



# काजू समाचार CASHEW NEWS



भा.कृ.अनु.प. – काजू अनुसंधान निदेशालय, पुत्तूर के अर्ध वार्षिक वार्ता पत्र  
HALF YEARLY NEWSLETTER OF ICAR-DIRECTORATE OF  
CASHEW RESEARCH, PUTTUR, DAKSHINA KANNADA, KARNATAKA

Vol. 30 No.2

July – December 2024

## DIRECTOR'S DESK

### Mechanization in Cashew Cultivation: Advancements from ICAR-Directorate of Cashew Research, Puttur

Mechanization is playing a crucial role in transforming cashew cultivation, enhancing productivity, reducing labour dependency, and promoting sustainability. The ICAR-Directorate of Cashew Research, Puttur, has been at the forefront of developing innovative technologies to mechanize key operations in cashew farming. These advancements, in collaboration with ICAR-Central Institute of Agricultural Engineering, Regional Station, Coimbatore, have significantly contributed to improving efficiency and ensuring better economic returns for farmers.

One of the most notable achievements in this direction is the successful implementation of drone-based spraying technology in cashew orchards. This breakthrough innovation ensures uniform distribution of pesticides and micronutrients, even in dense cashew canopies, thereby improving plant health and boosting yields. The precise droplet size control between 100–350  $\mu\text{m}$  optimizes pesticide coverage, leading to water savings of up to 88% and chemical savings of up to 50%. Additionally, drone spraying enhances operator safety by minimizing direct exposure to harmful agrochemicals, making it an indispensable tool for modern cashew cultivation.

In the domain of post-harvest mechanization, the Directorate has developed three distinct cashew nut and apple separation technologies to cater to the diverse needs of farmers. The Pedal-Operated Cashew Fruit and Nut Separator is an innovative, cost-effective, and manually operated device ideal for small and marginal farmers. For those requiring enhanced efficiency and portability, the Portable Semi-Automatic Cashew Apple and Nut Separator provides a user-friendly solution. The Fully Automatic 3-in-1 Cashew Nut Separator is a revolutionary machine that performs three critical post-harvest operations—nut separation, pulp extraction, and fibrous material removal—simultaneously, significantly reducing processing time and labour costs. These advancements address key challenges in post-harvest handling and processing, further strengthening the cashew value chain.

Recognizing the significance of these innovations, all three nut separation technologies have been filed for design registration and patent protection. This highlights the commitment of the Directorate towards fostering technological advancements in cashew cultivation. The introduction of these mechanized solutions is particularly beneficial for small, marginal, and large-scale farmers alike, ensuring widespread adoption and long-term sustainability. By integrating mechanization into cashew farming, ICAR-Directorate of Cashew Research continues to spearhead agricultural innovation, reinforcing India's position as a global leader in cashew production and processing. The commitment towards research-driven mechanization is a testament to the Directorate's dedication to enhancing efficiency, reducing costs, and improving the overall viability of cashew cultivation in the country.



Dr. J. Dinakara Adiga

## 1. RESEARCH HIGHLIGHTS

### Development of Novel SSRs and DNA FP of cashew cultivars/reference varieties

Many elite cultivars have been developed and cultivated by farmers. However, often the genetic purity of the planting material is not assured, resulting in economic losses. Therefore, efforts were made to develop a reliable method for the identification of cultivars and the protection of cultivars by the breeders. Thirty-five new microsatellite/simple sequence repeat (SSR) markers were developed. A DNA fingerprinting protocol using a core set of 20 highly polymorphic and reproducible markers in 32 cashew cultivars were also developed. The Polymorphic Information Content (PIC) of newly generated SSR markers varied from 0.19 to 0.67, with an average of 0.44. The probability of identifying any two cultivars with identical fingerprints using the 20 SSR markers was less than  $2.8 \times 10^{-11}$ . Further, eight of the 20 markers were sufficient for distinguishing all the tested cultivars (Fig. 1). The findings are useful for the conservation and protection of cultivars under the PVP Act and to ensure trading of quality planting in cashew.

(Siddanna Savadi, ICAR-Directorate of Cashew Research, Puttur, Karnataka)

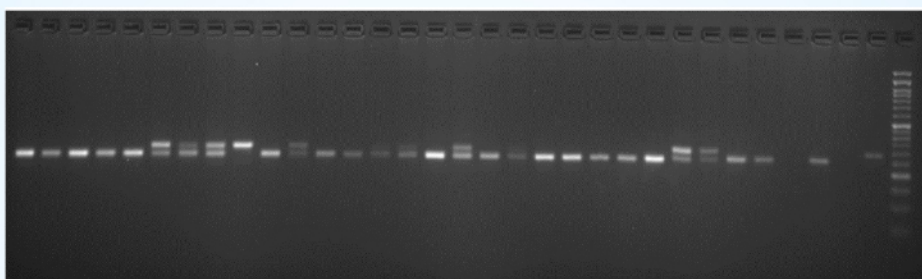


Fig. 1 Amplification pattern of SSR marker DCR-SSR-32 used for fingerprinting of cashew cultivars.

### Registration of Germplasm accessions

Six germplasm accessions with unique characters were characterized and submitted for registration of trait-specific germplasm at ICAR-National Bureau of Plant Genetic Resources, New Delhi and 4 accessions were approved viz., NRC386, NRC577, NRC579, NRC580 and assigned with the IC numbers INGR24070, INGR24071, INGR24072, INGR24073 respectively. (Fig. 2) in the 53<sup>rd</sup> Meeting of Plant Germplasm Registration Committee (PGRC).



Fig. 2 A unique accession NRC-580 with a very low cashew apple to nut ratio registered with ICAR-NBPGR, New Delhi

### First report on drought tolerance mechanisms of Indian cashew

Cashew is a hardy perennial tree crop and can survive long dry periods as it can extract water from deeper soil layers due to the presence of long taproot systems. However, cashew flowering and fruiting coincide with dry periods from December to May. Moisture stress during these critical growth phases adversely affects flowering and fruiting of cashew, resulting in yield reduction. In this context, seventeen cashew varieties were screened



for drought tolerance in the field for two years (2020-21 and 2021-22). Among the varieties, Bhaskara and Priyanka showed higher drought tolerance by increased proline content of 34.6% and 33.9% respectively over control and increased antioxidant enzyme activities, endogenous hormone content and polyamine compounds. Furthermore, Priyanka and Bhaskara also maintained higher nut yield of 9.04 kg/tree and 7.39 kg/tree respectively compared to other studied varieties under drought stress. The identified drought-tolerant varieties can be explored for future agronomic strategies towards cashew production under drought stress conditions. (Babli Mog, Manjesh G.N, Bhagya H.P, Veena G.L, V. Thondaiman, ICAR-Directorate of Cashew Research, Puttur, Karnataka)

### Bees too have natural enemies: parasitoid and hyperparasitoid of *Braunsapis mixta*

Like any other insect pests, bees also have natural enemies like predators, parasitoids and pathogens. Unlike honey bees, limited information is available on the natural enemies of native bee pollinators. In the artificial nests of *Braunsapis mixta* (Apidae: hymenoptera) developed at ICAR-DCR, Puttur, brown-coloured puparia were seen outside the nest entrances, which were later identified as *Zodiomyia sumbaensis* (Conopidae: Diptera) upon adult emergence. These conopid flies lay their eggs on or in the bodies of bees and larvae develop as internal parasitoids, which eventually kill the adult bees. Interestingly, observations in the trap nests also revealed the occurrence of hyper parasitoids, *Tetrastichus* sp. (Eulophidae) on the conopid pupa. Thus, in nature, hyperparasitoids help in managing the Conopid flies, thereby protecting the native bees. (Fig. 3). (K.Vanitha, ICAR-Directorate of Cashew Research, Puttur, Karnataka)



Fig. 3 Parasitized *B. mixta* bee with the Conopid pupa inside the abdomen

### Interaction of cashew plants with insects through volatiles

In general, plants release volatiles that are known as volatile organic compounds (VOCs). Besides, in response to the feeding damage of insects, plants also release a variety of volatiles which are known as herbivore induced plant volatiles (HIPVs). These volatiles are chemicals that plants release into the air to protect themselves and communicate with other plants, insects, natural enemies etc. The volatiles of healthy cashew plants and the volatiles of tea mosquito bug infested shoots were collected using the 'Air entrainment method' and analyzed under Gas Chromatography Electroantennogram Detector (GC-EAD) and Gas Chromatography Mass Spectrometry (GC- MS). The chromatograms of the eluted volatiles were quite different for healthy plants and infested plants. The volatiles collected from healthy plants majorly included EAD active compounds viz., 2- methylnonane,  $\beta$ -pinene, 3-carene,  $\beta$ - caryophyllene, etc. Similarly, the infested plant volatiles identified EAD active compounds are p-xylene, o-xylene, 3- carene,  $\beta$ -geraniolene etc. The olfactometer bioassays involving the commercially available synthetic analogues of EAD active compounds revealed significant attraction of female TMB to a few compounds like  $\beta$ -caryophyllene. Further studies help to delineate the role of plant volatiles for TMB interaction and also the tritrophic interactions in cashew. (Fig. 4).

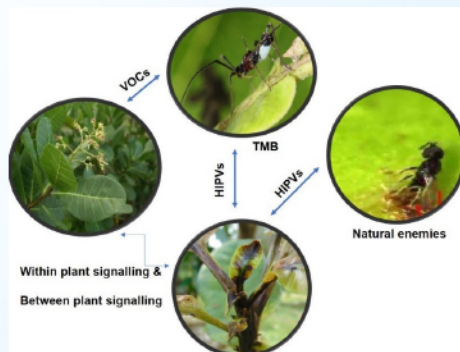


Fig. 4 Interaction of cashew plants with insects through volatiles

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

## Whole genome sequencing and comparative analysis of *Neopestalotiopsis clavispora* causing cashew leaf blight disease in India

The complete genomic data of *N. clavispora* was generated by Illumina technology. A total assembled genome size of 59.25 Mb with a base pair length of 60576399, N50 contig size of 129039 bp and a GC content ratio of 50.05%. The comparative genomic analysis was performed with the available genomes in the database of the same pathogen and closely related pathogenic fungi within the same group.

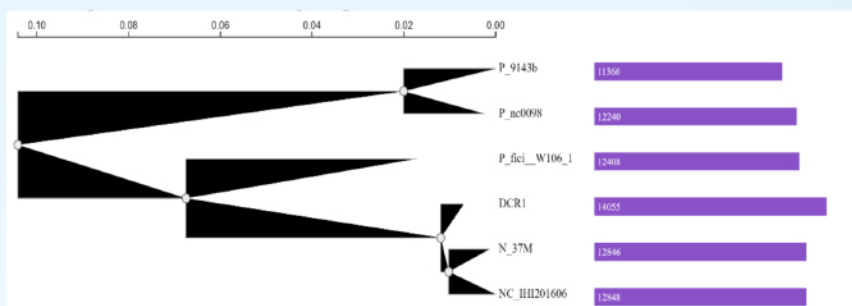


Fig.5 Phylogenetic tree based on the identification of highly conserved single-copy genes to describe the evolutionary relationships between species.

It was found that a higher number of 14055, 23069 and 4370 clusters, proteins and singletons were predicted in comparison to other genomes used in the analysis, respectively. The phylogenetic tree (Fig. 5) was also constructed to know the evolutionary relationships between the species and based on the analysis, it was found that the *N. clavispora* infecting cashew formed a separate cluster, which is closely related to *Neopestalotiopsis* spp. and *Neopestalotiopsis clavispora* IHI 201606 isolates.

(Rajasekhara, H<sup>1</sup>, R. T. P. Pandian<sup>2</sup>, Siddanna Savadi<sup>1</sup> and T. N. Raviprasad<sup>1</sup>)

<sup>1</sup>ICAR-Directorate of Cashew Research, Puttur, Karnataka

<sup>2</sup> ICAR-Central Plantation Crops Research Institute, Regional Station, Vittal, Karnataka

## Diagnostic investigation of cashewnut processing units in Kollam, Kerala

Drum roasting (DR) mode of conditioning raw cashewnuts prior to kernel extraction is prevalent in this region as this method originated from Kollam, Kerala. Although the scale of production differs with different units, DR process generates air pollution and smoke emanating from this process is managed by increasing the height of smoke chimney and / or lateral firing system. The mechanized drum roasting process can have more control on roasting process compared to traditionally and manually operated one. A suitable machine working on the principle of impact cracking of highly porous drum roasted nuts need to be developed to extract kernels in shelling to reduce kernel contamination and cost of processing. As moisture content plays an important role at every stage of processing, instrumentation technique should be used to assess moisture content of material prior to processing. Change in the nutritional and sensory quality of cashew kernels obtained after drum roasting process needs to be analysed towards market promotion. Principally, labour and related costs hiked the cost of processing unlike other methods followed in other regions of India. A systematic investigation on DR process and its effect on human health has become imperative.

(D. Balasubramanian, ICAR-Directorate of Cashew Research, Puttur, Karnataka)



### Portable pedal operated shear type cashew apple and nut separator

A portable pedal operated shear type cashew apple and nut separator (Fig. 6) was developed for separating the raw cashew nuts (RCN) from the cashew apple. The portable pedal operated system comprises a main frame that supports a pedal linked to a cutting mechanism. The pedal activates a primary connecting rod and secondary connecting rod, which drives a movable concave shear plate that operates in conjunction with a fixed concave shear plate, facilitates back-and-forth motion, ensuring effective shearing action, enabling consistent and efficient separation of cashew apples and nuts. A retracting spring configured for resetting the movable concave shear plate after each cutting action to return its original position. The system also features an RCN outlet for discharging the separated cashew apples and nuts, along with an angle connector to guide the discharge process. The separation efficiency of the portable operated system is 82.70%, and the average separation capacity of the system was found to be 15.0 kg h<sup>-1</sup>. A patent application is filed in Regional Patent Office, Chennai (Patent application No. 202441087672 dated 13<sup>th</sup> November, 2024).

(Manjunatha, K<sup>1</sup>., Ravindra Naik<sup>2</sup>, D. Balasubramanian<sup>1</sup> and J.D. Adiga<sup>1</sup>)

<sup>1</sup>ICAR-Directorate of Cashew Research, Puttur, Karnataka

<sup>2</sup>ICAR-Central Institute of Agricultural Engineering, Regional Station, Coimbatore, Tamil Nadu



**Fig. 6 View of portable pedal operated shear type cashew apple and nut separator**

### Portable semi-automatic cashew apple and nut separator with twisting mechanism

A portable semi-automatic cashew apple and nut separator with twisting mechanism (Fig. 7) was developed and evaluated. The system comprises a main frame that provides structural support, and a motor coupled to a primary shaft to generate rotational motion. A pulley mounted on the primary shaft transfers the rotational power to a belt drive, which drives a secondary shaft. The system includes a pedestal bearing for stable rotation of the primary shaft. The secondary shaft powers an internal expanding gripper, which securely grips the cashew nuts.

The secondary shaft provides twisting motion through its rotation, enabling the internal expanding gripper to separate cashew nuts from cashew apples. The separated nuts are ejected through an outlet. The system automates the separation process, reducing labour-cost, time consumption, and improves the efficiency and safety in cashew nut processing. The average capacity of the portable semi-automatic system is 35.0 kg h<sup>-1</sup> with separation efficiency of 91.45%. A patent application is filed in Regional Patent Office, Chennai (Patent application No. 202441087671 dated 13<sup>th</sup> November, 2024).

(Manjunatha, K<sup>1</sup>., Ravindra Naik<sup>2</sup>, D. Balasubramanian<sup>1</sup> and J.D. Adiga<sup>1</sup>) <sup>1</sup>ICAR-Directorate of Cashew Research, Puttur, Karnataka

<sup>2</sup>ICAR-Central Institute of Agricultural Engineering, Regional Station, Coimbatore, Tamil Nadu



**Fig. 7 View of portable semi-automatic cashew apple and nut separator**



## Development and evaluation of Cashew Sprout cookies

During the process of harvesting, the abandoned or unnoticed RCN accounts for about 10-20% of the RCN yield and starts germinating after the monsoon. Many local inhabitants of Karnataka and Kerala in India use those sprouted cashews in their traditional cuisines, which accounts for 1-2% of RCN utilization. There is a statement from the inhabitants that the sprouts of cashew are tastier and healthier than the processed kernels. To utilize the nutritive value of sprouts, heat cooking/processing would be one of the most promising techniques by eliminating surface contamination. Keeping these points in view a new food product, cashew sprouts cookies was developed and standardised (Fig. 8) by fortifying with other healthy nutritional components, like sprouts of green gram, finger millet and horse gram. The commercially available cookies in the market are predominantly prepared by using refined flour, wheat, oats and refined sugar, which are less in protein and high in calories. But the cashew sprouts cookies are a nutri mixture of other sprouts that serve as a vital source of beneficial fat, protein, fiber, ash and other mineral components, which are lacking in commercially available cookies. The cashew sprouts cookies are enriched with protein (10-12%), fiber, and other beneficial minerals viz., Potassium (0.48%), Phosphorus (0.19%), Calcium (2.87%), Magnesium (0.98%) and sodium (4.73%). Since it is preferred by people of all age groups, this can be utilized as one of the sources to address the issue of malnutrition.

(G.L. Veena, G.N. Manjesh, Shamsudheen, M., Preethi, P. Rajasekhara, H and Jyoti Nishad, ICAR-Directorate of Cashew Research, Puttur, Karnataka)



**Fig. 8 Cashew Sprouts based Cookies**

## CashewPrash

Cashew apples are a rich source of bioactive compounds such as polyphenols, vitamins, minerals, antioxidants, and dietary fiber, making them ideal components for nutraceutical formulations. A nutraceutical-rich formulation was developed from cashew apples and spices as CashewPrash (Fig. 9). The developed product is enriched with polyphenols (620.23 mg GAE/100g), vitamin C (1.36 mg/100g), minerals and crude fiber (1.48%). This product not only addresses modern consumer demand for plant-based health solutions but also positions cashew apple as a powerhouse in promoting holistic well-being.

(Jyoti Nishad, Veena G.L., Rajashekara H, ICAR-Directorate of Cashew Research, Puttur, Karnataka)



**Fig. 9 CashewPrash**

## CASH- Cashew Apple Squash

Cashew apples are rich in essential vitamins and minerals, including vitamin C, potassium, polyphenols, and dietary fiber. These nutrients contribute to overall health, support the immune system, and aid in digestion. Considering its health benefits cashew apple squash (CASH) was formulated using cashew juice Fig 10. Cashew apple-based squash retains many of the health benefits, offering a nutritious option for hydration. The product has a TSS of 40°Bx, acidity of 0.75%, polyphenolic content of 79.92 mg GAE/100g, ascorbic acid content of 1.12 mg/100g and ash content of 11.88%. The product is free from artificial flavor and color. It also provides an easy way to enjoy cashew apple flavor year-round, even when fresh apples are not in season. It offers a convenient alternative to fresh fruit and can be diluted to taste, making it a versatile beverage choice.

(Jyoti Nishad, Veena G.L., Rajashekara H., ICAR-Directorate of Cashew Research, Puttur, Karnataka)



**Fig. 10 Cashew Apple Squash**



## Cashew Farmers Tracking System (CFTS)

A simple software, CFTS was developed which has two parts viz., QR code system for farmers to access information on purchased varieties and data analytics for tracking the location of planting, farmers, and varieties for a specific period. Currently, this software is being implemented in the cashew nurseries of ICAR-Directorate of Cashew Research, Puttur, and in All India Coordinated Research Project Centers spread across the country. The software can also be profitably deployed in cashew nurseries in different states accredited by Directorate of Cashew and Cocoa Development (DCCD), Kerala. Further, ICAR institutes and Agriculture Universities selling plants of different crops can also adapt this software with suitable customization. Moreover, the software can also be suitably altered to cater to the needs of private nurseries selling a range of plants. (Fig.11)

(Mohana, G.S. ICAR- Directorate of Cashew Research, Puttur, Karnataka)

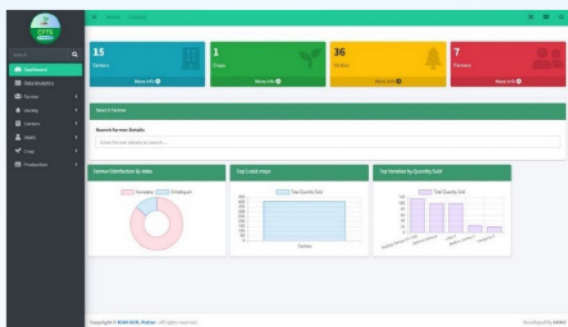


Fig. 11 A view of Dashboard of the Cashew Farmers' Tracking System

## Trend analysis of the Raw cashewnut production scenario of India

A study was conducted to analyse the trend and instability of the raw cashewnut production in major cashew growing states and at the national level for the past five decades. The effect of area, yield and their variability on output growth over the years was also analysed using Hazell's decomposition analysis. The findings of the study reveal that raw cashewnut production increased significantly in the country at a decelerated rate with Compound Annual Growth Rate (CAGR) 4.01% during the period from TE 1971-72 to TE 2020-21 and this growth was attributed to a significant increase in area and yield.

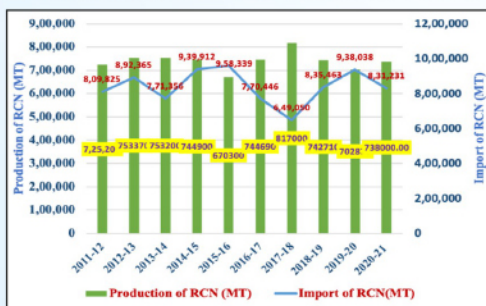


Fig. 12 Trend in production and import of Raw Cashewnuts (RCN) in India

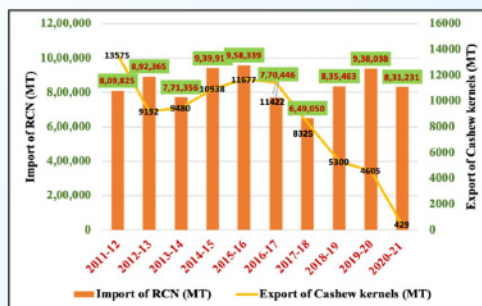


Fig. 13 Trend in import of Raw Cashewnuts (RCN) and export of cashew kernels in India

The increase in mean area contributed to 54.57% of the total increase in the cashewnuts production while the increase in mean yield contributed to 24% of the increase in production. The interaction between change in mean yield and change in mean area accounted for 22% of the increase in raw cashewnuts production. An incremental percent share in the average production of raw cashewnuts in India is contributed by Maharashtra (39.98%) followed by Andhra Pradesh (19.61%), Odisha (16.78%), Tamil Nadu (11.05%) and Karnataka

(10.43%). The change in mean area accounted for a very large proportion of increase in the average production in almost all states except Goa and Tamil Nadu. With a much lower share of yield effect on output growth, the negative growth of output in Kerala is explained largely by the declining rate (-1.02 per cent) in area during the study period which calls for more concerted efforts towards reviving the cashew cultivation. Maharashtra with the highest production and second largest area under cashew cultivation shows highest instability. (Aswathy Chandrakumar, C Thamban, Jayasekhar S, ICAR- Directorate of Cashew Research, Puttur, Karnataka)

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### 3. CONFERENCES / SYMPOSIUM / TRAINING ORGANIZED / CONDUCTED

Name of the Scientist	Title and Venue	Date
Dr. Babli Mog	Attended International Conference on Agritech Intelligence and Beyond: Cutting Edge Innovations in Agriculture and Allied Sciences organized by SKUAST-Kashmir, Vital Biotech Kota and Agriculture Forum for Technical Education of Farming Society, Kashmir	15 <sup>th</sup> -17 <sup>th</sup> October, 2024
	Presented an oral talk on "Screening of Indian Cashew ( <i>Anacardium occidentale</i> L.) varieties based on physiological and biochemical profiling' in International Conference on 'Current Innovations and Technological Advances in Agriculture and Allied Sciences jointly organized by Guru Kashi University, Talwandi Sabo (ICAR accredited) and Just Agriculture Education Group and ISASTR, Noida.	29 <sup>th</sup> -31 <sup>st</sup> August, 2024
Dr. Balasubramanian, D	Training on Cashewnut processing and value addition: Farmers and entrepreneurs of East, South and South West Garo hills at cashewnut processing unit, Babhadam, Tura, Meghalaya.	25 <sup>th</sup> to 29 <sup>th</sup> November, 2024
	Training on Cashewnut processing and value addition: All Garo Hills Multi-Purpose Cooperative Society, Cashewnut processing unit, Babhadam, Tura, Meghalaya.	21 <sup>st</sup> to 24 <sup>th</sup> November, 2024
	3-days Training program on 'Cashewnut Processing' organized for following Incubatees at Agri Business Incubation Centre, ICAR-DCR, Puttur, Karnataka	
	Mr. R. Ramasamy, Tamil Nadu	26 <sup>th</sup> to 28 <sup>th</sup> August, 2024
	Mr. Kumara Chandra, Karnataka	26 <sup>th</sup> to 28 <sup>th</sup> August, 2024
	Mr. M. Raja, Tamil Nadu	23 <sup>rd</sup> to 25 <sup>th</sup> September, 2024
	Mr. V. Kumaran, Tamil Nadu	23 <sup>rd</sup> -25 <sup>th</sup> September, 2024
	Mr. R Dhandapani, Tamil Nadu	23 <sup>rd</sup> to 25 <sup>th</sup> September,



Name of the Scientist	Title and Venue	Date
Dr. Balasubramanian, D	M/s Transcend Food Works (P) Limited, Andhra Pradesh	23 <sup>rd</sup> to 25 <sup>th</sup> September, 2024
	Mr Ritesh Ram Kumar, Karnataka	4 <sup>th</sup> – 6 <sup>th</sup> November, 2024
	Mr Sannappa K, Karnataka	4 <sup>th</sup> – 6 <sup>th</sup> November, 2024
	Attended training program on 'Innovation Management' conducted by ICAR-National Academy of Agricultural and Research Management, Hyderabad	8 <sup>th</sup> to 12 <sup>th</sup> July, 2024
	Training attended on 'Grafting plants and other perennial crops' conducted at Yashasvi Nursery, Puttur, Karnataka	17 <sup>th</sup> July, 2024
Dr. Bhagya H P	Coordinated in conducting two days 'training programme on 'Scientific Cashew Cultivation Practices' at Babadam, West Garo Hills, Meghalaya in collaboration with All Garo Hills Multipurpose Cooperative Society Ltd., Meghalaya and to distribute cashew 24,240 grafts to ST farmers of West and South Garo Hills of Meghalaya.	31 <sup>st</sup> July & 1 <sup>st</sup> August, 2024
	Coordinated "student awareness programme on cashew cultivation and enterprise development through Agri-incubation facility" for the 45 students of Vivekananda College of Arts, Science and Commerce.	30 <sup>th</sup> October, 2024
	Monitored AICRP trials and visited AICRP-TSP fields at CRS Madakkathara, Trissur, Kerala	17 <sup>th</sup> to 19 <sup>th</sup> December, 2024
	Participated and presented on 'Carbon sequestration potential in Cashew ( <i>Anacardium occidentale</i> ) plantation' in 3 <sup>rd</sup> International conference on "Climate-smart Nutri-sensitive Integrated Farming System for Gender-equitable Sustainable Agriculture: Prospects and Challenges (ICNSFS-2024) at ICARICAR- CIWA, Bhubaneswar, Orissa, India.	6 <sup>th</sup> to 8 <sup>th</sup> November, 2024
Dr. Jyoti Nishad	Organized a series of activities on the theme "Swabhav swachhata, Sanskaar Swachhata" under Swachhta Hi Seva campaign 2024	14 <sup>th</sup> September to 02 <sup>nd</sup> October, 2024
	Conducted webinar on "Cashew Apple Valorization: A Waste to Wealth Approach"	16 <sup>th</sup> September, 2024
	Organized a special swachhta campaign 4.0 at ICAR-DCR, Puttur, Karnataka	02 <sup>nd</sup> to 31 <sup>st</sup> October, 2024
	Organized Swachhta Pakhwada campaign at ICAR-DCR, Puttur, Karnataka	16 <sup>th</sup> to 31 <sup>st</sup> December, 2024

Name of the Scientist	Title and Venue	Date
Dr. Jyoti Nishad	Acted as coordinator in conducting training programme on "Promotion of Nutrition Gardening and CAP in Cashew" collaboratively with Horticulture Research and Extension Centre (HREC), Kanabargi, Belgaum and to provide Kitchen-garden tools to the SC beneficiaries under SCSP Scheme of ICAR-DCR, Puttur, Karnataka	13 <sup>th</sup> September, 2024
	Conducted one-day training on "Value Addition of Cashew Kernels" under ABI at ICAR-DCR, Puttur, Karnataka	08 <sup>th</sup> August, 2024
	Conducted one-day training on "Importance of cashew apple and its value addition for nutritional security" for the home science students of Besant Women's college, Mangalore at ICAR-DCR, Puttur, Karnataka	06 <sup>th</sup> September, 2024
	Attended Capacity Building Program on "Building Successful Incubation Ecosystem" at ICAR-National Academy of Agricultural Research Management (NAARM), Rajendra Nagar, Hyderabad, Telangana	03 <sup>rd</sup> to 05 <sup>th</sup> July, 2024
	Organized one day training programme as co- coordinator on 'Mechanization in Cashew Cultivation and Post-Harvest Technology' for the 35 Civil Engineering students of St. Josph's Engineering College, Mangalore at ICAR- Directorate of Cashew Research, Puttur, Karnataka	19 <sup>th</sup> July, 2024
	Acted as convener in conducting Kisan Diwas- 2024 at ICAR- Directorate of Cashew Research, Puttur, Karnataka	23 <sup>rd</sup> December, 2024
	Attended ADP on "Cultivation and harvesting of Spirulina biomass towards developing value- added product", Division of Microbiology, ICAR- Indian Agricultural Research Institute (ICAR- IARI), New Delhi	12 <sup>th</sup> to 14 <sup>th</sup> August, 2024
	Attended 3rd International Conference on "Climate-Smart Nutri-Sensitive Integrated Farming System for Gender-equitable Sustainable Agriculture: Prospects and Challenges (ICNSFS- 2024)" at ICAR-CIWA, Bhubaneswar Orissa, India	06 <sup>th</sup> to 08 <sup>th</sup> November, 2024
Dr. Manjunatha K	Conducted two days training programme (4 No's) on 'Scientific Cashew Cultivation Practices at Babadam, West Garo Hills. Meghalaya in collaboration with All Garo Hills Multipurpose Cooperative Society Ltd., Meghalaya.	July 31 <sup>st</sup> and 1 <sup>st</sup> August, 2024
Dr. Manjesh G N	Participated in training on "Grafting plants and other perennial crops" held at Yashasvi Nursery, Puttur. D.K. Karnataka	17 <sup>th</sup> July, 2024
	Participated and presented an oral presentation on "Major Elemental Composition of Cashew Nut in relation to modified Biologische Bundesantalt. Bundessortenamt" and Chemische Industrie (BBCH) at the International Conference on 'Precision Horticulture (ICPH- 2024) held at HCRI, Periyakulam, Tamil Nadu.	22-24 <sup>th</sup> August, 2024



Name of the Scientist	Title and Venue	Date
	Organized training program on “Cashew production technology and awareness program on promotion of Kitchen gardening. Parappa Block, Kerala.	13 <sup>th</sup> August, 2024
	Organized training on Cashew Production Technologies in collaboration with the cashew progeny orchard, Gallimukha, Kerala	20 <sup>th</sup> August, 2024
	Organized training programme on “Nutrition Gardening and Distribution of Vegetable Seed Kits to SC beneficiaries under SCSP scheme at Andasura, Sagara Taluk Shivamogga, Karnataka	10 <sup>th</sup> September, 2024
	Organized “Good Agricultural Practices in Cashew Cultivation” & Provided inputs under the SCSP scheme at Kanabargi, Belgaum, Karnataka	13 <sup>th</sup> September, 2024
	Organized Entrepreneurship opportunities for Rural Youth in the Horticulture sector'' at ICAR- K H Patil KVK, Gadag, Karnataka	7-9 <sup>th</sup> November, 2024
	Organized training programme on “Development of Horticulture – Based Entrepreneurship for Livelihood Improvement at ICAR-K.H. Patil KVK, Hulkoti Gadag, Karnataka	28-29 <sup>th</sup> November, 2024
	Organized training program on “Cashew Cultivation, Plant Protection, and Value Addition and Distribution of Cashew Grafts under SCSP Scheme at Sagara Taluk, Shivamogga, Karnataka.	29 <sup>th</sup> November - 1 <sup>st</sup> December, 2024
	Organized World Soil Day at ICAR-DCR, Puttur, Karnataka.	5 <sup>th</sup> December, 2024
	Organized a training program on 'Scientific Cashew cultivation” at Kanker District, Chhattisgarh	10 <sup>th</sup> December, 2024
	Organized training program on “Scientific Cashew Cultivation” at Jagdalpur, Chhattisgarh	12 <sup>th</sup> December, 2024
	Organised and conducted FLD on “Nutrient management in cashew” at Hulkoti, Gadag, Karnataka.	28 <sup>th</sup> to 29 <sup>th</sup> November, 2024
Dr. Mohana G S	Participated in the workshop on Geospatial Applications in Plantation Crops at CPCRI, Kasaragod jointly organized by CPCRI, Kasaragod, and Regional Remote Sensing Center– South (RRSC- S), NRSC, ISRO, Bangalore	01 <sup>st</sup> August, 2024
	Attended online the Editor's workshop -Enabling a Research Ecosystem conducted by the ICAR, New Delhi	24 <sup>th</sup> September, 2024
	Attended the webinar on Dynamic Digital Presence organized by ICAR- NAARM, Hyderabad	07 <sup>th</sup> October, 2024
Dr. Rajashekara H	Attended and delivered oral presentation in International Conference on Plant Protection in Horticulture (ICPPH-2024) was held at ICAR- IIHR, Bengaluru, Karnataka, organized by Association for Advancement of	25 <sup>th</sup> to 27 <sup>th</sup> September, 2024

Name of the Scientist	Title and Venue	Date
	Pest Management in Horticultural Ecosystems (AAPMHE) in collaboration with ICAR-Indian Institute of Horticultural Research (ICAR-IIHR)	
	One day training program was organized under RKVY Project on Improved cashew production technologies: Scientist-farmers interaction at Thippenahalli, near Sidlaghatta, Chikaballapura, Karnataka	26 <sup>th</sup> July, 2024
Dr. Vanitha K	Participated in '7 <sup>th</sup> International Conference on Advances in Agriculture Technology and Allied sciences - (ICAATAS-2024)' at the Neotia University (ICAR Accredited), West Bengal	15 <sup>th</sup> to 16 <sup>th</sup> September, 2024
	Participated in 'International Conference on plant protection in Horticulture (ICPPH – 2024): Advances and challenges' held at ICAR-Indian Institute of Horticultural Research, Bengaluru	25 <sup>th</sup> to 27 <sup>th</sup> September, 2024
	Participated in 'International Conference on Bees and other arthropods: Influence sustainable crop yield' organized by the School of Agriculture, Bharath Institute of Higher Education and Research, Selaiyur, Tambaram, Chennai, Tamilnadu	16 <sup>th</sup> October, 2024
	Workshop on Preparation of Expenditure Finance Committee/ Standing Finance Committee conducted by Institute of Secretariat Training and Management, New Delhi	24 <sup>th</sup> to 25 <sup>th</sup> June, 2024
	Online training programme on "Statistical Applications in plantation Crops" conducted by ICAR-CPCRI, Kasaragod, Kerala.	11 <sup>th</sup> to 15 <sup>th</sup> November, 2024
Dr. Veena G L	Organized an awareness programme on Entrepreneurship opportunities and value addition in cashew apple under NAIF fund of ABI in collaboration with ICAR-KVK, Kankanady, Dakshina Kannada, Karnataka	2 <sup>nd</sup> August, 2024
	Coordinated an awareness programme on Importance of soil health and distribution of Kitchen Garden kits to the farmers on occasion of World soil day during 5 <sup>th</sup> December 2024 at ICAR-DCR Puttur, Karnataka	5 <sup>th</sup> December, 2024
	Organized a training programme on Development of Horticulture based entrepreneurship for livelihood improvement and distribution of inputs to SC beneficiaries in collaboration with ICAR-K.H. Patil Krishi Vigyan Kendra Gadag, 28 <sup>th</sup> to 29 <sup>th</sup> November 2024.	28 <sup>th</sup> to 29 <sup>th</sup> November, 2024
	Organized a training programme on Cultivation, Plant Protection, and Value Addition in Cashew' and Distribution of Cashew Grafts to SC Beneficiaries in collaboration with MAHRS, KSN UAHS, Shivamogga, Karnataka	29 <sup>th</sup> November to 1 <sup>st</sup> December, 2024
	Acted as coordinator for training programme on "Promotion of Nutrition Gardening and CAP in Cashew" collaboratively with Horticulture Research and Extension Centre (HREC), Kanabargi, Belgaum and to	13 <sup>th</sup> September, 2024



Name of the Scientist	Title and Venue	Date
	provide Kitchen Garden tools to the SC beneficiaries on 13-09- 2024, under SCSP Scheme.	
	Acted as Co-coordinator for conducting a plantation drive organized in cashew progeny orchard, Gallimukha on 20 <sup>th</sup> August 2024 to create awareness about cashew production technologies among the farmers.	20 <sup>th</sup> August, 2024
	Participated and delivered and oral presentation on Cashew Sprouts Nutri bars, in 3 <sup>rd</sup> International Conference on Climate smart Nutri sensitive integrated farming system for gender equitable sustainable Agriculture: Prospects and Challengers (ICNSFS-2024) at ICAR-CIWA, Bhubaneswar, Orissa, India.	6 <sup>th</sup> to 8 <sup>th</sup> November, 2024
	Delivered an oral presentation on Conservation of Nuclear Genetic Diversity in Cashew and related wild species, presented in International Conference on 'Precision Horticulture' (ICPH- 2024), conducted at HC and RI, TNAU, Periyakulam, Tamil Nadu.	22-24 <sup>th</sup> August, 2024
	Attended 5 days online training programme on Statistical applications in Plantation crops organized by ICAR-CPCRI and ISPC.	11 <sup>th</sup> to 15 <sup>th</sup> November, 2024
	Attended training programme on grafting plants and other perennial crops held at Yashaswi Nursery, Puttur, Karnataka	17 <sup>th</sup> July, 2024
	Organised and conducted FLD on “Nutrient management in cashew” at Hulkoti, Gadag, Karnataka.	28 <sup>th</sup> to 29 <sup>th</sup> November, 2024
	Organised World Soil Day at ICAR-DCR Puttur, Karnataka.	5 <sup>th</sup> December, 2024
Dr. Raghuram Kukade (ACTO)	Attended one day training cum awareness programme on J- Gate @CeRA for Southern Region organized by Kerala Agricultural University, Thrissur	16 <sup>th</sup> October, 2024
	Attended two days State level workshop on KOHA – Library Management Software organized by Dept. of Library & Information Science, Mangalore University, Konaje.	28 <sup>th</sup> -29 <sup>th</sup> October, 2024
	Attended and presented a paper entitled "ICT infrastructure facility in agriculture libraries: A study of the ICAR institute libraries of South India" at international conference of Agricultural Librarians and User's Community- ICALUC 2024 jointly organized by University Library, Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar (Karnataka) & Association of Agricultural Librarians and Documentalists of India (AALDI).	22 <sup>nd</sup> – 23 <sup>rd</sup> November, 2024

## 4. NEWS AND EVENTS

### Kisan Diwas, 2024

Kisan Diwas-2024 was celebrated on 23<sup>rd</sup> December, 2024. The programme commenced at 10.30 am. Sh. Vishwanath, Superintendent, Social Welfare Department, Puttur, Karnataka was the chief guest for the function. He emphasized the welfare programmes for scheduled caste and scheduled tribes in his address. Dr. J. D. Adiga,



Director, ICAR-DCR, Puttur presided the function. He appraised the audience about the social status of farming communities, problems associated with achieving the goal of food security, and importance of farmers in this. He also enlightened the farmers to utilize the benefits under Tribal Sub Plan (TSP) offered by the Directorate for improving the livelihood status of farmers. Dr. Manjunatha K, Scientist (Farm Machinery and Power) and nodal officer (TSP), ICAR-DCR briefed the audience about the various activities undertaken as a part of the TSP programme. This was followed by distribution of kitchen garden tools, solar lights and tarpaulins to the ST farmers. There was also a technical session on “prospects of cashew cultivation in Dakshina Kannada” delivered by Dr. Bhagya H P, Scientist (Spices, Plantations, Medicinal and Aromatic Plants), ICAR-DCR. A total of 48 farmers attended the programme.

(Co-Ordinator's: Dr. Aswathy Chandrakumar, Dr. Manjunatha K, Dr. Jyoti Nishad, Dr. Bhagya H P)

### Swachhata Hi Seva campaign 2024

This year marked the 10<sup>th</sup> year of Swachh Bharat Mission, a nationwide campaign in India to promote hygiene and cleanliness, and eliminate open defecation. The Government of India initiated a three week special campaign to celebrate the 10<sup>th</sup> year anniversary and ICAR- Directorate of Cashew Research, Puttur organized a series of activities on the theme “Swabhav Swachhata, Sanskaar Swachhata” from 14<sup>th</sup> September to 2<sup>nd</sup> October, 2024. The activities included are webinars and workshops to sensitize the public about the importance of cashew apple, walkathons, plantation drive, cleanliness drives, health camp for sanitation workers, distribution of PPE kits to farm staff and poster drawing competitions for the students of schools located in Puttur, Karnataka.

(Co-Ordinator's: Dr. Aswathy Chandrakumar, Dr. Jyothi Nishad, Mr. Ashvini Kumar Singh, Mr. Rahul Yadav)

### Swachhata Pakhwada 2024

The Swachhata Pakhwada campaign was organized at this Directorate from 16<sup>th</sup>–31<sup>st</sup> December, 2024. The activities were planned and implemented according to the tentative activity schedule given from the council ensuring the active participation of Institute staff, school students, youths and local residents of nearby villages. Various activities were organized which includes cleanliness drives within and outside the institute, pledge taking by the Institute staff, local residents of villages and school students, short video contests and tagline competitions, awareness talks by experts and distribution of dustbins to local residents of nearby village for creating awareness on the importance of Swachhata.

(Co-Ordinator's: Dr. Aswathy Chandrakumar, Dr. Jyothi Nishad, Mr. Ashvini Kumar Singh, Mr. Rahul Yadav)



## Consultancy project on 'Scaling up of Cashew Value Chain through Area Expansion and Improving Value addition Process' for the Meghalaya.

A Memorandum of Agreement signed between the Directorate of Horticulture, Govt of Meghalaya, to engage the services and ICAR–Directorate of Cashew Research, Puttur, Karnataka to work for successful implementation of the consultancy project on '*Scaling up of Cashew Value Chain through Area Expansion and Improving Value Addition Processes*' in selected regions of Meghalaya state on 12<sup>th</sup> July, 2024 for a period of two years. An initial survey work was carried out by the expert committee during 24<sup>th</sup>– 27<sup>th</sup> June, 2024 and recommended the cultivation practices to be adopted, varieties suitable for selected regions of Meghalaya state and scope of value addition for entrepreneurial development and enhancing profitability. In the first phase of work, a total of 30,000 numbers of quality cashew grafts were arranged to supply for the beneficiaries of Garo hills in Meghalaya. Subsequently, training programs were conducted to transfer knowledge to stake holders on 'Post planting care; Cashew grafting technique; Nursery management; Plant protection technique during nursery and development stages; Value addition process in cashewnut processing etc. An exclusive training on 'Cashewnut processing and value addition' was conducted for famers, existing processors and budding entrepreneurs of Garo hills at cashewnut processing facility belongs to All Garo Hills Multi-Purpose Cooperative Society, Babadam, Tura, Meghalaya to impart technical skill in value addition processes of cashew.



Training program on Cashewnut Processing  
at Garo hills, Tura, Meghalaya



Training on Cashewnut Processing  
at Babadam, Meghalaya

## Sexual Harassment of Women at Workplace Prevention Week

During the occasion of observing the 'Sexual Harassment of Women at Workplace Prevention, Week' - 2024, a programme was organized at ICAR-DCR, Puttur on 12<sup>th</sup> December, 2024.



The programme was organized to sensitize about the Prevention of Sexual Harassment (POSH) act and its role in ensuring a safe and respectful work environment. A total of 70 participants including ICC, ICAR-Puttur, attended the programme. Dr. Babli Mog, Scientist (Plant Physiology) and member, Internal Complaints Committee (ICC) welcomed the chief guest and the participants to the meeting. Dr. K. Vanitha, Chairperson of ICC, ICAR-DCR, Puttur gave an introduction about the POSH act and the new She-Box portal recently launched by the Union Ministry. Mrs. Chandravathi, T. Advocate, Puttur and the Chief guest of the programme delivered a talk on 'Presentation of sexual harassment of women at work place' and spoke about POSH act, the role of the ICC and the Local committees (LC). She stressed that timely investigation and justice is important for the aggrieved women. Dr. J. D. Adiga in his presidential remarks highlighted the importance of providing safe environment to the employees at an institution.



## 5. TRAININGS ORGANIZED

### One-day Training on “Mechanization in Cashew cultivation and Post Harvest Technology

A training programme on “Mechanization in cashew cultivation and Post Harvest Technology” was organized in collaboration with Food Chain, a Mangalore based organization on 19<sup>th</sup> July 2024. The training was attended by 35 students of St. Joseph's Engineering College, Mangalore. The training aimed at imparting awareness about the importance of farm mechanization in pre-harvest and post-harvest technologies in Cashew. Dr.D.Balasubramanian, Principal Scientist (AS and PE) delivered a lecture on Entrepreneurial development through engineering approaches in cashew processing and Dr. Manjunatha K, scientist (FM and P) explained about Mechanization in India: Challenges and way forward” During the training, practical oriented sessions were arranged highlighting some of the research institute's initiatives.



### One-day training on training programme on “Importance of cashew apple and its value addition for nutritional security”



ICAR-Directorate of Cashew Research, Puttur in collaboration with Food chain organisation conducted a training programme for the students of Besant Women's college (Home Science), Mangalore on 6<sup>th</sup> September, 2024 at this Directorate. A total of 29 no's of students attended the training programme aimed to impart awareness on the importance of cashew apple and its value addition for nutritional security. Dr. Jyoti Nishad, Scientist (Food Technology), ICAR-DCR, Puttur delivered a lecture on the nutritional importance of the cashew apple and the process of value addition. She also discussed the FSSAI requirements for labelling and packaging and oriented the students about the Agri Business facility. During the interaction, the students were also sensitised about the career opportunities available after graduation and post-graduation in food science and home science. The students had also visited Cashew Museum and Food technology lab to acquaint with the various equipment's available for food processing.

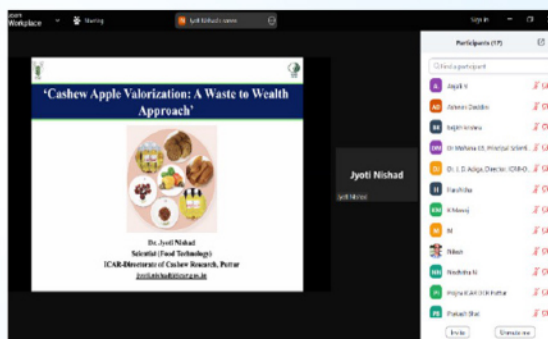
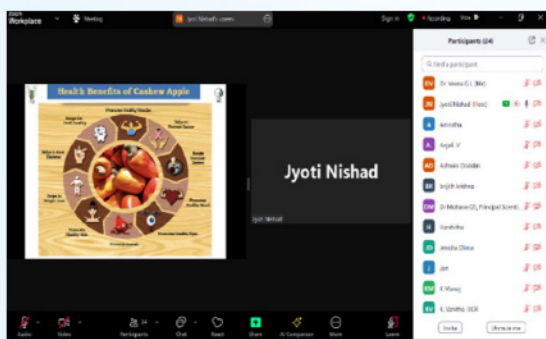


## Webinar on “Cashew Apple Valorisation: A Waste to Wealth Approach”

As a part of “Swachhata Hi Seva Campaign”, a webinar on 'Cashew Apple Valorisation: A Waste to Wealth Approach' was arranged on 16<sup>th</sup> September 2024 and this program was attended by 24 no's of participants. Dr. Jyoti Nishad, Scientist (Food Technology) delivered the talk on the importance of cashew apple and its nutritional properties and various health benefits of the fruit. She highlighted about the different approaches to use the cashew apple and briefed about the various value-added products from cashew apple.

## Awareness programme for students on cashew cultivation and enterprise development through Agri-incubation facility

An awareness programme was organised for about 45 nos. of students of Vivekananda College of Arts, Science and Commerce on 30<sup>th</sup> October 2024 at the Directorate. The programme aimed to orient the students about the activities of Agri Business Incubation (ABI) centre and create awareness on business opportunities in cashewnut processing and cashew apple value addition. Dr. D Balasubramanian and Dr. Veena G L were the resource persons. Following the lectures, the students visited the cashew museum.





## Five days ICAR- Research Institute Orientation Training Programme for students of College of Horticulture, Mudigere

The ICAR-Directorate of Cashew Research in collaboration with College of Horticulture, Mudigere organized a five days Research institute orientation training programme for ten final year students of College of Horticulture, Mudigere under Rural Horticulture Work Experience Programme (RHWE) from 11<sup>th</sup> – 15<sup>th</sup> November, 2024.



The students were given orientation about the structure and functioning of the institute which include functioning of PME, AKMU, e-office, HRD cell, ITMU. Students were also attached to the various sections of the institute wherein they were oriented to farm, national gene bank, bee park and the labs. Exposure visits were arranged to the cashewnut processing industry and CAMPCO.

## Research-Extension-Farmers interface meeting

The honorable PM Narendra Modi dedicated 109 new varieties of agriculture and horticulture crops from Indian Agricultural Research Institute, New Delhi. The hon'ble PM dedicated two cashew hybrid varieties, Nethra Jumbo-1 and Nethra Ganga developed by ICAR-Directorate of Cashew Research, Puttur. Nethra Jumbo-1 and Nethra Ganga are jumbo nut varieties and the nuts weigh 12g – 13g. On this occasion, ICAR-Directorate of Cashew Research, Puttur organized a scientist-farmer interaction to create awareness about the newly released varieties. The programme commenced with the introductory remarks by Dr. J Dinakara Adiga where he emphasized that it is a proud moment for the institute and congratulated the scientists for their efforts. This was followed by a brief presentation on the newly released varieties. Dr. Eradasappa E, Senior Scientist Genetics and plant breeding, lead developer of Nethra Ubhaya, which is a dual-purpose variety presented about the characteristics of the variety. This was followed by presentation on Nethra Jumbo-1 by the lead developer Dr. J Dinakara Adiga, Director, ICAR-DCR, Puttur and on Nethra Ganga by Associate developer, Dr. Mohana G S, Principal Scientist (Genetics and Cytogenetics).

Dr. N Yadukumar, Retired Principal Scientist of the Directorate shared his experience about the production and sale of the cashew grafts of the newly released varieties Nethra Jumbo-1 and gave positive feedback about the demand. Shri Kadamajalu Subash Rai, progressive farmer, who is associated with ICAR-Directorate of Cashew, Puttur explained his experience with cashew cultivation and the prospects of growing the crop. A total of 37 participants attended the programme.





## Training program organized under RKVY Project on Improved cashew production technologies: Scientist-farmers interaction

A training program was conducted on 26<sup>th</sup> July 2024 for farmers on 'Improved Cashew Production technologies: Scientist-Farmers interaction at Thippenahalli Village near Shidlaghatta in collaboration with College of Horticulture, Bengaluru and ICAR-KVK, Chintamani, Chikaballapura. Dr. G. S. K. Swamy, Dean, College of Horticulture, Bengaluru was the Chief Guest for the program and he highlighted the importance of growing cashew crop and stressed on cashew apple utilization for getting additional benefit. Dr. Papireddy, Senior Scientist & Head KVK, Chintamani was the Guest of Honor for the program and he highlighted on adoption of improved varieties suitable to the region and proper drying and storage of cashew raw nuts for getting higher prices for the produce.



Immediately after the program, the training lectures were delivered on Improved varieties and suitability with production practices by Dr. Eradasappa E. Sr. Scientist (Pl. Breeding) followed by Dr. T. N. Raviprasad Prin. Sci. (Agri. Ento.) delivered lecture on important pests of cashew: identification and their management. Dr. Rajashekara H. Sr. Sci (Pl. Pathology) delivered lecture on different disease of cashew and their management. Dr. Itigi Prabhakar Asst. Prof. (Agri. Ext.) briefed about the importance of FPO for the benefit of cashew farmers. The major two problems expressed by the farmers during the ensuing discussions included less flowering and fruit set which observed after 10 years of crop establishment and getting less price for raw cashewnuts. Dr. Tanveer Ahmed, Scientist (Agri. Ext.), ICAR-KVK, Chintamani coordinated the training program. A total of 87 farmers from Thippenahalli and nearby villages attended the training: Display panels and samples regarding various improved production technologies developed and recommended by the Directorate were also exhibited for the benefit of farmers which led to good interaction with the scientists.

## 6. SCSP/TSP/NEH ACTIVITIES

### Training program on cashew production technology and promotion of nutrition garden cum input distribution at Vellarikundu, Kerala



Dr. Aswathy Chandrakumar elaborated on the institute's outreach programs. Farmers discussed ways to enhance cashew productivity and were advised to use high-yielding grafts and scientific methods. The session concluded with the distribution of hybrid vegetable seed kits and garden tools to 100 farmers from seven panchayats. [Coordinators: Dr. Manjesh GN and Dr. Aswathy C]



The ICAR-Directorate of Cashew Research, Puttur, in collaboration with the Chully Farmers Club and line departments, organized a cashew production training program for SC farmers in Vellarikundu on 13<sup>th</sup> August 2024. Inaugurated by Shri Shoby and Shri Arun T T, the event saw participation from officials who wished for its success. Dr. Manjesh G N highlighted the SCSP scheme and spoke on scientific vegetable and fruit cultivation for nutritional security, along with a demonstration of garden tools.

### **Training on Cashew production technologies and distribution of Cashew grafts at Galimukha, Kerala as a part of the plantation drive campaign**

The ICAR-Directorate of Cashew Research, Puttur, in collaboration with the Cashew Progeny Orchard, Galimukha, organized a training and distribution program for SC farmers on 20<sup>th</sup> August 2024, focusing on cashew planting and aftercare. Shri Sooraj N, Agriculture Officer, highlighted future collaboration opportunities with ICAR-Directorate of Cashew Research, Puttur. Dr. Manjesh G N explained the SCSP scheme and the “Ek Ped Maa Ke Naam” plantation drive. Dr. Rajashekara H emphasized cashew value addition, while Dr. Aswathy Chandrakumar discussed the Directorate's services and collaboration prospects. Dr. Manjesh G N demonstrated proper cashew graft planting techniques, and Dr. Rajashekara provided insights on pest and disease management. The event concluded with hands-on training for 25 farmers and farm staff



### **Training Programme on “Nutrition Gardening and Distribution of Vegetable Seed Kits to SC beneficiaries of Andasura, Sagara Taluk, Shivamogga**

As a part of the Scheduled Caste Sub Plan (SCSP) scheme of this Directorate, a day training programme on "Nutrition Gardening" was organized followed by the distribution of vegetable seed kits to SC beneficiaries at Andasura village of Sagara Taluk on 10<sup>th</sup> October 2024.

In this programme, Mr. Shivaraj Basur, Assistant Horticulture Officer Sagara briefed about the Horticultural schemes for the benefit of farmers from the Government of Karnataka. Dr. Manjesh G. N. Scientist & Nodal Officer SCSP briefed about the implementation of SCSP activities and overview of Directorate and emphasis on promotion of nutrition garden. As a part of the training programme, Seed kits were distributed to the participants to promote Kitchen gardening. A total of 40 participants attended this programme.





## Training Programme on “Good Agricultural Practices in Cashew Cultivation” and Providing inputs under the SCSP scheme at Kanabargi, Belgaum

As a part of the SCSP scheme, a training program on "GAP in Cashew" and Agri-inputs for the Scheduled Caste community was held on 13<sup>th</sup> September 2024 in collaboration with UHS-HR&EC, Kanabargi, Belgaum. The event was chaired by Dr. J. Dinakara Adiga, Director of ICAR-DCR, Puttur, with Dr. Maheswarappa H. P. (Director of Research, UHS, Bagalkot) as the chief guest. Dr. Manjesh G N briefed participants on the SCSP scheme and conducted the training. Dr. Maheswarappa highlighted ICAR-DCR's research and collaborations, while Dr.J.D.Adiga emphasized proper input utilization and cashew cultivation's importance. Dr. Anasubai, Head, HR&EC, Kanabargi, delivered a lecture on intercropping in cashew. The program concluded with the distribution of vegetable seed kits and garden tools to 35 beneficiaries.



## Training programme on "Entrepreneurship Opportunities for Rural Youth in the Horticulture sector" under SCSP Programme at ICAR- KH Patil KVK, Gadag, Karnataka

As a part of the SCSP program, ICAR-DCR, Puttur, in collaboration with ICAR-K.H. Patil KVK, Hultoti, Gadag, organized a three-day training on "Entrepreneurship Opportunities for Rural Youth in the Horticulture Sector" from 7<sup>th</sup> to 9<sup>th</sup> November 2024. Mrs. Hemavati H. welcomed the participants, followed by Dr. Manjesh G. N., who discussed the SCSP program and entrepreneurship opportunities in horticulture, including commercial nurseries and value addition in fruits, vegetables, and non-food products. Dr. Veena G. L. highlighted the nutritional value of cashew apple and value addition technologies. Dr. L.G. Hiregoudar emphasized the role of horticulture in India, particularly in Karnataka, and shared inspiring success stories. The program, attended by 25 participants from Gadag, concluded with the release of a training manual, *"Grameena Yuvakarige Totagarikayalli Udyamasheelathe Avakashagalu,"* for their benefit.



## Development of Horticulture-Based Entrepreneurship for Livelihood Improvement and Distribution of Inputs at Gadag, Karnataka





A two-day training program on “Development of Horticulture-Based Entrepreneurship for Livelihood Improvement” and input distribution under the SCSP scheme was held from 28<sup>th</sup> to 29<sup>th</sup> November 2024 in collaboration with ICAR-K.H. Patil KVK, Hulkoti, Gadag.



Dr. J.D. Adiga, Director, ICAR-DCR, Puttur, highlighted horticulture-based entrepreneurship opportunities, particularly in the cashew sector. Mr. Suresh Kumbar discussed horticulture's importance in Gadag and government schemes for entrepreneurs. Dr. Manjesh G.N. provided insights into SCSP implementation, the horticulture sector's role in agriculture GDP, and ICAR-DCR technologies. Dr. Sudha V. Mankani emphasized the need for cashew-based entrepreneurship. The event concluded with input distribution, including 100 no's of tarpaulins, 25 no's of vegetable seed kits, and 80 no's of battery sprayers to SC beneficiaries. The program was moderated by Mrs. Hemavathi H., SMS, Horticulture, ICAR-KVK, Hulkoti, Gadag, Karnataka.

### **Training program on “Cashew Cultivation, Plant Protection, and Value Addition and Distribution of Cashew Grafts at Sagara, Shivamogga, Karnataka**

A three-day training program on “Cultivation, Plant Protection, and Value Addition in Cashew” and cashew graft distribution for SC beneficiaries of Sagara Taluk, Shivamogga, was held from 29<sup>th</sup> November to 1<sup>st</sup> December 2024 in collaboration with MAHRS, K.S. UAHS, Iruvakk, Shivamogga. Dr. Sadashiva Nadukeri introduced the program, followed by Dr. J.D. Adiga, Director, ICAR-DCR, Puttur, who emphasized cashew expansion opportunities in Shivamogga and its global significance. Dr. Manjesh G.N. discussed SCSP implementation and available cashew technologies. Hon'ble Vice Chancellor Dr. R.C. Jagadeesha highlighted cashew production, RCN industry requirements, and value addition. The event concluded with cashew graft distribution to 30 no's of SC beneficiaries and a vote of thanks by Dr. Siddappa K. The program was moderated by Dr. Sadashiva Nadukeri.





## Celebration of World soil day 2024 cum Seed kit distribution at Puttur

ICAR-Directorate of Cashew Research, Puttur, celebrated World Soil Day 2024 with the theme “Caring for Soils: Measure, Monitor, Manage” on 5<sup>th</sup> December. An awareness program on soil health was conducted for 42 farmers, including 24 men and 18 women. Dr. J. Dinakara Adiga, Director, ICAR-DCR, emphasized the significance of soil conservation. Dr. Veena G.L., Scientist and Nodal Officer, discussed soil testing and sampling techniques, highlighting ICAR-DCR's testing facilities. Dr. Thondaiman V., Sr. Scientist, spoke on kitchen gardening and balanced nutrition, while Ms. Prajna (YP-I) explained compost preparation using kitchen waste. The event concluded with the distribution of soil health cards and vegetable seed kits to promote soil testing and kitchen gardening among farmers.



## Training program on “Scientific Cashew Cultivation,” and Agri- Inputs distribution Kanker District, Chhattisgarh

A training program on “Scientific Cashew Cultivation and Distribution of Agri-Inputs” for SC beneficiaries of Kanker District, Chhattisgarh, was held on 10<sup>th</sup> December 2024 in collaboration with S.G. CARS, Jagdalpur. Dr. Birbal Sahu welcomed participants and highlighted Kanker's agricultural activities, while Dr. Vikas Ramteke discussed SCSP implementation and beneficiary selection. Dr. Manjesh G.N. delivered a lecture on cashew cultivation in nontraditional areas, followed by Dr. M.C. Mandawi's session on pest management and Dr. Devchand Salam's talk on cashew diseases. Dr. J.D. Adiga, Director, ICAR-DCR, Puttur, emphasized cashew expansion opportunities in Chhattisgarh and its national and international relevance, along with entrepreneurship prospects. The program concluded with the distribution of cashew grafts and agri-inputs to SC beneficiaries, with Dr. Devchand Salam moderating the event.



## Field Day cum Training program on “Scientific Cashew Cultivation, and Agri-Inputs distribution at Bastar District, Chhattisgarh

The “Cashew Field Day” and training program on “Scientific Cashew Cultivation and Distribution of Agri-Inputs” for SC beneficiaries of Rajnagar, Bastar District, Chhattisgarh, was held on 12<sup>th</sup> December 2024 in collaboration with S.G. CARS, Jagdalpur. The field day included practical demonstrations on cashew pruning, insecticide



application, rejuvenation techniques, and softwood grafting. The training session featured lectures by experts, including Dr. Bhujendra Kumar, who introduced Bastar's agricultural activities, and Dr. Vikas Ramteke, who discussed SCSP implementation and cashew cultivation prospects. Dr. Manjesh G.N. spoke on scientific cashew cultivation, while Dr. Bhojendra and Dr. Devchand Salam addressed pest and disease management. The event concluded with the distribution of cashew grafts and agri-inputs to SC beneficiaries in the presence of the Panchayat President. Dr. Bhujendra Kumar moderated the program.



### Training programme on “Scientific Cashew Cultivation” and quality planting material distribution at Babadam, West Garo Hills, Meghalaya under the TSP scheme

ICAR-Directorate of Cashew Research, Puttur, in collaboration with All Garo Hills Multipurpose Cooperative Society Ltd., Meghalaya, organized a training program on “Scientific Cashew Cultivation” under the TSP scheme to promote cashew cultivation in the NEH region. Conducted on 31<sup>st</sup> July and 1<sup>st</sup> August 2024, the program covered crop management, protection, varietal selection, mechanization, post-harvest processing, and value addition.



A total of 162 tribal farmers from 18 villages across West Garo Hills and South West Garo Hills attended. Scientists from ICAR-DCR, Puttur, led the sessions, coordinated locally by Mr. Joash Varghese. During the program, 9,000 no's of high-yielding Bhaskara cashew grafts were distributed to establish 62 ha of new orchards. Additionally, three Front Line Demonstrations (FLDs) introduced Nethra Jumbo-1, Nethra Ganga, and Nethra Ubhaya varieties in Urenggre village. Scientists also assessed existing orchards and found them to be of seedling origin, senile, and poorly managed, leading to low yields. Recommendations for orchard rejuvenation, pest control, and scientific management were provided to enhance productivity.

### Farmer-Scientist Interface Programme under TSP Scheme at KVK Lakshadweep





ICAR-DCR, Puttur, in collaboration with KVK Lakshadweep, organized a Farmer- Scientist Interface Programme for Scheduled Tribe (ST) farmers under the Tribal Sub-Plan (TSP) scheme during COCO FEST 2024 on 21<sup>st</sup> November 2024 at KVK Lakshadweep. The programme aimed to facilitate direct interaction between scientists and farmers, providing insights into advanced agricultural practices, pest and disease management, and value addition in cashew crop. Experts addressed farmers' queries and shared knowledge on improving productivity and income through scientific interventions. The event emphasized sustainable farming techniques, promoting self-reliance and better livelihood opportunities for tribal farmers. The initiative strengthened knowledge exchange and encouraged the adoption of modern agricultural practices among the participants.

### Inputs Distribution Programmes Organized by ICAR-DCR, Puttur under the TSP Scheme

ICAR-Directorate of Cashew Research (DCR), Puttur, organized an Inputs Distribution Programme under the Tribal Sub-Plan (TSP) scheme to support tribal farmers. Essential agricultural inputs, including high-yielding cashew varieties and kitchen garden tools were distributed to enhance productivity and livelihood opportunities. The initiative aimed to promote sustainable farming practices and improve socio-economic conditions among tribal communities.

### Distribution of Cashew Grafts to ST Farmers of Lakshadweep under TSP Scheme

ICAR-DCR, Puttur, distributed 1,000 no's of high-yielding cashew grafts to Scheduled Tribe (ST) farmers of Lakshadweep Islands on 28<sup>th</sup> August 2024 under the Tribal Sub-Plan (TSP) scheme to promote cashew cultivation and enhance farmers' livelihoods.



The distribution included Bhaskara (500), Ullal-3 (100), Nethra Jumbo-1 (50), Nethra Ganga (50), VRI-3 (200), and Nethra Ubhaya (100) varieties, known for their superior yield and quality. This initiative aims to improve cashew production in the region, ensure better income for farmers, and promote sustainable farming practices. By introducing improved varieties, the programme supports long-term agricultural development, enhancing productivity and economic stability for tribal communities in Lakshadweep.

### Distribution of Cashew Grafts to ST Farmers of Meghalaya under TSP Scheme

ICAR-DCR, Puttur, in collaboration with All Garo Hills Multipurpose Cooperative Society Ltd. (AGHMPCS), Meghalaya, distributed 14,610 high-yielding cashew grafts to Scheduled Tribe (ST) farmers of Meghalaya on 7<sup>th</sup> October 2024 under the Tribal Sub-Plan (TSP) scheme. The distribution included Vengurla-7 (8,000 grafts) and Vengurla-4 (6,610 grafts), both known for their high productivity and adaptability to local conditions.





This initiative aims to expand cashew cultivation in Meghalaya, enhance farmers' income, and promote sustainable agricultural practices. By introducing superior varieties, the programme supports long-term economic growth, ensuring better livelihood opportunities for tribal communities in the region.

### Distribution kitchen garden tools

About 38 sets of kitchen garden tools were distributed to TSP beneficiaries on 23<sup>rd</sup> December 2024 under the Tribal Sub-Plan (TSP) scheme operated by ICAR-DCR, Puttur, to promote household-level vegetable cultivation. These tools will help farmers efficiently manage their kitchen gardens, ensuring better soil preparation, planting, and maintenance. The initiative aims to encourage self-sufficiency in vegetable production, improve nutritional security, and enhance livelihoods. By adopting better gardening practices, beneficiaries can grow fresh, chemical-free vegetables, contributing to food sustainability and economic well-being.



## 7. MEETINGS CONDUCTED (IMC/IJSC/RAC/IRC/HINDI)

### Technology/Industry Meet

A technology meeting was held with the Paithal Hill Farmer Producer Organization (FPO) from Kannur, Kerala, on 19<sup>th</sup> July, 2024 at Institute Technology Management Unit (ITMU), ICAR-DCR in Puttur, Karnataka. Mr. Thomas, Chairman and five members of FPO visited ITMU of this Institute. There was an extensive discussion on the technologies developed at ICAR-DCR, for commercialization with a particular focus on the cashew varieties and hybrids and value-added products.

On 13<sup>th</sup> of September 2024, a Panel discussion on IPRs in Horticulture Sciences was held at ICAR-DCR, Puttur, Karnataka, to sensitize. The research activities and to create an in-house IP provision in our institutes. Zonal Technology Management Unit (ZTMUs) of ICAR-IIHR, Bengaluru coordinated with all institutes/participants as well as IP experts in collaboration with IP&TM Unit, New Delhi.



Technology meeting held with the Paithal Hill Farmer Producer Organization (FPO) Kannur, Kerala



### Industry Meet 2024

On 24<sup>th</sup> of October 2024, ITMU and ABIC of ICAR-DCR, Puttur, Karnataka arranged the stall for 2nd Industry meet 2024 at ICAR-IIHR (Indian Institute of Horticultural Research), Hesaragatta, Bengaluru and participated in the meet. Technologies of ICAR-DCR and activities of ITMU were presented in the II<sup>nd</sup> session of the Industry Meet.



Stall arranged at Industry meet-2024, ICAR-IIHR, Bengaluru.



## हिन्दी गतिविधियां

इस छ: माही में दो तिमाही बैठक एवं हिन्दी कार्यशालाओं का आयोजन किया गया. निदेशालय के हिन्दी समिती के सदस्यों के लिए आयोजित तिमाही बैठक में निदेशालय में हो रही हिन्दी गतिविधियों के बारे में, केंद्र से आये पत्तों के बारे में चर्चा किया गया. राज भाषा कार्यान्वयन को बढ़ावा देने के लिये जरूरी कदम उठाने के बारे में निर्णय लिया गया. हिन्दी समिती में नये सदस्यों को शामिल किया गया. दिनांक 26.07.24 को पुत्तूर नगर राजभाषा कार्यान्वयन समिति की सदस्यों के लिये और निदेशालय के सदस्यों के लिए हिन्दी कार्यशाला आयोजन किया गया. कार्यशाला में श्री प्रकाश जी भट्ट, सदस्य सचिव, पुत्तूर टोलिक, सहभागियों को मार्गदर्शन किया. उसी दिन दोपहर में पुत्तूर टोलिक का अर्ध वार्षिक बैठक आयोजन हुआ था. बैठक में सभी सदस्य कार्यालयों के प्रमुख उपस्थित थे. बैठक में कार्यालयों में हिन्दी की प्रगामी प्रयोग के बारे में चर्चा किया गया. सितंबर 14 से 28 तक हिन्दी पखवाडा मनाया गया. इस अवसर पर आयोजित हिन्दी प्रतियोगिता और अन्य कार्यक्रमों में सभी सदस्य कार्यालयों के सदस्य एवं इस निदेशालय के कर्मचारी बडे उत्साह से भाग लिए. विद्यार्थियों के लिए इस अवसर पर हिन्दी निबंध लेखन प्रतियोगिता आयोजन किय गया था. अनेक कर्मचारी विविध हिन्दी परीक्षा में उत्तीर्ण हुए हैं. निदेशालय के कर्मचारी जो हिन्दी में कार्यालयीन कार्य करते हैं उन्हें नकद पुरस्कार से सम्मानित किया गया.

## 8. TRANSFER OF TECHNOLOGY

### Advisory visits / Consultancies / Lecture delivered / Exhibitions

Name of the Scientist	Title and Venue	Date
Aswathy Chandrakumar	Delivered a lecture on “Research Paradigm of Farmer Organization” during the online training programme on "Farming Futures: Nurturing Extension Professionals for Empowering Farmer Organization" organized by KAU-CTI in collaboration with MANAGE, Hyderabad.	26 <sup>th</sup> July, 2024
	Delivered a lecture on “Brief overview of the institute” during the 5 days ICAR- Research Institute Orientation Training Programme organized for the students of College of Horticulture, Mudigere, Karnataka	11 <sup>th</sup> November, 2024
	Delivered a lecture on extension activities of the institute during the 5 days ICAR- Research Institute Orientation Training Programme organized for the students of College of Horticulture, Mudigere, Karnataka	12 <sup>th</sup> November, 2024
Manjunatha K	Delivered a lecture on Mechanization in India: Challenges and way forward in one day training programme on Mechanization in Cashew Cultivation and Post-Harvest Technology for the Civil Engineering students of St. Josph's Engineering College. Mangalore, Karnataka.	19 <sup>th</sup> July, 2024
	Delivered a talk on Cashew as a candidate species for Avenue Plantation in Lakshadweep Islands in the farmer's scientist interface held from 20-22 November, 2024 at Coco Fest-2024 organized by KVK-Lakshadweep.	21 <sup>st</sup> November, 2024
Balasubramanian D.	Provided consultancy as member of Expert Committee for Cashew Unit Assessment of Forestry Cashew plantations under TAF CORN, Tamil Nadu.	15 <sup>th</sup> to 16 <sup>th</sup> August, 2024
	Entrepreneurial Development Through Engineering Approaches in Cashew Processing. In. 1-day training program on 'Mechanization in Cashew Cultivation and Post-harvest Technology for scholars of St. Joseph Engineering College, Mangalore, Karnataka at ICAR-Directorate of Cashew Research, Karnataka	19 <sup>th</sup> July, 2024

Name of the Scientist	Title and Venue	Date
	Presented technologies developed in post-harvest technology of cashew during working group on Post-Harvest Engineering and Technology for Horticulture” held in New Delhi	31 <sup>st</sup> July, 2024
	Lecture delivered on 'Business opportunities in cashew eco system'. to the scholars of B. Tech and MBA, Vivekananda College, Puttur, Karnataka at ICAR-Directorate of Cashew Research, Puttur, D.K., Karnataka.	30 <sup>th</sup> October, 2024
	Lecture delivered on Raw cashewnut Processing Technology and its value addition" during the National Level Training (NLT) program on 'Cashew and Cocoa for North East States' held at Assam Agriculture University, (AAU). Horticulture Research Station, Kahikuchi, Guwahati, Assam.	10 <sup>th</sup> to 12 <sup>th</sup> December 2024
	Lecture delivered on Processing and Value addition of Cashew". In. One District One Product (ODOP) Webinar on 'Cashew Processing and Value Addition' conducted by National Institute of Food Technology, Entrepreneurship and Management, Thanjavur, Tamil Nadu	18 <sup>th</sup> December, 2024
	Lecture delivered on Processing and Value addition of Cashew, In one day entrepreneurship awareness programme on cluster development for cashewnut processing units at District Industry Centre, DIC, Dhenkanal. Odisha	21 <sup>st</sup> December, 2024
Bhagya H. P.	Provided consultancy service to government of Meghalaya for ' Scaling up of Cashew supply chain in Meghalaya through area expansion and improving value addition processes' by post care planting and nursery management training to the farmers and officials of Meghalaya.	14 <sup>th</sup> to 18 <sup>th</sup> October, 2024
	Delivered a talk on “Prospects of cashew cultivation in Dakshina Kannada” at ICAR- DCR, Puttur as a part of Kisan Diwas to the TSP farmers	23 <sup>rd</sup> December, 2024
Mohana G.S.	Participated as a resource person in Krishimela at KSNUAHS, Shimoga delivered a talk on Cashew cultivation and other opportunities	20 <sup>th</sup> October, 2024
Veena G. L.	Delivered a lecture on Orientation about the e- office for the students under 'Student ready 5- days training programme' at ICAR-DCR Puttur.	21 <sup>st</sup> June, 2024
Eradasappa E.	Delivered technical talk on "Overview on Cashew Varieties in India" during One District One Product (ODOP) Webinar on 'Cashew Processing and Value Addition' under Prime Minister-Formulation of Micro Food Processing Enterprises (PMFME) Scheme, Gol. Min. of MoFPI, New Delhi organized by NIFTEM Thanjavur, Tamil Nadu	18 <sup>th</sup> December, 2024
	Delivered lecture on 'improved cashew varieties' in the one-day training program on improved Cashew Production Technologies: Scientists-Farmers Interactions' in the approved RKVY project on 'Establishment of farmer- centric pest diagnostic and bio-control laboratory to achieve sustainable cashew health management at ICAR-KVK. Chintamani. Chikkaballapura district.	26 <sup>th</sup> July, 2024



Name of the Scientist	Title and Venue	Date
Jyoti Nishad	Lecture delivered on “Importance of Cashew Apple and its Value Addition” in one day training programme on “Importance of cashew apple for nutritional security and scope of value addition” for the students of Besant Women's college (Home Science), Mangalore	6 <sup>th</sup> September, 2024
	Delivered online lecture on “Cashew Apple Valorisation: A Waste to Wealth Approach” as a part of “Swachhata Hi Seva Campaign” to institute staff and other institute participants.	16 <sup>th</sup> September, 2024
K. Vanitha	Delivered a lecture on 'Bees are vital for sustained food supply and biodiversity conservation' in the 'International Conference on Bees and other arthropods: Influence sustainable crop yield' organized by the School of Agriculture, Bharath Institute of Higher Education and Research, Selaiyur, Tambaram, Chennai, Tamil Nadu.	16 <sup>th</sup> October, 2024
	Delivered a lecture on the topic of "Pest and Disease Management in Cashew crop" to the trainees of MANAGE sponsored Programme "Diploma in Agriculture Extension Services for Input Dealers (DAESI) Batch-VI" organized by ICARKVK (DK), Kankanady, Mangalore	13 <sup>th</sup> September, 2024
	Delivered an online lecture on 'Insect pests of cashew and their management' to the M.Sc., graduates of ICAR-CICR Education Hub.	15 <sup>th</sup> July, 2024
Manjesh G N	Delivered a lecture on “Nursery Management in DAESI program- Batch -VI held at ICAR-KVK, Mangaluru, Karnataka.	02 <sup>nd</sup> August, 2024
	Delivered a talk on “Cultivation of Cashew in training program held at Vellarikundu, Kerala.	13 <sup>th</sup> August, 2024
	Delivered a lecture on “Cashew Planting, aftercare, and Cultivation aspects” in a training program held at Cashew Progeny Orchard, Gallimukha, Kerala.	20 <sup>th</sup> August, 2024
	Lecture on GAP in “Cashew” in a training program held at Kanabargi, Belgaum, Karnataka	13 <sup>th</sup> August, 2024
	Delivered a talk on “Entrepreneurship opportunities in Cashew” in a two-day training program held at ICAR-KH Patil KVK, Gadag.	28-29 <sup>th</sup> August, 2024
	Lecture on “Cashew cultivation” and “Canopy Management in Cashew” in a training program held at MAHRS, K.S. UAHS, Iruwakki.	29 <sup>th</sup> August, 2024
	Expert talk on “Cashew HDP and Rejuvenation Techniques” in a training program held at Kanker Dist., Chhattisgarh	10 <sup>th</sup> August, 2024
	Delivered a lecture on “Nursery Management in DAESI program- Batch -VI held at ICAR-KVK, Mangaluru, Karnataka.	02 <sup>nd</sup> August, 2024

Name of the Scientist	Title and Venue	Date
Rajashekara H.	Delivered a lecture on Cashew Diseases Management. in the Plantation drive organized in Cashew Progeny orchard, Galimukha to create awareness about cashew production technologies among the farmers in collaboration with them under SCSP scheme of this Directorate.	20 <sup>th</sup> August, 2024

### 9. RADIO/TV TALKS/OTHERS

Name of the Scientist	Title and Venue	Date
Veena G. L.	“Entrepreneurship opportunities in Cashew Value addition” in Community Radio Station, Sahakar Radio, Gadag, Karnataka.	8 <sup>th</sup> November, 2024
Eradasappa E.	‘Improved Cashew Cultivation Practices" and “Recently Released Cashew Varieties of ICAR-DCR, Puttur" at Community Radio Station, Sahakar Radio, Gadag, Karnataka.	12 <sup>th</sup> September, 2024

### 10. COPYRIGHTS/ PATENT/ TRADEMARK/ DESIGN REGISTRATION

Following Copyrights/ Patent/ Design Registration we filed with concerned Offices under Patent Law.

A total of 3 patents were filed from ICAR-DCR, Puttur with Patent Office, Govt. of India viz.,

- i) Multi Blade Rotary System [TEMP/E 1/59124/2024-CHE] filed on 03.07.2024.
- ii) Portable Pedal Operated System [TEMP/E1/101739/2024CHE] filed on 13.11.2024.
- iii) Portable Semiautomatic Cashew Apple And Nut Separation System And Method Thereof [TEMP/E1/101759/2024CHE] filed on 13.11.2024.

A total of 4 copyrights were granted by Copyrights office, Govt. of India to ICAR-DCR, They are,

- i) Training and pruning in cashew (English) [CF-5741/2024] granted on 20.08.2024.
- ii) High density and ultra-high-density planting in cashew (English) [CF-5742/2024] granted on 20.08.2024.
- iii) ITMU ICAR-DCR website [SW-19568/2024] granted on 15.10.2024.
- iv) Technology Inventory: DCR 024/3, ICAR-DCR technologies for commercialization [L-155725/2024] granted on 23.10.2024.

A total of 6 copyrights including three computer applications, one literature were filed with Copyrights office, Govt. of India viz.,

- i) Technology Inventory: DCR 2024/3, ICAR-DCR technologies for commercialization [27072/2024-CO/L] on 27.08.2024.
- iii) Cashew Farmers Tracking System (CFTS) [34341/2024-CO/SW] on 04.11.2024.



iv) AICRP-cashew website [34340/2024-CO/SW] on 04.11.2024.

v) Beneficial Arthropods in Cashew Plantation website [40725/2024-CO/SW] on 23.12.2024.

vi) Cashew Pest database System [40729/2024-CO/SW] on 23.12.2024.

A trademark entitled “NETHRA” was issued by Trademark Registry, Govt. of India in class 99 under trademark no. 5366651 on 27.07.2024.

A total of two designs were filled for Design registration from ICAR-DCR

i) Cashew Apple And Nut Separator With Twisting Mechanism [437177-001] On 13.11.2024.

ii) Shear Type Cashew Apple And Nut Separator [437178-001] on 13.11.2024

## 11. FRONTLINE DEMONSTRATION

### Front Line Demonstration of newly developed cashew varieties of ICAR-DCR, Puttur

A total 84 no's of Front Line Demonstrations of four varieties viz., Nethra Ganga, Nethra Jumbo- 1, Nethra Ubhaya, Bhaskara were established in 84 no's of farmers field (84 acres) under the external project funded by DCCD Kochi. Each farmer were given financial assistance of Rs.8000 through direct benefit transfer (DBT) mode and were taken up in three states viz. Karnataka (Dakshina Kannada, Chitradurga, Bengaluru Rural, Ramanagara, Shivamogga, Kodagu), Kerala (Kasaragod, Kannur, Thrissur) and Andhra Pradesh (Parvathipuram Manyam). Project investigators Eradasappa, E., Aswathy Chandrakumar and Bhagya, H.P. visited the FLD fields of farmers during 27<sup>th</sup> November and 11<sup>th</sup> December 2024 to verify the planting and advised farmers regarding management of cashew plantation.

(Eradasappa, E., Mohana, G.S., Aswathy Chandrakumar, Bhagya, H.P., Adiga, J.D.)

### Drone technology demonstrations





Four drone technology demonstrations were conducted for spraying agricultural chemicals, micronutrients, and organic pesticides in farmers' fields, covering 4.0 acres and benefiting 48 no's of farmers. These demonstrations were carried out under the “Drone Technology Demonstration” scheme, funded by the Central Sector Scheme of the Department of Agriculture & Farmers Welfare and implemented through ATARI (Sub Mission on Agricultural Mechanization). The initiative aimed to raise awareness among farmers, extension workers, and other stakeholders about the applications of drone technology in Agriculture.

(Dr. Manjunatha K)







### Frontline Demonstration of newly released varieties of ICAR-DCR, Puttur



A frontline demonstration plot showcasing the newly released varieties of cashew were established on one acre in the Cashew Progeny Orchard in Galimukha, Kasaragod. The newly released varieties of Nethra Jumbo-1, Nethra Ganga, Nethra Ubhaya along with check variety Bhaskara were planted to showcase the performance of the varieties to farmers. (Dr. Aswathy Chandrakumar, Dr. Manjesh G N, Dr. Rajashekara H.)

## 12. AWARDS AND RECOGNITION

Name of the Scientist	Title	Photo
Dr. Balasubramanian D	Technology Certificate issued by ICAR, New Delhi for Textural properties of coconuts for designing and developing processing machineries. Pandiselvam R, M R Manikandan, D Balasubramanian, Shameena Begum and S V Ramesh 16 <sup>th</sup> July 2024.	
Dr. Babli Mog	Received 'Women Young Scientist Award' conferred by Society of Plant Research, VEGETOS, Springer during National Conference on 'Good Agricultural Practices of Selected Medicinal Plants and SPR-Mini Symposium on 'Biotechnological and Genomic tools to combat climate change' organized by Aligarh Muslim University, Aligarh, UP, India during 16 <sup>th</sup> -18 <sup>th</sup> November 2024	
	Received 'Young Women Scientist Award' conferred during International Conference on 'Current Innovations and Technological Advances in Agriculture and Allied Sciences jointly organized by Guru Kashi University, Talwandi Sabo (ICAR accredited) and Just Agriculture Education Group and ISASTR, Noida during 29- 31 August, 2024	
	Life Member of Indian Society of Agriculture Science and Technology Research (ISASTR), Noida, India (Enrolled on date 29 August, 2024 and membership No: L/2038	
	Received 'Best Research Scientist of the Year-2024' during International Conference on Agritech Intelligence and Beyond: Cutting Edge Innovations in Agriculture and Allied Sciences organized by SKUAST-Kashmir, Vital BiotechKota and Agriculture Forum for Technical Education of Farming Society, 15-17 <sup>th</sup> October, 2024	
Dr. Bhagya H P	Recognized as PG faculty member in Horticulture discipline for IARI-IIHR Hub on 23.01.2024	
	Coordinated with ICAR-NBSS&I.U.P. Nagpur for the preparation of commodity ATLAS for collaboration	
Dr. Eradasappa E	Acted as external expert for the selection of Project fellow on contract basis under the project "Seed production in coconut, arecanut, cocoa (Under ICAR project on seed production in agricultural crops)" held on 25 <sup>th</sup> October 2024 at ICAR-CPCRI-RS Vittal.  Acting as Expert Committee Member, BIS-FAD10 Panel-IV (12.03.2024 to till date) and working on underutilized fruits and vegetables standards (for cashew)	



Name of the Scientist	Title	Photo
Dr. Jyoti Nishad	Received 'Women Scientist Award 2024' conferred by PISRF, India, on 21 <sup>st</sup> October 2024.	
	Inducted into PG faculty member of regional academic hubs of IARI-Bengaluru hub of ICAR- IARI.	
	Recognized as research guide for PG programmes of regional academic hubs of IARI-Bengaluru hub of ICAR-IARI.	
Dr. Manjesh G N	Recognized and served as Rapporteur in the theme on “Biodiversity conservation related to horticulture” at the International Conference on Precision Horticulture (ICPH-2024) held at HCRI, Periyakulam, Tamil Nadu from 22-24 <sup>th</sup> Aug 2024.	
	Deputed as an expert on the topic “Recent Advances in Cashew” at UHS-College of Horticulture, Mysore, Karnataka on 15.10.2024.	
Dr. Manjunatha K	Received Best Research Paper Award for the research paper entitled “Evaluation of fruit detachment forces and related characteristics reveal differential fruit detachments at developmental stages and cultivar differences in cashew” published in Scientia Horticulturae”	
Dr. Mohana G S	External Member for selection of YP-II in the project on DUS center for Cocoa at Regional Station CPCRI, Vittal on 09 <sup>th</sup> September 2024	
	External Member for selection for the selection of SRF in the AICRP, PC, Palms at CPCRI, Kasaragod during 27 <sup>th</sup> August 2024	
Dr. Rajashekara H	Acted as 'Course Associate' in PL PATH 509- Disease Resistance in Plants (2+0) for MSc students from ICAR-IIHR hub.	
Dr. Siddanna Savadi	Awarded 'Young scientist award' in recognition of the excellent quality paper presentation titled “Identification and comprehensive genetic characterization of cashew ( <i>Anacardium occidentale</i> L.) accessions with special characters as genetic stocks for genetic improvement” in the International Conference on Advances and Applications of Biotechnology (ICAAB 2024) organized by School of Life Sciences, B.S. Abdur Rahman Crescent Institute of Science and Technology, Chennai in association with University of East London, UK., Tamil Nadu on July 30 & 31,2024.	

Name of the Scientist	Title	Photo
Dr. Vanitha K	Received ICAR certification for the technology 'Artificial nests for native bee pollinators ( <i>Braunsapis</i> spp.) of cashew during 16 July 2024.	
	Bagged 'Best Researcher Award – 2024' by Society of Agricultural Research and Social Development (SARSD), New Delhi conferred during 7 <sup>th</sup> International Conference on Advances in Agriculture Technology and Allied sciences (ICAATAS-2024) at the Neotia University (ICAR Accredited), West Bengal, September 15-16, 2024.	
	Acted as invited speaker in 'International Conference on Bees and other arthropods: Influence sustainable crop yield' on 16 <sup>th</sup> October, 2024 organized by the School of Agriculture, Bharath Institute of Higher Education and Research, Selaiyur, Tambaram, Chennai, Tamil Nadu.	
	Served as Rapporteur in the 'International Conference on Plant Protection in Horticulture (ICPPH – 2024): Advances and challenges' held at ICAR-Indian Institute of Horticultural Research, Bengaluru during 25-27 September 2024.	
Dr. Veena G L	Inducted as research guide for P.G. programmes in the discipline of Fruit science IARI-IIHR Bengaluru Hub on 8 <sup>th</sup> August 2024.	
	Awarded as 'Young Pomologist' by the Indian Pomological Society during International conference on Precision Horticulture ICPH 2024 from 22 <sup>nd</sup> to 24 <sup>th</sup> August 2024	
	Acted as rapporteur for Biodiversity conservation related to Horticulture session in international conference on precision Horticulture on 22 <sup>nd</sup> to 24 <sup>th</sup> August 2024.	
	Acted as 'External member' for selection of young professional-II for contractual research held at Regional station, ICAR-CPCRI, Vittal on 8 <sup>th</sup> October 2024.	



### 13. STAFF NEWS

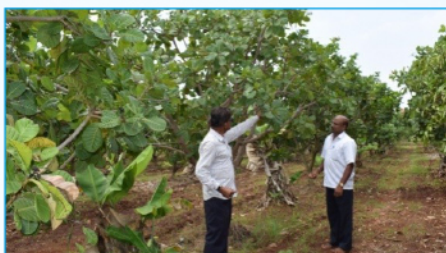
Retirement	
1.	Sri. T. Padmanabha, SSS retired on superannuation w.e.f .31.12.2024(FN).
Appointment	
1.	Sri. Sandeep Joshi, appointed as Assistant w.e.f.17.09.2024.
2.	Sri. Prateek Tewari, appointed as Assistant w.e.f.16.10.2024.

### 14. DISTINGUISHED VISITOR

Sl. No.	Name and Designation	Date of visit
1	Dr. Radha Krishna Bhat, Retired Scientist, DRDO	16/08/2024
2	Dr. Parveen Kumar Director ICAR – CCARI, Goa	28/08/2024
3	Prof. P. L Saroj, Farmer Director DCR Puttur, Karnataka	02/09/2024
4	Dr. S B Dandin Farmer VC, UHS, Bagalkot, Karnataka	02/09/2024
5	Dr. Sreenath Dixit Principal Scientist & Strategic Advisor office & DG ICRISAT, Hyderabad, Telangana	02/09/2024
6	V. B Patel, ADG (Fruits & Plantation Crops), ICAR New Delhi	02/09/2024
7	Dr. P N Anandh, Principal Scientist and Head KVK Lakshadweep	06/09/2024
8	Dr. Jeena Devasia, DDR, Coffee Research Substation Chettalli, Karnataka	09/10/2024
9	Dr. V Kumar, Principal Scientist, ICAR-NRCB, Trichy, Tamil Nadu	04/11/2024
10	Dr. K V Prasad, Director ICAR – DFR, Pune, Maharashtra	05/11/2024
11	Dr. K Suresh, Director ICAR- IIOPR, Pedavegi, Andhra Pradesh	05/11/2024
12	Dr. B. M. K Reddy, ARS Ex Chairman A. P State Biodiversity Board, Guntur, Andra Pradesh	22/11/2024
13	Dr. C. Ramachandran, Principal Scientist, ICAR-CMFRI, Kochi, Kerala	30/12/2024

## 15. FARMERS CORNER

Mr. Basavaraj Halli is native to Shagoti village of Gadag block in Gadag District, Karnataka. He used to cultivate spreading groundnut crop in his 3 acres of land. Due to frequent occurrence of drought coupled with high cost of cultivation, he could not get sustainable income from groundnut cultivation. The red soil with poor moisture holding capacity restricted him to take up only one crop in a year during *kharif* season. Mr. Halli has decided to plant Cashew crop in his 3 acres of land during 2017. Grafts were supplied by Directorate of Cashewnut and Cocoa Development, Cochin with 3 years of financial assistance under Cashew Promotion Scheme. With the guidance of KVK, Gadag, he has planted 480 grafts of cashew at 5m × 5m (HDP) spacing. Recently developed technologies viz soil and water conservation, Pruning and training of plants, Drip irrigation system and fertigation techniques for efficient utilization of water and nutrients followed in establishing cashew orchard, Timely Integrated Pest and Disease Management (IPDM) are also being practiced. As a result, yield of raw cashew doubled every year and in the year 2021, he harvested 14.50 quintals of rawnut. He has undertaken Banana as intercrop in cashew for initial 3 years under protected irrigation and earned Rs.1.50 lakhs from Banana crop. Income of the farmer has increased since he has taken up cashew planting. More than 600 farmers from various districts of Karnataka visited his cashew orchard.



## 16. INDUSTRY NEWS

### My journey: From IT Professional to Food Entrepreneur

An incredible journey, turning a challenging situation into a thriving business. Here's a refined version of a story that captures entrepreneurial spirit and the evolution of Eatery Malabarikas LLP

Mr Brijithkrishna with age of 47 years, faced an unexpected life change when he lost his job in the IT sector in the year 2020, during the pandemic. It was a difficult time for his family as they were left without a stable source of income. Coming from a lineage of cashew farmers, his small family farm was also struggling during this period. As a vegetarian, one





persistent challenge, he noticed was the lack of protein-rich options available in most vegan diets. This observation sparked an idea within him: what if he could leverage his background in cashew farming to create something unique that would cater to this need? Inspired by this vision and driven by necessity, he decided to launch his own food startup specializing in protein-rich sprouted cashews. In 2021, he officially founded **Eatery Malabarikas LLP** with the intent of preparing and promoting a variety of innovative dishes made from sprouted cashews. Starting this venture wasn't easy; one major hurdle was overcoming the limited germination potential associated with cashews. However, through persistent research and experimentation, he developed effective methods for sprouting that improved viability and yield. Today, Eatery Malabarikas has successfully grown beyond its initial phase and supplying unique food items to major food supply companies as well as hotels across Kerala, Bengaluru, and Mumbai. Their products not only provide nutritious options for vegans but also celebrate traditional flavors while introducing novel culinary experiences centered around cashews. This journey has been transformative—turning adversity into opportunity—and it has reinforced his belief in resilience and innovation within entrepreneurship.

## AICRP ON CASHEW

### 1. RESEARCH HIGHLIGHTS

#### Management of Cashew Stem and Root Borer (CSRB):

Swabbing of Fipronil 5% SC (2ml/l) on main stem and thick branches up to 3 feet height from the ground level during Oct.-Nov., Jan.- Feb. and April – May months after removing grubs manually in the infested plants. Cashew trees which were more than 15 years old having 60-100 cm stem girth were highly prone to CSRB damage and maximum damage was noticed at collar + stem region.



**Larva of CSRB**



**Removing of Larva from infected Tree**



**Applying insecticide**

(Drs. N. Aswathanarayana Reddy., D. Srikantaprasad., Jagadish., B. Subrmnyam and M. Ramesh)  
AICRP on Cashew, Horticulture Research Extension Centre, Hogalagere, Karnataka

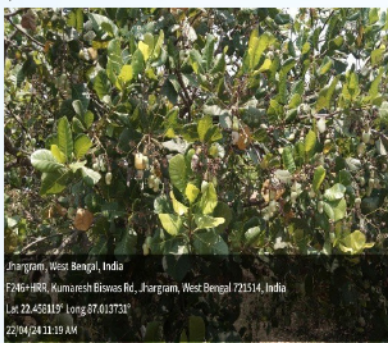
#### Nutrient management for yield maximization in cashew

Foliar application of major (3% Urea + 0.5% MAP +1%  $K_2SO_4$ ), secondary (0.5%  $MgSO_4$ ) and micronutrients (0.5%  $ZnSO_4$  + 0.1% Solubor as source of Boron) at flushing, flowering and nut development stages along with recommended dose of fertilizers (500g of N: 250 g of P: 250g of K per plant per year) as basal dose for the plants above five years which increases 30% cashew raw nut yield.

(Drs. Jagadish., N. Aswathanarayana Reddy., D. Srikantaprasad., M. Ramesh and B. Subrmnyam)  
AICRP on Cashew, Horticulture Research Extension Centre, Hogalagere, Karnataka.



Identified a promising early flowering germplasm JGM- 395 with bold nut (8g), high shelling percentage (33.6%), and a cumulative yield of 3.4 kg/tree for three harvests. Three promising hybrids namely H- 190, H- 191 and H- 196 from the cross combination of Bidhan Jhargram – 2 as male parent and JGM- 282 as female parent were identified for their bold g nut (> 7 gnut weight) high yield (> 6 kg /tree at the age of 6 years) and high shelling % (> 30%).



50 % pruning in June



High yield after pruning in June

Cluster bean both as sole crop as well as intercrop with cashew supported maximum B:C ratio followed by cashew + kodo millet. NRCC Sel – 2 was found to be the most suitable variety for UHDP. Pruning had significant positive effect on yield/tree and irrespective of method of pruning, June was found to be the best month for pruning which showed highest positive effect on yield improvement.

(Dr. Mini Poduval., AICRP on Regional Research Station, Jhargram, West Bengal)

## 2. PUBLICATIONS

### Research Article

Uma Maheswara Rao K, Prasanna Kumar B and Venkata Ramana KT., 2024. Performance of high yielding selections and hybrids of cashew (*Anacardium occidentale* L.) under multi location trial-II. *Extension Journal*, 7 (12): 14-16.

Nagendra Reddy, B, K. Umamaheswara Rao, B. Vimala, K. Dhanumjaya Rao, J Dilip Babu, RVSK Reddy, Mohana, G.S. and Adiga, J.D. Field Efficacy of Insecticides for Management of Lepidopteran Pests in Cashew, *Uttar Pradesh Journal of Zoology*, 45 (18): 40-46.

Jena, C., Panda, P.K., Sethi, K., Nayak, R.K., Panda, R.K., Paramanik, K. and Rout, C. K. 2024. Assessment and correlation studies in influence of foliar nutrient management on yield attributing traits and physico chemical parameters of cashew (*Anacardium occidentale* L.) on cv. Balabhadra, *Agricultural Science Digest*, 44(4):657-662.



Jena, C., Panda, P.K., Sethi, K., Nayak, R.K. and Panda, R.K. 2024. Nutrient responsiveness and correlation analysis of cashew (*Anacardium occidentale* L.) cv. Balabhadra for vegetative, reproductive traits and nut yield under coastal Odisha condition, *Journal of Environmental Biology*, 45(5), 635-644.

Ramteke, V. Thakur, P and Singh, Y. 2024 Foliar application of biostimulants enhances yield and quality of mango (*Mangifera indica* L.) cv Amrapali. *Prog. Hort*, 56 (1) 31-34.

Patsa, R., Jash, S., Sarkar, A., Dutta, S. and Poduval, M., 2024. Identification and characterization of *Fusarium falciforme*, incitant of wilt disease in cashew seedlings and its management. *Archives of Phytopathology and Plant Protection*, 56(2):1-19.

Patsa, R., Jash, S., Sarkar, A., Poduval, M. and Dutta, S. 2024. Pruning and plant debris management can alleviate shoot dieback disease in cashew orchard. *Indian Phytopathology*, 77(2): 747-53.

Meera Manjusha A V. and P.K. Retheesh, 2024, Improvement of seedling vigour by chemopriming in cashew, *Seed Res.*, 49(2): 98-101

Meera Manjusha A V. and P.K. Retheesh, 2024, Seed priming studies in cashew: influence on softwood grafting, *Seed Res.*, 49(2): 122-124.

Kalse, S. B., Khapre, L. S., Ranveer, R. C. and Rathod, N. B. Fruit and vegetable protein – functions and potential health benefits. *PLANT-BASED PROTEINS - Sources, Extraction, Applications, Value-chain and Sustainability* published by Academic Press is an imprint of Elsevier: pp 403-416.

### Book Chapter

Asna, A. C. and Menon, J. S. 2024. Cashew: History, Evolutionary Origin, Genetic Resources, Improvement and Advances in Breeding. In: Economically important Trees: Origin, Evolution, Genetic Diversity and Ecology (pp.391-433). Springer, Singapore.

Aswathanarayana Reddy,N, Srikantaprasad, D., Jagadish, Ramachandra, R.K., 2024. Good Agricultural Practices for scientific cashew cultivation in southern plains of Karnataka. In “*Technologies for Cashew production and Post-harvest Management in India*” (Eds.) Jalaja S Menon. Cashew Research Station, Madakkathara, KAU, Thrissur, Kerala. Pp 56-73.

Aswathanarayana Reddy,N, Subramanyam, B., Srikantaprasad, D., Ramachandra, R.K. and Jagadish and Ramesh, M., 2024. Integrated pest management in cashew. In: *Training manual on Cashew and Cocoa production and processing technologies*. Directorate of Cashewnut and Cocoa development, Kera Bhavan, Kochi. Pp.67-71.

Aswathanarayana Reddy,N, Jagadish, Ramesh, M., Subramanyam, B., Srikantaprasad, D. and Anjaneya Reddy, B., 2024. Diseases of cashew and their management. In: *Training manual on Cashew and Cocoa production and processing technologies*. Directorate of Cashewnut and Cocoa development, Kera Bhavan, Kochi. Pp.72-77.

### Technical Bulletin / Extension leaflets / Popular article

Nishalekshmi V, Meera Manjusha A V. and Christine Allen Xaviour, Technical Bulletin on Major pest and diseases of Cashew in Malayalam.

Jalaja S Menon (2024) *Kasumambazha mittayi*. Krishijagaran July 2024 (Malayalam)

Neelavathi, R., Baskaran, A., Rajabaskar, D., and Baskaran, R. 2024. Hi-tech cashew cultivation of cashew. RRS, Vridhachalam (In Tamil). Pp.1-17.

Neelavathi, R., Baskaran, A., Rajabaskar, D., and Baskaran, R. 2024. Hi-tech cashew cultivation stepping stone to high yield (Double the yield and triple the income). RRS,Vridhachalam (In Tamil).

Poduval, M. Calendar of operation for cashew cultivation for West Bengal (English and Bengali), pp. 16.

Desai S K and Parmar S G (2024) *Kajuni Vaighanik Kheti* (Scientific cultivation of cashew) (In Gujarati for Farmer): University Publication Number: NAU/03/09/060/2024

### 3. CONFERENCE / SYMPOSIUM / TRAINING ORGANIZED / TRAINING ATTENDED

Name of the Scientist	Title and Venue	Date
Dr. Hammylliende Talang	Course Coordinator for organizing six days Training programme on, “Climate Smart Cashew Farming: A sustainable future with shelter for life” under All India Coordinated Research Project on Cashew at ICAR-Krishi Vigyan Kendra, West Garo Hills, Tura, Meghalaya	9 <sup>th</sup> to 14 <sup>th</sup> September, 2024.
	Oral presentation on Performance of Cashew Varieties In North Eastern Region in International Conference on “Climate Smart Farming: Adoptions, Impacts and Implications for Sustainable Development” at College of Agriculture, Kyrdemkulai, Meghalaya jointly organized by Society for Biotic and Environmental Research, Tripura and College of Agriculture, Kyrdemkulai, Meghalaya.	21 <sup>st</sup> – 22 <sup>nd</sup> November, 2024
Dr Kabita Sethi, Jr Horticulturist	Attended 21 days Summer School cum Training programme on “New Advances in Agricultural Sciences for Green Revolution to Viksit Bharat,2047”.	15 <sup>th</sup> August to 4 <sup>th</sup> September 2024
Dr. N. Aswathanarayana Reddy Dr. Srikantapasad, D. Dr. Jagadish	Organized SCSP Training Programme on Scientific cultivation and management of cashew at KSDA Kolar.	18 <sup>th</sup> September 2024
	Organized SCSP Training programme on Adoption of scientific cashew cultivation technologies for livelihood of rural youths at Beerappanahalli village of Sidlhatta Taluk.	10 <sup>th</sup> December, 2024
	Participated in Krishi Mela, GKVK, UAS Bangalore	17 <sup>th</sup> to 20 <sup>th</sup> November 2024
	Participated and organized Totagarika Mela, UHS Bagalkot	20 <sup>th</sup> to 23 <sup>rd</sup> December 2024
Dr. Jalaja S. Menon	Attended training programme on design and analysis of Agricultural experiments organized by Dept. Agricultural Statistics, CoA, Vellayani through online	30 <sup>th</sup> - 31 <sup>st</sup> July 2024
	Attended general body meeting of Paithil hills FPO, Kannur (Online mode), Kerala.	10 <sup>th</sup> August 2024
	Participated DBT skill development refresher course Phytochemistry and utilization of plant resources- Gas Chromatographic Techniques in Aromatic Plants Research for faculties held at KSCSTE- Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala	22 <sup>nd</sup> August to 6 <sup>th</sup> September 2024



Name of the Scientist	Title and Venue	Date
	Participated in the follow up meeting of stakeholders organized by the Directorate of Economics & statistics, government of Kerala under the guidance of the Horticulture statistics unit (HSU), Ministry of Agriculture & Farmers Welfare, Government of India on at Coconut Development Board (CDB), Kochi, Kerala	28 <sup>th</sup> October 2024
Dr. Asna A.C	Participated in the 31 <sup>st</sup> Swadeshi Science Congress held at ICAR-Central Institute of Fisheries Technology, Cochin, Kerala and presented a paper entitled “Dwarf cashews: A new frontier in urban horticulture”.	7 <sup>th</sup> to 9 <sup>th</sup> November 2024
Dr. Jalaja S. Menon	Participated as resource person for the National level training on cashew at Assam Agriculture University, Horticulture Research Station, Kahikuchi, Guwahati and handled sessions on (1) Quality planting material production and Nursery Management in cashew and (2) Cashew apple processing in India.	10, 11 & 12 December 2024
Dr. Jalaja S. Menon Dr. Asna A.C	AICRP – SCSP training programme “Homestead cashew cultivation” for 65 trainees conducted at Anchal, Kollam, Kerala	29 <sup>th</sup> November 2024
	AICRP – SCSP training programme “Cashew cultivation and cashew apple utilization” for 60 trainees conducted at Aryankavu, Achankovil, Kerala	30 <sup>th</sup> November 2024
Dr. Asna A.C	Participated one day workshop on The Plantation sector in Kerala: The way forward” at conference hall, KAU headquarters, Vellanikkara, Kerala	13 <sup>th</sup> December 2024
Dr. Asna A.C Dr. Jalaja S. Menon	AICRP – TSP training programme “Scientific cultivation of cashew” for 50 trainees conducted at Methotty tribal colony, Idukki, Kerala	19 <sup>th</sup> December 2024
Dr. V. S. Desai. Mr. L. S. Khapare	Training on Cashew production technology organized by RFRS, Vengurla and Krishi Vigyan Kendra, Maharashtra.	19 <sup>th</sup> July 2024
	Training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna, Maharashtra.	12 <sup>th</sup> -17 <sup>th</sup> August, 2024
Dr. V. S. Desai Dr. G. M. Golvankar	Nine trainings on Cashew plant protection were organized in different villages of Sindhudurg district of Maharashtra.	26 <sup>th</sup> & 27 <sup>th</sup> September, 8 <sup>th</sup> & 10 <sup>th</sup> October, 13 <sup>th</sup> December, 23 <sup>rd</sup> December, 24 <sup>th</sup> December 25 <sup>th</sup> December 27 <sup>th</sup> December 2024

## 4. NEWS AND EVENTS

### AICRP Madakkathara

A “Planting fest” has been conducted in the new experimental plot “Cashew based cropping system” on 23<sup>rd</sup> October 2024 in the B block of Cashew Research Station farm.



Dr. Madhu Subramanian, Director of Research, KAU presided over the function. Director, Directorate of Cashew nut and Cocoa Development Dr. Femina & Madakkathara Grama Panchayth President Smt. Indira Mohan participated the planting. Dr. Jalaja S. Menon, PI of the project & Head of Cashew Research Station, Madakkathara delivered welcome address and Dr. Asna A.C, Assistant Professor, Cashew Research Station, Madakkathara proposed vote of thanks. Dr. Mary Regina. F, Programme Co-Ordinator, KVK, Thrissur, Smt. Savithry Ramachandran & Sophi Sojan, Madakkathara Grama Panchayath members offered falcitation. The team CRS, Madakkathara and MNREGS members of Madakkathara Grama Panchayath were present in the programme

### AICRP Vengurla

RFRS, Vengurla centre has successfully organized Farmers field school on cashew plant protection at Tulsuli K. Narur, Tal. Kudal, Dist. Sindhudurg on 15<sup>th</sup> October 2024. The programme was coordinated by Dr. V. S. Desai, Jr. Entomologist. Dr. G. M. Golvankar, Research Associate acted as Co-coordinator and 35 no's of cashew farmers participated in said programme.

## 5. SCSP/TSP/NEH ACTIVITIES

### AICRP Bapatla

#### Area expansion Programme

SCSP / TSP	Title of the project	Progress	No. of beneficiaries	No. of grafts supplied
SCSP 2024-25	Area expansion of cashew (10 Ha)	Grafts distributed to the beneficiaries at Rajavaram Village, Koyyalagudem Mandal, Eluru district and grafts were planted	27	2000
TSP 2024-25	Area expansion of Cashew (2 Ha)	Grafts distributed to the beneficiaries in Buttaigudem Mandal, Eluru Dist.	5	400



## AICRP Bhubaneswar Area Expansion in Cashew

Sl. No.	Name of the programme	Title of the training programme	Place	No. of beneficiaries
1.	TSP	-	Village: Gondia Patana & Kushida Block: Gondia Dist: Dhenkanala	02
2.	SCSP	-	Village: Beruna Block: Konarka Dist: Puri	02

## AICRP Hoagalgere SCSP Training Programmes Conducted

Sl. No.	Title	Place	Date	Beneficiaries
1	Scientific cultivation and management of cashew crop	KSDA Kolar	18 <sup>th</sup> October 2024	185
2	Adoption of scientific cashew cultivation technologies for livelihood of rural youths	Beerappanahalli village of Sidlhatta Taluk.	10 <sup>th</sup> December, 2024	90
Total				275

## AICRP Jagdalpur

Sl. No.	Training programme	coordinator and co-coordinators	Place	Date	No. of participants
1	One day farmers training programme under Tribal sub plan (ICAR- AICRP on Cashew)	Shri VikasRamteke, Scientist (Fruit Science) & PI, AICRP on Cashew and Shri Devchandsalam, Scientist (Plant Pathology)	Panchayat - Tarapur, District - Bastar (C.G.)	05 <sup>th</sup> December 2024	60
2	One day farmers training programme was conducted under Schedule Caste Sub Scheme	Dr. J. D. Adiga, Director, Directorate of Cashew Research, Puttur, and Dr.	Panchayat - Sahawada, District - Kanker (C.G.)	10 <sup>th</sup> December, 2024	50

	(ICAR-DCR) entitled "Cashew Production Technology, Processing and Plant Protection" on 10 <sup>th</sup> December, 2024 at The chief guest was	Birbal Sahu, Senior Scientist & Head, KVK, Kanker			
3	Input Distribution programme was conducted under Schedule Caste Sub Scheme (ICAR- DCR)	Dr. J. D. Adiga, Director, Directorate of Cashew Research, Puttur, and Dr. Birbal Sahu, Senior Scientist & Head, KVK, Kanker	Panchayat - Sahawada, District - Kanker (C.G.)	10 <sup>th</sup> December 2024	50
4	One day farmers training programme was conducted under Schedule Caste Sub Scheme (ICAR-DCR) entitled "Cashew Production Technology, Processing and Plant Protection"	Dr. Manjesh, Scientist (PSMA), Directorate of Cashew Research Puttur and Shri Vikas Ramteke, Scientist (Fruit Science) & PI, AICRP on Cashew	Panchayat - Rajnagar, District - Bastar (C.G.)	12 <sup>th</sup> December 2024	50
5	One day cashew field day programme was conducted under Schedule Caste Sub Scheme (SCSP) of ICAR-DCR, Puttur	Dr. Manjesh, Scientist (PSMA), Directorate of Cashew Research Puttur and Shri Vikas Ramteke, Scientist (Fruit Science) & PI, AICRP on Cashew	Panchayat - Rajnagar, District - Bastar (C.G.)	12 <sup>th</sup> December 2024	32
6	Input Distribution programme was conducted under Schedule Caste Sub Scheme (SCSP) of ICAR-DCR, Puttur	Dr. Manjesh, Scientist (PSMA), Directorate of Cashew Research Puttur and Shri Vikas Ramteke, Scientist (Fruit Science) & PI, AICRP on Cashew	Panchayat - Rajnagar, District - Bastar (C.G.)	12 <sup>th</sup> December 2024	50



## AICRP Jhargram

2 ha of cashew orchard was established in two farmers field under TSP with three varieties viz, Bidhan Jhargram - 2, Vengurla - 7 and BPP- 8 in Dainmari village, Jhargram block Jhargram. The inputs for cashew orchard establishment were grafts, polythene for sub soil polymulch, fungicide, insecticide, organic manure, knapsack sprayer, secateur and labour cost for digging of pit, polythene mulching, planting and making of half circle trench.

## AICRP Madakkathara

### AICRP-SCSP training programmes

Under AICRP SCSP during 2024-25 two training programme were conducted one at Anchal, Kollam on 29<sup>th</sup> November 2024 and another at Achankovil, Aryankavu, Kollam on 30<sup>th</sup> November 2024. Block panchayath President, Smt. Omana kumari Inagurated the training programme. Smt. Dhanya, Assistant Director of Agriculture, Dr. Jalaja S. Menon, Assistant Profesor & Head, Cashew Research Station, Madakkathara, Dr. Asna A.C, Assistant Professor, Cashew Research Station, Madakkathara attended the training programme. One Hunderd and Twenty-Five SC farmers of Kollam district attended the training programme and farm implements were distributed to 115 no's of SC farmers.



## AICRP-TSP training programme

The training programme under AICRP-TSP 2024-25 was conducted at Methotty tribal colony, Idukki on 19<sup>th</sup> December 2024. Fifty farmers of Idukki district attended the training programme. Sri. Mohandas, President, Valiyamattom Gramapanchayath inaugurated the training programme.



Dr. T. N. Raviprasad, Scientist incharge of PC Cell, ICAR, DCR, Puttur deliver keynote address. Dr. Bhagya HP, Scientist, ICAR, DCR Puttur and Dr. Jalaja S. Menon, Assistant Professor & Head i/c, Dr. Asna A. C, Assistant Professor addressed the trainee's programme. Area expansion was done 1 ha and 400 no's of cashew grafts were distributed to 30 no's of beneficiaries.

## AICRP Pilicode

Under the tribal subplan, an awareness seminar was conducted, and beneficiaries for area expansion were selected after field verification in collaboration with tribal promoters in Morothumala Unnati, Kozhikode District. Grafts of cashew, Priyanka were distributed to the selected beneficiaries.



Subsequently, under the Scheduled Caste subplan, an awareness seminar was conducted at Koppalamoola colony, Banthadka, Kasaragod. Dr. Raviprasad, Principal Scientist in Charge of AICRP on Cashew, and Dr. Thondaiman, Scientist of DCR Puttur, participated in the event.

## AICRP Paria

One SCSP training in which 31 farmers participated in Scientific Cashew cultivation at Mohangam on 18<sup>th</sup> November, 2024 by Dr S K Desai as Coordinator and Dr S G Parmar as Co-coordinator. Three TSP training on Scientific Cashew cultivation at KVK, Waghai conducted on 12<sup>th</sup> December, 2024 at AES, NAU, Paria on 24<sup>th</sup> December, 2024 and at Dixal, Kaprada on 27<sup>th</sup> December, 2024 in which a total of 120 nos. of farmers participated.





## AICRP Vengurla

RFRS, Vengurla centre has successfully organized Area expansion (2 ha) of cashew under SCSP programme. The programme was coordinated by Dr. V. S. Desai, Jr. Entomologist. Dr. R. T. Bhingarde, Horticulturist and Mr. L. S. Khapare, Jr. Breeder acted as Co-coordinator and 5 SC farmers participated in said programmes. Cashew grafts (V-9), various inputs (fertilizers, insecticides etc.) were distributed to the following SCSP beneficiaries. The programmes were organized at Nirwade, Tal. Sawantwadi and Golvan, Tal. Malvan, Dist. Sindhudurg on 26<sup>th</sup> September 2024.

RFRS, Vengurla centre has successfully organized 'Distribution of inputs to the SCSP farmers' programme (2023-24). The programme was coordinated by Dr. P. E. Shingare, Director of Research, DBSKKV, Dapoli and Dr. A. P. Chavan, Associate Director of Research, Dr. V. S. Desai, Jr. Entomologist. Dr. R. T. Bhingarde, Horticulturist, Mr. L. S. Khapare, Jr. Breeder acted as Co-coordinator and 154 SC farmers participated in said programmes. In the programme, various inputs were distributed to the SCSP beneficiaries by the scientists. The programmes were organized at Nirwade, Tal. Sawantwadi, Dist. Sindhudurg on 16<sup>th</sup> August 2024 and Regional Fruit Research Station, Vengurla, Dist. Sindhudurg on 25<sup>th</sup> September 2024



## AICRP Kanabargi

Under Scheduled Caste Sub Plan (SCSP) scheme Dr. Manjesh G. N., Scientist, DCR, Puttur conducted training programme on “GAP in Cashew” and Agri-inputs for the Scheduled caste community in collaboration with UHS-HREC, Kanabargi, Belgaum on 13<sup>th</sup> September 2024. Distributed vegetable seed kits and garden tools to identified beneficiaries (30 Nos.).





## AICRP Vridhachalam

### Scheduled Caste Sub Plan (SCSP-AICRP) creating awareness about cashew cultivation and expanding cashew area in Scheduled Caste areas.

A training on creating awareness about cashew cultivation and expanding cashew area in Scheduled Caste areas was conducted at three villages viz., Kattathur of Ariyalur District, Muthanai of Cuddalore district and Elaiyur of Ariyalur District of Tamil Nadu with 43, 49 and 40 no's of farmers and farm women on 18<sup>th</sup> December 2024, 20<sup>th</sup> December 2024 and 24<sup>th</sup> December 2024, respectively. Dr. R. Neelavathi organized the training programme. Dr. R. Baskaran, Dr. A. Baskaran and Dr. R. Rajabaskar were co-coordinators in this programme.

Technical sessions were handled by the scientists on the topics viz., importance and nutritional aspect of cashew, hi-tech production techniques in Cashew, water management and importance of drip irrigation in cashew, integrated pest and disease management in cashew, post-harvest management in cashew. The trainees were provided with technical information on improved production technologies and cashew apple utilization. Further scientists interacted with the farmers and clarified the queries raised by the trainees on cashew cultivation. An exhibition showcasing the planting materials, raw nuts and kernels of different varieties and technological achievements of cashew were also arranged during the training programme.





## 6. ADVISORY VISITS / CONSULTANCIES / LECTURE DELIVERED / EXHIBITIONS

Name of the Scientist	Title and Venue	Date
Dr. Kabita Sethi	Delivered a lecture on “New cashew varieties to be introduced in Odisha” in Cashew Fair cum Conference organized by Odisha State Cashew Development Corporation Ltd.	30 <sup>th</sup> October 2024
Dr. N. Aswathanarayana Reddy	Delivered a lecture on integrated pest management in Cashew at SCSP Training Programme held at KSDA Kolar.	18 <sup>th</sup> September 2024
Dr. Srikantapasad, D.	Delivered a lecture on cashew propagation techniques and nursery management at SCSP Training Programme held at KSDA Kolar.	18 <sup>th</sup> September 2024
Dr. Jagadish	Delivered a lecture on cashew production technologies at SCSP Training Programme held at KSDA Kolar.	18 <sup>th</sup> September 2024
Dr. N. Aswathanarayana Reddy	Delivered a lecture on improved cashew cultivation in maidan region in SKDRDP Training programme for farm women at Bairappalli village of Srinivasapur Taluk.	28 <sup>th</sup> October 2024
Dr. N. Aswathanarayana Reddy	Delivered a lecture in National Level Training Programme on cashew on the topic entitled pest and disease management in cashew held at HRS, AAU, Kahikuchi, Guwahati, Assam	10 <sup>th</sup> - 12 <sup>th</sup> December 2024
Dr. N. Aswathanarayana Reddy	Delivered a lecture on integrated pest management in Cashew at SCSP Training Programme held at Beerappanahalli, Sidlaghatta Taluk.	10 <sup>th</sup> December 2024
Dr. Srikantapasad, D.	Delivered a lecture on cashew propagation techniques and nursery management at SCSP Training Programme held at Beerappanahalli, Sidlaghatta Taluk.	10 <sup>th</sup> December 2024
Dr. Jagadish	Delivered a lecture cashew production technology at SCSP Training Programme held at Beerappanahalli, Sidlaghatta Taluk.	10 <sup>th</sup> December 2024
Dr. Asna A.C	Delivered lecture on “Cashew cultivation” for the training programme organized by KSACC regional office, Thrissur	16 <sup>th</sup> August 2024
Dr. Asna A.C	Delivered lecture on production technologies in cashew as a part of DAESI programme organized by KVK, Thrissur	24 <sup>th</sup> August 2024
Dr. Asna A.C	Delivered lecture on “Crop production of cashew” for the training programme for farmers organized by KSACC at CH Memmorial Hall, Annanathod	12 <sup>th</sup> December 2024
Mr. L. S. Khapare	Delivered lecture on 'Cashew cultivation technology' and 'improved cashew varieties' in training on Cashew production technology at Vengurla, District Sindhudurg organized by RFRS, Vengurla and KVK, Kirlos.	19 <sup>th</sup> July 2024
Dr. V. S. Desai,	Delivered lecture on 'Integrated Pest Management in Cashew' in training on Cashew production technology at Vengurla, District Sindhudurg organized by RFRS, Vengurla and KVK, Kirlos.	19 <sup>th</sup> July 2024

Name of the Scientist	Title and Venue	Date
Mr. L.S. Khapare,	Delivered lecture on 'Cashew production technology' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	13 <sup>th</sup> August 2024
Dr. V. S. Desai,	Delivered lecture on 'Integrated Pest Management in Cashew' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	15 <sup>th</sup> August 2024
Mr. L.S. Khapare,	Delivered lecture on 'Cashew production technology' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	20 <sup>th</sup> August 2024
Dr. V. S. Desai,	Delivered lecture on 'Integrated Pest Management in Cashew' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	22 <sup>nd</sup> August 2024
Dr. V. S. Desai,	Delivered lecture on 'Integrated Pest Management in Cashew' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	26 <sup>th</sup> December 2024
Mr. L.S. Khapare,	Delivered lecture on 'Cashew production technology' in training on Agricultural Mechanization organized by RFRS, Vengurla and Sindhuratna Samruddha Yojna at Vengurla	27 <sup>th</sup> December 2024
Dr. R. Neelavathi D. Rajabaskar	Lecture delivered on Organic cashew cultivation to Farmers of Villupuram district at RRS, Vridhachalam	31 <sup>st</sup> December 2024

### Exhibitions attended

Name of the Scientist	Title and Venue	Date
<b>Hogalagere Centre</b>		
Cashew exhibition (AICRP on Cashew team)	Exhibited Cashew production technologies, different varietal raw nuts and kernel grades and byproducts of cashew in Krishi Mela, GKVK, UAS Bangalore	17 <sup>th</sup> - 20 <sup>th</sup> November 2024
Cashew exhibition (AICRP on Cashew team)	Exhibited Cashew production technologies, different varietal raw nuts and kernel grades and byproducts of cashew in Totagarika Mela, UHS Bagalkot	20 <sup>th</sup> - 23 <sup>rd</sup> December 2024
Cashew exhibition (AICRP on Cashew team)	Exhibited Cashew production technologies, different varietal raw nuts and kernel grades and byproducts of cashew at SCSP Training Programme held at KSDA Kolar.	18 <sup>th</sup> September 2024
Cashew exhibition (AICRP on Cashew team)	Exhibited Cashew production technologies, different varietal raw nuts and kernel grades and byproducts of cashew at SCSP Training Programme held at Beerappanahalli, Sidlaghatta Taluk.	10 <sup>th</sup> December 2024



Name of the Scientist	Title and Venue	Date
<b>Jagdalpur Centre</b>		
Shri Vikas Ramteke	Cashew varieties grafts, nuts and kernel exhibition at Rashtriya Kisan Mela, Indira Gandhi Krishi Vishwavidyalaya, Raipur during 22-10-2024 to 25-10-2024	25 <sup>th</sup> October 2024
Dr. Bhojendra (Technical Assistant)	Exhibited different cashew varieties (Nuts, kernels and grafts) and insect pest of cashew in farmers fair under the subject of food and nutritional security mission (Nutri cereals) at SGCARS, Jagdalpur District-Bastar on dated 21.12.2024	12 <sup>th</sup> December 2024
<b>Madakkathara Centre</b>		
Dr. Jalaja S. Menon Dr. Asna A.C	<b>Exhibition-Karshika Mela 2024</b> at ARS, Chalakkudy as a part of chalakkudy agro business expo 2024	13 <sup>th</sup> –15 <sup>th</sup> December 2024
<b>Madakkathara Centre</b>		
Dr. R. Neelavathi	Exhibition was arranged with cashew grafts and value-added products of cashew at TNAU, Coimbatore during state level mega farmers day	26 <sup>th</sup> –28 <sup>th</sup> September 2024
Dr. R. Neelavathi Dr. A. Baskaran Dr. R. Rajabaskar Dr. R. Baskaran	Exhibition was arranged with cashew grafts and value-added products of cashew at Kattathur during training programme on cashew cultivation	18 <sup>th</sup> December 2024
Dr. R. Neelavathi Dr. A. Baskaran Dr. R. Rajabaskar Dr. R. Baskaran	Exhibition was arranged with cashew grafts and value-added products of cashew at Muthanai during training programme on cashew cultivation	20 <sup>th</sup> December 2024
Dr. R. Neelavathi Dr. A. Baskaran Dr. R. Rajabaskar Dr. R. Baskaran	Exhibition was arranged with cashew grafts and value-added products of cashew at Elaiyur during training programme on cashew cultivation	24 <sup>th</sup> December 2024

## 7. SUPPLY OF PLANTING MATERIAL

AICRP Centre	No of grafts supplied
Bapatla	10784
Jhargram	3000
Pilicode	5000
Vengurla	5638

## 8. RADIO TALKS

Name of the Scientist	Title and Venue	Date
Dr. G. Sravanthi, Scientist (Entomology)	“Pest and disease management in Cashew orchards”	20 <sup>th</sup> September 2024

## 9. RECOGNITION AND AWARDS

Name of the Scientist	Title	Photo
Dr. N. Aswathanarayana Reddy	Outstanding environmentalist award, AVIAN Trust, Bangalore	
Dr. V. S. Desai	Felicited with the Excellence Teaching Award in International Conference on “Current Innovations & Technological Advances in Agriculture & Allied Sciences” (CITAAS-2024) during August 29-31, 2024 at Indian Society of Agriculture Science & Technology Research, Noida (Online mode).	
	Felicited with the Excellence in Research Award in 8 <sup>th</sup> International Conference on “Recent Trends in Advancement of Agriculture, Horticulture, Livestock” (RTAAAS- 2024) during November 21-22, 2024 at SGRRU, Dehradun (Online mode).	
Dr.R.Neelavathi	Received Women Scientist Award from Pragati International Research Scientific Foundation, India	







भाकूअनुप  
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भारतीय कृषि अनुसंधान परिषद

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Published by:

**Dr. J. Dinakara Adiga**, Director

Compiled and edited by

**Drs. H. Rajashekara, D. Balasubramanian, G. L. Veena and K. Manjunatha**



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