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World Coconut Day 2024

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Articles, research papers and letters on different aspects of coconut cultivation and industry are invited for publication in this Journal. All accepted material will be paid for. The Board does not accept responsibility for views expressed by contributors in this Journal. All remittances and correspondence should be addressed to the Chairman, Coconut Development Board, Kochi - 682 011.

Coconut Development Board

The Coconut Development Board is a statutory body established by the Government of India for the integrated development of coconut cultivation and industry in the country. The Board which came into existence on 12th January, 1981, functions under the administrative control of the Ministry of Agriculture and Farmers Welfare, Government of India, with its headquarters at Kochi in Kerala State and Regional Offices at Bangalore, Chennai, Guwahati and Patna. There are six State Centres situated in the states of Orissa, West Bengal, Maharashtra, Andhra Pradesh, Gujrat and in the Union Territory of Andaman & Nicobar Islands. DSP Farms are located at Neriyamangalam (Kerala), Vegiwada (Andhra Pradesh), Kondagaon (Chhattisgarh), Madehpura (Bihar), Abhayapuri (Assam), Pitapalli (Orissa), Mandya (Karnataka), Palghar (Maharashtra), Dhali (Tamil Nadu), South Hichachara (Tripura) and Fulia (West Bengal) besides a Market Development cum Information Centre at Delhi. The Board has set up a Technology Development Centre at Vazhakulam near Aluva in Kerala.

Functions

❒ Adopting measures for the development of coconut industry. ❒ Recommending measures for improving marketing of coconut and its products. ❒ Imparting technical advice to those engaged in coconut cultivation and industry. ❒ Providing financial and other assistance for expansion of area under coconut. ❒ Encouraging adoption of modern technologies for processing of coconut and its products. ❒ Adopting measures to get incentive prices for coconut and its products. ❒ Recommending measures for regulating imports and exports of coconut and its products. ❒ Fixing grades, specifications and standards for coconut and its products. ❒ Financing suitable schemes to increase the production of coconut and to improve the quality and yield of coconut.

❒ Assisting, encouraging, promoting and financing agricultural, technological, industrial or economic research on coconut and its products. ❒ Financing suitable schemes where coconut is grown on large scale so as to increase the production of coconut and to improve its quality and yield and for this purpose evolving schemes for award of prizes or grant of incentives to growers of coconut and the manufacturers of its products and for providing marketing facilities for coconut and its products. ❒ Collecting statistics on production, processing and marketing of coconut and its products and publishing them. ❒ Undertaking publicity activities and publishing books and periodicals on coconut and its products.

The development programmes implemented by the Board under the project Integrated Development of Coconut Industry in India are- production and distribution of planting material, expansion of area under coconut, integrated farming for productivity improvement, technology demonstration, market promotion and Information and Information Technology. Under the Technology Mission on Coconut, the programmes implemented by the Board are development, demonstration and adoption of technologies for management of insect pest and disease affected coconut gardens, development and adoption of technologies for processing and product diversification and market research and promotion.

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Dear friends,

On the occasion of this year's World Coconut Day, the Coconut Development Board organized various programs in all coconut growing states across the country, on this year's theme "Coconut for a Circular Economy: Building Partnerships for Maximum Value," focusing on promoting the circular economy and partnerships within the coconut sector.

This theme announced by the International Coconut Community is very much relevant in today's economic and environmental scenario. As industries across the globe are transitioning from the traditional linear models of production and consumption to sustainable and regenerative practices, the coconut sector stands at a critical juncture. The emphasis on circular economies reflects the growing need for innovation, collaboration, and resource efficiency, all of which are vital for achieving long-term sustainability.

In the past, coconut production focused heavily on the edible portions—coconut water, oil, and meat—while discarding other parts of the plant such as husks, shells, and coir. Today, advancements in technology and innovation have transformed these by-products also into essential raw materials for industries ranging from agriculture to textiles.

The relevance of the circular economy in the coconut sector cannot be overstated. In an era of depleting natural resources, the need to utilize agricultural products to their fullest potential is of paramount importance. With growing consumer demand for sustainable and eco-friendly products, the coconut industry is perfectly positioned to lead the way. India, as one of the world's largest coconut producers, has the opportunity to set the global standard for sustainable coconut farming and processing.

The concept of a circular economy fosters resilience in supply chains, ensures the sustainable use of resources, and contributes to reducing the industry's carbon footprint. These benefits are particularly significant for countries like India, where coconut farming is a major economic activity, providing livelihoods to millions of farmers

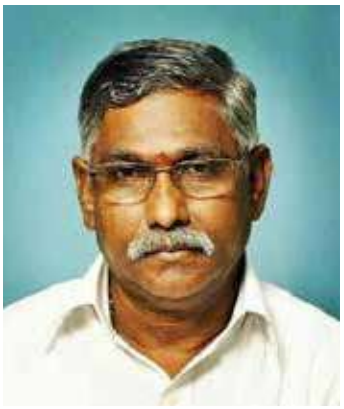
Furthermore, the increasing impact of climate change makes it crucial for industries like coconut to adapt to more sustainable practices. By adopting the principles of a circular economy, the coconut sector can reduce waste, lower emissions, and build resilience against future environmental challenges.

The focus on building partnerships is another key aspect of this year's theme. The coconut industry has vast potential, but realizing that potential requires collaboration among stakeholders across the value chain. Partnerships between farmers, processors, researchers, government agencies, and private enterprises can foster innovation and open new markets for coconut-based products.

In conclusion, the theme of "Coconut for a Circular Economy: Building Partnerships for Maximum Value" reflects a vision for the future that aligns with global sustainability goals. Through the adoption of circular economy principles and the formation of strategic partnerships, the coconut industry can achieve economic growth, environmental sustainability, and a brighter future for all its stakeholders. The Coconut Development Board, through its initiatives is ensuring that Indian coconut farmers and entrepreneurs are well-equipped to meet the challenges and opportunities of this new era.

Chairman
Editorial Board

Shri Suba Nagarajan Joins as Non-Executive Chairman of Coconut Development Board



Shri Suba Nagarajan from Ramanathapuram, Tamil Nadu, has joined as the Non-Executive Chairman of the Coconut Development Board. He was appointed to this position by the Appointment Committee of the Cabinet, Government of India. Shri Nagarajan brings extensive experience in social service, having led several grassroots initiatives focused on improving farmers' livelihoods and empowering the youth. A member of the Bharatiya Janata Party (BJP) since 2005, he currently serves as the State Vice President and Madurai Zonal In-Charge. He has held several key leadership roles within the BJP and previously served as a trustee of V.O. Chidambaram Port in Thoothukudi.

Shri. Ram Nath Thakur MoS, Agriculture, Calls for Emphasis on Natural Farming at World Coconut Day Celebration in Karnataka

Shri Ram Nath Thakur, Hon'ble Minister of State for Agriculture & Farmers Welfare,Governmnet of India stressed the importance of natural farming with a focus on enhancing soil fertility. He was delivering the inaugural address at the World Coconut Day celebration organized by the Coconut Development Board (CDB) at Sri Manjunatha Convention Hall, Ramanagara, Karnataka, on 18th September 2024. The Minister emphasized that soil fertility has deteriorated over the past 30 years, which has also had a detrimental impact on human health. He advocated for a shift towards natural farming to restore the health of both land and people.

Shri Thakur expressed pride in India's global leadership in coconut production, noting that the country ranks first in productivity. India contributes 28.81% of the world's coconut production, cultivating over 23.28 lakh hectares and producing 22.28 billion nuts annually. Coconut cultivation spans across 19 states and 4 Union Territories, placing India at the forefront alongside countries like Indonesia, the Philippines, and Sri Lanka. He highlighted that Kerala, Karnataka, Tamil Nadu, and Andhra Pradesh account for 90% of the coconut area and 92% of the total production, supporting the livelihoods of 12 million farmers.

In his keynote address, Dr. Prabhat Kumar, CEO of CDB, provided an overview of the coconut sector in Karnataka. He noted that coconut is more than just a crop in the state and it is integral to the rural economy, supporting farmers and contributing significantly to Karnataka's agricultural GDP. Karnataka leads the country in coconut production, yielding 5,949.46 million nuts annually. The state ranks second in area under coconut cultivation, with around 705.11 thousand hectares, and its productivity stands at 8,438 nuts per hectare.

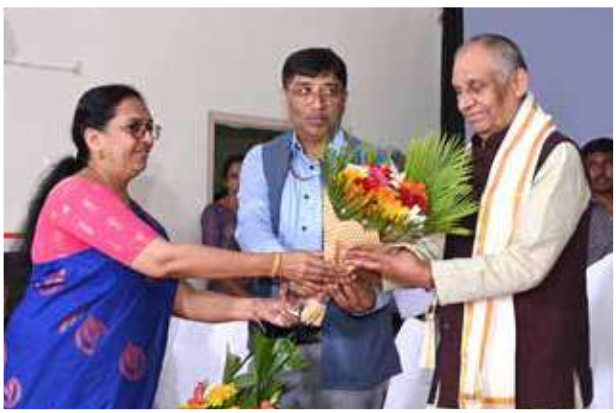
Dr. Prabhat Kumar also spoke on the growing prospects for coconut water, which has become a popular natural beverage rich in electrolytes, vitamins, and minerals. As global demand for healthier, natural products continues to rise, the market for packaged coconut water has expanded significantly, creating lucrative opportunities for farmers and processors in Karnataka.

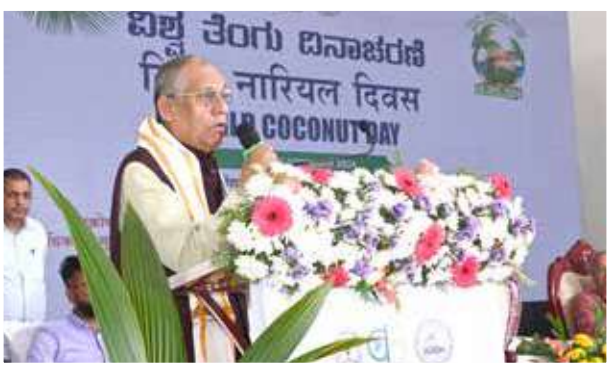
Shri Suba Nagarajan, Non-Executive Chairman of CDB also spoke during the occasion and expressed his happiness in attending the first programme after assuming the charge of the Chairman of the Board. He added that he will be there with the farmers to address the various challenges being faced by the sector.

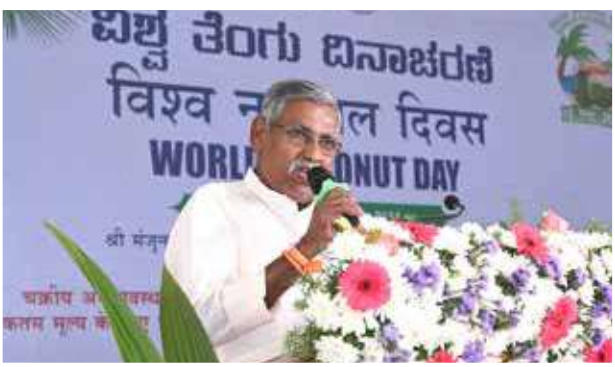
Other distinguished speakers at the event included Dr. S.V. Suresha, Vice Chancellor, University of Agricultural Sciences, Bangalore and Shri Digvijay Bodke IAS, CEO, Zilla Panchayat Bhavan, Ramanagara.

The programme was attended by officials from CDB, Karnataka State Horticulture Department over 1,000 coconut farmers, processors, exporters, researchers, policy makers, and other stakeholders. A technical session on scientific coconut cultivation practices, value addition, and pest and disease management in coconut was also organized. An exhibition showcasing innovative value-added coconut products was held alongside the event.

Dr. B. Hanumanthe Gowda, Chief Coconut Development Officer, CDB, delivered the welcome address, while Shri M.S. Raju, Deputy Director of Horticulture, Ramanagara, proposed the vote of thanks. ■







World Coconut Day celebration of CDB, Ramanagara, Karnataka in News

Value Addition and Product Diversification – the Way Forward for Sustained Development of the Coconut Sector- Shri. P. Rajeev

Shri P. Rajeev, Minister for Law, Industries, and Coir, Government of Kerala, emphasized the need for focused efforts towards the development of diversified, value-added coconut products alongside traditional products. He was delivering the inaugural address at the World Coconut Day celebrations organized by the Coconut Development Board (CDB) at Ernakulam Town Hall on 2nd September 2024.

Kerala, a leading producer of coconut and coconut-based products, particularly coconut oil, is witnessing a rise in innovative products such as coconut chips, nata de coco, and other derivatives, which hold immense potential in both domestic and global markets. The Minister stressed the importance of promoting small-scale industries that focus on these diversified products. He highlighted that the convergence of Kerala Government schemes and CDB initiatives would provide comprehensive support to entrepreneurs in the coconut sector. Moreover, collaboration between the CDB, Kerala Agricultural University, and the State Agriculture Department is critical in developing technologies to manage major pests and diseases affecting coconut cultivation.

Shri. Rajeev also underscored the Government of Kerala's initiative to develop a distinct brand for Kerala, starting with its iconic product—coconut oil. Six coconut oil processing units have already been certified to use the Kerala Brand 'Nanma,' with their products now available in the market. These units source raw materials exclusively from Kerala, ensuring authenticity and supporting local farmers. He further said that the soon-to-be-operational Coconut Park at Kuttiyadi will significantly boost the state's coconut sector.

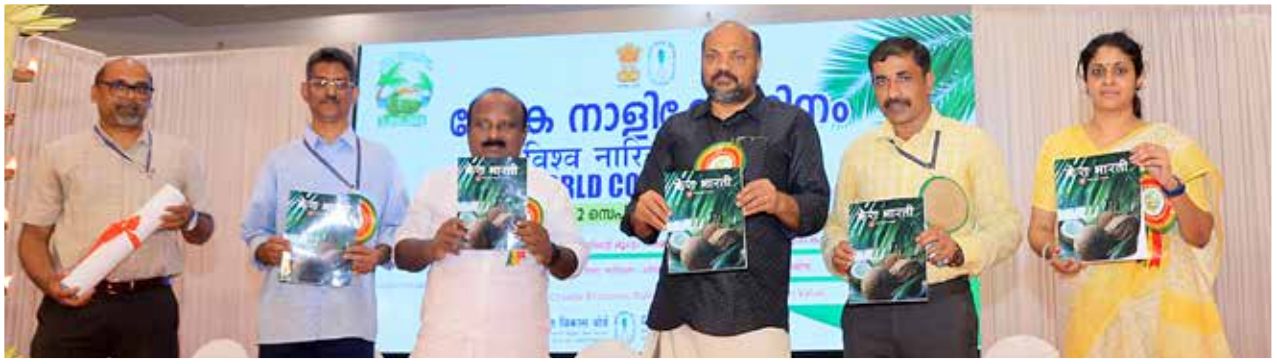
Shri T.J. Vinod, MLA, Ernakulam, highlighted the urgent need to address the challenges faced by coconut farmers. He called for the implementation of targeted programs designed to support the long-term development of the sector. Regularly organized programs, he suggested, would serve as platforms for

attracting more entrepreneurs to engage in coconut processing and value addition. Shri Vinod further said that making coconut cultivation a profitable venture is crucial for encouraging the youth to take up farming.

Hon'ble Minister Shri P. Rajeev also released Kera Bharathi, the Board's in-house Hindi journal, and a brochure detailing the schemes of CDB. He inaugurated an exhibition showcasing various value added coconut products which was organized alongside the event.

The program was attended by over 500 progressive farmers from South India, entrepreneurs, processors, and officials from the State Department of Agriculture and CDB. The event also featured technical sessions on coconut cultivation, plant protection, value addition, market promotion, and export strategies. During the closing ceremony, prizes were distributed by the Minister to the winners of a quiz competition held as part of the progarmme.

Shri B. Hanumantha Gowda, Chief Coconut Development Officer,CDB, welcomed the dignitaries and participants, providing a brief overview of the significance of World Coconut Day and the Board's initiatives for the sustained growth of the coconut sector. The program concluded with a vote of thanks by Smt. Deepthi Nair S, Director, CDB. ■



World Coconut Day in news

മൂല്യവർധിത ഉത്പന്നങ്ങളുടെ ഡിമ
പ്രയോജനപ്പെടുത്തണം-മന്ത്രി രാജ

നാളികേര മൂല്യവർധിത ഉൽപ്പന്ന
നിർമാണത്തിൽ കുതിപ്പ്: മന്ത്രി പി രാജീവ്

സംരംഭക വർഷത്തിൽ കൂടുതൽ
ഉത്പാദിപ്പിച്ചത് വെളിച്ചെണ്ണ: മന്ത്രി

നാളികേര മൂല്യവർധിത ഉൽപ്പന്നങ്ങൾക്ക് ആവശ്യക്കാർ കൂടി: പി. രാജീവ്

ലോക നാളികേര ദിനാഘോഷം കൊ

മൂല്യവർധിത നാളികേര വ്യവസായങ്ങൾ
ആംഭിക്കണം: മന്ത്രി പി.രാജീവ്

Value addition way forward for coconut sector, says Minister

CDB unit Offices Celebrated World Coconut Day across the country

CDB, RO, Chennai

The Coconut Development Board's Regional Office, Chennai, in collaboration with the Aliyarnagar Centre of ICAR - AICRP (Palms) and Tamil Nadu Agricultural University (TNAU), organized World Coconut Day 2024 on September 2nd at the Coconut Research Station, Aliyarnagar.

Ms. A. Catharine Saranya, IAS, Sub Collector, Pollachi Taluk, inaugurated the event, stressing the importance of crop diversification with valuable crops like cocoa, nutmeg, cinnamon, clove, and breadfruit. She also highlighted the importance of utilizing the non-edible coconut products, such as coir pith and fiber, encouraging farmers to explore the value addition of these by-products. She urged the Coconut Research Station to offer training programs on these products, promoting sustainable practices.

Shri E. Aravazhi, Director, Coconut Development Board, Regional Office, Chennai, delivered keynote address, focusing on the necessity of adopting scientific farming methods to mitigate the effects of climate change. He also detailed the Board's initiatives, particularly the 'Rejuvenation and Replanting Scheme,' which aims to support farmers in improving the productivity of coconut plantations.

Other speakers included Dr. N. Gopinath, Assistant Director of Horticulture, Anaimalai Block, and Dr. K. Rajamanickam, Member (Research), CDB. The event had the participation from officials of the State Department of Horticulture, Coconut Development Board, TNAU scientists, and members from various farmer and marketing organizations. Around 200 farmers attended the program.

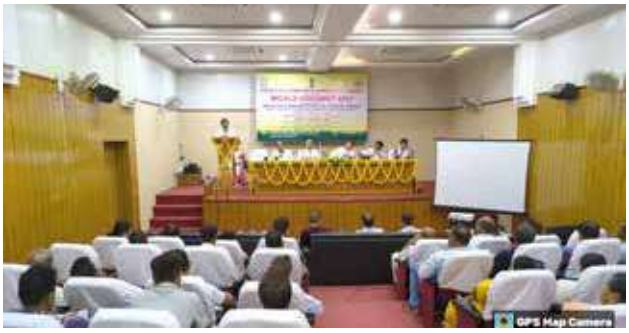
During the event, a Technical Bulletin titled "Biological Control of Pest and Diseases in Coconut" was released for educating farmers on sustainable practices. The programme also featured a technical session and an exhibition of various coconut-based products.

CDB Regional Office Guwahati

Coconut Development Board, Regional Office, Guwahati celebrated World Coconut Day on 2nd September 2024 at four different places in Assam, Meghalaya and Nagaland.

Kamrup, Assam

The Coconut Development Board (CDB), Regional Office, Guwahati, in collaboration with Assam Agricultural University (AAU), Horticultural Research Station (HRS), Kahikuchi, celebrated World Coconut Day 2024 at the AAU HRS auditorium in Kahikuchi, Kamrup. Shri T.P. Bhusal, Hon'ble Secretary to the



Government of Assam, Agriculture Department, was the chief guest. Shri Loken Das, Chief General Manager, NABARD, Dr. Rajesh Kumar, Principal Scientist, ICAR-ATARI Zone-VI, Dr. Alpana Das, Scientist in charge of ICAR-CPCRI, RC-Guwahati, Dr. Pradip Mahanta, Chief Scientist, AAU HRS Kahikuchi, Shri L. Obed, Former Director, CDB, Dr. H. Bhattachayya, Former DEE, AAU, and Syed Abu Khairuzzaman, Nodal Officer CDB & SDAO, Directorate of Horticulture & FP, Government of Assam were also present in the programme.

Dr. Rajat Kumar Pal, Director, CDB, Regional Office Guwahati, elaborated on the theme of World Coconut Day 2024, "Coconut for a Circular Economy: Building Partnership for Maximum Value." He discussed the scenario of coconut cultivation in Northeast India, the schemes implemented by CDB, and the importance of training programs such as FoCT (Friends of Coconut Tree), handicrafts, and food-based coconut products. The programme had panel discussion, technical session, and an exhibition of coconut products. About 130 farmers, entrepreneurs, scientists, and officials attended, and a coconut-based food competition was also organized.

Baksa, Assam

As part of World Coconut Day celebrations, the CDB, Regional Office Guwahati, in association with Krishi Vigyan Kendra (KVK), AAU Baksa, organized a Block-Level Seminar at the KVK Campus in Baksa. The program was attended by Shri Katiram Boro, Hon'ble Speaker of the Bodoland Territorial Council, Kokrajhar, and Dr. Utpal Jyoti Sarma, Head and Senior Scientist at KVK Baksa. Around 85 farmers, scientists, and officials participated in the seminar. The event also included a coconut food product competition and the distribution of 1,500 coconut seedlings to farmers.

Niuland, Nagaland

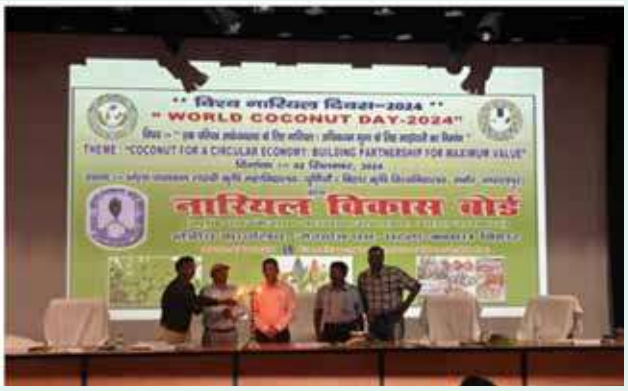
CDB, Regional Office Guwahati, in association with the District Horticulture Office, Niuland, organized a District-Level Workshop. Smt. Sarah S. Jamir (NCS), Deputy Commissioner of Niuland, was the chief guest, alongwith by Shri Temsu Longkumer, DHO Niuland, Dr. Jangyukala (HI), Professor at SASRD, and Dr. Chandan S. Maiti, Professor at SASRD. The event which had the participation of about 100 farmers, scientists, and officials, focused on the development of coconut cultivation in the region.

West Garo Hills, Meghalaya

In West Garo Hills, Meghalaya, World Coconut Day was observed by the CDB, Regional Office Guwahati, in collaboration with the District Horticulture Office. The was held at Bhaitbari Science College on September 2, 2024, and was attended by Dr. Mizanur Kazi, MLA, Rajabela, West Garo Hills, Mr. B.M. Sangma, Horticulture Development Officer (VFS) Tura, Mr. Moses G. Momin, Horticulture Development Officer, Tikrikilla C & RD Block, West Garo Hills, and Dr. Abul K. Azad, TDF Consultant, NABARD, RO-Shillong. Around 150 farmers and officials participated in the programme, which included discussions on sustainable coconut farming practices.

Regional Office, Patna

The Coconut Development Board (CDB), Regional Office Patna, celebrated World Coconut Day 2024 at Bhola Paswan Shastri Agricultural College, Purnea. The event was attended by Dr. D.R. Singh, Vice Chancellor of Bihar Agricultural University, Dr. Ajay Kumar, Dean of Agriculture, Bhagalpur, Dr. A.K. Singh, Director of Research, Bihar Agricultural University, and Dr. D.K. Mahto, Dean cum Principal of Paswan Shastri Agricultural College, Purnea. Dr. Janardan Prasad, Professor cum Scientist, Dr. Manibhushan Thakur, Assistant Professor cum Junior Scientist, and Dr. Ravindra Kumar, Regional Manager, National Seed Corporation, Purnia were the other guests of honour. CDB Director Shri. Rajeev Bhushan Prasad outlined various schemes and programs implemented by the



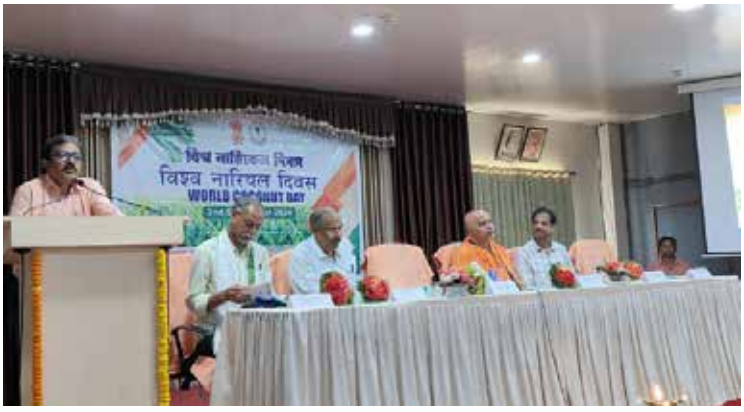
Board to promote coconut cultivation and value addition in Bihar. Around 100 farmers attended the event, with discussions on the benefits of scientific farming and the economic potential of coconut-based products.

SC, Andaman and Nicobar Islands

The CDB State Centre, Port Blair, celebrated World Coconut Day 2024 at Dharampur Committee Hall, with Smt. Shirly Thomas, Joint Director of the Agriculture Department, North and Middle Andaman, as the chief guest. Dr. V. Damodaran, Senior Scientist and Head of KVK Nimbudera, Shri. Debabrata Das Pradhan, President of Swadesh Nagar Grama Panchayath and Shri. Venkateswar Rao, President of Shivapuram Grama Panchayat were also present. Officials from the Coconut Development Board highlighted various skill development programs in the Andaman and Nicobar Islands, explaining how these initiatives could benefit the farmers.

CDB, Odisha

The CDB State Centre and DSP Farm, Pitappli, Odisha, organized World Coconut Day 2024 on the theme "Coconut for a Circular Economy: Building Partnerships for Maximum Value" at DSP Farm, Pitappli. Dr. Gobind Chandra Acharya, Head of ICAR-CHES, inaugurated the program. Dr. Ajit Kumar Sahoo, Assistant Professor (Horticulture), OIC, AICRP on Palms, Shri Ramkumar Das, Former Deputy Director of NHB Bhubaneswar, and Shri Dilip Kumar Sahoo, Agriculture Officer of Angul District attended the programme. Shri Rabi Narayan Das, DO, CDB, stressed the importance of adopting modern coconut cultivation and processing techniques. The event was attended by more than 80 farmers, government officials, scientists, and entrepreneurs.

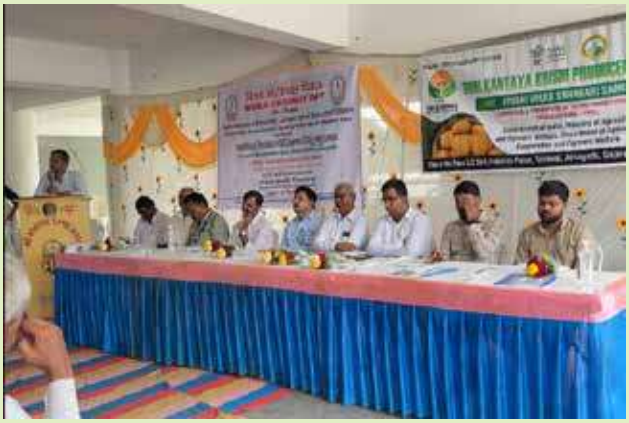


SC, West Bengal

The CDB State Centre, Kolkata, celebrated World Coconut Day 2024 at ATC Seminar Hall, Ramakrishna Mission Ashrama, Narendrapur, Kolkata. The program was attended by Dr. Gautam Saha, Vice Chancellor of Bidhan Chandra Krishi Viswavidyalaya, Dr. Pradip Dey, Director of ICAR-ATARI Kolkata, and Swami Shivabhavananda Ji Maharaj, Project Director of Ramakrishna Mission Ashrama. Dr. Amiya Debnath, Deputy Director of CDB, discussed the significance of coconut cultivation in enhancing farmers' income and showcased CDB's training programs and value addition initiatives. The event was attended by about 100 participants, including farmers and representatives from various districts of West Bengal.

Thane and Palghar, Maharashtra

The CDB State Centre Thane and DSP Farm Palghar celebrated World Coconut Day on September 4th, 2024, at KVK, Chhatrapati Sambhajinagar, Maharashtra. The program was inaugurated by Dr. Sanjay Patil, Principal Scientist at the Sweet Orange Research Centre, Jalna. Other attendees included Dr. Sanjula Bhavas, Subject Expert (Horticulture), KVK, and Dr. Anita Jiturkar, Subject Matter Specialist, KVK. Shri Sharad S. Aglawe, Senior Field Officer, CDB, DSP Farm, Palghar, provided an overview of the CDB schemes and programs implemented in the state.



SC, Gujarat

CDB State Centre Gujarat celebrated the 26th World Coconut Day on September 2nd, 2024, at the Multipurpose Cyclone Shelter in Prasnavada, Sutrapada, Gir Somnath District. The event was attended by Shri Arun Karmur, DDH, Gir Somnath, Shri Ashok Chaudhary, Dy DDO, Gir Somnath, and Shri Nilesh Chawda, District Agriculture Officer. Officials from the Coconut Development Board briefed on various schemes and activities implemented in the state, focusing on increasing coconut cultivation and processing.

DSP Farm, Tripura

CDB DSP Farm Hichachara, Tripura, organized World Coconut Day 2024, along with a District Level Seminar. Shri Sukla Charan Noatia, Hon'ble Minister of Tribal Welfare, inaugurated the program and encouraged farmers to adopt scientific technologies in coconut cultivation. The Minister congratulated CDB for establishing a demonstration farm in South District, which has significantly benefited local farmers. As part of the event, coconut seedlings were distributed, and a ceremonial coconut planting was held. Around 100 progressive farmers, along with key officials from KVK and the Department of Horticulture, participated in the event.

DSP Farm, Chhattisgrah

Coconut Development Board, DSP Farm, Kondagaon, Chhattisgrah organized World Coconut Day celebration on 2nd September 2024 at Shaheed Gundadhoor College of Agriculture and Research Station, Jagdalpur, Chhattisgarh. Smt. Beena Nair Singh, Project Incharge of AICRP on Palms, Dr. R.S. Netam, Dean of SGCARS, Programme Assistants Shri Rajesh Patel and Shri Upendra Naik were present during the occasion. As part of the programme, coconut seedlings were also distributed to the farmers.

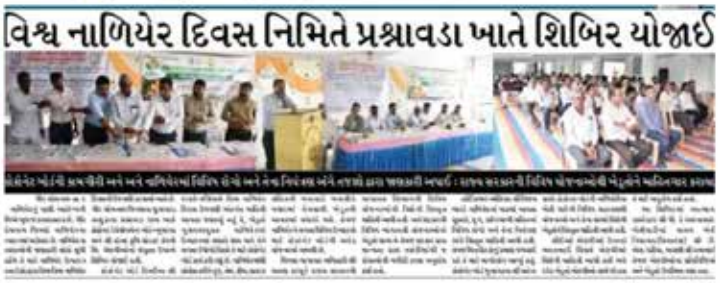
World Coconut Day in news


कोसी क्षेत्र में नारियल खेती की अपार संभावनाएं

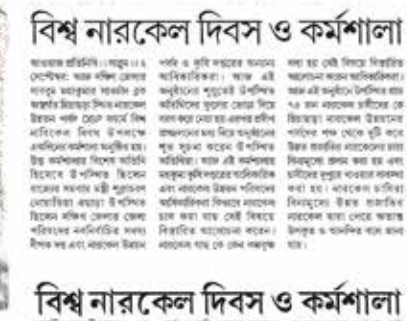

తెంగిన గవ్వీభవ
మరళి


जल्द ही लोग पीयेंगे अपने लगाए नारियल का पानी


नारियल उत्पादन में देश में बिहार का नौवां स्थान: राजीव


विश्व नाळियेर दिवस निमिते प्रश्नावडा खाते शिबिर योजाई


Jay hind 03.09.2024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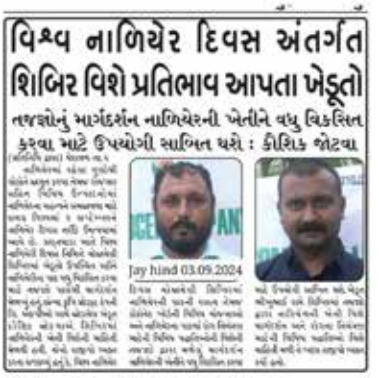
विश्व नाळियेर दिवस अंतर्गत शिबिर विशे प्रतिभाव आपता खेडूतो
तज्ञोनुं मार्गदर्शन नाळियेरनी खेतीने वधु विकसित करवा माटे उपयोगी साबित थशे : कैशिक जोटवा
Jay hind 03.09.2024


साक्रमे विश्व नारकेल दिवस उद्यापन
चाषीदेर सङ्गे आलोचनाचक्र अनुष्ठित


कृषि महाविद्यालय में किसानों को दिया गया प्रशिक्षण


काँहिकुछित विश्व नाबिकल दिवस


विश्व नाळियेर दिवस निमिते प्रश्नावडा खाते शिबिर योजाई


विश्व नारकेल दिवसे कर्मशाला


কাঁহিকুছিত বিশ্ব নাৰিকেল দিবস উদ্যাপন


Use good quality seedlings to boost coconut production: Govt

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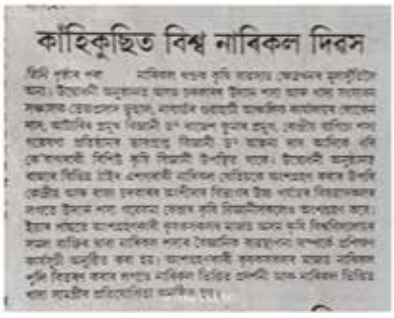
Guwahati: Assam faces a significant challenge of doubling its coconut productivity to match Andhra Pradesh, which leads the country with 15,964 nuts produced per hectare. On World Coconut Day, officials from the Coconut Development Board (CDB) urged farmers to cultivate high-quality seedlings and adopt proper management to achieve self-sufficiency in coconut production.

Coconut is grown on 21.69 thousand hectares in Assam, making it the largest area under coconut cultivation in the northeast. However, Assam heavily relies on procurement from southern states due to its low productivity.

Rajat Kumar Pal, director of the Guwahati regional office of the Coconut Development Board, said, "Poor management, like lack of watering and use of manure has badly affected productivity of coconuts. Most importantly, our farmers need to go with good quality coconut seedlings to enhance productivity."

The World Coconut Day event, attended by about one hundred coconut growers from different districts and senior government officials, included various activities.


Dinamalar
ஒரு வீடியோவே போதும்!


காँहिकुछित विश्व नाबिकल दिवस

Coconut Farmer Field Schools (CFFS)

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Indoor FFS ballot box excercise

Farmer Field Schools (FFS) an one of the efficient extension methodologies fostering experiential learning processes for rejuvenation and scaling up coconut knowledge integration among the coconut farming communities, and warrants further adoption by extension officials and coconut researchers. This era of climate change and the quest for climate-smart options at the field level offer challenges in extension research, methods, approaches and strategies ably supported by policies. Empowering small and marginal coconut communities in thoughts and actions is a major objective of FFS, which is rooted in adult education and Agricultural Extension. FFS is implemented by extension agencies, NGOs, and research institutions, in 78 nations spread in Asia, South Africa, the United States, Europe, and Latin America in several crops and farming contexts. The Food and Agriculture Organization (FAO) designed the first FFS and implemented it in Indonesia in 1989, specifically for Rice- IPM in farmer participatory mode, even though, conceptualized during the 1970s and 1980s. Farmer Field Schools originated from the Indonesian concept of 'Sekolah lapangan'(1989) meaning Field School or contextual meanings including home schooling. FFS is for selected farmers of a village or locality, as a non-formal adult education training program, enabling social and human capital and undergoing adaptations to suit the crops or knowledge domains.

Transfer of Technology (ToT) and Farmer Field Schools (FFS)

In the transfer of technology, the actors and stakeholders are the users of science and technologies, whereas in FFS small and marginal farmers are becoming the experts and technology transfer agents. The desirable practices using productivity-enhancing innovations are focussed in ToT and FFS to empower ecosystem-based sustainable management through observation, understanding, and doing things. The adoption and diffusion of innovations are the outcome of the learning process in ToT. Experiential learning and farm-based experimentation enable appropriate decision-making as an outcome of group discussions, in Farmer Field Schools.

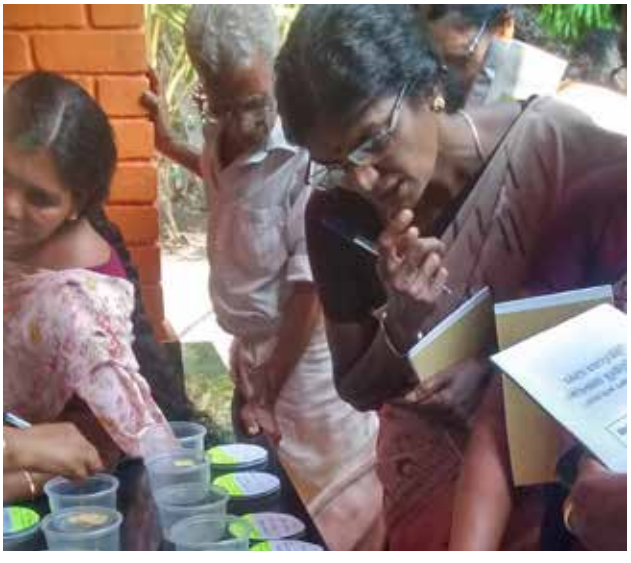
In general, the extension approach or facilitation and institutional framework, in linear and supply-driven technology transfer model is through front-line demonstrations, extension literature, training, social media, videos, mass media, etc and FFS facilitates the discovery learning process among the FFS learners, through decentralized expert networks and highly skilled facilitators of FFS trainers. The Agricultural Knowledge Innovation treadmill in ToT

Active involvement- Ballot box for knowledge testing

depends on price policies, subsidies and program investments, market liberalizations, as needed for agribusiness ecosystems. FFS as a case in point, mostly deals with promoting IPM methods. With climate change, demand for safe and nutritious food, and environmental concerns, the ToT system focuses on food and productivity improvement externalizing environmental costs to nature, in contrast to FFS which focuses on a broad range of environmental and ecological services and protection of natural components in farming in sustainable and social participatory modes.

Key FFS principles

- Farmer's fields are the schools or learning grounds as per the FFS topics
- The learning tools are the crops in the fields, livestock systems, ecosystems, agroforestry or homestead systems, etc.



Ballot box

- Extension officials are facilitators, unlike the role of teachers in the top-down general extension process. In FFS, they have to properly and adequately guide the required learning process as per the learning objectives
- The contents of each FFS are unique since the farmers decide on the relevant topics that the FFS should address
- Learning by doing for experiential lessons in FFS which is an adult learning process, rather than passive listening at training lectures and demonstrations
- Learning is continuous from mistakes also since each person experiences the facts in a unique and valid way
- Learning how to learn is important. The FFS farmers earn capacities to observe, analyse, and make conscious and group-based decisions in problem-solving
- Problem identification and solving should be viewed as challenges and not as constraints
- Unity is strength and farmers learn to cooperate and work together in FFS. They experience and learn that as a group they have more powers than as individuals
- FFS follows a systematic training process with key steps like observation, group discussion, analysis, decision-making, and action planning

(Adapted from: Groenweg, K., et.al. 2006. Livestock farmer field schools: Guidelines for facilitation and technical manual. Nairobi: ILRI.)

The strategy for educating coconut farmers focuses on learning about the ecology of the coconut ecosystem, the natural enemies of common coconut pests, the sustenance of natural biological control of key coconut pests, and the agronomic practices for a healthy coconut crop. Other major action points in Coconut FFS suggested were:

- Each coconut FFS will be six months in duration
- The cost of each FFS is to be fixed for planning, progressing, and evaluating successfully and purposely
- During the first three months, CFFS meetings could be conducted twice a month and monthly sessions could be organized into nine sessions, for six-month-long CFFS.
- Participants can be up to 30 active coconut farmers per FFS with proper gender representation

- For observing and field experimentation, 120 coconut seedlings were to be secured per FFS
- Coconut farmers need to be taught agro-ecology, group dynamics, and participatory research methodologies
- Impact data will be collected on the topics of CFFS

Broad outline curriculum for a Coconut Farmer Field Schools (CFFS)

The coconut field situations and farmers' needs provide the basic determinants for FFS curriculum development. While preparing the FFS curriculum more emphasis could be given to technologies/ practices having wider gaps in knowledge and adoption. The physiology and perennial nature of coconut palms necessitate that the total duration of CFFS is six months for reasonable learning, analyzing, researching, and formulating problem-solving lessons. The CFFS sessions should be once in every two weeks (six sessions) in the first half of three months and three-monthly sessions in the second half. For each session, the date, time, and location need to be scheduled

Each session should have details of activities to be facilitated, learning objectives, and the quality indicators to be evolved and documented.

Every session shall be scheduled for three hours. i.e., Agro-ecosystem analysis (AESA) for one hour, Special topics (I) for one hour and Special topics (II) for 45 minutes, and group dynamics for 15 minutes

Materials required for FFS activities, exercises, field experimentation, AESA documentation, pictorial presentations of field visits, and results are to be supplied to the participants

The sessions are broadly furnished, which could be refined, and modified to suit the CFFS topics

The FFS curriculum should also be dynamic to include the arising field problems during the program period, with the participants input, and needs.

Special topics in CFFS offer support to the AESA. Innovative and creative facilitators can evolve relevant areas of learning, according to FFS farmers' needs. In CFFS, some of the suggested special topics are nutrient/ water management, adverse impact of unscientific insecticide application, experimental design, introduction to various pests and diseases of coconut, survey methodology for coconut pest damage, organic recycling in coconut gardens, insect zoo for learning life cycle and natural enemies, collecting specimens of pest/disease symptoms and coconut -based livelihood activities.

CFFS Sessions	Activities to be done	Learning objectives	Quality Indicators
Preparatory sessions	Secure local support, select participants, create awareness of the objectives, collect baseline data, identify field sites, and prepare the CFFS curriculum guide.	Ownership and improving participation, select farmer learners, select field as laboratory and CFFS site	local funding to be obtained, Farmers of the same village, committed to attending full sessions, need analysis of farmers,
Session 1: Confirming community relationships	Going to FFS field. Knowledge analysis through ballot box exercise, Group Dynamics, Special topics	Learn Sampling methods, Agro Ecosystem Analysis (AESA), collecting general information and pests/disease symptoms, Discussing farmers' field problems, Special topics	Understand sampling, Observe & ask questions, Identify key issues of coconut cultivation, agree to set up experiments, and be involved as per approved procedures
Sessions 2 -10: Strengthening community relationships	Field visits & study, Regular visits and monitoring by facilitators, Group dynamics, and special topics	Collecting data on field and seedling conditions, AESA, introducing insect zoo, Exercises for participants, implementing field and laboratory studies, learning the life cycle of major pests-insect zoo	Farmers ask questions, learn about pests/diseases, carry out experiments, inculcate scientific vigor, record perceptions, facilitators ensure education, layout of field trials, and group dynamics.

CFFS Sessions	Activities to be done	Learning objectives	Quality Indicators
Session 11-12	Field visits & presenting study lessons Special topics: complete insect zoo studies, Coconut livelihood activities. Organize CFFS field day	Collect field data (last survey), Prepare AESA, Correlate AESA, and seedling growth/field problems/solve them. Knowledge and skills acquired	Analyse data & present, Farmers' reports on the relationship of pests/diseases with other factors, present insect zoo & experiment results as posters/drawings

(Adapted from: Rethinam, P. and S.P.Singh. (2005). Proceedings of the Farmer Field School curriculum development workshop of CFC/DFID/APCC/FAO project on 'Coconut Integrated Pest Management (IPM))

Group dynamics activities include role play, brain teaching, case studies, short dramas, etc, to improve communication, leadership motivation, problem-solving, and planning activities.

Refinements and facilitation in Coconut FFS

One of the refinements made was regarding the 'ballot box exercise' for assessing the knowledge level of farmers. The factors considered were the high literacy rate of farmers and rainfall patterns which may hinder the open field-based ballot box exercise. Convenient size of plastic containers prepared with the ballot box questions (in the local language- Malayalam) were pasted legibly on the lids. The FFS farmers were asked to choose the correct answers and put the answer - ballot with the option written, into the container. The accurate and incorrect answers were then tabulated and presented to the participants, and the knowledge gained was analysed.

Unlike in annual crops, all coconut growth stages could not be examined physically and easily in coconut, due to the tall structure of the palm crop. Hence for observation and physical examination coconut seedlings up to 6-7 years old were selected for the farmer field schools and in adult-bearing palms.

A total of 240 farmers, 120 from FFS and non-FFS farmers each were selected randomly, from Devikulangara, Kandalloor and Krishnapuram panchayats to study the effects.

In Coconut AESA, the methodology adopted was to choose 12 coconut seedlings randomly by the five groups (5 FFS participants each), facilitating the collection of samples of pests, diseases, weed infestation, and nutrient deficiency symptoms for joint group analysis on the severity of field problems, identification skills and deciding the management practices.

Lessons learned and modifications for implementation of CFFS

1. Observations to be undertaken by CFFS participants

a. Monitoring coconut gardens (Field as schools)- Category of palms, age-wise

b. Pest infestation- Rhinoceros beetle, red palm weevil, coreid bug, eriophyid mite, mealy bugs, white flies, scale insects, rats, etc. Diseases such as root (wilt), leaf rot, stem bleeding and nutrient deficiency symptoms

c. Observe and record natural enemies: birds (Indian tree pie, crows, owls, hens, ducks, anta, spiders, rat snakes, etc. Any infected grubs/larvae/adult beetles

d. Action points while taking observations: Learning to observe and diagnose field problems is needed for integrated knowledge and adoption.

Checking the infested portion at spindle base

CFFS in Devikulangara panchayat

Examining coconut tree- skill sharpening

Gaining knowledge build confidence in FFS

Regarding RB FFS, facilitated participants to observe the number of leaves with characteristic symptoms, spindle attack, observations on holes made, checking and learning the chewed debris, assessing the loss of coconut seedlings/juveniles, recovering of infested seedlings, recording the severity of RB infestation and comparing incidence in various age categories of palms. Recording observations of the results of the adoption of bio control with treating Metarhizium in breeding sites of RB in and around FFS fields (cow dung pits, decaying coconut logs and stumps, compost pits, organic debris in coconut homesteads) and comparing with other recommended practices such as leaf axil filling with neem cake and sand mixture or Ferterra or covering spindle portion with small mesh sized fishnet for trapping beetles as well as traditional practice of sand, salt and ash mixture. The CFFS participants can compare the results, economics, and appropriateness and decide on continued adoption.

e. Insect zoo - The insect zoo activity is an important experiential learning in the CFFS curriculum facilitated by the subject experts, and a case in point was the Rhinoceros beetle. In contrast to the insect zoo of annual crops, tree crops like coconut, field level, and small-scale zoo activities are in for learning the life stages, of different coconut pests. It is necessary to evolve insect-zoo activities for major coconut pests for CFFS. Rhinoceros beetle life stages were learned through hands-on practice of collecting beetles, rearing in cow dung or compost media, learning and observing the duration and activities of life stages in breeding sites, and recording the how, why, and seasons of beetle infestation in coconut seedlings, juveniles, and adult palms. Insect zoo activities included experimenting with the action of Metarhizium on grubs and adult beetles, and how the fungus resulted in managing the pest reduction in field situations.

f. The field experimentation in coconut is long-term warranting steady learning. In annual crops, generally, uniform crops stand seen in fields, whereas in coconut gardens of root (wilt) affected regions, where ICAR CPCRI, Regional Station, Kayamkulam conducted the CFFS, coconut trees of various ages in farmers gardens (1 to 80 years), i.e., seedlings, pre bearing and bearing palms. Hence a uniform crop stand could not be expected for curriculum development for CFFS in root (wilt) affected coconut areas.

g. Based on the experience, the CFFS should include adult palms (25 for each FFS) to learn the impact of the knowledge-based adoption decision on yield and the economics of adoption.

h. CFFS improved the knowledge of participant farmers by 65 percent, compared to the non-participants, among both genders.

i. The knowledge gap reduction among FFS and non-FFS women farmers was less compared to men, which could be attributed to the activities and regular interaction among women SHGs in Kerala. This could be utilized for planning and framing strategies for horizontal dissemination among women farmers. The incorporation of Clerodendron infortunatum (weed plant) in the breeding sites of the rhinoceros beetle was adopted by 36.01 percent of farmers.

j. Technology reflections of the CFFS conducted:

- Green muscardine fungus (GMF) or Metarhizium was assessed as effective wherein the moister content is appropriate, summer months are not found favoring the GMF growth. Effective for community based adoption, involving livestock farmers also, for treating GMF in cow dung/compost pits which are the breeding ground for coconut rhinoceros beetle. Rated by FFS farmers as very effective, simple, low cost technology.
- Incorporation of whole plant Clerodendron infortunatum in Farm Yard Manure (FYM) pits

Women friendly -Placing sachet or leaf axil filling as prophylactic measure to rhoniceros beetle infestation

improved the effectiveness as per FFS farmers observation. Rated as no cost, simple, easy to adopt.

- Prophylactic leaf axil placement of sachets was recorded as effective in rainy seasons, but cost more based on the frequency of placement. Adoptable for seedlings as farmers themselves can do, unlike in adult palms.
- Use of pheromone traps of rhinoceros beetles were recorded as effective in catching adult beetles, but not actually reflected in reduction of rhinoceros beetle infestation in the, farmers gardens during FFS period.

Constraints in CFFS implementation

FFS in tree crops should have a minimum of six months of learning in actual field situations maintaining group dynamics. Points of concern were as follows:

- Consistent and full attendance of coconut FFS participants is difficult to maintain for six months at regular intervals. This was overcome by reminder callings before each session, and at present Whats App groups could be helpful.
- Financial support for CFFS is a constraint for effective implementation. Hence for coconut development programs financial allocation for need-based FFS is needed. The cost of CFFS should be derived appropriately considering the duration and methodological challenges.
- Facilitating CFFS is crucial for effective FFS. Facilitators should have practical knowledge and skills in field actions, surveys, extension methods, communication skills, and the subject matter of CFFS. Coconut extension experts have to dwell deep in these methodologies considering the challenges to articulating sustainable coconut development and food and income security of coconut communities.
- Training programs and curriculum development for capacity building of extension officials, NGOs and farmer leaders in coconut sector is highly needed in implementing participatory extension interventions, Participatory experiments and technology development, facilitation skills, FFS for tree crops, area wide demonstrations and community actions.
- Tree FFS for various perennial tree crops including coconut palms, require research-based methodology refinements in extension research. The FFS principals and curriculum-based schooling for tree crops need appropriate theory-based tools and methods.
- Customizing extension strategies in tune with the subject matter on coconut problems is another gray area of extension research for FFS in coconut.

CFFS is not a sure single methodology for solving all coconut cultivators' problems, in risk-prone areas like root (wilt) disease locations, red palm weevil contagious locations, bio management of pests/diseases, soil health management of coconut areas CFFS could be selectively implemented for sustainable problem management, since the solutions in these cases are knowledge and skill intensive continuous process from coconut farming communities. Extension and development agencies of coconut sector, can integrate Farmer Field Schools and farm schools besides the routine extension activities for empowering knowledge and skill based technology adaptation and adoption. The coconut research system need to have further impetus in evolving customized innovations in coconut FFS through refinements and evolving appropriate FFS methodologies as multidisciplinary approach of research and assessment.

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Medicinal and Biochemical properties of Ganoderma

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Introduction

The genus Ganoderma (*Ganodermataceae*) has a long history in traditional medicine to improve longevity and health in Asia. Ganoderma is a genus of polypore macro fungi growing in decaying logs or tree stumps. Commonly known as Lingzhi, Ganoderma comprises the most studied species of medicinal mushrooms in the world. In ancient China, Lingzhi was believed to bring longevity, due to its mysterious power of healing the body and calming the mind. Ganoderma species have a worldwide distribution in green ecosystems both in tropical and temperate geographical regions. These species grow as facultative parasites that can live as saprobes on rotting stumps and roots.

Ganoderma

Ganoderma is a genus of traditionally used, popular medicinal mushrooms that have been used particularly in China, Japan and Korea for millennia to improve longevity and health (Cheng et al. 2013). Bioactive compounds from Ganoderma hold tremendous structural and chemical diversity. These bioactive constituents are reported to be responsible for the anti-cancer, anti-inflammatory, anti-tumor, anti-oxidant, immune modulator, immune deficiency, anti-diabetic, anti-viral, anti-bacterial, anti-fungal, anti-hypertensive, anti-atherosclerotic, anti-aging, anti-androgenic, anti-hepato toxic, radical scavenging property, neuro protection, sleep promotion, cholesterol synthesis inhibition, hypoglycemia, inhibition of lipid peroxidation / oxidative DNA damage, hepato protective properties, maintenance of gut health, prevention of obesity and stimulation of probiotics. Ganoderma has been used as functional food to prevent and treat many immunological diseases, such as anorexia, arthritis, asthma, bronchitis, cardiovascular problems,

Ganoderma

constipation, diabetes, dysmenorrhea, gastritis, hemorrhoids, hepatitis hypercholesterolemia, hypertension, insomnia, lupus erythematosis, migraine, nephritis, neurasthenia, neoplasia and tumorigenesis.

Ganoderma lucidum

Ganoderma lucidum is observed in the advanced stage of infection of basal stem rot infected coconut palms as fruiting body (basidiocarp). *G. lucidum* is a well-known medicinal mushroom that has been used for the prevention and treatment of different ailments to enhance longevity and health. It was known as “God’s herb” in ancient China as it was believed to prolong life, enhance the youthful spirit and sustain/preserve vitality. *G. lucidum* is seldom collected from nature and is substantially cultivated on wood logs and sawdust in plastic bags or bottles to meet the international market demand.

Biochemical properties

Varied groups of chemical compounds have been isolated and identified from Ganoderma such as including triterpenoids, polysaccharides, proteins, amino acids, nucleosides, alkaloids, steroids, lactones, lectins, fatty acids, and enzymes with potent pharmacological activities have been isolated from the mycelia and fruiting bodies of G. lucidum.

Investigation on different metabolic activities of Ganoderma species has been performed both in vitro and in vivo.

Medicinal properties

Ganoderma genus comprises of one of the most commonly studied species worldwide of Ganoderma lucidum. However, other Ganoderma species have been also reported as important sources of bioactive compounds. Polysaccharides are important contributors to the medicinal properties reported for Ganoderma species. Ganoderma has been widely used in multiple therapeutic activities as well as dietary supplements to prevent and treat many diseases. *Ganoderma lucidum* (Reishi mushroom) is known as the mushroom of immortality. Studies revealed *G. lucidum* extract to contain components with an extensive range of pharmacological and therapeutic properties which include immune modulation, hepato protective, hypocholesterolemic, free radical scavenging, and anti-inflammatory. G. lucidium extracts are given as supplements or medicine for several ailments and diseases. G. lucidum have been reported to possess cytotoxic, hepato protective, antihypertensive, hypocholesterolemic, antihistaminic effects, antioxidant, antimicrobial, antiinflammatory, hypoglycemic antiallergic, neuroprotective, antitumor, immunomodulatory and antiangiogenic activities. Various formulations have been developed, patented, and utilized as nutraceuticals, cosmeceuticals, and pharmaceuticals from *G. lucidum* extracts and active compounds.

Clinical studies

There has been no conclusive report of human trials using Ganoderma species as a direct control agent for diseases. In addition, there is no evidence supporting the usage of Ganoderma species (excluding *G. lucidum*) as potential supplements for cancer or other diseases in humans since no preclinical trials have been performed up to date. Ganoderma species can be used as a therapeutic drug, but more direct scientific evidence should be made available in the future. The efficiency of Ganoderma in clinical treatments should be substantiated with more biomedical research and their true impact assessed on human health with more standardized clinical evaluations so that the feasibility of biologically active extracts of Ganoderma species in alternative treatments can be recommended.

Beneficial health properties

Ganoderma genus has been widely studied regarding its bioactive properties including antibacterial, antioxidant, antitumor and other effects. The beneficial health properties of Ganoderma species are attributed to a wide variety of bioactive components, such as polysaccharides, triterpenes, sterols, lectins and other proteins. Different kinds of bioactive polysaccharides have been extracted and isolated from the fruiting bodies of different Ganoderma species and represent a structurally diverse class of biological macromolecules with a wide-range of physiological properties. The major bioactive Ganoderma polysaccharides are composed of (1→3), (1→6)-α/β-glucans, glycoproteins and water soluble heteropolysaccharides with glucose, mannose, galactose, fucose, xylose and arabinose combined in different proportions and types of glycosidic linkages, as well as peptide bonds. As polysaccharides are very complex molecules, their detailed characterization in terms of specific glycosidic linkages, molecular weight and sugars composition is mandatory in order to establish structure-biological activity relationships.

Chemical features of Ganoderma

The polysaccharides isolated from Ganoderma are constituted by glucose, mannose, galactose, fucose, xylose and arabinose, with different combinations and different types of glycosidic linkages and which can be bound to protein or peptide residues (polysaccharide-protein or -peptide complexes). The crude water-soluble extract of *G. lucidum* has been used in traditional Chinese medicine as antitumor and immunomodulating agent. Most reports concerning the antitumor activity of polysaccharides from Ganoderma demonstrate that it is mainly related to the host-mediated immune function. Some heterogalactans were found in aqueous extracts of *G. applanatum* and further, exo polysaccharides and glucans were extracted from its fruiting bodies.

Ganoderma as food supplement

Ganoderma is now becoming accepted as a natural supplement to enhance the healing effects by supporting the immune system in combination with other therapies. In more recent studies, purified substances isolated from Ganoderma have been investigated to reveal the molecular mechanisms responsible for the antitumor and immunosupportive activities. One of the primary reactions of radiation and chemotherapy in the treatment of disease patients is the advancement of leukopenia, which fundamentally expands the danger of contaminations. It has been reported that the concentration and composition of active ingredients of Ganoderma depends upon a number of factors, e.g. the harvesting techniques, strains, cultivating areas, age, manipulation, and storage of the mushrooms and spores which in turn largely influence biological activities.

Ganoderma has been used as a food supplement to prevent and treat many immunological diseases over the last 30 years. Some in vitro and in vivo studies of medicinal properties of Ganoderma appear to be promising, but careful investigation and accurate scientific evidences are needed for establishing the safe and efficient use of Ganoderma. It has been used as a food supplement to prevent and treat many immunological diseases over the last 30 years. Experimental, epidemiological, and clinical studies should be carried out on identification of the molecular targets and investigate the association between Ganoderma intake and disease risk.

Conclusion

The beneficial health properties of Ganoderma species have been attributed to a wide variety of bioactive components present in this genus, such as polysaccharides. Studies on Ganoderma are focused since they have a considerable capacity for carrying biological information due to their high structure variability. Over the last three decades, many polysaccharides from Ganoderma species have been extracted by different methodologies according to their structure. Experimental, epidemiological, and clinical studies should be carried out on identification of the molecular targets and investigate the association between Ganoderma intake and disease risk. Moreover, the efficacy of the drug, and safety, alone or in combination with chemotherapy or radiotherapy should also be researched in the future.

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Boron, the 'hero micronutrient' for coconut production

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Coconut is a versatile tree crop catering to the diversified needs of human beings from birth till their last rites are performed. Its ability to supply food, feed, fiber, timber, fuel and medicine emboldens itself to be named as 'Kalpa Vriksha'. However, the tree itself can be viewed as a nutrient reserve as each and every part of it is having ample amounts of major, secondary and micronutrients. Studies on the total nutrient uptake of a whole coconut palm, through its destructive sampling was conducted by Mathew et al., (2021). It was found that total nutrient uptake in an apparently healthy coconut tree of approximately 25 to 30 years of age is 889.0 g palm-1 Nitrogen, 109.4 g palm-1 Phosphorus, 1075.0 g palm-1 potassium, 389.7 g palm-1 Calcium, 71.6 g palm-1 Magnesium 229.7 g/palm Sulphur and 321.6 mg per palm boron. The above results imply that, the very practice of effective utilization of all the palm parts of 'Kalpa Vriksha', itself create a dearth of nutrient reserve in the soil system in which it is thriving. Hence systematic nutrient management practices are very essential for sustaining the productivity of coconut. This include the adequate supply of major nutrients such as N, P and K along with secondary (Ca, Mg and S) and micronutrients. Among the micronutrients, the most important for the production and productivity of coconut is boron. The role of boron in coconut nutrition and the ameliorative measures to be adopted for its correction are discussed here.

Importance of boron

Boron is a micronutrient which is important for the production of oilseed crops including coconut, sunflower, mustard, sesame, rapeseed, niger etc. It is involved in the transport of sugar, cell wall strength and development, cell division, fruit and seed development. It has a structural role in cell walls and in membrane function and is involved in the stimulation of specific metabolic pathways. Along with calcium, it has a role in the cell wall structure and is also involved in the movement of calcium in plants. At times of deficiency of boron, the movement of calcium is also restricted resulting in 'hollow heart' like symptoms in crops such as potatoes and cauliflower. Boron is essential in the division of meristematic cells in root tips, new leaves and also in the buds. Hence deficiency of boron can lead to change in plant structure in the actively growing regions. Moreover, boron is involved in the activity of conductivity tissues enabling the transport of water, nutrients and organic compounds to the actively growing portions of the plant. The sugar formed during photosynthesis must be transported from the site of formation to the storage tissues and also for the formation of new compounds. Boron increases the rate of transport of sugars to the actively growing regions and also in the developing fruits. However, the role of boron is more pronounced in the reproductive growth than in the vegetative growth. Boron regulates the phytohormones regulating the flower initiation, fruit development, cell wall and tissue formation and root elongation. It is involved in pollen germination, pollen tube elongation, nut setting and formation of mature nuts from buttons.

Causes for the deficiency of boron in coconut

The critical level of boron in the leaves of coconut is 13.27mg kg-1 and that in the soil is 0.48 ppm, below which deficiency symptoms will be expressed. Though boron is a micronutrient with a minimal requirement for crop production, absence of that minimum amount results in the occurrence of deficiency symptoms. Cultivation practices usually focuses on the supply of major nutrients and secondary nutrients without the addition of micronutrients such as boron. Being an oilseed crop, the demand for boron to be supplied for coconut production from the soil is substantial. Continuous removal of boron from the soil without addition through suitablecarriers could result in the gradual developing of deficiency in soil and plants. Boron is present in the soil as borate anion as well as boric

acid. It is readily lost through leaching and hence the deficiency symptoms are rampant in light sandy soils and soils with low organic matter content compared to heavy clay soils.

Soil acidity is another reasons attributing to the deficiency of boron. Only boron and molybdenum are the two micronutrients which are available in neutral soil reaction. All other micronutrients such as iron, manganese, copper and zinc are available under acidic soil reaction.

Soil compaction is another reason for the appearance of boron deficiency symptoms in coconut. The compacted soil with improper aeration hinders the uptake of boron and within another few months, symptoms become visible.

Deficiency symptoms of boron in coconut palms

A wide array of symptoms are reported in coconut due to the deficiency of boron. The symptoms are more expressed under dry conditions as compared to the rainy season. The symptoms are observed in inflorescence, buttons and crown. Expression of symptoms in each of the parts is described below.

Leaves: During boron deficiency, leaflets fail to split open and the condition is referred as 'fasciation'. Presence of fasciated leaves gives a choked appearance to the crown and is termed as 'crown choking'of coconut. This symptom is due to the reduction in the number of cells in the apical regions due to the deficiency of boron. Even if the deficiency is ameliorated by suitable carriers, the leaflets which are already fasciated may not unfurl. But new leaves emerging will be free from such symptoms once the deficiency is corrected.

Button shedding : Deficiency of boron causes improper elongation of pollen tubes and poor setting of buttons resulting in button shedding. Several biotic and abiotic stress factors could result in button shedding in coconut. This includes the biotic agents such as mites, coreid bug and fungal diseases, abiotic agents such as high temperature, water logging and water scarcity. However button shedding due to boron deficiency is marked by the absence of any external symptoms and mostly at its stage below the size of a fist. The shedding is due to improper pollination and further development in the absence of boron.

Leaf fasciation and crown choking

Inflorescence Necrosis : Sometimes necrosis of inflorescence due to its improper development may also result under conditions of boron deficiency.

Inflorescence Necrosis

Symptoms in nuts

The visible symptoms in nuts include longitudinal splitting, cracking and formation of barren nuts.

Management of boron deficiency in coconut

A neutral pH is essential for the availability of boron in soil. Hence soil acidity should be ameliorated by the addition of lime or dolomite@ 1 kg per palm two weeks prior to the application of fertilizers. Borax is a suitable carrier of boron containing 11% boron. In boron deficient palms, application of 40g borax in four split doses annually at three months interval could correct the deficiency of boron. However, to prevent the leaching loss, the borax should be mixed with farmyard manure or compost @20kg palm.

Practices such as husk burial could enhance the boron use efficiency in soil. In sandy soils where the boron is present at a deficit level, even before the

Swachhata Hi Seva 2024

As part of the Swachhata Hi Seva campaign (SHS), officials of Coconut Development Board took the Swachhata pledge at the headquarters at Kochi on 17th September 2024. This initiative underscores the Board's commitment to cleanliness and service to the nation.

occurrence of deficiency symptoms, 50g of borax in two splits can be given annually.

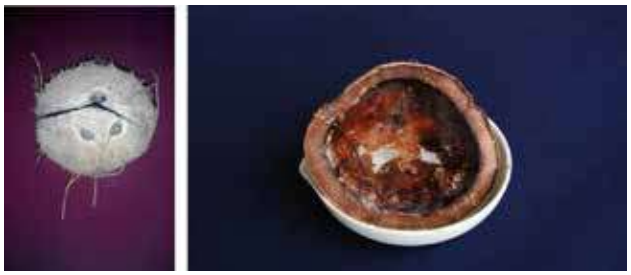
Nutrient mixtures for juvenile palms and adult palms

Application of nutrient mixtures such as 'Kalpa Poshak' and 'Kalpa Vardhini' for juvenile and adult coconut palms, respectively developed at ICAR-Central Plantation Crop Research Institute, could supply boron along with other nutrients such as potassium, zinc, copper and magnesium. This could resist the recurrence of boron deficiency in soil and leaves. The dose recommended for 'Kalpa Poshak' is 40 g/ palm during first year after planting and 100 g/ palm in two splits @ 50g per dose for the second and third years of planting. The dose for 'Kalpa Vardhini' is 500g/palm/year in two splits @ 250g/dose.

These mixtures are to be added 10 days after the normal dose of fertilizer application as per the schedule.

Points to remember

- Boron is an essential micronutrient to be included in coconut nutrition depending on the extent of occurrence of deficiency symptoms
- Liming @ 1 kg dolomite per palm two weeks prior to fertilizer application for ensuirng the optimal soil reaction
- A proper mixing of borax along with organic manures could reduce the leaching loss
- Regular soil testing to ensure the level of boron in the soil and leaves to be at the critical level



Splitting of nuts and malformed copra

- Soil test based application of nutrients in split doses as per the schedule given below could ensure the nutrient balance in the soil system

Table 1. Nutrient recommendation for coconut

Stage of the palm	Organic manure	Urea	Mussorie-phos	Muriate of potash
	kg/palm			
3 months after planting	5	100	150	200
1 year after planting	5	360	500	668
2 year after planting	10	720	100	1300
3 year after planting onwards	25	1000	1500	2000
Coconut palms showing boron deficiency	40 gram borax in 4 split doses at three months interval			

Seminar on Coconut and Tuber Crops-Based Agrifood Systems

A state-level seminar on "Coconut and TuberCrops-Based Agrifood Systems for Resilience and Sustainable Income,"organized by the ICAR-Central Tuber Crops Research Institute (CTCRI), was held on 29 August 2024 in Perumanallur, Tiruppur, Tamil Nadu. The event, sponsoredby the Coconut Development Board (CDB), Kochi, aimed to promote sustainable farming practices by integrating coconut and tuber crops, ensuring greater income stability and resilience for farmers.Dr. G. Byju, Director of ICAR-CTCRI, inaugurated the seminar and highlighted the importance of adopting diverse cropping systems in coconut gardens, particularly in Tiruppur. He emphasized that tuber crops such as cassava, sweet potato, elephant foot yam, and arrowroot are ideal intercropsfor coconut plantations, contributing to increased productivity and sustainability. Dr. Byju also distributed improved varieties of coconut and tuber crops, along with advanced technologies to farmers, promoting their widespread adoption.Several improved varieties were introduced, including Chandra Sankara for coconut, Sree Pavithra, Sree Jaya, and Sree Reksha for cassava, and Bhu Sona, Bhu Krishna, and Sree Kanaka for sweet potato.

Two publications—Schemes and Developmental Programmes of Coconut Development Board, Kochi and Pest and Disease Management in Coconut—were also released during the event. Ten innovative farmers were honored for their contributions to coconut-based cropping systems.Dr. H. Hameed Khan, Former Project Coordinator, AICRP on Palms, and Shri E. Aravazhi, Director, CDB Regional Office, Chennai, delivered special addresses. Shri Aravazhi outlined the various CDB schemes available to benefit coconut farmers in Tamil Nadu. The seminar featured technical sessions on critical topics, such as water management, sustainable coconut farming systems, tubercrop production technologies, and entrepreneurial opportunities in coconut value addition. Experts from ICAR-CPCRI, CTCRI, and Krishi Vigyan Kendra shared their insights with the 300 attendees, which included farmers and stakeholders from across Tamil Nadu.

An exhibition featuring stalls from CTCRI, CPCRI, CDB, KVK, and other organizations showcased a range of technologies, products, and publications, offering farmers access to valuable resources. The event concluded with a stakeholders' interface, fostering discussions on recommendations and future action plans to promote coconut and tuber crop-based agrifood systems in Tamil Nadu.

Hindi Mah 2024

Coconut Development Board is observing Hindi Mah 2024 this year and the celebrations was inaugurated on 3rd September 2024 at the headquarters of CDB, Kochi. Dr. B. Hanumanthe Gowda, CCDO, CDB inaugurated the celebrations and Shri R.Madhu, Secretary, CDB felicitated. Smt. Beena S., Assistant Director (OL) welcomed the gathering and Smt.Vindu Bijoy Prabhakaran, Sr. Translation Officer expressed vote of thanks. Appeal from the CEO, CDB was read out in the function.

Anuga Select India 2024

Coconut Development Board, State Centre, Thane, Maharashtra participated in Anuga Select India 2024 exhibition at Mumbai Exhibition Centre, Maharashtra from 28th to 30th August 2024. 15 coconut product manufacturers displayed their products like bottled coconut water, virgin coconut oil, coconut chips, coconut cream, coconut sugar, coconut laddu, coconut milk, coconut lemonade, coconut jelly, coconut soap, coconut shampoo, coconut vinegar, nata de coco, coconut water in various flavours etc. in the Board's stall.

Advertisement Tariff of Coconut Journals

Indian Coconut Journal (English monthly), Indian Nalikeral Journal (Malayalam monthly), Bharatiya Nariyal Patrika (Hindi quarterly), Bharatiya Thengu Patrike (Kannada quarterly) and Indhia Thennai Idazh (Tamil quarterly) are the periodicals of the Coconut Development Board. These journals regularly feature popular articles on scientific cultivation and other aspects of coconut industry. The journals are subscribed by farmers, researchers, policy makers, industrialists, traders, libraries, etc.

Position	Indian Coconut Journal (English monthly) (Rs.)	Indian Nalikera Journal (Malayalam monthly) (Rs.)	Indhia Thennai Idhazh (Tamil quarterly) (Rs.)	Bharatiya Naral Patrika (Marathi Bi-annual) (Rs.)	Bharatiya Kobbari Patrika (Telugu Bi- annual) (Rs.)	Bharatiya Thengu Patrike (Kannada quarterly) (Rs.)	Bharatiya Nariyal Patrika (Hindi quarterly) (Rs.)
Full page - B & W	No B&W pages	No B&W pages	5000	5000	5000	5000	No B&W pages
Full page - Colour	20000	20000	10000	10000	10000	10000	5000
Half page - B & W	No B&W pages	No B&W pages	3000	3000	3000	3000	No B&W pages
Quarter page – B & W	No B&W pages	No B&W pages	1500	1500	1500	1500	No B&W pages
Back inner cover - Colour	25000	25000	10000	10000	10000	10000	8000
Back cover - (Colour)	30000	30000	15000	15000	15000	15000	10000

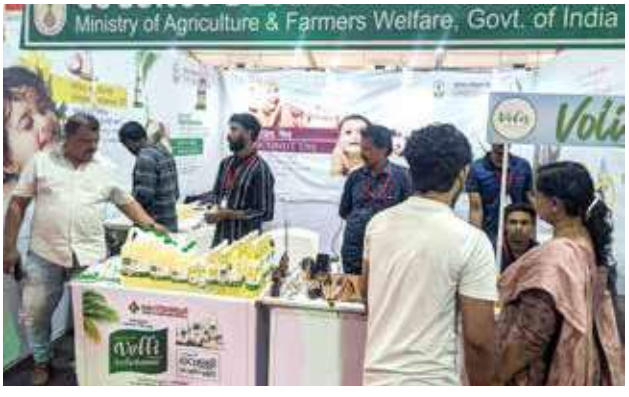
Special package : A rebate of 10% will be allowed on advertisements inserted in any two editions of the journal at a time and 12% discount if inserted in three or more editions at a time. 15% discount will be given to bonafide advertising agents.

World Food India 2024

The Coconut Development Board (CDB), MDIC, New Delhi, participated in the World Food India exhibition held from 19th to 22nd September 2024 at Pragati Maidan, New Delhi. The event was organized by the Ministry of Food Processing Industries. Several coconut processing units including M/s Kera Tech, M/s AARAL Exports Ltd, M/s Sea Breeze, M/s Holista Tranzworld Pvt Ltd, M/s Nandanam Agro Food Industries, V & V Agro Pvt Ltd, M/s Malabar Coconut Products, M/s Jain Agro Products, and M/s Integrated Coconut Processing Unit, showcased a wide range of coconut-based products at the CDB's stall. These products included coconut chips, coconut milk, virgin coconut oil, coconut oil, tender coconut water, coconut sugar, and coconut lemonade.

Shri Priya Ranjan, IFoS, Joint Secretary (MIDH), MoA & FW, and Dr. Prabhat Kumar, CEO of CDB, visited the CDB stall. Farmers, students, entrepreneurs, and visitors from New Delhi and other states showed interest in the exhibit, seeking information on coconut cultivation, varieties, nurseries, value addition, and the Board's various schemes. CDB officials briefed visitors on the Board's programs and initiatives aimed at enhancing the coconut sector.

Vanitha Onam Fair 2024



The Coconut Development Board participated in the Vanitha Onam Fair held from 13th to 27th September 2024 at Kaloor Jawaharlal Nehru Stadium, Kochi. The participation aimed at promoting CDB's activities and schemes related to coconut cultivation, by-product utilization, production, and marketing.

Several exhibitors, including M/s Kudayathur Service Co-operative Bank, M/s Volis Industries, M/s Jupiter Enterprises, M/s Global Coconut Farmer Producer Company, and M/s Nata Nutrico Coconut Food Products, showcased a variety of coconut-based products such as tender coconut water, coconut oil, virgin coconut oil, desiccated coconut powder, nata de coco drinks, coconut sugar, and handicrafts at the CDB stall. Informative posters highlighting the benefits of coconut were displayed, and booklets on CDB's schemes, coconut products, cultivation technologies, and other publications were distributed to visitors.

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. Fill 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*)

Pest and Disease Management in Coconut

Intermittent precipitation with frequent dry and wet spells makes pests and disease at high stakes calling for systematic intervention. Immature nut fall and button shedding has been quite rampant in areas receiving frequent rainfall and dry hot and short spells. In general, this is the phase of low nut setting percentage. Adding to climate vulnerabilities, such problems aggravate and to combat these issues a systematic spilt nutrient application and timely intervention of these nut pests and disease is the need for the month. Nuts pests such as coconut eriophyid mite, nut crinkler (coreid bug) and nut borer incidence are reported high in certain coconut growing belts of the country. The management of these nut problems are outlined hereunder.

I. Cocout eriophyid mite, *Aceria guerreronis*

Coconut eriophyid mite is the invasive pest reported from our country during 1998 and has been on the rise during post-winter season. It belongs to the spider family with two pairs of legs, sub-microscopic (200-250 microns size), lays about 100-150 eggs and the life cycle completed in 7-10 days. Mites infests the developing nuts immediately after pollination and are confined within the floral bracts (tepals) and feeds on the meristematic tissues beneath the

Mite damaged nuts

Progression of mite damage

perianth. Appearance of elongated white streak below the perianth is the first visible symptom. Within few days, yellow halo appears round the perianth, which turns as warts and finally develops as cracks, cuts and gummosis. Shedding of buttons, immature nuts, malformation of nuts are other indications of mite damage.

Mite colony

Management

a) Removal and destruction of dried spathes, inflorescence parts and fallen nuts to subdue the pest population

b) Spraying 2% neem-garlic emulsion or azadirachtin 10000 ppm @0.004% or root feeding with neem formulation containing azadirachtin 10000 ppm at 10 ml with equal volume of water three times during March-April, October-November and December –January is recommended. Prophylactic application before the increase in summer temperature should be resorted to.

c) Application of talc-based preparation of acaropathogen, Hirsutella thompsonii@ 20 g / litre/ palm containing 1.6 x 108cfu three times in synergy with neem formulation.

d) Kalpaharitha (a selection from Kulasekharam Tall) was found field tolerant to mite damage.

e) Application of recommended dose of fertilizers, recycling of biomass, raising of green manure crops in palm basin and incorporation during flowering, summer irrigation including soil and water conservation measures improve the palm health and reduce the pest attack.

II. Coreid Bug, *Paradasynus rostratus*

Nymphs and adults puncture the meristematic regions of tender buttons (1-3 months old) injecting toxin around the feeding site causing necrosis. Feeding punctures develop into necrotic lesions and these spindle-shaped depressions could be visible when the perianth of shed button is removed. Female flowers are attacked prior to pollination and



such flowers get dried and can be seen attached to inflorescence on the crown resulting in production of barren buttons. Most of the infested buttons and tender nuts shed down. Retained nuts on the bunch develop furrows and crinkles on their husks and are malformed.

Management

• Crown cleaning to destroy eggs and immature stages of the pest

• Spraying of azadirachtin 300 ppm (*Nimbecidene*) @ 0.0004% (13 ml / l) reduced the pest incidence at the highest level. Two rounds of azadirachtin spray on young coconut bunches 1-5 months old during May-June and September-October are quite essential for satisfactory control of the pest in the field

• Among the natural enemies, the weaver ant, Oecophyllasmaragdinais found to be the most efficient predator of coreid bug in the field.

• Two egg parasitoids, namely *Chrysochal cissaoviceps* and *Gryonhomeoceri*, were identified as potential egg parasitoids. Forty per cent parasitism was observed in the egg mass collected from the field due to these parasitoids.

• Spraying cholrantraniliprole 0.3 ml/litre or lambda cyhalothrin @ 1.0 ml/litre on the pollinated bunches was found effective.

III. Nut borer, *Cyclodes omma*

Incidence of nut borer was observed in certain coconut gardens in Pollachi (Tamil Nadu). This is a sporadic pest normally found in dwarf genotypes and also in hybrids. Succulency due to excessive nutrition by nitrogenous fertilizers is also one of the factors responsible for pest outbreak. Caterpillars bore into buttons after pollination as well as immature nuts and feed on the internal contents during night hours, resulting in button shedding. Palms subjected to assisted pollination are more susceptible to pest attack. The pupal stages are observed on the debris of palm crown.

Management

a) Crown cleaning and removal of immature stages of the pest

b) Judicious and need based application of nitrogenous fertilizers to avoid succulency .

c) Application of the entomopathogen, Bacillus thuringiensis @ 20 g per litre or neem oil 0.5% (5 ml per litre with 10 g soap powder) using hand sprayers would reduce pest incidence.

IV. Bud rot or immature nut fall


Nut boring caterpillar


Damaged buttons

(*Phytophthora palmivora*)

In certain humid locations bud rot occurred regularly killing hundreds of trees. In India, bud rot incidence is recorded as less than one per cent. Pathogen attacks the bud region leading to rotting of bud and death of palms. The first visible symptom is withering of the spindle marked by pale colour. The spear leaf or spindle turns brown and bends down. The affected spear leaf can easily be pulled out as the basal portion of the spindle is completely rotten emitting a foul smell. Temperature range of 20- 24ºC and relative humidity of 98% - 100% were found optimum for the development of the bud rot disease. Contiguous occurrence of such “favourable days” during rainy seasons determines the development of the disease and the intensity of infection. As Phytophthora diseases are known to be extremely fatal, a close scrutiny is mandatory during monsoon period to assess the health of the palm especially the spear leaf zone.

Management

• Regular cleaning of the crown and prophylactic spraying of Bordeaux mixture (1%) to the crown just before the onset of monsoon and one more spray after 35-40 days help in reducing the bud rot incidence.


Withering of spear leaf


Bud rot affected palm

• Field sanitation and provide proper drainage during rainy season.

• Placement of two Trichoderma (*Trichoderma harzianum* CPTD28 isolate) enriched coir pith cakes in the inner most leaf axils just before the onset of monsoon and again after every two months as prophylactic measure.

• In disease affected palms, remove the entire rotten portion of the spindle by cutting with a sharp knife and apply 10% Bordeaux paste to the wound and cover with polythene sheet to prevent entry of rain water. The protective covering has to be retained till normal shoot emerges.

Nut fall

Nut fall may be due to genetic/ physiological factors, nutrient imbalance/ deficiency, poor pollination, attack by insects or mites, water logging/drought or fungal infection. Major fungal species associated with nut fall are Phytophthora palmivora and Lasiodiplodia theobromae. In the case of Phytophthora palmivora infection, water-soaked lesions appear on the surface of the nuts. The lesions turn brown and the nut detaches from the bunch. Phytophthora infection is more common during rainy season and occurs in high humid areas. Nut infection by *Lasiodiplodia theobromae* appear as dark grey to brown lesions with wavy to undulated margins As infection progresses, decay and discolouration of mesocarp and endosperm of nuts are also observed. Severe infection results in desiccation, shrivelling, deformation and premature dropping of nuts. Lasiodiplodia infection is severe in mite infested nuts and occurs throughout the year. It is seen in dry areas also


Lasiodiplodia infection symptoms


Phytophthora infection symptoms

Management

• Removal and destruction of infected nuts.

• Crown cleaning just before monsoon and spraying of Bordeaux mixture 1% to the bunches.

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

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Market Review – August 2024

Domestic Price

Coconut Oil

During the month of August 2024, the price of coconut oil opened at Rs. 16400 per quintal at Kochi market, Rs.16500 per quintal at Alappuzha market and Rs.17100 per quintal at Kozhikode market.

The price of coconut oil closed at Rs.17300 per quintal at Kochi, Rs.17500 per quintal at Alappuzha market and Rs.18200 per quintal at Kozhikode market with a net gain of Rs. 900 per quintal at Kochi, Rs. 1000 per quintal at Alappuzha and Rs. 1100 per quintal at Kozhikode market respectively.

During the month, the price of coconut oil in Kerala, showed an upward trend.

During the month, the price of coconut oil at Kangayam market opened at Rs. 14000 per quintal and closed at Rs. 14667 per quintal with a net gain of Rs. 667 per quintal.

Weekly price of coconut oil at major markets Rs/Quintal)				
	Kochi	Alappuzha	Kozhikode	Kangayam
01-08-2024	16400	16500	17100	14000
10-08-2024	16500	16700	17300	14000
17-08-2024	16800	17000	17800	14667
24-08-2024	17000	17200	18100	14467
31-08-2024	17300	17500	18200	14667

Milling copra

During the month, the price of milling copra opened at Rs.10400 per quintal at Kochi, Rs.10250 per quintal at Alappuzha and Rs.10400 per quintal at Kozhikode market.

The prices of milling copra closed at Rs. 10700 per quintal at Kochi market, Rs. 10650 per quintal at Alappuzha market and Rs. 11300 per quintal at Kozhikode market with a net gain of Rs.300 per quintal at Kochi, Rs.400 per quintal at Alappuzha market and Rs. 900 per quintal at Kozhikode market respectively.

The price of milling copra at Kangayam market opened at Rs.9400 per quintal and closed at Rs.10000 with a net gain of Rs.600 per quintal.

During the month, the price of milling copra showed an upward trend.

Weekly price of Milling Copra at major markets (Rs/Quintal)				
	Kochi	Alappuzha	Kozhikode	Kangayam
01-08-2024	10400	10250	10400	9400
10-08-2024	10400	10300	10700	9400
17-08-2024	10500	10500	11050	9700
24-08-2024	10600	10500	11250	9700
31-08-2024	10700	10650	11300	10000

Edible copra

The price of Rajpur copra at Kozhikode market opened at Rs. 10900 per quintal and closed at Rs. 13000 per quintal with a net gain of Rs.2100 per quintal respectively.

Weekly price of edible copra at Kozhikode market (Rs/Quintal)	
01-08-2024	10900
10-08-2024	11700
17-08-2024	13000
24-08-2024	13400
31-08-2024	13000

Ball copra

The price of ball copra at Tiptur market opened at Rs. 9200 per quintal and closed at Rs.12000 per quintal with a net gain of Rs.2800 per quintal.

Weekly price of Ball copra at major markets in Karnataka (Rs/Quintal) (Sorce: Krishimarata vahini)	
01-08-2024	9200
10-08-2024	9500
17-08-2024	11500
24-08-2024	11700
31-08-2024	12000

Dry coconut

At Kozhikode market, the price of dry coconut opened at Rs. 13000 per quintal and closed at the same price during the month.

Weekly price of Dry Coconut at Kozhikode market (Rs/Quintal)	
01-08-2024	13000
10-08-2024	13000
17-08-2024	13000
24-08-2024	13000
31-08-2024	13000

Coconut

At Nedumangad market in Kerala, the price of coconut opened at Rs. 16000 per thousand nuts and the price was almost steady during the month.

At Pollachi market in Tamil Nadu, the price of coconut opened Rs. 27500 per ton and closed at Rs.31000 per ton with a net gain of Rs.3500 during the month.

At Bangalore market in Karnataka, the price of coconut opened at Rs. 20000 per thousand nuts and the price was almost steady during the month.

At Mangalore market in Karnataka, the price of coconut opened Rs. 34000 per ton and closed at Rs. 36000 with a net gain of Rs.2000 during the month.

Weekly price of coconut at major markets				
	Nedumangad (Rs./1000 coconuts)#	Pollachi (Rs./ MT) ##	Bangalore Grade-1 coconut, (Rs./ 1000 coconuts) ##	Mangalore Black coconut (1 tonne) ##
01-08-2024	16000	27500	20000	34000
10-08-2024	16000	28000	20000	34000
17-08-2024	16000	29500	20000	36000
24-08-2024	16000	30000	20000	36000
31-08-2024	16000	31000	20000	36000

International price

Coconut

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

Weekly price of dehusked coconut with water				
Date	Domestic Price (US$/MT)			
	Philippines	Indonesia	Sri Lanka	India*
03-08-2024	137	194	281	334
10-08-2024	146	198	294	334
17-08-2024	147	198	311	352
24-08-2024	148	187	311	358
31-08-2024	150	201	308	370
				*Pollachi market

Coconut Oil

International price and domestic price of coconut oil at different international/ domestic markets are 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*
03-08-2024	1555	1479	NR	2248	1669
10-08-2024	1580	1521	NR	2380	1669
17-08-2024	1610	1553	NR	2308	1749
24-08-2024	1625	1568	NR	2358	1725
31-08-2024	1681	1592	NR	2274	1749
					*Kangayam

Copra

The price of copra quoted at different domestic markets in Philippines, Sri Lanka, Indonesia, and India are given below.

Weekly International price of copra in major copra producing countries				
Date	Domestic Price (US$/MT)			
	Philippines	Indonesia	Sri Lanka	India* * Kangayam
03-08-2024	728	810	1289	1097
10-08-2024	780	839	1357	1097
17-08-2024	793	838	1305	1157
24-08-2024	792	856	1304	1157
31-08-2024	806	865	1304	1192
				* Kangayam

#(Source: Epaper, Kerala Kaumudi), ##(Source: Star market bulletin)

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