India expressed a fluctuating trend. The price of coconut oil quoted at different international/ domestic markets is given below.

Weekly price of coconut oil in major coconut oil producing countries					
	International Price(US\$/MT)	Domestic Price(US\$/MT)			
	Philippines/ Indonesia (CIF Europe)	Philippines	Indonesia	Sri Lanka	India*
03.08.2019	689	638	641	1725	1688
10.08.2019	701	663	668	1654	1828
17.08.2019	708	671	668	1626	1969
24.08.2019	712	670	668	1560	1969
31.08.2019	740	675	673	1605	1875

* Kangayam

Copra

The domestic price of copra at Philippines, Indonesia and India expressed a mixed trend during the month. The domestic price of copra at Srilanka expressed a slight downward trend. The price of copra quoted at different domestic markets is given below.

Weekly International price of copra in major copra producing countries				
Date	Domestic Price (US\$/MT)			
	Philippines	Indonesia	Srilanka	India*
03.08.2019	398	398	826	1238
10.08.2019	389	402	852	1238
17.08.2019	392	415	887	1308
24.08.2019	403	408	881	1350
31-08-2019	420	415	791	1364

* Kangayam