



काजू समाचार CASHEW NEWS



भा. कृ. अनु. प. - काजू अनुसंधान निदेशालय, पुत्तूर के अर्धवार्षिक वार्तापत्र
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FROM THE DIRECTOR'S DESK

Achieving Self Sufficiency in Cashew Production: The Way Forward

Indian cashew is recognised worldwide for its unique quality and perceptibly we are one of the biggest exporters of processed cashew (21% of the world exports). Considerable foreign exchange to the tune of 38902 million rupees has been earned by the export of cashew kernels and allied products in the year 2020. However, we are also the biggest importers of raw cashewnuts and 0.94 million tonnes of raw cashewnuts are imported during 2020 amounting to 88610 million rupees.

The cashew is cultivated in about 13 states of the country in both coastal and plain areas. There are about 3900 cashew processing units in operation in different cashew growing regions. However, the current production and productivity of cashew stands at 11.05 lakh ha with the production of 7.43 lakh tons and a productivity of 672.4 kg/ ha (FAO, 2019), but our processing requirement is about 17 lakh tonnes per annum. In this background, achieving self sufficiency is of utmost importance and arguably this has been the focal point of discussion in different platforms since many years. The insufficiency can be attributed to a multitude of problems at different levels. Though it can be largely ascribed to cashew cultivation aspects on ground, market intelligence, processing industries and policy matters have their own share in the problem.

The major issue haunting the cashew area expansion and production is the market price of cashew accrued by the farmer. For many years the raw cashewnut price has been hovering around 80 to 100 rupees per kilogram. This is neither motivating enough for cashew farmers to adopt modern cultivation practices nor appealing enough for farmers to take up cashew cultivation afresh. Further, product diversification and value addition of cashew apple are not given importance. Farmers are lured by the profits in other crops such as arecanut, rubber etc. In fact, this has hampered the 1) Area expansion efforts by different development departments 2) Deployment of modern technologies developed out of intense efforts by different agencies involved in research. Therefore, the production and productivity is not improving over the years.

In order to improve production and productivity of cashew and attain self sufficiency in cashew, time is ripe for all agencies involved in research, development, marketing and processing along with farmer associations to come together and discuss the issues in depth and chalk out strategies with specific timelines. The overarching issues could encompass cooperative processing by farmers, quality planting material, adoption of improved varieties and technologies, rejuvenation of old and senile plantations, post harvest handling, market intelligence, minimum procurement price, bottlenecks in processing and export, enhancement of import duty to protect Indian cashew farmers etc. With the concerted effort of all stakeholders, it is pragmatic to achieve the production of raw cashew nuts to 2.5 million tonnes by 2030 in the country and thereby India can become self-sufficient in raw cashew nut production and ensure a competitive position in the international trade.



FOCUS ON RESEARCH

1. Pruning technique for enhancing the productivity in Bhaskara variety of cashew

J. Dinakara Adiga, B.M. Muralidhara, Siddanna Savadi, V. Thondaiman and P. Preethi
ICAR-Directorate of Cashew Research, Puttur-574202, Karnataka

Improper canopy management is considered to be one of the reasons for lower productivity of cashew. As cashew bears flowers on current season growth, pruning old shoots can encourage better flowering and ultimately the yield. However, pruning response varies from variety to variety as well as season of pruning. Further, finer details on pruning such as intensity and time of pruning are not well studied in majority of the commercially grown cashew varieties.

Bhaskara is a popular cashew variety grown in the west coast region of India. It is a high yielding variety as it flowers and sets fruits twice in a season, and has the potential to escape tea mosquito bug infestation as it flowers relatively late. However, there is no standardized pruning technique available for Bhaskara. Further, heavy pruning leads to production of unproductive shoots resulting in crop loss. With this background and in order to suggest best time and intensity of pruning to farmers, a systematic study has been conducted at ICAR-DCR, Puttur.

The pruning of six years old cashew trees was carried out during the months of June, August and September with 25 and 50 % leader shoot pruning, 25 and 50% lateral shoot pruning and trees without pruning served as control. The trees pruned with 25 % of the lateral shoots during mid-September recorded more number of panicles (80.50) and nut yield per tree (6.80 kg) compared to un-pruned ones (47.50 and 2.99 kg, respectively). The results also revealed that pruning in the month of June has drastically reduced the number of panicles per tree thereby nut yield. Besides, the leader shoot pruning (both 25 and 50 %) was not effective as it resulted in minimum number of panicles and nut yield per tree.



A view of six year old tree of Bhaskara after pruning



A view of nut set in 25% lateral shoot pruning

Thus, it is recommended that the pruning of 25% or 50% lateral shoots during mid-September is ideal for obtaining higher yield in Bhaskara cashew variety under west coast conditions of Karnataka.

2. Newer insecticides to contain incidence of TMB and CSRB

T.N. Raviprasad and K. Vanitha
ICAR-Directorate of Cashew Research, Puttur-574202, Karnataka

Few of the insecticides currently recommended for management of the insect pests of cashew are being withdrawn from agricultural usage due to their residue issues and non-target toxicity. In this connection, it was crucial to identify alternate insecticides for effective management of the two important pests of cashew *viz.*, tea mosquito bug (TMB) and cashew stem and root borers (CSRB). Hence, alternate test insecticides comprising of neonicotinoids; thiamethoxam (0.1 g L⁻¹ & 0.2 g L⁻¹), acetamiprid (0.5 g L⁻¹), imidacloprid (2.0 ml L⁻¹), carbamates; carbosulfan (2.0 ml L⁻¹); pyrazoles; fipronil (2.0 ml L⁻¹),

synthetic pyrethroids; L-cyhalothrin (0.6 ml L⁻¹), insect growth hormone (IGH) buprofezin (2.0 ml L⁻¹) and an OP compound; chlorpyrifos (10 ml L⁻¹) were evaluated for their efficacy against the major pests of cashew *viz.*, TMB and CSRB. It could be concluded from trials on management of TMB that thiamethoxam (0.2 g L⁻¹) and acetamiprid (0.5 g L⁻¹) could induce the highest mortality of TMB nymphs and adults (79.5 and 68.3%, respectively) as well as highest oviposition repellence which led to the lowest damage score by TMB (0.2) and were on par with the recommended insecticide *viz.*, L-cyhalothrin (0.6ml L⁻¹) (0.15). It was observed that none of the insecticides could induce significant mortality after 21 days after treatment. The lowest TMB feeding damage score of <1.0 was recorded in L-cyhalothrin, thiamethoxam and acetamiprid treatments while the other treatments had TMB feeding damage score of >2.5 after 48 hrs of release. The cost of spraying per tree worked out to be lowest for L-cyhalothrin (Rs. 0.78) followed by thiamethoxam (Rs. 1.00) and acetamiprid (Rs. 2.25). The number of ants and pollinators visiting the treated and untreated trees was found to be on par with each other, indicating that the test insecticides did not have detrimental effect on activity of the non-target organisms.

The treatment with fipronil (2.0 ml L⁻¹) had highest nascent larval mortality of CSRB (> 80.0%) which was on par with the mortality recorded for chlorpyrifos (10.0 ml L⁻¹) treatment. The cost of treatment per tree for fipronil was lesser (Rs 5.60) than that of chlorpyrifos (Rs.7.00). Hence, based on the findings these newer pesticides were recommended for managing the two major pests of cashew.

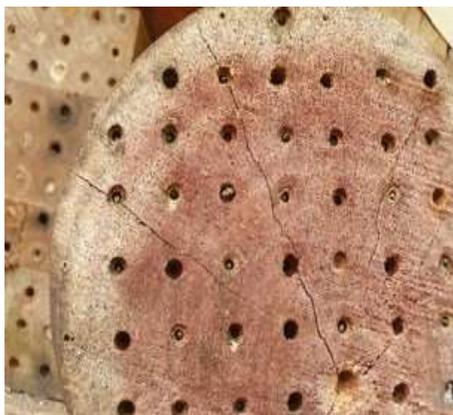
3. Simple ways to conserve native bees pollinating cashew

K. Vanitha and T.N. Raviprasad

ICAR-Directorate of Cashew Research, Puttur-574202, Karnataka

Bees play a significant role in pollination of several crops and aid in copious harvests of many fruits and vegetables. Besides honey bees, there are numerous wild bees including cavity nesting and soil dwelling bees which play a significant role in crop pollination, for eg., Megachilids in redgram, bumble bees in tomato etc. In cashew also, bees are vital for nut set and realization of yield. In cashew, there are reports on existence of pollination deficit. Hence by increasing bee population, more pollination can be achieved, for which, conservation measures are the most suitable options.

Investigations at ICAR-DCR, Puttur resulted in devising a simple cost effective conservation means for important native bees pollinating cashew, *viz.*, *Braunsapis* spp. Drill holes of 2.5 to 3.5 mm diameter and 6 cm deep made in small wooden blocks could serve as successful nesting sites for these bees (Fig.a.), besides thin pithy sticks of common plants like lantana, cashew, Johnson's grass and hollow stems of bamboo. In a wooden block of 12 x 12 cm, a maximum of 100 drill holes (at 1x 1 cm apart) can be made, thus 100 nesting sites can be made available for bees. These blocks remain intact for more years and observations indicated that bees stayed continuously for four years since installation of these nests. Besides in cashew trees, pruned cut ends of thin stems and dried sticks are highly preferred by many cavity nesting bees like *Ceratina hieroglyphica* Smith, *C. binghami* Cockerell, *Ceratina* sp., *Braunsapis mixta* (Smith), *Braunsapis picitarsis* (Cameron), *B. malliki* etc to make nests in them. Thus, creating more pruned cut ends and retaining thin dried sticks with pith exposed would help the bees to nest in them.



a) Wooden blocks occupied by *Braunsapis* bees



b) Cut end of cashew stick occupied by *Ceratina hieroglyphica*



c) *Pseudapis* sp. bee at its nest entrance

Another common pollinating bee of cashew is *Pseudapis oxybeloides*, which is ground nesting and its nests can be found in the soil as neat circular holes at ground level. Non-destruction of patches of grounds nested by the bees would facilitate their conservation. Bee flora including *Antigonon leptopus*, *Combretum indicum*, *Ixora* sp., *Caesalpinia* sp., weeds like *Spermacoce* sp., *Wedelia trilobata*, *Tridax procumbens*, *Lantana camara*, *Melastoma malabathricum*, *Leucas aspera*, *Mimosa* sp., *Alternanthera* sp. etc, and flowering perennial trees are good source of pollen and nectar for several wild bees. Thus, establishing such bee flora in and around cashew plantations is a viable conservation means for bees.

MEETINGS CONDUCTED

ITMC Meeting

ITMC meeting was held on 13th January, 2021 under the chairmanship of Dr. Anitha Karun, Director (Acting), ICAR-DCR, Puttur. In the meeting, need of brand name for commercialization of ICAR-DCR technologies was discussed. New members were added to ITMC and an organoleptic evaluation committee was constituted for evaluating food products developed at the institute.

Institute Management Committee

IMC meeting (49th) was held on 9th February, 2021 under the chairmanship of Dr. Anitha Karun, Director (Acting), ICAR-DCR, Puttur. The agenda items discussed during the meeting include review of action taken on decisions of 48th IMC meeting, research progress, status of expenditure up to 31.12.2020 under DCR grants and AICRP on Cashew and appointment of part-time medical officer as AMA for DCR, Puttur.

हिन्दी गतिविधियां

कोविड-19 के प्रभाव से हिन्दी गतिविधियों में भी धीमी गति देखने में आयी। कुछ निर्धारित बैठकों को वर्चुवल माध्यम में किया गया। दिनांक 25.02.2021 को पुन्नूर नगर राजभाषा कार्यान्वयन समिति की 39वाँ अर्धवार्षिक बैठक आयोजित किया गया। वर्चुवल बैठक में समिति के अनन्य सदस्य कार्यालय भाग लिए और अपने अपने कार्यालय में की जा रही हिन्दी कार्यान्वयन के बारे में चर्चा किया गया। श्री के.पी. शर्मा, उप निदेशक (का) मार्गदर्शन किये। निदेशालय में कुछ नये विज्ञानीयों का नियुक्ति हुई थी, जिन्हें राजभाषा कार्यान्वयन के बारे में ओरियंटेशन दिया गया।

PROGRAMMES ORGANIZED

Cashew Day

Cashew Day-2021 was celebrated at the Directorate on 17th February, 2021 with the theme of 'Scientist-farmer interaction and application of drone technology in Cashew'. Shri. Kishore Kumar Kodgi, President, CAMPCO, Mangaluru was the Chief Guest and Dr. M. Veerangouda, Dean (Agricultural Engineering), College of Agricultural Engineering, Raichur and Kadamajalu Subhash Rai were guests of honours. A dwarf cashew variety named "Nethra Vaaman", suitable for backyard planting, under planting in partial shaded areas and for ultra-density planting was released during the function. Also, 'cashew pest database' and a brochure on "ICAR-DCR technologies for commercialization" were released.



Shri. Kishore Kumar Kodgi, President, CAMPCO, Mangaluru in his address mentioned that the institute is working hard and has given new varieties/technologies to farmers and emphasized on conduct of trainings to youths to encourage Atmanirbhar Bharat. After a 'Scientist- farmer interaction' session, a detailed presentation and demonstration of drone application in agriculture with special emphasis on cashew was arranged



National Science Day

The National Science Day was celebrated on 2nd March, 2021. Dr. Mahesh Prasanna K, Principal, Vivekananda College of Engineering and Technology, Puttur was the chief guest. Students of class 6-8th standard of Government Upper Primary School, Kemminje also participated in the function. Prior to the commencement of the official event, students were taken to cashew nursery and cashew museum of the institute for exposure on different aspects of cashew cultivation and processing. Dr. Mahesh Prasanna, K. delivered a presentation on "Life with IoT (Internet of Things) and AI". Then, prizes were distributed to the school students who won prizes in the science quiz. Dr. M. Gangadhara Nayak, Principal Scientist (Horticulture) gave presidential remarks.



International Women's Day

ICAR-DCR, Puttur observed 'International Women's Day' on 8th March, 2021 with the theme "Women Leadership in Agriculture: Equity, Entrepreneurship and Empowerment. The programme began with the presidential remarks by Dr. Anitha Karun, Director (Acting). Ms. Vanitha, young professional (YP) of the Directorate briefed on how women play an important role in agriculture, the schemes and awards for promoting women in agriculture. During the occasion, two progressive women farmers, Mrs. Divya Anil Rai and Mrs. Navyashree K were felicitated for their contribution in the field of agriculture and allied activities. A special talk on 'Women health, nutrition and hygiene' was delivered by Dr. Sulekha Varadaraj, a renowned child specialist and psychotherapist at Puttur. She gave valuable insights on emotional intelligence and parenting, citing many incidents from her work life. On the occasion, cultural activities were also conducted among lady staff and family members of DCR, Puttur.



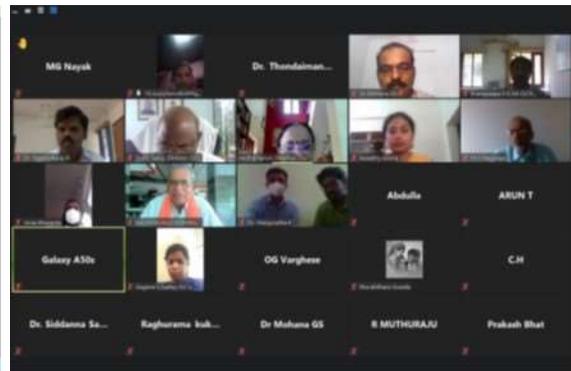
World Water Day-2021

The World Water Day was observed on 22nd March, 2021 with the theme "Valuing water". Smt. Roopa T. Shetty, Commissioner, City Municipal Council (CMC), Puttur taluk was the chief guest for the function. The event was presided over by Dr. Anitha Karun, Director (Acting), who emphasized on scientific management of water and water budgeting. The chief guest gave thrust on the efforts of the CMC in ensuring water supply in Puttur. She also urged upon minimizing wastage of water by quoting effective methods. Dr. J D Adiga, Principal Scientist (Hort.) of ICAR-DCR gave brief remarks on the importance of water. Then, a special lecture on "Water resource utilization and management" was delivered by Dr. Manjunatha K., Scientist (FMP). Prizes were distributed to the winners of the drawing competition on "Water for life" for the students of Government Upper Primary school, Mottethadka.



Foundation day and Awareness campaign on “Balanced use of fertilizers”

The ICAR-DCR, Puttur celebrated its 36th Foundation Day on 16th June 2021, in a virtual mode. On this occasion, a farmers’ awareness campaign on “Balanced use of fertilizers” was also organized. Dr. M.S. Nagaraja, Professor and Head, Department of Soil Science and Agricultural Chemistry, Agricultural College, University of Agricultural and Horticultural Sciences, Shivamogga was the chief guest. Dr. Anitha Karun, Director (Acting) briefed about the history of the directorate, its significant achievements, and highlighted on the future line of research. The chief guest gave a detailed lecture on “Nutrient management strategies for perennial horticultural crops”. Later, the farmers, Shri. Kadamajalu Subash Rai and Shri. Udaya Kumar, members of Institute Management Committee, ICAR-DCR, Puttur gave their remarks. The institute’s ‘Best paper award’ was announced and ‘Certificate of Appreciation’ was given virtually to the contractual staffs working in the administrative section. Scientists-farmers interaction was also held. A total of 56 participants including the staff, former directors of the directorate and farmers had attended the event.



TRAININGS CONDUCTED

Two days training programme for final year B.Sc., (Horticulture) students

A two-days training programme was arranged for a batch of 11 final year B.Sc., (Horticulture) students on 16-17th April, 2021 as part of the Horticulture Based Industrial (HBI) placement training. Students were given exposure on cultivation, plant protection, processing of cashew and an overview of the institute through lectures and visits to lab and museum. The students were also given hands on training in softwood grafting.



Training Programmes under on 'Cashewnut Processing'

- Under Agri Business Incubation (ABI), 3-days Entrepreneurship Development Training Program on 'Cashewnut Processing' was conducted separately for six registered incubatees during the period.
- A training program on 'Home scale Cashewnut Processing' conducted for Tribal Women operating cashewnut processing unit, Bastar, Jagdalpur, Chhattisgarh on 08th March, 2021.
- An online training program was conducted on 'Quality assessment for raw cashewnuts' for 70 participants from Chhattisgarh State organized by Chhattisgarh State Minor Forest Produce Federation (CGMFP Fed), Chhattisgarh on 07th May, 2021.
- A training program on 'Home scale Cashewnut Processing' conducted for Tribal Women operating cashewnut processing unit, Bastar, Jagdalpur, Chhattisgarh on 08th March, 2021.
- An online training program was conducted on 'Quality assessment for raw cashewnuts' for 70 participants from Chhattisgarh State organized by Chhattisgarh State Minor Forest Produce Federation (CGMFP Fed), Chhattisgarh on 07th May, 2021.



An incubatee at hands on training

Virtual State Tour for 3rd year B.Sc students of College of Horticulture, Hiriyyur

A virtual state tour was organized for the 3rd year B.Sc students of College of Horticulture, Hiriyyur (University of Agricultural and Horticultural Sciences, Shivamogga) on 16th June 2021. It was organized through the Google Classroom and 88 students had participated in the online presentation. Dr. Shamsudheen, M., Senior Scientist (Soil Science) briefed the students on the history, research and extension activities of this Directorate.



Programmes under SCSP scheme

Various items such as weed cutters, chain saws, sprayers, aluminium ladders, sewing machines, household solar lights, water tanks, areca leaf plate makers, accessories for dairy, kitchen garden tools and plants, organic manures, agri-implements and multi laminated plastic sheets were distributed to the Scheduled Caste beneficiaries under this scheme.



Programmes under TSP scheme

To provide self-employment opportunities for Scheduled Tribe beneficiaries, ICAR-DCR supported establishment of 12 model arecanut plantations, 46 model poultry units, five apiary units and a model earthworm rearing unit.



High speed internet facility through NKN network at ICAR- DCR, Puttur

National Knowledge Network (NKN), an initiative of Government of India is being executed by National Informatics Centre (NIC). NKN link through Internet Service Provider – Railtel with the speed of 100 mbps was commissioned on 29th January 2021 at the Directorate.

TRANSFER OF TECHNOLOGY

Advisory Visits / Consultancies/ talks delivered

Eradasappa E.	<ul style="list-style-type: none"> Participated in the 'XI Scientific Advisory Committee meeting' of ICAR-KVK, Dakshina Kannada as a nominee. 	23 January 2021
Mohana G. S.,	<ul style="list-style-type: none"> Presented on "What is science? Epistemology of Ancient Indian Science and Modern Western Science" during Science Literature Workshop held at Pilikula Nisargadhama, Mangaluru, organised by Karnataka Sahitya Academy, Government of Karnataka. 	19 February 2021
	<ul style="list-style-type: none"> Presented about cashew during the technical session in the 'National Horticulture Fair -2021' organized by ICAR-Indian Institute of Horticulture Research, Bengaluru. 	8-12 February 2021
Eradasappa E.	<ul style="list-style-type: none"> Acted as resource person for the 'Skill Development Program- Nursery Worker' organized by ICAR-CPCRI RS, Vittal and gave training on 'Cashew Nursery Techniques' at ICAR- DCR, Puttur. 	18 February 2021
	<ul style="list-style-type: none"> Delivered a talk on 'Value addition in Cashew' in 'Cashew seminar' conducted by Zonal Agricultural and Horticultural Research Station, Brahmavar, Karnataka. 	19 February 2021
	<ul style="list-style-type: none"> Delivered a talk on 'Entrepreneurship development in Cashew processing'. Seminar on Cashew conducted by Zonal Agricultural and Horticultural Research station, Ullal, Karnataka. 	2 February 2021
D. Balasubramanian	<ul style="list-style-type: none"> Delivered a talk on 'Cashewnut processing – An overview and machinery specifications' in 'Training of Master Trainers' (online), jointly organized by ICAR-Central Plantation Crop Research Institute (ICAR-CPCRI), Kerala and Indian Institute of Food Processing and technology (IIFPT), Tamil Nadu. 	20 February 2021

	<ul style="list-style-type: none"> Delivered a talk on 'Home scale cashewnut processing and its sustainability for Women Shelf Help Group'. Presented during 'Women Day' conducted by CGMFP, Bastar, Jagdalpur 	08 March 2021
D. Balasubramanian	<ul style="list-style-type: none"> Consultancy provided to assess the 'Status of cashewnut processing' operated by Tribal Women, Bastar, Jagdalpur supported by Chhattisgarh State Minor Forest Produce Federation (CGMFP Fed), Chhattisgarh. 	5-8 March, 2021
Mohana G. S. and Eradasappa E.,	<ul style="list-style-type: none"> Conducted field inspection in Sagar, Soraba and Challakere taluks for release of subsidy towards cultivation of cashew under the project funded by RKVY- RAFTAAR. 	17-20 March 2021
Mohana G. S.	<ul style="list-style-type: none"> Presented a talk on 'Cashew - A promising crop for the future' for the final year B.Sc. (Hort.) students from college of Horticulture, Mudigere, Karnataka under Horticulture Based Industrial Training programme. 	16 - 17 April 2021
Eradasappa E.	<ul style="list-style-type: none"> Delivered a lecture on 'Breeding techniques in cashew' for the final year B.Sc. (Hort.) students from College of Horticulture, Mudigere as part of their Horticulture Based Industrial placement programme. 	16 April 2021
D. Balasubramanian	<ul style="list-style-type: none"> Delivered a talk on 'The Importance of science in the development of agriculture and agro-industry' as panelist during the International Webinar conducted by World Business Club (WBC) for Côte d'Ivoire. 	20 May 2021
D. Balasubramanian	<ul style="list-style-type: none"> Delivered a talk on 'Cashew Processing, Packaging and Marketing' conducted by United Nation Development Program (UNDP), Karnataka Chapter, Bangalore 	02 June 2021
K. Vanitha	<ul style="list-style-type: none"> Delivered a lecture on 'Organic pest management' for the final year B.Sc., (Agriculture) students of Agriculture College and Research Institute, TNAU, Trichy, Tamil Nadu. 	25 June 2021

E-extension in cashew

E-extension has been strengthened in cashew through social media. The cashew India app has 1,000 plus installs with 3,058 users at present. A total of 1,300 farmers have booked the cashew grafts through Cashew India App and 92 feedbacks have

been received. The ICAR-DCR facebook page has been regularly updated and uploaded with relevant content. Hitherto, a total of over 300 posts have been posted on facebook page and 58 tweets have been done in Twitter account.

Till date, 1,09,094 visitors have visited ICAR-DCR website. The top 10 countries visiting the website are India, USA, Russian Federation, Germany, Nigeria, UK, Singapore, Slovakia, Vietnam, Philippines.

Exhibition-National Horticulture Fair (NHF) - 2021

ICAR-DCR, Puttur had participated in 'National Horticulture Fair-2021' conducted at ICAR-IIHR, Bangalore during 08- 12th February, 2021 to showcase the technologies, achievements and activities of ICAR-DCR, Puttur. Dr. Manjunatha, K, Dr. Thondaiman V., Dr. Muralidhara B.M., Dr. Manjesh V. and Mr. Vijay Achari attended the NHF and interacted with the farmers, researchers, entrepreneurs and public and given inputs on cashew cultivation and processing technologies for their requirements and relevant pamphlets and leaflets were distributed to them. More than 1,500 people visited the stall.



Exposure visits



Thirty farmers from Doddaballapur visited ICAR-DCR under the ATMA scheme on 18th March, 2021



Fifty two farmers from KVK, Mudigere visited ICAR-DCR on 26th March, 2021

Exposure Visits for skilled support staff (HRD Programme)

Exposure visits were arranged for 17 skilled support staff of ICAR-DCR in two batches to ICAR-Central Plantation Crops Research Institute-Regional Station, Vittal; Krishi Vigyan Kendra, Dakshina Kannada, Mangaluru; College of Fisheries, Mangaluru; ICAR-Central Marine Fisheries Research Institute-Regional Station, Mangaluru; ICAR-Indian Institute of Horticultural Research, CHES, Chettalli and ICAR-Indian Institute of Spices Research - Regional Station, Appangala during 3-6th March, 2021.



Radio/TV talks/interview

Mohana G. S.	Gave an interview on 'Cashew Production Technology' to Shramajeevi TV	24 May 2021
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PATENT/ COMMERCIALIZATION OF ICAR-DCR TECHNOLOGIES

An Indian patent has been awarded by Regional Patent Office, Chennai for the technology 'Rotating drum roasting machine for raw cashewnuts (IP: 359214) developed by Dr. D. Balasubramanian, ICAR-DCR, Puttur and Dr. S. D. Deshpande (ICAR-CIAE), Bhopal.

VISIT OF DIGNITARIES

Shri. Kishore Kumar Kodgi	President, CAMPCO, Mangaluru	17.02.2021
Dr. M. Veerangouda	Dean (Agricultural Engineering), College of Agricultural Engineering, Raichur	
Dr. Mahesh Prasanna, K.	Principal, Vivekananda College of Engineering and Technology, Puttur	02.03.2021
Dr. Sulekha Varadaraj	Child specialist and Psychotherapist, Puttur	08.03.2021
Smt. Roopa T. Shetty	Commissioner, City Municipal Council, Puttur	22.03.2021

SUPPLY OF PLANTING MATERIAL

The grafts of recommended high yielding cashew varieties are regularly produced at ICAR-DCR, Puttur under institute revenue generation programme. A total of 56,877 grafts were supplied to the farmers and developmental agencies from this Directorate during January-June, 2021.

STAFF NEWS

Joining

Dr. Manjesh G.N., Scientist (Spices, Plantation, Medicinal and Aromatic Plants) joined ICAR-DCR on 20.01.2021 upon transfer from ICAR-Directorate of Medicinal & Aromatic Plants Research, Boriavi, Anand



Dr. Aswathy Chandrakumar, Scientist (Agricultural Extension) joined ICAR-DCR on 01.02.2021 upon transfer from ICAR-Central Agroforestry Research Institute, Jhansi



Dr. Rajashekara H., Scientist (Plant Pathology) joined ICAR-DCR on 15.02.2021 upon transfer from ICAR-Vivekananda Parvathiya Krishi Anusandhan Sansthan, Almora, Uttarakhand



Promotion

Dr. E. Eradasappa, Scientist (Plant Breeding) has been promoted to Senior scientist w.e.f. 26.02.2018



Dr. Vanitha, Scientist (Agricultural Entomology) has been promoted to Senior scientist w.e.f. 21.04.2018



Dr. Babli Mog, Scientist (Plant Physiology) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2018



Dr. Rajasekhara, H., Scientist (Plant Pathology) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2018



Dr. Siddanna Savadi, Scientist (Biotechnology) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2019



Dr. Preethi, P., Scientist (Fruit Science) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2019 (Transferred to ICAR- IIHR, Bengaluru).



Dr. Muralidhara, B.M., Scientist (Fruit Science) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2019



Dr. Veena, G.L., Scientist (Fruit Science) has been promoted from the RGP Rs. 6000 to next higher grade of Rs. 7000 w.e.f. 01.01.2019



Honours/Recognitions/Awards

Dr. Eradasappa E

- Received '**Innovative article award**' for the popular article 'Is cashew farming profitable?' authored by Eradasappa, E. and J.D. Adiga, published in *Agriculture & Food: e-Newsletter*, 2021. www.agrifoodmagazine.co.in



Dr. Shamsudheen, M.

- First position in Poster presentation** awarded for the paper/poster entitled 'Soil and water conservation practices for improving sustainability in cashew plantation' authored by Shamsudheen Mangalaserry, M.G. Nayak, P. Preethi and B.M. Muralidhara presented during the online International Conference on Soil and Water Resources Management (ICSWRM2021) during 26-27 February 2021 organised by College of Technology & Engineering, MPUAT, Udaipur, Rajasthan



Dr. K. Vanitha

- Received '**First Best Paper Award-2020**' for the 'Bees are important for increasing nut yield in cashew' in Tamil during the 'Sixth National Conference on Agricultural Scientific Tamil, 21-22 December, 2020, organized (both online and offline) at International Institute of Tamil Studies, (M.S. Swaminathan Research Foundation Campus), Taramani, Chennai



- Received '**Best Oral Presentation Award**' for the research paper "Nesting behaviour of three species of Ceratina pollinating cashew" during the National Web-symposium on Recent Advances in Beneficial Insects and Natural Resins & Gums held at ICAR-IINRG, Ranchi during February 25-26, 2021
- Served as '**Chairperson for Poster evaluation**' for a session in the National Web-symposium on Recent Advances in Beneficial Insects and Natural Resins & Gums held at ICAR-IINRG, Ranchi during February 25-26, 2021

Dr. P. Preethi et al.

- ICAR-DCR-Best Research Paper Award for the year 2021** was secured for the paper entitled "Cashew apple pomace powder enriched the proximate, mineral, functional and structural properties of cereal based extrudates" authored by Preethi, P., Mangalassery, S., Shradha, K., Pandiselvam, R., Manikantan, M.R., Reddy, S.V.R., Ramyashree Devi, S. and Nayak, M.G. and published in the journal LWT-Food Science and Technology, 1309:110539



INFORMATION ON AICRP - CASHEW

Meetings conducted

- State Advisory Committee meeting on 24th March, 2021 at SG CARS, Jagdalpur on research and Cashew area expansion with coordination of Horticulture Department, Bastar district.
- Organized farmers training at RBK, Bethapudi (village), Bapatla (Mandal) under Vice Chancellor to Village programme on 18.02.2021.
- First meeting on crop specific technical sub-committees for standardization of term sheets, weather triggers and risk period for Cashew crop notified under RWBCIS held on 25th June, 2021 (By virtual mode).

Progress of TSP / SCSP/ NEH / MGMG

AICRP on Cashew centre	Area expansion achieved (ha)	Trainings conducted (Nos)	Supply of inputs
Hogalagere	17	6	Planting materials and pruning saw for 75 beneficiaries
Jagdalpur	-	1	-
Jhargram	2 (Paschim Medinipur, WB)	1	Agricultural implements and inputs to 8 beneficiaries
Paria	-	2	-
Bapatla	-	1	-

Bhubaneswar	4 (Gondia Block of Dhenkanal Dt)	3	Agricultural implements to 25 farmer beneficiaries.
Madakkathara	8 (Kollam, Thrissur, Malappuram Dt.).	4	Agricultural implements to 129 farmer beneficiaries
Vengurla	2 (Kudal Taluk, Sindhudurg Dist).	1	Agricultural implements to 5 farmer beneficiaries
Vridhachalam	8 (Ariyalur Dt, Tamil Nadu).	3	Agricultural implements, honey bee hives, cashew grafts and cultivation expenses for 40 farmer beneficiaries.



TSP programme - Training (Vridhachalam Centre)



SCSP Programme (Vengurla centre)

Trainings/ Seminars/ Fairs organized or participated (January-June 2021)

AICRP (C) centre	No of trainings / Seminars/ Fairs conducted or organized on cashew related aspects	No of participants	Location
Hogalegere	<ul style="list-style-type: none"> Organized eight training programs on 'Technologies for higher yields in the cashew production'. 	345	Kolar Dt.
Jagdapur	<ul style="list-style-type: none"> Organized one day horticulture fair funded by DCCD. Organized one day district level seminar on cashew funded by DCCD. 	112 68	Kumhrawand, Bastar Dt. Kumhrawand, Bastar Dt. of Valsad
Paria	<ul style="list-style-type: none"> Organized two training programmes on 'Good pest management practice in cashew'. 	134	Kaparada Dt. of Valsad

Bapatla	<ul style="list-style-type: none"> Organized a training programme on 'cashew cultivation practices'. 	50	Rythu Kendram, Bharosa Bapatla Mandal.
	<ul style="list-style-type: none"> Organized four district level seminars on 'Advances in cashew production technology'. 	540	Srikakulam, East Godavari and West Godavari.
	<ul style="list-style-type: none"> Organized a cashew webinar on 'cashew production technology'. 	-	Bethpaudi, Bapatla mandal
	<ul style="list-style-type: none"> Organized a cashew webinar on 'Techniques in cashew cultivation during summer months'. 	-	Srikakulam Dt.
Bhubaneswar	<ul style="list-style-type: none"> Three training programs viz., Cashew Plantation and its management, improved Production Technology and Good Horticultural Practices for increasing cashew production on cashew were organized. 	150	Denkanal and Jajpur Dt. of Odisha
	<ul style="list-style-type: none"> Scientists have participated as resource persons in four DCCD sponsored District level Seminars on Cashew organised by Odisha State Cashew Development Corporation Bhubaneswar. 	600	Jajpur, Denkanal, Nawaranpur and Koraput Dt. of Odisha.
Madakkathara	<ul style="list-style-type: none"> A three days residential training on 'Feasible technologies for improving income from cashew farm'. 	50	Athirappilly, Thrissur Dt.
	<ul style="list-style-type: none"> Twenty days hands on training on job role 'Cashew nursery to local unemployed youth' sponsored by ASCI, Skill India and funded by DCCD 	25	Cashew Research Station, Madakkatahra
	<ul style="list-style-type: none"> Three online trainings (feasible technology for cashew cultivation in Kerala, advanced technologies for cashew cultivation in Kerala and prospects of cashew cultivation and scientific management practices 	60	Cashew Research Station, Madakkatahra
	<ul style="list-style-type: none"> Organized a district level seminar on 'cashew production technology' - sponsored by DCCD. 	152	Farmers of Kottayam, Palakkad and Kollam Dt.
Vengurla	<ul style="list-style-type: none"> DCCD sponsored Four training programmes on "Cashew Apple Utilization for Unemployed Women". 	100	Cashew Farm, RFRS, Vengurla
	<ul style="list-style-type: none"> DCCD sponsored "District Level Seminar on Cashew". 	150	Degve, Dodamarg Taluk
	<ul style="list-style-type: none"> DCCD sponsored "Horticulture Fair cum Field Day on Cashew" 	100	Bhandarwadi, Aadeli, Vengurla
	<ul style="list-style-type: none"> Dr. R. C. Gajbhiye, Horticulturist has delivered lead lecture on 'Cashew Cultivation Technology' in the State Level Webinar on "Cashew Cultivation Technology and Processing" held on 31st January, 2021 	--	Institution of Maharashtra Agriculture Technologist (IMAT), Pune (Virtual mode)



Training on cashew nursery to local unemployed youth (Madakkathara centre)



Training on effective utilization of cashew apple for unemployed women (Vengurla centre)

Transfer of technology (FLD, E-Extension etc.)

Jagdalpur: Organized six FLDs under TSP and 3 FLDs under SCSP with the cashew varieties, Indira Kaju-1, Dhana and V-9)

Jhargram: One Demonstration plot was established with three varieties under high density plantation and two varieties under Ultra high density planting at RRS, BCKV, Jhargram with financial support from DCCD.

Paria: Four different short films on cashew cultivation prepared in vernacular language as under.

- Selection of cashew varieties (<https://youtu.be/oFZcOKIQ3Io>).
- Grafting and nursery management (<https://youtu.be/muEVScgUWZA>).
- Soil and climate (<https://youtu.be/nL9TJs1KZV0>).
- Planting methodology (<https://youtu.be/TG855Kv3WXo>).

Madakkathara: Organized an online awareness programme on role of cashew in ecosystem restoration as a part of world environment day conducted on 08/06/2021. Developed and uploaded e-posters on (1) planting of cashew grafts (2) variety Poornima (3) Management of Tea Mosquito bug (4) Management of Cashew Stem and Root borer in the Kerala Agricultural University facebook page. Besides, conducted series of online cashew farmers' experience sharing sessions with an objective to promote cashew cultivation and to motivate new entrants.

Vengurla: Field demonstration on 'management of CSRB' was organized on 23.03.2021 at Degave, Dodamarg Tk, Sindhudurg Dt.

Advisory visits /Consultancy

Advisory visits were made or consultancies were provided by the scientists of AICRP centres on cashew cultivation (Hogalagere), orchard establishment (Jhargram), aftercare of TauKtae cyclone (Paria), orchard establishment (Bapatla), for hard rock Cashew plantation (Vengurla) and forest plantations of cashew (Vridhachalam).

Research and extension literature published with details

Jagdalpur

- Jairam, Nirala, Y.S., Ramteke, V., Mandawi, N.C. and Singh, D.P. 2021. Seasonal incidence of cashew shoot tip caterpillar, leaf folder and their relationship with weather factors. *J. Exp. Zool. India*, 24 (2): 1753-1757.
- Nirala, Y.S., Ramteke,V., Kumar, H. and Mandawi, N.C. 2021. *Kaju ke pramukh keet avem unke niyantran ke upay*. (Hindi) IGKV/SGCARS/Ext. Folder/06
- Ramteke,V., Nirala, Y.S., Patra, H.K., Thakur, P. and Naik, U.2021. *Kaju apple ka mulya savandhan*. (Hindi) IGKV/SGCARS/Ext. Folder/07
- Ramteke,V., Nirala, Y.S., Patra, H.K. and Thakur, P. 2021. *Chhattisgarh me kaju ki unnat kasht avem utpadan taknik*. (Hindi) IGKV/SGCARS/Tech. Bulletin/08



Jhargram

- A booklet on 'FAQ on Cashew' (in Bengali) authored by Dr. Mini Poduval

Paria:

- A Booklet on 'Scientific cultivation of Cashew' (in Gujarati) with University publication number (95/2020-21).



Bhubaneswar :

- Gopikrishna K, P. K. Panda, R.K.Nayak and K. Sethi.2021.Effect of nutrients on yield and yield attributing characters in cashew (*Anacardium occidentale* L.).*The Pharma Innovation*, 10(1):117-119.
- P.K. Panda and K.Sethi.2021. *Kajubadam Chasa*,pp.4 (in Odia)
- P.K.Panda and K.Sethi.2021. *Kajubadam Eka Lavajanaka Arthakari Phasala*,pp.4 (in Odia)

Madakkathara

- Leaflet in local language on Cashew apple juice, green cashew kernels, hybrid cashew varieties, production technology of cashew, tea mosquito bug, cashew stem and root borer authored by Jalaja S. Menon, Smitha M. S and Asna A.C., published by Directorate of Extension, Kerala Agricultural University.
- A book on Cashew Nursery "Kasumavu Nursery" (in Malayalam). 2021, authored by Jalaja S. Menon, Smitha M. S. and Asna A.C. Published by Directorate of Extension, Kerala Agricultural University Pp. 49



Vengurla

Book entitled 'Amba Pikawaril Kid aani Rog Wyawsthapan' (in Marathi) published on 30th March, 2021 by Dr. A. Y. Munj, Jr. Entomologist, AICRP-Fruits, RFRS, Vengurla, Dr. M. B. Dalvi, Plant Pathologist, RFRS, Vengurla and others. Published by Director of Extension Education, DBSKKV, Dapoli. Publication No. DBSKKV/Extn./book/1/2021, 40p.

Vridhachalam

- Sathish, G., M. Mohanalakshmi, S. Jeya Prabhavathi, A. Sangeetha, and K. Subrahmaniyan. 2021. Hi-tech production technology of Cashew cultivation (Tamil booklet).
- Sathish, G., M. Mohanalakshmi, S. Jeya Prabhavathi, A. Sangeetha and K. Subrahmaniyan. 2021. VRI (CW) Hybrid 1 Variety crop production management. RRS, Vridhachalam (Tamil leaflet).
- Sathish, G., M. Mohanalakshmi, S. Jeya Prabhavathi, S. Kannan, A. Sangeetha and K. Subrahmaniyan. Value addition in Cashew apple. 2021. RRS, Vridhachalam. Pp:1-15 (Tamil booklet).
- Jeya Prabhavathi, S., G. Sathish, M. Mohanalakshmi, A. Sangeetha and K. Subrahmaniyan. 2021. Pest Management in Cashew (Tamil leaflet).
- Sathish, G., M. Mohanalakshmi, S. Jeya Prabhavathi, A. Sangeetha and K. Subrahmaniyan. 2021. Hi-tech Cashew cultivation stepping stone to bumper yield. RRS, Vridhachalam (Tamil leaflet).
- Mohanalakshmi, M., G. Sathish, S. Jeya Prabhavathi, A. Sangeetha and K. Subrahmaniyan. 2021. Hi-tech production technology for maximizing high yield in Cashew (Tamil leaflet).
- Sathish, G., M. Mohanalakshmi, S. Jeya Prabhavathi, A. Sangeetha and K. Subrahmaniyan. 2021. High Density Planting in Cashew. RRS, Vridhachalam (Tamil and English leaflets).



TV / Radio talks

Scientist	AICRP Centre	TV/radio talk	Date
Dr. S.K. Desai	Paria	'Dakshin Gujaratma Kaju Ek Ashaspad Pak - Krishidarshan Phone-in-live Programme in DD Girnar TV channel (https://youtu.be/Ze_cegLdXbY).	16.06.2021
Dr. B. Nagendra Reddy	Bapatla	RBK Phone in live programme on 'Pest and Disease management in cashewnut' at Integrated Call Centre, Gannavaram Vijayawada	11.01.2021
Dr. K. DhanumjayaRao		Management practices in cashewnut, at Integrated Call Centre, Gannavaram Vijayawada	27.01.2021
		All India Radio Programme on Measures to be taken during flowering and fruiting in cashew	27.01.2021
Dr. P.K. Panda	Bhubaneswar	Phone-in-Programme on the topic "Care of fruit orchards during Summer" in Kisanvani programme of All India Radio, Puri	18.04.2021
Dr. M. Mohanalakshmi	Vridhachalam	Programme on 'Varietal characters of Cashew', All India Radio, Puducherry	27.01.2021
Dr. G. Sathish		Programme on 'High density planting system in cashew', All India Radio Programme, Puducherry	27.01.2021

Supply of cashew grafts

Cashew grafts of regional importance are regularly multiplied by different AICRP centres on cashew. The total number of cashew grafts supplied are detailed below,

AICRP C	No. of grafts	AICRP C	No. of grafts
Bhubaneswar	5,580	Madakkathara	5,000
Bapatla	20,000	Vengurla	40,682
Jagdapur	6,000	Vridhachalam	2,061
Jhargram	1,000		

Promotion / Awards and Recognition

- **Dr. K. Umamaheswara Rao**, Scientist (Hort.) promoted as Senior Scientist (Hort.) under CAS w.e.f 07.02.2020.
- **Dr. Vikas Ramteke**, Scientist (AICRP on cashew, IGKV, Jagdalpur, Chhattisgarh) awarded with **Young Scientist Award** from VDGOD Professional Association, India during International Scientist Awards on Engineering, Science and Medicine, Ooty on 16,17.04.2021.
- **Dr. R. C. Gajbhiye**, Horticulturist (Cashew) received '**Innovative Extension Person**' in National Conference on Cashew organized by Directorate of Cashewnut and Cocoa Development, Govt. of India, Cochin held on 26th February, 2021 at Panjim, Goa.



Received '**Appreciation letter**' from the Director of Research, DBSKKV, Dapoli for his research and extension work.



Published by: **Dr. Anitha Karun**, Director (Acting), ICAR- Directorate of Cashew Research, Puttur – 574 202, D.K., Karnataka.

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सबका साथ
सबका विकास
सबका विश्वास
सबका प्रयास

