



# ICAR-CTCRI Newsletter



भारत सरकार - कृषि विभाग  
ICAR-CENTRAL TUBER CROPS RESEARCH INSTITUTE

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## FORTHCOMING EVENTS

- Seminar on IP Management in connection with world Intellectual Property Day celebration-30 April 2024
- 50<sup>th</sup> Institute Research Council Meeting during 10-13 June 2024



**Dr. G. Byju**  
Director

## निदेशक की कलम से

मैं गर्व से 2024 की पहली तिमाही के लिए हमारे समाचार पत्र का संस्करण प्रस्तुत कर रहा हूँ। यह समाचार पत्र आपको हमारे प्रतिष्ठित संगठन की नवीनतम जानकारी, दृष्टिकोण और उपलब्धियों प्रदान करता है। यह हमारे संस्थान के लिए एक बहुत ही महत्वपूर्ण अवधि है, क्योंकि हमारे संस्थान को दो पेटेंट प्रदान किए गए थे; एक बिजली संचालित आकार-आधारित चीनी आलू ग्रेडर के लिए और दूसरा इलेक्ट्रॉनिक फसल (ई-क्रॉप) के लिए, जो स्मार्ट खेती के लिए एक आईओटी उपकरण है। हमने IX अनुसंधान सलाहकार समिति की तीसरी बैठक सफलतापूर्वक आयोजित की है। अंतिम उपयोगकर्ताओं तक प्रौद्योगिकी हस्तांतरण के एक भाग के रूप में, पूरे देश में किसानों की क्षमता और आजीविका को मजबूत करने के लिए प्रदर्शन, प्रशिक्षण और इंटरफ़ेस बैठकें आयोजित की गईं। ड्रोन का उपयोग करके इनपुट बचत की प्रभावशीलता और क्षमता के बारे में किसानों को शिक्षित करने के लिए तमिलनाडु और केरल में ड्रोन प्रदर्शन किए गए। शोधकर्ताओं और शिक्षाविदों के लिए तीन सशुल्क प्रशिक्षण आयोजित किए गए जो संस्थान द्वारा एक नई पहल के रूप में सामने आए। सीआईएटी, कैली, कोलंबिया के सहयोग से 'उष्णकटिबंधीय कृषि में बेहतर जलवायु लचीलेपन के लिए कार्यात्मक फेनोमिक्स' पर एक अंतर्राष्ट्रीय वेबिनार आयोजित किया गया था और यह संस्थान के अनुसंधान को वैश्विक पहुंच प्रदान करता है। एआईसीआरपी एससीएसपी कार्यक्रम के तहत, 'कंद फसलों की खेती के लिए नेक्स्टजेन टेक्नोलॉजी का उपयोग' पर एक किसान प्रशिक्षण आयोजित किया गया था और केरल सरकार के कृषि और किसान कल्याण मंत्री श्री. पी. प्रसाद मुख्य अतिथि थे और उन्होंने लाभार्थियों को अर्का वर्टिकल फार्मिंग संरचना वितरित की। हितधारकों को सशक्त बनाने के लिए जिमिकन्द पर एक विचार-मंथन: चुनौतियों और रणनीतियों विषय पर, आंध्र प्रदेश के किसानों के लाभ के लिए Dr. YSRHU में एआईसीआरपी केंद्र द्वारा आयोजन किया गया। संस्थान द्वारा विकसित प्रौद्योगिकियों को तीन फर्मों को लाइसेंस दिया गया था। संस्थान के कर्मचारी लगातार अपने वैज्ञानिक कौशल और ज्ञान को हमारे देश के किसानों और अन्य हितधारकों की भलाई के लिए समर्पित कर रहे हैं। मैं हमारी दुनिया का पेट भरने वाली कृषि के प्रति उनकी वास्तविकता और प्रतिबद्धताओं की सराहना करता हूँ।

## From the Director

I am proudly presenting the edition of our newsletter for the first quarter of 2024. This newsletter provides you with the most recent information, perspectives and accomplishments of our esteemed organization. It is a very momentous period for our Institute, as our Institute was granted two patents; one for power operated size-based Chinese potato grader and the other for electronic crop (e-Crop), an IoT device for smart farming. We have successfully conducted the third meeting of IX Research Advisory Committee. As a part of technology transfer to the end users, demonstrations, trainings and interface meetings were conducted to strengthen the capacity and the livelihood of the farmers throughout the nation. Drone demonstrations were carried out in Tamil Nadu and Kerala to educate farmers about the effectiveness and potential for input savings by using drones. Three paid trainings were organized for the researchers and academicians which stands as a new initiative by the Institute. An International Webinar on 'Functional Phenomics for Improved Climate Resilience in Tropical Agriculture' was held in collaboration with CIAT, Calli, Colombia and this gives global reach to the Institutes research. Under AICRP SCSP programme, a farmers training on 'Harnessing NextGen Technology for Tuber Crops Cultivation' was organized and Shri. P. Prasad, Minister of Agriculture & Farmers Welfare, Govt. of Kerala was the Chief guest and he distributed Arka vertical farming structure to the beneficiaries. A brainstorming on elephant foot yam for empowering stakeholders: challenges and strategies was also organized by AICRP centre at Dr. YSRHU for the benefit of farmers of Andhra Pradesh. The technologies developed by the Institute were licensed to three firms. The staff of the Institute is continuously dedicating their scientific acumen and knowledge to the betterment of our nation's farmers and other stakeholders. I appreciate their genuineness and commitments towards agriculture that feed our world.

G. Byju

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Sreehariyam, Thiruvananthapuram 695 017, Kerala, India

## Extension

### FLDs/OFTs

- Fifteen field demonstrations of new varieties of cassava and agro-techniques were conducted in Mangallur and Nallur blocks of Cuddalore district and Mayiladuthurai during 29 January - 02 February 2024 under the SCSP programme and introduced the improved varieties of cassava viz., Sree Kaveri and Sree Sakthi.



Fields with improved cassava varieties and beneficiary farmers of the SCSP scheme



Seed multiplier Mr. Azhaganantham, S. Naraiyur with Sree Kaveri in the field

- Two demonstrations were conducted with promising lines of arrowroot, cassava variety Sree Raksha and sweet potato varieties, Sree Arun, Bhu Krishna and Bhu Sona in Kilimanoor (Thiruvananthapuram district) and Karunagappally (Kollam district).
- Under the Rainbow Diet program, on farm trials were conducted in sweet potato and cassava in Mizoram. Orange fleshed sweet potato involving six varieties (Bhu Sona, Bhu Krishna, Sree Kanaka, Bhu Kanti, Bhu Ja and Kanhangad local) were planted in ten OFTs and six cassava varieties (Sree Jaya, Sree Vijaya, Sree Reksha, Sree Sakthi, Sree Suvarna, Sree Kaveri) in two OFT trials in 12 farmers' fields in Muthi Village at Aizawl, Mizoram.



OFTs in Aizawl, Mizoram



- In collaboration with Krishibhavan, Parassala, 'Fusicont', a bioformulation derived from ICAR-CISH, Lucknow has been introduced into seven cassava fields in Parassala for the purpose of assessing its effectiveness in combating cassava stem and root rot.
- Two on farm trials were conducted for the management of cassava stem and root rot using a combination of bioagents, fungicides, customized fertilizers along with the farmer's practice in Parasuvaikkal, Thiruvananthapuram, Kerala.



FLD on efficiency of Fusicont on cassava stem and root rot



OFT on the management of cassava stem and root rot at Parasuvaikkal

- During 09-11 January 2024, 40 drone demonstrations were conducted in Velookkara and Varavoor panchayats of Thrissur and Mundur panchayat of Palakkad. Hundred and three farmers participated in the demonstrations. Cassava micronol and nano urea were sprayed on cassava, paddy and banana. During 19-23 February 2024, demonstrations were conducted in the paddy, banana, taro, cassava and Chinese potato fields in Tenkasi, Tirunelveli and Kanyakumari in collaboration with Department of Agriculture, Government of Tamil Nadu. Farmers and other stakeholders participated in the demonstrations. The efficiency of drone-based spraying of micronol nutrient solutions was realised by the farmers. Forty demonstrations were conducted, and 125 farmers and stakeholders participated from different villages. During 11-22 March 2024, demonstrations were continued in Kanhangad, Neeleswaram, Padanna, Peelicode, Ambalavayal, Nenmeni, Noolpuzha, Kalpatta, Velookkara, Koratty villages of Kasargode, Wayanad and Thrissur. During these period 90 demonstrations were conducted on cassava, paddy and banana by spraying nano urea and cassava special micronol. About 200 farmers participated. Farmers meetings were also conducted in the demonstration locations and Dr. V.S. Santhosh Mithra, Dr. Muthuraj and Dr. D. Jaganathan coordinated the programme in which over 400 farmers and stakeholders participated.



Field demonstration of drone application in Tenkasi, Tamil Nadu



Field demonstration of drone in Kasargode, Kerala

- Seed village demonstration plots for quality planting materials production of elephant foot yam and cassava were established in Erode district, Tamil Nadu during 19-21 March 2024. The demonstration plots in different districts of Tamil Nadu were visited by ICAR-CTCRI scientists during 19-22 January 2024 and distributed micronutrient to various beneficiaries.



Visit of CTCRI scientists to seed demonstrated farms in Tamil Nadu and interaction with farmers

- The harvest of sweet potato (var. Bhu Krishan) and yam bean (Acc. RM-1) in the demonstration plots under Tribal Subplan in Koradapongala, Mohana Block, Gajapati District, Odisha was conducted.



Harvest of sweet potato and yam bean under TSP at Koradapongala, Gajapati District, Odisha

## Training programmes

### On campus programmes

#### 21 Days hands-on training at Division of Crop Improvement

A 21 days hands-on training on ‘Advances in Plant Biotechnology and Molecular Biology for Crop Improvement’ was organized during 02-22 January 2024. Dr. M. R. Sahoo was the Course Director and Drs. Mohan, C., Asha Devi, A., Krishna Radhika, N. and Senthilkumar,

K.M. were the Course Co-ordinators. The programme consisted of three modules: Module I on Good laboratory practices and basics of plant biotechnology (2-8 January 2024); Module II on Plant tissue culture and related techniques (9-15 January 2024) and Module III on Molecular biological tools for crop improvement (16-22 January 2024). A total of 14 participants from ICAR Institutes/Universities/Colleges participated in the training. Around 30 classes by experts in various fields, 11 wet lab classes and visits to three renowned Research Institutes/Facilities in Thiruvananthapuram was the highlight of the program.



Glimpses of various lectures, wet lab and field events during 21 days hands on training

- A paid training on ‘R for Biological Data Analysis’ was organized at the institute during 08-12 January 2024 with an objective to equip participants with the skills and knowledge required for proficient biological data analysis using the R programming language. The training covered essential concepts, tools, and techniques for analysing biological data, empowering participants to draw meaningful insights and to make informed decisions. The training programme was inaugurated by Dr. G. Byju, Director, ICAR-CTCRI and the sessions were handled by Dr. J. Sreekumar, Principal Scientist and SIC, ESS & Course Director and Dr. Sona Charles, Scientist, ICAR-IISR, Kozhikode.



Inaugural session of training on R for Biological Data Analysis

Hands-on training on R programming

- A paid training on ‘Smart Farming Driven by Artificial Intelligence’ was conducted in ICAR-CTCRI during 05-09 February 2024. Seven participants from ICAR institutes, Kerala Agricultural University and Industry participated. The trainees were introduced to AI in

agriculture, block chain technology, IoT based sensor technology demonstration, drone technology and sensors. Dr. V.S. Santhosh Mithra and Dr. K.M. Senthilkumar were the course director and course coordinator, respectively.

- A paid training program on ‘Disease diagnosis using novel approaches’ was organized during 19-23 February 2024.



Inauguration session of the training program on Disease diagnosis using novel approaches



Director with Course Director, coordinators, resource persons and participants

- Farmers training on ‘Improved technologies of tropical tuber crops’ was organized in collaboration with
- Five SC youths were trained in different subject areas under the skill training component of the SCSP (institute) program as per the details given below.

Sl.No.	Name of Trainee	Name of Trainer	Training Area
1	Ms. L. Revathi	Dr. Krishna Radhika	Latest technologies on tissue culture production aspects in tuber crops
2	Ms. T.S. Suja	Dr. S. S. Veena	Hands-on training on mass production/multiplication of biocontrol agents
3	Ms. Aswathy Babu	Dr. G. Suja	Soil and Plant nutrition: Production strategies of organic inputs, resource cycling and customized fertilizers
4	Ms. Akshaya Narayanan	Dr. M.S. Sajeev	Hands-on training on Latest value addition and processing technologies of tuber crops
5	Ms. Arya Krishna	Dr. K. Sunil Kumar	Hands-on training on Quality planting materials production of tuber crops

#### Trainings organized at Techno incubation centre

The following on campus hands on trainings on ‘Value added products for entrepreneurship development in tuber crops’ were organized at Techno incubation centre.

Sl. No.	Date(s)	Panchayat, District, State	No. of beneficiaries
1	10 January 2024	Kerala University, Kariavattom	19
2	19 January 2024	RATTC, Kazhakoottam	34
3	29 January 2024	BNSEP, Mathilakm Block, Trichur	24
4	01 February 2024	Farmers from Uppilayapuram, tamilnadu	10
5	14 February 2024	PMFME, KAU, Trichur	20
6	21 February 2024	Ottoor, Varkala	27
7	28 February 2024	Farmers from Thiruvannamala	11
8	29 February 2024	Krishi Bhavan, Muttom, Idukki	28
9	04 March 2024	Perumbavoor FPO, Ernakulam	16

#### On campus training programmes at ICAR-CTCRI Reginal Station, Bhubaneswar, Odisha

- A training programme on ‘Value addition and entrepreneurship development in tubers and millets’ was organized to 30 beneficiaries at Regional Station, ICAR-CTCRI, Bhubaneswar during 30 January to 03 February 2024.

Department of Horticulture, Govt. of Tamil Nadu for 28 beneficiaries during 30 January to 01 February 2024.

- Training on ‘Improved technologies of tropical tuber crops’ was organized for 13 B.Sc. (Ag.) students of College of Agriculture, Vellayani, Kerala under the RAWE programme during 08-13 February 2024.
- Training on agro techniques and value addition in tropical tuber crops was organized for 20 farmers during 27-29 February 2024.
- Training on agro techniques and value addition in tropical tuber crops was organized for 16 farmers during 28-29 February 2024.
- Training on agro techniques and value addition in tuber crops was organised for 20 farmers during 29 February to 01 March 2024.
- Training on ‘Harnessing NextGen Technology for Tuber Crops Cultivation’ was organized for 25 SCSP farmers of Thiruvananthapuram district on 05 March 2024.

- A training programme on ‘Value addition and entrepreneurship development in tuber crops’ was organized to 35 beneficiaries at Regional Station, ICAR-CTCRI, Bhubaneswar during 26 February to 01 March 2024.

#### Off campus training programmes

- Stakeholders interface programme on ‘Improved varieties of Cassava & Drone Demonstrations for tuber crops’ was organized on 19 February 2024 at Eraniel, Kanyakumari for the benefit of 15 farmers and other stakeholders.
- Stakeholders interface programme on ‘Site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops’ was organized on 20 February 2024 at Manthiyoor, Govindaperi, Kadayam taluk, Tenkasi for the benefit of 50 farmers and other stakeholders.
- Stakeholders interface programme on ‘Site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops’ was organized on 21 February 2024 at Vellayuthasamy Kudiruppu Alankulam taluk, Tenkasi for the benefit of 55 farmers and other stakeholders.

- Stakeholders interface programme on site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops was organized on 22 February 2024 at Pallakal Pothukudi, Tirunelveli for the benefit of 55 farmers and other stakeholders.
- A training programme was organized at Adoor, Pathanamthitta, Kerala on 22 February 2024 under SCSP-AINPOF. Twenty goats and portray raised vegetable seedlings were distributed to SCSP beneficiary farmers under the AINPOF project. Shri. Chittayam Gopakumar, Deputy Speaker, Kerala State Legislative assembly inaugurated the programme.



Planting materials and input distribution to beneficiary farmers of Mayiladuthurai and Nagapattinam districts



Details of the programme and glimpses of the event

- Organised farmers training programmes on new varieties and production technologies of cassava including drip fertigation at Rmanaickanpalayam, Attur and Manmalai, Gangavalli block, Attur, Salem, Tamil Nadu on 31 January 2024, which was benefitted by 65 famers.
- Organised farmers training programme on scientific cultivation of cassava including drip fertigation at Sembanarkoil, Mayiladuthurai, Tamil Nadu on 01 February 2024 which was benefitted 28 famers.

- Under NEH programme of ICAR-CTCRI, two workshops on tuber crops were conducted in Muthi and Nausel Village at Aizawl, Mizoram on 04 March 2024 and 06 March 2024 in collaboration with Horticultural College, Thenzawl, Veterinary College and Animal Science, CAU(I) and KVK, Aizawl, Mizoram. One hundred and ten farmers participated in the workshops. Quality planting materials of different tuber crops were distributed to farmers for establishing seed villages.



Glimpses of tuber crops workshop and distribution of quality planting material production of sweet potato at Muthi village



Farmers Training at Rmanaickanpalayam, Salem district

Farmer's Training at Manmalai



Planting materials and input distribution to farmer beneficiaries

Farmers Training at Sembanarkoil, Mayiladuthurai

- Stakeholders interface programme on cropping system involving tuber crops in coconut gardens and farm advisory visits was organized on 12 March 2024 at Tirupur, Tamil Nadu for the benefit of 65 farmers and other stakeholders as part of the project titled 'Soil Health Management in Coconut Based Cropping Systems Involving Tuber Crops for Enhanced Yield and Income' sponsored by CDB, Kochi, Kerala. Dr. G. Byju, Director, ICAR-CTCRI, Dr. D. Jaganathan, Senior Scientist and Shri. D. T. Rejin, Senior Technician participated in the meeting.



Stakeholders interface and farm advisory visits at Tirupur, Tamil Nadu

**The following off-campus trainings were organized by ICAR-CTCRI Regional Station**

Sl. No.	Title of programme	Date(s)	Panchayat, District, State	No. of beneficiaries
1	Production and value addition in tuber crops	19 January 2024	KVK, Rastaguntubai, Manyam district, A.P.	75
2	Sweet potato cultivation in rice fallows	29 January 2024	Beruda, Jajpur district	50
3	Tuber crops day	31 January 2024	Koradapongala, Mohana, Gajapati district	1000
4	Production and value addition in tuber crops	12 February 2024	Saragchhida village, Kuliana block Mayurbhanj district	80
5	Production and value addition in tuber crops	13 February 2024	Baskitala village, Brahmanagaon G.P., Bangriposi block, Mayurbhanj district	70
6	Production and value addition in tuber crops	04 March 2024	G. Kankabadi village, Dumuriguda G.P., Kolnara block, Rayagada district, Odisha	70
7	Production and value addition in tuber crops	05 March 2024	Hatamuniguda village, Bissamcuttack block, Rayagada district, Odisha	70
8	Value addition and entrepreneurship development in tubers and millets	20-22 March 2024	Raikia, Kandhamal district	60



Training on sweet potato cultivation in rice fallows Beruda, Jajpur district



Training on mushroom cultivation under TSP during five-days training programme



Tuber crops day organized at Koradapongala, Mohana Block, Gajapati District, Odisha under TSP



Training programme on value addition and entrepreneurship development in tubers and millets under DBT



Chicks distribution to the tribal farmers



Distribution of small agricultural tools to the tribal farmers under TSP

**Resource person in off campus training/stakeholders interface programmes**

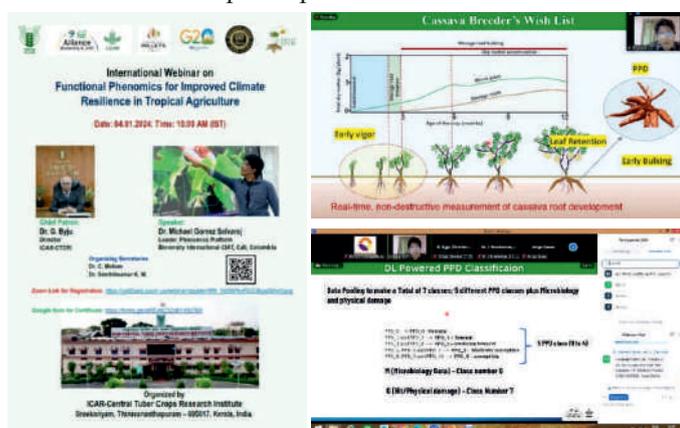
Sl.No.	Particulars	Resource person
1	Training programme on Value addition and processing equipment in tuber crops, RTTC, Vellayani, Thiruvananthapuram 10 January 2024	Dr. M.S. Sajeev
2	Training programme on Scientific cultivation of tuber crops and its value addition organized by the Regional Agricultural Technology Training Centre (RATTC), Kazhakkootam, Thiruvananthapuram 17 January 2024	Dr. Asha K.I.
3	Training programme at RATTC, Kazhakkootam, Thiruvananthapuram 18 January 2024	Dr. S. Sunitha
4	MGMG programme at Ottoor Grama Panchayath, Ottoor, Thiruvananthapuram 24 January	Dr. M.S. Sajeev
5	Training programme at Small Farmer's Agri Business Consortium, Anayara, Thiruvananthapuram 02 February 2024	Dr. M.S. Sajeev
6	Stakeholders interface programme on seed village areas in Cassava & Drone Demonstrations for tuber crops at Eraniel, Kanyakumari 19 February 2024	Dr. R. Muthuraj Dr. D. Jaganathan
7	Stakeholders interface programme on site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops at Manthiyoor, Govindaperi, Kadayam taluk, Tenkasi 20 February 2024	Dr. R. Muthuraj Dr. D. Jaganathan
8	Stakeholders interface programme on site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops at Vellayuthasamy Kudiruppu, Alankulam taluk, Tenkasi 21 February 2024	Dr. R. Muthuraj Dr. D. Jaganathan

9	21 days training course on ‘Natural farming: A way forward for resource conservation & ecological balance’ organized by ICAR-Centre for Advance Faculty Training (CAFT) on Organic Farming, MPUAT, Udaipur. 21 February 2024	Dr. G. Suja
10	Stakeholders interface programme on site specific nutrient management in Chinese potato & Drone Demonstrations for tuber crops at Pallakal Pothukudi, Tirunelveli 22 February 2024	Dr. R. Muthuraj Dr. D. Jaganathan
11	Stakeholders interface programme on cropping system involving tuber crops in coconut gardens at Tirupur, Tamil Nadu 12 March 2024	Dr. G. Byju Dr. D. Jaganathan
12	Farmers’ training under MGMG programme at NIDS Conference Hall, Valiyavila, Kulathoor, Thiruvananthapuram 29 March 2024.	Dr. S. Sunitha

### Seminars/Workshops/Interface Meetings/Field Diagnostic Visits Organized

#### International Webinar on ‘Functional Phenomics for Improved Climate Resilience in Tropical Agriculture’

An International Webinar on ‘Functional Phenomics for Improved Climate Resilience in Tropical Agriculture’ was held on 04 January 2024. Dr. G. Byju, Director, ICAR-CTCRI, inaugurated the webinar and in the inaugural speech he emphasized the importance of high throughput Phenomics and AI platform for mapping important traits and genetic improvement of cassava. Dr. Michael Gomez Selvaraj, Leader, Phenomics Platform, Bioversity International CIAT, Cali, Colombia presented the ongoing Phenomics-based research program at CIAT and potential area of collaboration with ICAR-CTCRI. After the talk, the queries raised by scientists/researchers/students were addressed by the speaker. During the panel discussion, it was decided to initiate a Joint Collaborative Program between ICAR-CTCRI and Bioversity International CIAT on post-harvest physiological deterioration (PPD) and drought tolerance in cassava. More than 350 participants from India and other countries participated in the webinar.



Programme and glimpses of the webinar

#### Webinar on ‘Maracheeniyle pradhana keedangalum niyanthrana maargangalum’ (Malayalam)

A webinar on ‘Maracheeniyle pradhana keedangalum niyanthrana maargangalum’ (Malayalam) (Major pests in cassava and their control measures) in Malayalam language

was organised on 17 January 2024 at ICAR-CTCRI. Dr. G. Byju, Director presided over the webinar & Head, Division of Crop Protection briefed about the webinar topic. Dr. E.R. Harish, Senior Scientist (Agrl. Entomology) gave an overview about the important pests of cassava and their management strategies. A total of 50 participants comprising of farmers and KVK officials participated in the program.



A screenshot of the online webinar conducted by the Division of Crop Protection

#### Brainstorming on Elephant Foot Yam for Empowering Stakeholders: Challenges and Strategies

AICRP on Tuber Crops, Horticultural Research Station, Kovvur and ICAR-Central Tuber Crops Research Institute (ICAR-CTCRI) organized a one-day brainstorming meeting on the cultivation of elephant foot yam on 13 February 2024 at HRS, Dr. YSR Horticultural University, Venkataramannagudem, Andhra Pradesh. The focus was on empowering stakeholders by addressing the challenges faced and strategizing for a sustainable future in elephant foot yam cultivation. The meeting was inaugurated by Dr. T. Janakiram, Vice Chancellor, Dr. YSR Horticultural University, Andhra Pradesh. In his inaugural address, Dr. Janakiram highlighted the nutritional richness of elephant foot yam, emphasizing the high-calorie content and essential nutrients. He stressed the need for developing high-yielding, pest-disease resistant varieties tailored to different agro-climatic zones, as well as market intelligence, impact assessment and value addition in elephant foot yam. Dr. Naram Naidu, Director of Research and Dr. E. Karunasree, Director of Extension, Dr. YSRHU, served as

the Guest of Honours. Dr. G. Byju, Director, ICAR-CTCRI, presided over the meeting and highlighted the significant role played by elephant foot yam in major growing states of India. He emphasized the vital contribution of elephant foot yam to the livelihoods, income, and food security of farmers. Dr. Ramanandam, Zonal Research Head, HRS, Kovvur, welcomed the participants, and Dr. P. Mamatha, Principal Scientist, HRS, Kovvur expressed gratitude in the vote of thanks. Dr. M. Nedunchezhiyan, Principal Scientist and Dr. D. Jaganathan served as resource persons for the brainstorming meeting. The brainstorming meeting provided an invaluable platform for stakeholders to exchange ideas, discuss challenges, and explore innovative solutions for enhancing elephant foot yam cultivation in India. With a focus on sustainable practices and technological advancements, the event aimed to pave the way for a more prosperous future for elephant foot yam growers.



Glances of Brainstorming on elephant foot yam at HRS, Dr. YSRHU, Andhra Pradesh

- An interface meeting with His Excellency Shri. Arif Mohammed Khan, Governor of Kerala was held on 20 January 2024 to discuss about the R&D activities of ICAR-CTCRI at Raj Bhavan, Thiruvananthapuram, Kerala. Dr. G. Byju, Director, ICAR-CTCRI had explained achievements and activities and future plan of ICAR-CTCRI to strengthen tuber crops sector in the country.



Meeting with His Excellency Shri. Arif Mohammed Khan, Governor of Kerala

### Webinar in Malayalam on 'Nadil vasthukkalude sambharanavum kizhanguvilakalile keedangalum rogangalum'

A webinar on 'Nadil vasthukkalude sambharanavum kizhanguvilakalile keedangalum rogangalum' (Malayalam) (Planting material storage and pests and diseases in tuber crops) was organised at ICAR-CTCRI on 27 March 2024.

Dr. G. Byju, Director presided over the webinar & Head, Division of Crop Protection briefed about the webinar topic. Dr. S.S. Veena, Principal Scientist (Plant Pathology) gave an overview on the planting material storage and pests and diseases in tuber crops. A total of 60 participants comprising of farmers and KVK officials participated in the program. Dr. M.L. Jeeva, Principal Scientist gave the vote of thanks.

### Field Diagnostic Visits

- On the invitation from Killimanoor and Pangode Krishibhavans in Thiruvananthapuram, a field diagnostic visit was made by Dr. M.L. Jeeva, Principal Scientist and Dr. E.R. Harish, Senior Scientist on 16 January 2024 to analyse the problem in cassava showing wilt symptoms. Severe red mite infestation was observed in the cassava fields and adhoc recommendations were given.
- Dr. E.R. Harish, Senior Scientist visited the farmers' fields at Sivaganga based on the request received from the farmers to assess the pest status in cassava fields and for organising farmers' awareness programme. The cassava fields were seriously infested with red spider mites and mealybugs. Adhoc recommendations were given for the pest management and biopesticides, Nanma and Shreya were distributed to farmers.



A field diagnostic visit to mite infested field in Kilimanoor



Demonstration of CTCRI developed biopesticide, Nanma in a mealybug infested field in Sivaganga

### Exhibitions

ICAR-CTCRI has participated in the following exhibitions in this quarter.

- International Fisheries Expo 2024 at KUFOS Campus, Panangad, Kochi, 12-14 January 2024.
- KAU-Corteva International Plant Science Symposium, College of Agriculture, Thiruvananthapuram, 18-19 January 2024.
- 36<sup>th</sup> Kerala Science Congress at Government College, Kasaragod, Kerala during 08-11 February 2024.
- International Seminar on Sustainable Urban Agricultural Practices and Community-Resilient Cities at College of Agriculture, Thiruvananthapuram, 22-23 March 2024.
- Tuber crops cum product exhibitions were organized in Muthi Village and Nausel village, Aizawl, Mizoram on 04 March 2024 and 06 March 2024.
- Regional Station, ICAR-CTCRI participated in the

exhibitions organized at KVK, Puri, Odisha on 13 March 2024 and ICAR-NRRI, Cuttack on 15 March 2024.



Participation in exhibition at KVK, Puri



Participation in exhibition at ICAR-NRRI

### Exposure visits to ICAR-CTCRI

- One day exposure visit cum training on ‘Improved technologies of tuber crops’ was organized for the benefit of 883 students and 109 officials during this period at ICAR-CTCRI, Sreekariyam, Thiruvananthapuram.
- A two-day training cum exposure visit for 18 farmers from Pune, Maharashtra through Society for Agriculture & Rural Welfare (SARW) was organised during 14-15 February 2024 at ICAR-CTCRI.
- One day exposure visit was organized for the benefit of 65 farmers, 67 officials and 30 students at RS, ICAR-CTCRI, Bhubaneswar.

### Mera Gaon Mera Gaurav Programme

A Farmers training cum exhibition on ‘Value added products from tuber crops’ was organized on 24 January 2024 at Ootoor Panchayath, Varkkala. The importance of tuber crops for nutrition and human health was explained to 74 farmers. Special lecture on value addition in tuber crops and its importance was delivered by Dr. M.S. Sajeew, Principal Scientist. A hands-on training was also given to these farmers at the Techno incubation centre of ICAR-CTCRI as a follow up of the above programme.



Hands-on training to MGGM farmers at TIC, ICAR-CTCRI



MGGM programme at Ootoor, Varkkala, Thiruvananthapuram

### Swachh Bharat Abhiyan

- The monthly cleanliness drives under Swachh Bharat Abhiyan were organised on 25 January 2024 and on 20 March 2024 at ICAR-CTCRI campus. The farm area

and storage sheds were cleaned. About 15 kg trash and 12 kg plastic wastes were disposed from Division of Crop Production of ICAR-CTCRI campus. A cleanliness programme was organized in the surroundings and front of farmers training hall of ICAR-CTCRI, Regional Station on 21 March 2024.



Glimpses of the Swachh Bharat programme and cleanliness drive

### Activities of Agribusiness Incubator

#### ICAR-CTCRI and KAU launch Certified Agritech Startup Professional Programme for agriculture students

The ICAR-Central Tuber Crops Research Institute Agri-Business Incubator in collaboration with College of Agriculture, KAU, Vellayani and Kerala Startup Mission launched a student focused ‘Certified Agritech Startup Professional Scheme’ (CAgtSP) for creating student startup professionals. The CAgtSP is an experiential learning programme, where a group of students selected through a startup-focused exam, are attached with the ICAR-CTCRI Agri-Business Incubator for one year and will serve as ‘Student ambassadors’. The CAgtSP was launched on 18 March 2024 at CoA, KAU, Vellayani. Dr. G. Byju, Director, ICAR-CTCRI graced the occasion as Chief Guest. Dr Roy Stephen, Dean of Faculty, College of Agriculture, Vellayani delivered the presidential address. Dr. P. Sethuraman Sivakumar, Principal Scientist, ICAR-CTCRI and Programme Director introduced the CAgtSP module and its benefits. Dr. M. Esakkimuthu, Assistant Professor welcomed the gathering and Dr. Gopika Somnath, Assistant Professor delivered vote of thanks. About 168 B.Sc. (Ag.) final year students attended.



Dr. G. Byju, Director ICAR-CTCRI delivering inaugural address



Winners of Business pitch competition

## Root and Tuber Mela

The Institute has collaborated with Bengaluru-based Spudnik Farms along with Rohini Nilekani Philanthropies and Rainmatter Foundation, in the 'Rooting for Tubers Festival' organized at the Bangalore International Centre on 04 February 2024. Dr. G. Byju in his inaugural address highlighted the importance of tuber crops in climate change situations. Ms. Sumeet Kaur, Founder of Spudnik Farms said it is necessary to bring the communities to the front who nurtured tubers for generations. 'Tuber talks' were organised through three panels. The panellists included Dr. G. Byju, Director, ICAR-CTCRI; Chef K. Thirugnanasambantham; Principal at WGSMA, Manipal; Ms. Tanya Kak; Rohini Nilekani Philanthropies; Ms. Marisha Thakur, Rainmatter Foundation; Dr. Jayanand Derekar, Sanjivani Seva Trust; Dr. K. Ramachandra Naik, Director (Research), University of Horticultural Sciences, Bagalkot; Dr. P. Sethuraman Sivakumar, Principal Scientist, ICAR-CTCRI and Dr. B. Shanmugasundaram, Professor, Kerala Agricultural University. Over 300 participants from farming and tribal communities, research and academic institutions, international agencies, development workers, foreign students and tourists participated.



Director, ICAR-CTCRI chairing panel discussion



Tuber Crops Diversity Fair

## Technology Commercialization/Linkages/ Collaborations

- The technology on 'Cassava based protein enriched noodles' was licensed to Ms. Suhara K.M., President, M/s White Powder ME unit, Kudumbasree Mission, Kootiklangadi, Malappuram, Kerala.

## Capacity Building

### Trainings attended by staff

Sl.No.	Name	Particulars of the training	Period
1	Dr. S.N. Rahana	21 days Hands-on-training on Advances in Plant Biotechnology and Molecular Biology for Crop Improvement' organized by ICAR-CTCRI.	02-22 January 2024
2	All Scientists	International webinar on Functional phenomics for improved climate resilience in tropical agriculture organized in collaboration with CIAT, Columbia	04 January 2024
3	Dr. Sheela Immanuel	State credit seminar, NABARD, Thiruvananthapuram	12 January 2024
4	Dr. P.S. Sivakumar	'SRIJAN: Orientation programme for ICAR-ZTMCs/ITMU	17 - 19 January 2024
5	Dr. Sheela Immanuel	SAC meeting KVK, Mitraniketan, Thiruvananthapuram	24 January 2024
6	Dr. T. Krishnakumar	Online NPTEL course on 'Modern Food Packaging Technologies: Regulatory aspects and global trends'	12 Weeks starting from 27 January 2024
7	Dr. K.M. Senthilkumar	NAAS-4 <sup>th</sup> Pedagogy Development Program Enhancing Pedagogical Competencies for Agricultural Education	29 January 2024 - 02 February 2024

- ICAR-CTCRI has signed an MoA with ICAR-Indian Institute of Spices Research for manufacture and cost sharing of ICAR-CTCRI microbial bio capsules 19 March 2024.



Technology licensing of Functional noodles from cassava technology



Signing MoU with IISR for manufacture of microbial biocapsules

- A digital farm to demonstrate e-Crop Based Smart Farming (eCBSF) and e-Crop Based Smart Fertigation System (eCBSFS) was set up in Anad, Thiruvananthapuram which was launched by Shri. P. Prasad, Hon'ble Agriculture Minister, Government of Kerala on 12 February 2024. The farm was set up by ICAR-CTCRI in collaboration with Anad Farmers Service Cooperative Bank and one e-Crop device was installed. Cassava and banana were planted in 5 cents of land each and tomato, brinjal and bhindi were planted in 2 cents each. Fertilizers and water applications for these crops are automatically done daily through drip system connected to eCBSFS, which works as per the signals received from e-Crop.
- A MTA was signed between ICAR-CTCRI and ICAR-NBPGR for sharing 16 accessions of legume tuber – winged bean germplasm for research under the institute project 'Developing breeder seed standards in tropical tuber crops' on 15 March 2024.



eCBSFS installed in the digital farm, Anad, Thiruvananthapuram

9	Dr. T.P. Sujatha	NABL one-day refresher training course for testing & calibration laboratory assessors Organized by NABL at park fortune, Bengaluru	09 February 2024
10	Dr. V. Ramesh	Workshop on Soil health: measurement and modelling organized by IIRS, Dehradun	28 March 2024
11	Dr. P. Prakash	MOOC Training on Artificial Intelligence in Agriculture organized by ICAR-NAARM, Hyderabad.	01-31 March 2024

### Staff participation in scientific events/seminars/symposia/conference/workshop/meetings

Sl.No.	Name of the participant	Programme	Particulars
1	Dr. K. Susan John	Farmers First Programme of ICAR-CPCRI in the popularisation of sweet potato in Arattupuzha block of Kayamkulam, Alappuzha and handled a class for more than 300 farmers on 'Cultivation practices of sweet potato'	05 January 2024
2	Dr. G. Suja	18 <sup>th</sup> AGM of All India Network Programme on Organic Farming	07-10 January 2024
3	Dr.G. Byju Shri. S. Bhadrakumar Dr. G. Suja Dr. T. Makesh Kumar Dr. M.R. Sahoo Dr. A.N. Jyothi Dr. J. Sreekumar Dr. K. Laxminarayana Dr. M.S. Sajeev Dr. V.S. Santhosh Mithra Dr. R. Saravanan Raju Dr. D. Jaganathan Smt. Jessymol Antony Shri. T. Vijayakumara Kurup Shri. A. Lakshmana Rao	Institute Management Committee Meeting	ICAR-CTCRI, Thiruvananthapuram 12 January 2024
4	All Scientists	Webinar on important pests of cassava and their management	ICAR-CTCRI, Thiruvananthapuram 17 January 2024
5	Dr. K. Susan John	Technical Committee meeting of the Department of Soil Conservation and Soil Survey as technical expert, Govt. of Kerala.	24 January 2023
6	Dr. K. Susan John	Review meeting of the project titled 'Assessment of the effect of polysulphate (dehydrite poly halite) on yield and quality parameters of small cardamom ( <i>Elettaria cardamomom</i> Maton) under Kerala region (online).	Indian Cardamom Research Institute 25 January 2024
7	Dr. T. Makesh Kumar	National Conference on Plant Health for Food Security: Threats and Promises	ICAR-Indian Institute of Sugarcane Research, Lucknow, Uttar Pradesh 01-03 February 2024
8	Dr. K. Susan John	Scientific Advisory Committee meeting of KVK, Kollam.	9 February 2024
9	Dr. G. Suja	Review meeting on budget chaired by Dr. S.K. Singh, DDG (HS) as Director (i/c)	12 February 2024
10	Dr. G. Byju Dr. M. Nedunchezhiyan Dr. D. Jaganathan	Brainstorming session on elephant foot yam for empowering stakeholders: challenges and strategies	Horticultural Research Station, Dr. YSR Horticultural University, Venkataramannagudem, Andhra Pradesh 13 February 2024
11	Dr. G. Suja	Dinner meeting with Dr. Abhay Karandikar, Secretary, DST, Govt. of India on an invitation from Dr Sanjay Behari, Director, Sree Chithra Thirunal Institute of Medical Sciences & Technology (SCTIMST), Thiruvananthapuram.	14 February 2024
12	Dr. T. Makesh Kumar Dr. S.S. Veena Dr. H. Kesava Kumar	Plant health intervention at the plant-insect- pathogen interface	ICAR-IIHR, Bengaluru 26 February 2024
13	All staff	National Science Day celebrations	28 February 2024
14	Dr. K. Susan John	'Mukhamukham' programme of Department of Agriculture and Farmers' Welfare, Kerala State.	Organized by Chief Minister of Kerala at Alappuzha 02 March 2024
15	Dr. G. Suja	15 <sup>th</sup> Scientific Advisory Committee meeting of KVK, Kumarakom, Kottayam.	04 March 2024

16	Dr. T. Makesh Kumar	Review meeting of ICAR-CRP on Vaccines and Diagnostics	ICAR-IVRI Regional centre 04-05 March 2024
17	Dr. V. Ramesh	15 <sup>th</sup> SAC meeting of ICAR-KVK (TNAU) at Tirupathisaram, Tamil Nadu as member, official side.	12 March 2024
18	Dr. M. Nedunchezhiyan	Kisan Mela, KVK, Puri, Odisha. Delivered an invited talk on 'Root and tuber crops for food security and entrepreneurship development'	13 March 2024
19	Dr. M.S. Sajeew Dr. T. Krishnakumar	Annual review meeting of AICRP on Post-Harvest Engineering & Technology	ICAR-CIPHET, Ludhiana 13-15 March 2024
20	Dr. M. Nedunchezhiyan	Sangam-2024, ICAR-NRRI, Cuttack, Odisha	15 March 2024
21	Dr. A. Asha Devi	FYUGP-Syllabus Workshop organised by University of Kerala	19-23 March 2024
22	Dr. D. Jaganathan Dr. P. Prakash	International Seminar on Sustainable Urban Agricultural Practices and Community-Resilient Cities	Kerala Agricultural University, College of Agriculture, Thiruvananthapuram 22-23 March 2024
23	Dr. A.N. Jyothi Dr. J. Sreekumar Dr. T. Krishnakumar	Joint Monitoring Committee meeting to review the progress of the work under the contract research project with M/s SAGOSERVE	SAGOSERVE, Salem, Tamil Nadu 25 March 2024

## Publications

### Research papers

- Aneetta Baby, Veena, S.S. and Karthikeyan, S. 2022. Study on compatibility of *Trichoderma asperellum* and fungicides for the development of environment friendly and cost-effective disease management strategies. *J. Root Crops*, **48**(1&2): 35-40.
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- Jena, B., Padhan, B., Pati, K. and Chauhan, V.B.S. (2024). Critical review on Nutra-pharmaceutical usage of yams. *Food and Humanity*, **2**: 100273.
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#### Books

1. Makesh Kumar, T. Jeeva, M.L. and Veena, S.S. 2024. *Training Manual: Diagnosis of Plant Diseases through Novel Approaches*. ICAR-Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala, India, 64 p.

#### Book chapters

1. Byju, G. and Jaganathan, D. 2024. Improved varieties and technologies in tropical tuber crops for enhancing productivity and profitability. In: *Souvenir*, National Horticulture Fair 2024, ICAR-IIHR, Bengaluru, Karnataka, 77-92 pp.
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#### Technical bulletins

1. Mohan, C., Muthuraj, R., Sivakumar P. S. and Lalhmingsanga. 2024. Tuber Crops Manual: Tropical Tuber Crops – Production Technologies, Value Added and Functional Foods. For ICAR-CTCRI NEH Program (Mizoram), ICAR-Central Tuber Crops Research Institute, Kerala, India. 102 p.
2. Nedunchezhiyan, M., Sheela Immanuel, Jeeva, M.L., Kesava Kumar, C., Visalakashi Chandra, C. and Pradeepika, C. 2023. YAMS. Technical Bulletin, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala. pp
3. Sivakumar, P.S., Nedunchezhiyan, M., Tengli, M.B., Thirunavukkarasu, D., Shanmugasundaram, B., Raju, S., Bharathi, C.S., Chhetri, A., Sasikumar, R., Byju, G., Gayathri, B.R. and Athira Krishnan, L.R. 2024. Catalyzing grassroot entrepreneurship through satellite incubation centres in India. Good Practice Notes 6. APIRAS-APAARI. The TAP-AIS project, FAO. 1-14.

#### Popular articles

1. Jyothi, A.N. and G. Byju. 2024. Maracheeni kalitheettayayi nalkumbol sradhikkenda karyangal, *Krishiyanganam*, December 2023-January 2024, **6(6)**: 36-39.
2. Rahana, S.N. 2024. Eanthukondu palm oil vivitha avashyangalkku anuyojyam? (Why Palm oil beneficial for various purpose?) (Malayalam). *Krishijagron*, <https://malayalam.krishijagron.com/farming/cash-crops/why-palm-oil-beneficial-for-various-purposes/dt:21-March-2024>.
3. Sajeev, M.S., Krishnakumar, T. and Pradeepika, C. 2024.

- Mechanisation in tuber crops. *Kerala Karshakan*, **69(04)**: 26-29.
4. Sangeetha, B.G., Harish, E.R., Arutselvan, R. and Pradeepika, C. 2024. Application of biotechnological tools for tropical tuber crop improvement. *Biotica Research Today* **6(3)**: 117-119.
5. Sheela Immanuel, Jaganathan, D., Prakash, P. and Sivakumar, P.S. 2024. Reorienting youth in agriculture for better prosperity. *Kerala Karshakan e Journal*, **11(8)**: 41-45.
6. Shijini, E.M., Byju, G., Arathy, B. and Jaganathan, D. 2023. Site Specific Nutrient Management for enhancing productivity of cassava. *Kalpadhenu*, **43(4)**: 37-38.
7. Sunitha, S. 2024. Kizhanguvila: vilaveduppum vith sookshippum engane. (Malayalam), *Karshakasree*, February 2024, 44-45.

#### Conference/Souvenir/Seminar proceedings

1. Amalnath, S., Sheela, M.N., Abhilash, P.V. and Mamatha Mary Mathews. 2024. Identification of short duration genotypes with cassava mosaic disease resistance for crop diversification in Kerala. In: *Proceedings of 36<sup>th</sup> Kerala Science Congress*, 08-12 February 2024, Kasargode, Kerala, pp.17.
2. Amrutha, P.R. and Jeeva, M.L. 2024. Management of Greater Yam (*Dioscorea alata*. L.) Anthracnose caused by *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. employing endophytes from medicinal plants, In: *Abstracts of IPS-National Conference on Plant Health for Food Security: Threats and Promises*, ICAR-Indian Institute of Sugarcane Research (IISR), Lucknow, Uttar Pradesh, 01-03 February 2024.
3. J. Suresh Kumar, K. Susan John, S. Sunitha, K. Sunilkumar and Sandra Jose, 2024. Urban farming of sweet potato: standardisation of NPK for poly bag cultivation, In: *Proceedings of International seminar on Sustainable urban agricultural systems and community resilient cities*, 23-24 March 2024, College of Agriculture, Vellayani, Thiruvananthapuram, Kerala.
4. Makesh Kumar, T., Arutselvan, R. and Jeeva, M.L. 2024. Strategies to maintain the health of tropical tuber crops against viral diseases. In: *Abstracts of IPS-National Conference on Plant Health for Food Security: Threats and Promises*, ICAR-IISR, Lucknow, Uttar Pradesh, 01-03 February 2024.
5. Reshma Maria Joseph, Shirly Raichal Anil, Krishna Radhika, N., and Senthilkumar, K.M. 2024. Understanding the phenology of photoresponsive tuberization of sweet potato to unravel its potential as a super food. In: *Proceedings of 36<sup>th</sup> Kerala Science Congress*, Government College, Kasaragod, 08-11 February 2024, pp 31.
6. Safeetha, H.M. and Krishnakumar, T. 2024. Effect of

different roasting and steaming treatments on physico-chemical and functional properties of commercial sago. Paper presented at International Fisheries Conference & Expo at Panangad organized by Kerala University of Fisheries and Ocean Studies (KUFOS), 12-14 January 2024.

7. Sruthi, T., Susan John, K., Jeeva, M.L. and Makesh Kumar, T. 2024. Cassava mosaic disease: correlation with leaf area index and chlorophyll. International Plant Science Symposium on Innovative crop health management solutions, 18-19 February 2024, held at College of Agriculture, Vellayani, Thiruvananthapuram, Kerala.

### Technical/Extension folders/Leaflets

1. Jeeva, M.L. Amrutha, P.R., Praveena, R., Veena, S.S. and Sivakumar, P.S. 2024. *Biocapsule of an endophytic Bacillus sp.* Technical Leaflet No. TL-4/2024, ICAR- Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India.
2. Jyothi, A.N. 2024. *Advisory Note on How to Feed Animals with Cassava/Tapioca Parts*, Technical Leaflet No. TL-1/2024, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India.
3. Jyothi, A.N. 2024. മരച്ചീനി കാലിത്തീറ്റയായി നൽകുമ്പോൾ ശ്രദ്ധിക്കേണ്ട കാര്യങ്ങൾ (Malayalam), Technical Leaflet No. TL-2/2024, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India.
4. Muthuraj, R., Mohan, C., Sivakumar P. S. and Lalhmingsanga, 2024. *Agro-techniques in Cassava*. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, and Kerala. (in English & Mizoram languages).
5. Muthuraj, R., Mohan, C., Sivakumar P. S. and Lalhmingsanga, 2024. *Agro-techniques for cultivation of Orange Fleshed Sweet Potato (OFSP)*. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, and Kerala. (in English & Mizoram languages).
6. Sheela Immanuel, Prakash P, Jaganathan D. 2024. *Training Calendar 2024-2025*, ICAR-CTCRI, Thiruvananthapuram, Kerala.
7. Veena, S.S., Praveena, R., Jeeva, M.L. and Sivakumar, P.S. 2024. *Trichoderma bio-capsule*. Technical leaflet TL-3/2024, ICAR- Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala.

### e-Publications (Submission to NCBI)

1. Senthilkumar, K.M., Kumar, H.K. and Makesh Kumar, T. 2024. *Steinernema siamkayai* isolate CTCRIS2 small subunit ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence.

PP141117.1. URL: <https://www.ncbi.nlm.nih.gov/nuccore/PP141117.1>, 17 January 2024.

2. Veena, S.S., Karthikeyan, S., Nileena, P., Jeeva, M.L. and Arutselvan, R. 2024. *Fusarium incarnatum* isolate SSV4a.1 translation elongation factor 1 alpha (EF1) gene, partial cds. PP265423.1. URL: <https://www.ncbi.nlm.nih.gov/nucleotide/PP265423.1>, 01 February 2024.
3. Veena, S.S., Karthikeyan, S., Nileena, P., Jeeva, M.L. and Arutselvan, R. 2024. *Fusarium incarnatum* isolate SSV9.2 elongation factor 1 alpha (tef1) gene, partial cds. PP140674.1. URL: <https://www.ncbi.nlm.nih.gov/nuccore/PP140674.1>, 01 February 2024.

### TV Programme

1. A.N. Jyothi. *Precautions to be taken while feeding cattle with tapioca peels* (Pasukkalkku maracheenitholi kodukkathinu munpu ivayokke sradhikkam), Talk in Krishi Jagaran Video channel (Malayalam), 04 January 2024.
2. Krishna Radhika, N. *Gene editing in cassava*, Speech telecasted in Krishi darshan programme aired in connection with NCTTC programme in Doordarshan (Malayalam) on 02 January 2024.
3. Mohan, C. and Muthuraj, R. 2024. Rainbow Diet Campaign program: Tuber crops workshop and Exhibition telecasted by DD News, Mizoram on 08 March 2024.

### Radio talk

1. Dr. A.N. Jyothi delivered a radio talk on 'Precautions while feeding cattle with tapioca' (Malayalam) in Njattuvela programme of All India Radio, Thiruvananthapuram, 06 February 2024.
2. Dr. K. Susan John delivered a radio talk on INM in tuber crops: Recent Developments and challenges recorded on 15 March 2023 and broadcasted on 16 March 2023 under Farm and Home section of AIR, Thiruvananthapuram.
3. Dr. Veena, S.S. delivered a radio talk on 'Precautions to be taken for selecting planting materials to minimise pest and diseases' in 'Njattuvela', programme of All India Radio, Thiruvananthapuram, 25 March 2024.

### Institute Publications

1. ICAR-CTCRI Newsletter, Volume 40, Issue 4, October-December 2023.
2. ICAR-CTCRI. 2023. Quarterly review meeting of scientists: Progress Report (October- December 2023), ICAR-Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, 224p.
3. Murugesan, P, Visalakshi Chandra C, Suresh Kumar J, Kesava Kumar H, Pradeepika Chintha, Prakash P, Karthikeyan S and Prakash Krishnan BS, 2024. Action

Taken and Progress Report of Third Meeting of IX Research Advisory Committee, 22-23, January, 2024. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala. 110p.

4. Murugesan, P, Visalakshi Chandra C, Suresh Kumar J, Kesava Kumar H, Pradeepika Chintha, Prakash P, 2024. Proceedings of Third Meeting of IX Research Advisory Committee, 22-23, January 2024. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, 23p.
5. Muthuraj, R., Jaganathan, D., Suja, G., Prakash, P., and Sheela Immanuel. 2023. Proceedings and Recommendations of Brainstorming on Chinese potato for Empowering Stakeholders: Challenges and Strategies, held on 06 October 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India, 51p.
6. Carolin Rathinakumari, A., Susan John K., Sreekumar, J. and Aswin Raj. 2024. User Manual of Arkka Vertical Garden in Malayalam. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India, 11p.

### Major Institute Events

#### Third Meeting of IX Research Advisory Committee

1. Third meeting of IX Research Advisory Committee was held at ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala during 22-23 January 2024 under the Chairmanship of Dr. N.K. Krishna Kumar, Ex-DDG (Hort. Sci.), ICAR.

The following members attended the meeting:

1. Dr. N.K. Krishna Kumar, Ex-DDG (Horticultural Science), ICAR
2. Dr. S.K. Pandey, Ex-Director, ICAR-CPCRI, Shimla
3. Dr. P.M. Govindakrishnan, Ex-Project Coordinator, AICRP (Potato), ICAR-CPCRI, Shimla
4. Dr. K. Umamaheswaran, Ex-Professor, Kerala Agricultural University, Thiruvananthapuram
5. Dr. Sanjaya Kumar Dash, Dean, College of Agricultural Engineering & Technology, OUAT, Bhubaneswar
6. Dr. H. Philip, Ex-Director (Extension), TNAU, Coimbatore
7. Dr. G. Byju, Director, ICAR-CTCRI, Thiruvananthapuram
8. Dr. P. Murugesan, Principal Scientist & Member Secretary, ICAR-CTCRI

All the HoDs, Sections-in-Charges and Scientists of HQ participated in the meeting. Dr. K. Laxminarayana, Scientist in-charge and Dr. M. Nedunchezhiyan, Principal Scientist, Regional Station of ICAR-CTCRI, Bhubaneswar also attended. In the inaugural session, 3 tuber crops-based

products and 4 technical publications of ICAR-CTCRI were released by Dr. N.K. Krishna Kumar, Chairman. An exhibition was also arranged on the occasion showcasing tuber crops varieties, technologies and products which were released during 2023. The committee appreciated the Institute's achievements on quality planting material production, commercialization of technologies, academic activities, initiation of genome editing programme and other cutting edge research programmes. Dr. G. Byju, Director, ICAR-CTCRI, Thiruvananthapuram presented the overall achievements of the institute. The Mega project leaders/Project leaders presented the salient achievements/progress of research of 8 mega projects. The meeting was co-ordinated by Dr. P. Murugesan, Principal Scientist & Member Secretary. Dr. N.K. Krishna Kumar, Chairman and Dr. P.M. Govinda Krishnan, Member visited Regional Station, ICAR-CTCRI, Bhubaneswar on 02 February 2024 and reviewed the ongoing research programmes.



Glimpses of RAC meeting at ICAR-CTCRI



Field and lab visits of RAC chairman and member at Regional Station, Bhubaneswar

#### Farmers Training Program on 'Harnessing NextGen Technology for Tuber Crops Cultivation' and distribution of Arka vertical farming structure

ICAR-Central Tuber Crops Research Institute organized a Farmers Training Program on the topic 'Harnessing NextGen Technology for Tuber Crops Cultivation' under All India Coordinated Research Project, on 05 March 2024. Shri P. Prasad, Hon'ble Minister for Agriculture and Farmers Welfare, Government of Kerala inaugurated the programme and distributed Arka Vertical Farming Structure to the selected SC beneficiary farmers under the Scheduled Castes Sub Plan (SCSP). In his inaugural speech, he emphasized

the possible major roles which ICAR-CTCRI can play in the major schemes like ‘Poshaka Samridhi Mission’ and ‘Jaivamission’ of Government of Kerala. He also highlighted the need to understand different types of tuber crops suitable for each region of Kerala, create awareness about the nutritional value of tuber crops and introduce different types of tuber based recipes among the people. The Director, ICAR-CTCRI, Dr. G. Byju, in his keynote address, highlighted the research achievements and contributions of CTCRI in the R&D of tropical tuber crops. He also highlighted the need to establish a centre of excellence in ecosystem services to plan different projects and understand exactly the contribution of farmers as part of organic farming. Dr. K. Susan John, Principal Scientist & PI, AICRP project, Thiruvananthapuram centre welcomed the participants and Dr. J. Sreekumar, Principal Scientist and Scientist-in-charge, AICRP TC offered vote of thanks. The beneficiary farmers were given training on vertical farming, soilless dripponics, precision farming and hydroponics techniques. Dr. A. Carolin Rathinakumari, Principal Scientist, ICAR-IIHR, Dr. K. Sunil Kumar and Dr. J. Suresh Kumar, Scientists, ICAR-CTCRI handled the classes.

January 2024 under the Chairmanship of Dr. G. Byju, Director, ICAR-CTCRI.

The following officials attended the meeting:

1. Dr. G Byju, Director, ICAR-CTCRI, Thiruvananthapuram
2. Dr. Manoj Kumar, Principal Scientist (PIM Section), ICAR HQ
3. Dr. Sudhakar Rao D V, Principal Scientist, ICAR-IIHR, Bengaluru
4. Dr. Manish Das, Director, ICAR- DMAPR, Anand, Gujarat
5. Shri. Bhadra Kumar S., Senior Administrative Officer, ICAR-CTCRI, Thiruvananthapuram
6. Dr. G. Suja, Head, Division of Crop Production, ICAR-CTCRI
7. Dr. T. Makeshkumar, Head, Division of Crop Protection & SIC (PME), ICAR-CTCRI
8. Dr. Manas R. Sahoo, Head, Division of Crop Improvement, ICAR-CTCRI
8. Dr. A.N. Jyothi, SIC, Section of Crop Utilization, ICAR-CTCRI
10. Dr. J. Sreekumar, SIC, Section of Extension & Social Sciences, ICAR-CTCRI
11. Dr. K. Laxminarayana, SIC, CTCRI Regional Station, Bhubaneswar, Odisha
12. Dr. M.S. Sajeev, SIC, E&M Cell, ICAR-CTCRI
13. Dr. V.S. Santhosh Mithra, SIC, Library, ICAR-CTCRI
14. Dr. R. Saravanan Raju, SIC, Farm, ICAR-CTCRI
15. Dr. D. Jaganathan, Member, PME, ICAR-CTCRI  
Smt. Jessymol Antony, Senior Finance & Accounts Officer i/c, ICAR-CTCRI
16. Shri. T. Vijayakumara Kurup, Assistant Administrative Officer, ICAR-CTCRI
17. Shri. A. Lakshmana Rao, Senior Finance & Accounts Officer, ICAR-CTCRI



Shri. P. Prasad, Hon'ble Agriculture Minister, Govt. of Kerala handing over the Arka vertical farming structure to SCSP farmer beneficiary



Inaugural function of Farmers' Training Program on 'Harnessing NextGen Technology for Tuber Crops Cultivation'



Shri P. Prasad, Hon'ble Minister of Agriculture and Farmers Welfare, Govt. of Kerala visiting climate controlled green house at ICAR-CTCRI

### Quarterly Review Meetings

Third quarterly review meetings of scientists were conducted during 08-09 January 2024 under the Chairmanship of Dr. G. Byju, Director, to review the progress achieved during the quarter (October-December 2023) and to prioritize the targets for scientists of Crop Improvement, Crop Production, Crop Protection, Crop Utilization and Extension & Social Sciences.

### Institute Management Committee Meeting

The XIX Institute Management Committee Meeting of ICAR-CTCRI, Thiruvananthapuram was held on 12

Shri. Bhadra Kumar S, Member Secretary, IMC & SAO, ICAR-CTCRI, Thiruvananthapuram, welcomed the members of the IMC. Dr. G. Byju delivered the Chairman's speech followed by a presentation by Dr. D. Jaganathan, Member, PME on the mandate, research activities and achievements of the Institute. This was followed by a brief presentation of the action taken report, which was accepted and approved by the house. The SAO presented the report of establishment and personnel section and Senior Finance & Accounts Officer presented the progressive expenditure of 2023-24 up to 10 January 2024.

### Institute Biosafety Committee Meeting

The Institute Biosafety Committee Meeting (IBSC) was held at ICAR-CTCRI, Thiruvananthapuram on 25 January

2024 to review the rDNA based research projects. Dr. G. Byju, Director, ICAR-CTCRI & Chairman, IBSC; Dr. S. Manjula, Scientist F, RGCB, Thiruvananthapuram, DBT Nominee; Dr. T. Bindu, Medical Officer, Govt. of Kerala, Thiruvananthapuram, Biosafety Officer; Dr. E.V. Soniya, Scientist G, RGCB, Thiruvananthapuram, External expert; and Internal experts, Dr. T. Makesh Kumar, Head, Division of Crop Protection & Scientist-in-Charge, PME Cell; Dr. Manas Ranjan Sahoo, Head, Division of Crop Improvement; Dr. M.L. Jeeva, Principal Scientist and Dr. K.M. Senthilkumar, Scientist attended the meeting and reviewed the progress of rDNA-based research projects of ICAR-CTCRI. The committee members appreciated the scientists for strict adherence to the biosafety guidelines at the research laboratories of the Institute.

### National Science Day Celebrations

The National Science Day was celebrated on 28 February 2024. As part of the program, there was open house for students and farmers. Dr. K.M. Sreekumar, Professor & HoD (Agricultural Entomology), College of Agriculture, Padannakkad delivered a guest lecture on 'Pesticides-the most misunderstood molecules'. Around 330 participants including scientists, students, farmers and staff of ICAR-CTCRI participated in the event.

### International Women's Day

International Women's Day was celebrated at ICAR-Central Tuber Crops Research Institute with various programmes. Smt. R. Nishanthini, IPS, Deputy Inspector General of Police, Thiruvananthapuram Range was the chief guest and delivered Women's Day speech on the focal theme 'Invest in Women: Accelerate Progress'. She stressed the need for investing in mental well-being, self-love and pride in women empowerment. She also enlightened the positive sides of being assertive. Cultural programme and various competitions for women added colour to the celebration. Dr. G. Byju, Director, ICAR-CTCRI presided the meeting.

### Hindi Corner

The meeting of the Official Language Implementation Committee (OLIC) of ICAR-CTCRI for the IV quarter from January to March 2024 was held on 15 December 2024 under the Chairmanship of Dr. G. Byju, Director and Chairman (OLIC). Chairman OLIC reviewed the progress of OL activities at the Institute for the said quarter. In the meeting it was decided to start a CTCRI Hindi e-magazine and also decided that employees have to send details of their Hindi work to the Official Language Liaison Officer every month in the prescribed format.

### Hindi Workshops

During this period, a Hindi workshop was organized by Hindi Cell for Administration and Accounts section on 23 February 2024 on the topic 'Official Language Policy and Rules'. A training on noting and drafting in Hindi was also

conducted. The workshop was inaugurated by Dr. G. Byju, Director. The workshop was attended by 11 participants comprising of 5 officers and 6 other staff.

### Hindi Class for Employees

Hindi classes are being held once in a week for the employees. Seven classes have been completed in this quarter.

### Other Important Events

#### Director's Official Visits

- Dr. G. Byju, Director visited Mr. S. Panigrahi, Deputy Director of Horticulture, Keonjhar district, Odisha and discussed about the Rainbow diet project on 28 January 2024.
- Dr. G. Byju, Director visited the Regional Station of ICAR-CTCRI, Bhubaneswar during 28-30 January 2024 and reviewed the progress of the ongoing research projects and other programmes.



Director visiting the experimental fields at Regional Station, Bhubaneswar

- Dr. G. Byju, Director inaugurated one day training programme under AICRP TC SCSP at Jajpur on 29 January 2024. He also visited field demonstration under AICRPTC-SCSP at Beruda village, Jajpur district.



Inauguration of training programme under AICRP TC SCSP Visit of Director to field demonstration at Beruda village, Jajpur district

- Dr. G. Byju, Director inaugurated a five days training programme under DBT-KIIT at Regional Station ICAR-CTCRI, Bhubaneswar, Odisha on 30 January 2024.



- Dr. G. Byju, Director visited AICRPTC Centres of Kovvur and Peddapuram, reviewed the progress of work and visited progressive farmers' fields on 14 February 2024.



- Dr. G. Byju, Director participated in the 28<sup>th</sup> meeting of the ICAR Regional Committee for Zone VIII held at National Institute of Ocean Technology, Chennai on 16 February 2024.
- Dr. G. Byju, Director attended the Annual Conference of Vice Chancellors and ICAR Directors at NASC Complex, New Delhi during 26-27 February 2024.
- Dr. G. Byju, Director met Dr. V. Geethalakshmi, Vice Chancellor, TNAU, Coimbatore and discussed about possible areas of mutual collaboration in R&D on 13 March 2024.

- Dr. G. Byju, Director visited ICAR-IIHR Bangaluru for discussion on research collaboration and MoU exchange on 21 March 2024. Participated in the Board of Studies (BoS) meeting of Bengaluru Academic Hub, Graduate School, ICAR-IARI, New Delhi.
- Dr. G. Byju, Director was the Chief guest at valedictory function of 'International Seminar on Urban Agricultural Systems and Community Resilient Cities' on 23 March 2024 College of Agriculture, Vellayani, Thiruvananthapuram.

### Infrastructure/Facilities



- Dr. G. Byju, Director participated in the Crop simulation modelling workshop at TNAU and signed a MoU for students exchange and other R&D activities on 13 March 2024.
- Dr. G. Byju, Director visited to KVK, Tirupur and farmers gardens in Udumalaipettai, Tirupur district on 14 January 2024 for establishing on farm demonstrations in Tirupur district of Tamil Nadu for the validation and popularization of SSNM and organic farming technologies of tuber crops in coconut gardens as part of the project titled 'Soil Health Management in Coconut Based Cropping Systems Involving Tuber Crops for Enhanced Yield and Income' sponsored by CDB, Kochi, Kerala.

- Under the Genome Editing Project, PCR machine, Biosafety cabinet, Refrigerator and Air conditioners were procured at the HQ.
- Drainage channels for collection of runoff water to the pond is under construction by CPWD at an amount of Rs. 10.00 lakhs at Regional Station, Bhubaneswar.
- Repaired and renovated the Conference Hall of the Regional Centre of ICAR-CTCRI, Bhubaneswar at a total cost of Rs. 4.65 lakhs under Institute Corpus fund.
- Repaired and renovated the residential quarters and farm office building at Regional Centre of ICAR-CTCRI, Bhubaneswar at a total cost of Rs. 2.48 lakhs under Institute Corpus fund.

### New Project Sanctioned



- Dr. G. Byju, Director inaugurated & delivered keynote address in a one week Karyashala workshop on 'Plant bio-prospecting, analytical techniques, sustainable practices and opportunities' organized by KSCSTE in association with SERB at KSCSTE - Malabar Botanical Garden and Institute of Plant Science, Kozhikode on 20 March 2024.

- SUB-SCHEME V: Enabling climate resilience and ensuring food & nutritional security through genome editing in horticultural crops - Cassava (PI: Dr. Krishna Radhika N. Co-PIs: Dr. K.M. Senthilkumar, Dr. T.P. Sujatha, Dr. T. Makesh Kumar and Dr. A.N. Jyothi) Budget: ₹ 400.00 lakhs.
- A new project titled 'Establishment of mass production unit of bioagents for ecofriendly disease management in vegetable crops of Odisha' (PI: Dr. R. Arutselvan Co-PIs: Dr. Kalidas Pati, Dr. V.B.S. Chauhan., Dr. Hanume Gowda, Dr. M. Nedunchezhiyn and Dr. K. Laxminarayana) has been sanctioned under RKVY, Govt. of Odisha with a total budget of ₹ 320.91 lakhs.

### Distinguished Visitors

#### Headquarters, Thiruvananthapuram, Kerala

- Shri P. Prasad, Hon'ble Minister of Agriculture and Farmers Welfare, Govt. of Kerala
- Smt. R. Nishanthini, IPS, Deputy Inspector General of Police, Thiruvananthapuram Range

- Dr. N.K. Krishna Kumar, Ex-DDG (Horticultural Science), ICAR
- Dr. S.K. Pandey, Ex-Director, ICAR-CPCRI, Shimla
- Dr. P.M. Govindakrishnan, Ex-Project Coordinator, AICRP (Potato), ICAR-CPCRI, Shimla
- Dr. K. Umamaheswaran, Ex-Professor, Kerala Agricultural University, Thiruvananthapuram
- Dr. Sanjaya Kumar Dash, Dean, College of Agricultural Engineering & Technology, OUAT, Bhubaneswar
- Dr. H. Philip, Ex-Director (Extension), TNAU, Coimbatore
- Dr. Manoj Kumar, Principal Scientist (PIM Section), ICAR HQ
- Dr. Sudhakar Rao D. V., Principal Scientist, ICAR-IIHR, Bengaluru
- Dr. Manish Das, Director, ICAR- DMAPR, Anand, Gujarat

#### Regional Station, Bhubaneswar, Odisha

- Dr. N.K. Krishna Kumar, Ex-DDG (Horticultural Science), ICAR
- Dr. P.M. Govindakrishnan, Ex-Project Coordinator, AICRP (Potato), ICAR-CPCRI, Shimla

#### Honours, Awards and Recognitions

- The Indian Phytopathological Society conferred S.N. Dasgupta Memorial Award on Dr. T. Makeshkumar, Principal Scientist & Head, Division of Crop Production, ICAR-CTCRI for his contribution on plant viruses infecting tropical tuber crops and their management.
- Electronic crop (e-Crop), an IoT device for smart farming developed by ICAR-Central Tuber Crops Research Institute has been granted patent by Indian Patent Office. Dr. V.S. Santhosh Mithra is the inventor of the technology. This device helps to simulate crop growth real-time using mathematical formulae and it is a one stop solution for many problems faced in agriculture on and off the field.



Dr. T. Makeshkumar receiving the S.N. Dasgupta memorial award



E-Crop



Patent for E-Crop

- A power operated size-based Chinese potato (koorka) grader and a method of grading thereof developed by ICAR-Central Tuber Crops Research Institute (CTCRI)

has been granted patent by Indian Patent Office. Dr. T. Krishnakumar, Scientist, is the lead inventor of the technology along with Dr. M.S. Sajeew, Principal Scientist; Dr. C. Pradeepika, Scientist; Dr. R. Muthuraj, Principal Scientist and Dr. D. Jaganathan, Senior Scientist. Working on the principle of rotating motion of the grading unit through a prime mover, the Chinese potato grader sorts the tubers into four different size classes; small (below 20 mm diameter), medium (20.1-30 mm), large (30.1-40 mm) and very large (above 40 mm), most common commercially marketed tubers in India. The prime mover works with an electric motor with a gear box (25:1) to reduce the speed. With rotational speed of the grading drum and guiding roller of 10 and 1100 rpm respectively, it works on a single phase with 0.75 kW per hour power consumption with an average power cost of ₹ 5 per hour. The grading efficiency is about 96%.



Chinese potato grader



Patent for Chinese potato grader

- ICAR-CTCRI bagged best exhibition stall award in the exhibition organized as the part of the International Seminar on 'Sustainable Urban Agricultural Practices and Community-Resilient Cities' held during 22-23 March 2024 at Kerala Agricultural University, College of Agriculture, Vellayani, Thiruvananthapuram.



Director, ICAR-CTCRI receiving the best exhibition stall award

- Amrutha, P.R., Ph.D. scholar received the Dr. M.J. Narasimhan Academic merit commendation certificate award at IISR, Lucknow for her presentation on 'Management of greater yam (*Dioscorea alata* L.) anthracnose caused by *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. employing endophytes from medicinal plants'.
- Dr. M.N. Sheela acted as external examiner for evaluation of one Ph.D. and five M.Sc. theses of College of Agriculture, Vellayani, Kerala Agricultural University.
- Dr. A. Asha Devi has been recognised as Member, Board

of Studies in Botany (Pass), University of Kerala, Thiruvananthapuram for a period of three years.

- Dr. C. Visalakshi Chandra and Dr. S.N. Rahana acted as evaluators for the oral and poster presentations in the International Seminar on ‘Sustainable Urban Agricultural Practices and Community Resilient Cities’ organised by Kerala Agricultural University at College of Agriculture, Vellayani, Thiruvananthapuram, Kerala on 23 March 2024.
- Dr. C. Mohan acted as external examiner for the Comprehensive Ph.D. qualifying viva-voce of students of Genetics and Plant Breeding, TNAU, Coimbatore.
- Dr. C. Visalakshi Chandra served as Guest editor for the Special issue of Plant Stress Journal on Deciphering plant stress signaling networks: Implications for resilience and Microbiome interactions.
- Dr. P. Murugesan, Dr. C. Visalakshi Chandra and Dr. T.P. Sujatha were recognized as PG Faculty and Guide of ICAR-IARI (ICAR-IIHR, Bangalore hub) at ICAR-CTCRI, Thiruvananthapuram.
- Dr. G. Suja acted as external examiner and adjudicator of 2 M.Sc. (Ag.) students at Dept. of Agronomy, College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. K. Susan John acted as resource person for the UGC HRD 32<sup>nd</sup> Refresher course on Environmental Sciences organized by the Department of Environmental Sciences, University of Kerala during 05-18 January 2024 and handled a class on ‘Enhancing soil productivity through integrated nutrient management practices: Experience in tuber crops’.
- Dr. K. Sunilkumar was evaluator for two Ph.D. theses and three M.Sc. (Ag.) theses at Kerala Agricultural University, College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. R. Muthuraj was evaluator for two M.Sc. (Ag.) theses at Kerala Agricultural University, College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. S.S. Veena, Principal Scientist acted as an External examiner for one Ph.D. Scholar, Kerala Agricultural University.
- Dr. H. Kesava Kumar acted as an external examiner for evaluation of one M.Sc. (Ag.) Nematology thesis, College of Agriculture, Vellayani, Kerala Agricultural University.
- Dr. H. Kesava Kumar served as an evaluator for Project proposal entitled ‘Isolation, identification, mass multiplication and efficacy of native species of EPNs against fall armyworm, *Spodoptera frugiperda* in maize’ under RKVY scheme on 04 January 2024.
- Dr. H. Kesava Kumar acted as an expert member of the VI Scientific Advisory Committee meeting of ICAR-RVS Krishi Vigyan Kendra, Tirunelveli on 13 March 2024.
- Dr. H. Kesava Kumar served as a mentor for Young Innovators Program of Kerala Development and Innovation Strategic Council (K-DISC).
- Dr. M.S. Sajeev acted as external examiner for the comprehensive viva voce of a Ph.D. student at Tamil Nadu Agricultural University, Coimbatore.
- Dr. M.S. Sajeev was external expert for evaluation of projects under KRISP project at ICAR-CPCRI, Kasaragod, Kerala.
- Dr. M.S. Sajeev was external expert for selection of project fellow at CSIR-NIIST, Thiruvananthapuram.
- Dr. V.S. Santhosh Mithra delivered a lead talk on the topic ‘Digital Sensing of Environment’ and co-chaired the session on Urban Biodiversity and Ecosystem Services during the International Seminar on Sustainable Urban Agricultural Practices and Community-Resilient Cities held at College of Agriculture, Vellayani, 22-23 March 2024.
- Dr. J. Sreekumar conducted the course ‘Computational methods for data analysis’ for 8 students of B.Tech. Biotechnology, KAU during November 2023 to March 2024.
- Dr. J. Sreekumar acted as the chairman of the Progress assessment committee of five third year Ph.D. students of IASRI for the upgradation of fellowship.
- Dr. J. Sreekumar served as the external examiner for two M.Sc. (Ag. Statistics) students at College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. S. Sivakumar acted as co-chairperson in the session ‘Climate Resilient Agriculture’ at the International Conference on Food & Nutritional Security through Agriculture Ecosystem held during 01-02 February 2024 at MANAGE, Hyderabad
- Dr. S. Sivakumar acted as an expert speaker in the Expert Panel Session as a part of the National Seminar on the Impact of IP on Agricultural Innovation and Commercialisation organised by Inter University Centre for IPR Studies, CUSAT, Kochi and delivered a talk on ‘Initiatives of ICAR-CTCRI to Support Incubation and Startups’.
- Dr. S. Sivakumar delivered an expert talk on ‘Extension Approaches for Agri Startup Ecosystem’ at the ICAR-RC-NEH, Umiam and National Institute of Agricultural Extension Management (MANAGE), Hyderabad collaborative National Training Program on ‘Extension NEXT: Changing Roles and Innovations in Agricultural Extension’.
- Dr. S. Sivakumar acted as expert speaker at the International Conference and Round Table on Impact of IP on Agriculture organized by the Inter University Centre for IPR Studies, CUSAT, Kochi and delivered a talk on ‘Impact of IP on Agriculture: ICAR-CTCRI Experiences’.

- Dr. S. Sivakumar delivered an invited talk on ‘Building collaborative competencies: Navigating stakeholders network in agriculture extension’ at the ‘Evening4Learning Webinar Series’ organized by MANAGE, Hyderabad.
- Dr. S. Sivakumar delivered an invited talk on ‘Applied multi variate data analysis’ at the capacity building programme (CBP) sponsored by Indian Council of Social Science Research (ICSSR) at Rajendra Prasad Central Agricultural University.
- Dr. S. Sivakumar acted as resource person and delivered an invited talk on ‘Initiatives of ICAR to support Incubation & Agri-startups’ at the Saturday Webinar Series organized by MANAGE, Hyderabad.
- Dr. S. Sivakumar served as external examiner for the one Ph.D. student, TERI Institute of Advanced Studies, New Delhi.
- Dr. S. Sivakumar acted as external examiner for the adjudication of thesis of three Ph.D. students of College of Agriculture, KAU, Vellayani, Thiruvananthapuram.
- Dr. D. Jaganathan acted as co-chairman and evaluator of the Technical Session 3 titled ‘Socioeconomic impacts of Urban Agriculture’ (Oral and poster presentations) in the International Seminar on Sustainable Urban Agricultural Practices and Community-Resilient Cities held during 22-23 March 2024 at Kerala Agricultural University, College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. D. Jaganathan acted as an external examiner for the viva-voce of two Ph.D. students at College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. D. Jaganathan acted as an adjudicator and evaluated the theses of two Ph.D. students of College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. D. Jaganathan acted as Convenor in Brainstorming session on Chinese potato for empowering stakeholders: Challenges and strategies on 13 February 2024 at HRS, Dr. YSR Horticultural University, Venkataramannagudem, West Godavari, Andhra Pradesh.
- Dr. P. Prakash acted as evaluator in the technical session on Urban Biodiversity and Ecosystem Services in the International Seminar on ‘Sustainable Urban Agricultural Practices and Community-Resilient Cities’ held during 22-23 March 2024 at Kerala Agricultural University, College of Agriculture, Vellayani, Thiruvananthapuram.
- Dr. P. Prakash delivered an invited lecture on ‘Financial plan preparation for new businesses’ for final year B.Sc. (Hons.) agriculture students under the RAWE-EDP & Project Management Module during 18-20 March 2024 at College of Agriculture, Vellayani, Kerala.
- Dr. K. Laxminarayana, SIC, RS, ICAR-CTCRI participated in the Technical Support Group meeting at Directorate of Horticulture, Govt. of Odisha to scrutinize the variety release proposals as a member for variety release committee.
- Dr. K. Laxminarayana, SIC, RS, ICAR-CTCRI participated as Guest of Honour in the Kisan Gosthi organized by ICAR-NRRI, Cuttack at Sambalpur, Odisha along with other ICAR institutes and delivered a talk on ‘Scope of tuber crops in view of changed climate scenario and other value added technologies for income generation, livelihood and nutritional security’.
- Dr. K. Laxminarayana, SIC, RS, ICAR-CTCRI participated in the Technical Support Group meeting at Directorate of Horticulture, Govt. of Odisha to scrutinize the project proposals under National Horticulture Mission.
- Dr. K. Laxminarayana, SIC, RS, ICAR-CTCRI participated in the ‘World Water Day’ on the theme ‘Water for peace’ being organized by ICAR-Indian Institute of Water Management, Bhubaneswar.

## Personalia

### Superannuation/Retirement

Sl.No.	Name	Position Held	Date of Retirement
1	Shri. V. Ganesh	TO	31.01.2024
1	Shri. Babuli Sethi	SSS	29.02.2024

### Transfers

Sl.No.	Name	From	To
1	Shri. B.T. Hareesh, Senior Technician	ICAR-IISR, Kozhikode	ICAR-CTCRI, Thiruvananthapuram
2	Dr. S. Shanavas, Technical Officer	ICAR-CTCRI, Thiruvananthapuram	Kudumbashree State Mission, Thiruvananthapuram

### Details of ICAR-CTCRI staff promoted during January to March 2024

Name	From	To	Date	O.O.No & Date
Shri. S. Bhadra Kumar	AO	SAO	04.01.2024	F.No. 20-5/2022-Per.dt 04.01.2024

### Media Coverage

Sl.No.	Date	News Title	Name of the Newspaper
1	01.01.2024	Rainbow Diet Campaign as a part of the Nutrised Village program	The Shillong Times
2	03.02.2024	Cultivation of cassava technology at Mayiladuthurai	Dinakaran daily- Tamil
3	14.02.2024	Special focus on tuber crops cultivation	Sakshi (e-paper)
4	14.02.2024	Need of cassava varieties resistant to pests and diseases: V C	Eenadu (e-paper)
5	14.02.2024	Improved cultivation practices are needed for increasing cassava yields	Penpower (e-paper)
6	14.02.2024	Scientists visiting tuber crop fields	Sakshi (e-paper)
7	15.02.2024	Sree Raksha for higher yields	Sakshi (e-paper) Visalaandhra (e-paper)
8	15.02.2024	Good cultivation practices are necessary for higher yields in tuber crops	Eenadu
9	15.02.2024	High quality planting material for improved yields	Eenadu
10	14.03.2024	Potential of tuber cultivation should be exploited: P. Prasad	Janayugam
11	14.3.2024	Patent for e-Crop, an IoT device for smart farming developed by CTCRI	The Hindu
12	15.3.2024	Kerala scientist's E-Crop device set to revolutionise farming	The New Indian Express
13	15.3.2024	E- Crop can adapt to any field crop	The New Indian Express
14	19.3.2024	Scheme for 'student start-up professionals' in agriculture sector	The Hindu
15	22.03.2024	Patent for Chinese potato size- based grader developed by CTCRI Scientists	Press Information Bureau, Govt. of India
16	23.03.2024	Size based Chinese potato grader developed by CTCRI gets patent	The Hindu, Kozhikode edition
17	24.3.2024	Patent to CTCRI scientists	Malayala Manorama
18	25.03.24	Grading 1 tonne of Chinese potato tubers costs only Rs. 150/-	Deshabhimani Daily





## *Tuber Crops for Food, Health, Wealth and Prosperity*

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