



ICAR-CTCRI Newsletter

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CONTENTS

- Research Highlights
- Extension
- Training Programmes
- Field Diagnostic Visits
- Seminars/Workshops/Interface Meetings
- Exhibitions
- Exposure Visits
- MGMP Programme
- Swachh Bharat Abhiyan
- Technology Commercialization /Linkages and Collaborations
- Capacity Building
- Staff Participation in Scientific Events/Meeting etc...
- Publications
- Major Institute Events
- New projects sanctioned
- Distinguished Visitors
- Honours/Awards/Recognitions
- Media Coverage
- Personalia

FORTHCOMING EVENTS

- Institute Management Committee Meeting on 12 January 2023
- Third Meeting of IX RAC of ICAR-CTCRI during 22-23 January 2024



Dr. G. Byju
Director

निदेशक की कलम से

मुझे पिछली तिमाही के दौरान संस्थान की उपलब्धियों और विभिन्न घटनाओं का संक्षिप्त विवरण प्रस्तुत करते हुए खुशी हो रही है। आईसीएआर-सीटीसीआरआई ने इस अवधि के दौरान एफएलडी, प्रशिक्षण, जागरूकता अभियान, हितधारक बैठकों और प्रदर्शनियों के माध्यम से देश के विभिन्न हिस्सों में अनुसंधान के साथ-साथ कंद फसल किसानों के सशक्तिकरण में महत्वपूर्ण उपलब्धियाँ हासिल की हैं। केरल और तमिलनाडु राज्यों में किसानों के खेतों में उर्वरकों के अनुप्रयोग पर 100 से अधिक ड्रोन प्रदर्शन आयोजित किए गए। बायोफोर्टिफाइड शकरकंद की किस्मों को बढ़ावा देने के लिए, पूर्वोत्तर राज्यों जैसे असम, त्रिपुरा और मेघालय में रेनबो डाइट

अभियान, नूट्रिसेड विल्लेजेस की स्थापना और किसानों की कार्यशालाएं जैसे कार्यक्रम आयोजित किए गए। हमारे संस्थान और इंडियन सोसाइटी फॉर रूट क्रॉस (आईएसआरसी) ने संयुक्त रूप से 27-29 नवंबर 2023 के दौरान स्थिरता, परंपरा, कृषि-खाद्य प्रणाली और लचीलापन के लिए उष्णकटिबंधीय कंद फसलों पर राष्ट्रीय सम्मेलन के लिए उष्णकटिबंधीय कंद फसलों पर राष्ट्रीय सम्मेलन (एनसीटीटीसी 4 स्टार 2023) का आयोजन किया, जिसमें देश भर से 150 से अधिक प्रतिनिधियों ने भाग लिया। किसानों के सामने आने वाली चुनौतियों का समाधान करने के लिए चीनी आलू पर एक मंथन सत्र आयोजित किया गया था। संस्थान ने चीनी आलू के लिए 'माइक्रोनॉल' के व्यावसायीकरण और मूल्य श्रृंखला के विकास और बायोफोर्टिफाइड कंद फसलों के व्यावसायीकरण के लिए समझौता ज्ञापन पर हस्ताक्षर किए हैं। अन्य उल्लेखनीय उपलब्धियों में 6.83 करोड़ रुपये के वित्तीय परिव्यय के साथ बच्चों की पोषण संबंधी जरूरतों को पूरा करने के लिए अनुकूलित इंद्रधनुष आहार खाद्य मैट्रिक्स विकसित करने और स्केल करने के लिए कर्नाटक जिला प्रशासन, ओडिशा के साथ एक समझौते पर हस्ताक्षर करना और आईसीएआर-आईआईएसआर, कोषीकोड के सहयोग से बायो कैप्सूल तैयार करना शामिल है। केरल स्टार्टअप मिशन द्वारा ब्रांडिंग के लिए दो आईसीएआर-सीटीसीआरआई प्रौद्योगिकियों, 'शकरकंद वैक्यूम' - 'फ्राइड चिप्स', और 'शकरकंद न्यूट्रीबार', का चयन किया गया था। संस्थान में विश्व मृदा दिवस, किसान दिवस और स्वच्छता पखवाड़ा धूमधाम से मनाया गया। संस्थान हमारे राष्ट्र के बेहतर स्वास्थ्य, धन और समावेशी विकास को प्राप्त करने की दिशा में महान टीम भावना और प्रतिबद्धता के साथ आगे बढ़ रहा है।

From the Director

I am delighted to present a concise note of the achievements and various events of the Institute during the last quarter. ICAR-CTCRI has made significant achievements in research front as well as empowerment of tuber crop farmers in various parts of the country through FLDs, trainings, awareness campaigns, stakeholder meets and exhibitions during the period. More than 100 drone demonstrations were conducted on application of fertilizers in farmers' fields in the states of Kerala and Tamil Nadu. For promotion of biofortified sweet potato varieties, programmes like Rainbow Diet campaign, establishment of Nutriseed villages and farmers's workshops were organized in Northeastern states viz., Assam, Tripura and Meghalaya. Our Institute and Indian Society for Root Crops (ISRC) jointly organized the National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food systems & Resilience (NCTTC 4 STAR 2023) during 27-29 November 2023 with the participation of more than 150 delegates from across the nation. A brainstorming session was organised on Chinese potato to address the challenges faced by the farmers. The Institute has signed MoUs for commercialization of Micronol for Chinese potato and development of value chain and commercialization of biofortified tuber crops. Other notable achievements include signing of an agreement with the Keonjhar district Administration, Odisha to develop and scale customized Rainbow Diet food matrices for meeting the nutrition needs of children with a financial outlay of Rs. 6.83 crores and formulation of bio capsules in collaboration with ICAR-IISR, Kozhikode. Two ICAR-CTCRI technologies, 'Sweet potato vacuum-fried chips' and 'Sweet potato nutri-bar' were selected for branding by Kerala Startup Mission. The World soil day, Kisan Diwas and Swachhata Pakhwada were celebrated in a befitting manner at the Institute. The Institute is moving ahead with great team spirit and commitment towards achieving better health, wealth and inclusive growth of our nation.

G. Byju

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Research Highlights

New disease report on bacterial storage rot in elephant foot yam

R. Arutselvan, Kalidas Pati, V.B.S. Chauhan, Hanumae Gowda, M.L. Jeeva, S.S. Veena, T. Makesh Kumar, M. Nedunchezhiyan and K. Laxminarayana

To identify the soft rot bacteria infecting elephant foot yam, the bacterial ooze was isolated on Nutrient Agar medium, and cultured at 27°C for 48 h. Bacterial cultures were sustained on NA medium, and scrutinized for colony characteristics, including size, pigmentation, form, margin, and elevation. Morphological attributes such as cell shape and arrangement were identified through Gram staining. Biochemical test kit (KB001) identified the soft rot bacteria, mainly *Pectobacterium* spp. The DNA samples were tested with *Pectobacterium*-specific primers, producing the expected amplicon (~1500 bp). NCBI blast analysis showed a 100% similarity to *Pectobacterium carotovora*. The 16S ribosomal RNA gene of *Pectobacterium carotovorum* strain PC1 was documented in NCBI under accession number OR675420.



Symptom of storage rot of elephant foot yam



Pathogenic bacteria (*Pectobacterium carotovorum*) pure culture

Sweet potato Black Scurf or Rot disease observed in var. Bhu Sona from farmers' field

R. Arutselvan, M. Nedunchezhiyan, Kalidas Pati and Bapi Gorai

Jharkhand farmers in Gola, Biyang and Rola villages of Ramgarh district who cultivated sweet potato variety, Bhu Sona sent the tubers to Mati farm in Odisha, and it was observed that the tubers have black rot symptoms. During transportation this disease might have been developed and caused infection up to 10%. Farmers were concerned about the economic implications and market value of their crops. Development of management strategies is required to control the further spread of this disease.



Black Scurf or Rot Disease in sweet potato

Portable self propelled tapioca sett cutter

T. Krishnakumar and M. S. Sajeev

A portable self-propelled tapioca stem cutter was developed which consists of petrol engine (1.6 HP), rotary cutting blade (12-inch diameter), frame, pulleys, platform, inlet and outlet assembly and stopper and this can be operated by hand or pedal. The adjustable feature on the stopper is used to produce the required length of tapioca setts. Rotary cutting blades attached to the prime mover that rotate at 1000 RPM will produce uniform and round cutting of tapioca setts for high quality tapioca setts production. The developed machine was tested for performance and the cutting efficiency, percentage of damaged setts and output capacity were found to be 98%, 0.45% and 3600 setts per hour, respectively.



Tapioca stem cutter

Extension

FLDs/OFTs

- In collaboration with Krishibhavan, Parassala, Thiruvananthapuram, 'Fusicon', a bioformulation derived from ICAR-CISH, Lucknow has been introduced into seven cassava fields for assessing its effectiveness in combating cassava stem and root rot diseases.
- Ten FLDs on site-specific nutrient management (SSNM) involving customized fertilizers, *micronol* and organic farming technologies were monitored. Data were collected from 10 coconut gardens of 50 cents each in cassava and elephant foot yam in Pollachi taluk, Coimbatore, Tamil Nadu during 08-09 November 2023.



Onfarm demonstrations on SSNM and organic farming in cassava and elephant foot yam at Pollachi, Coimbatore

- Ten FLDs cum seed villages on improved varieties of cassava viz., Sree Reksha and Sree Kaveri at Salem, Tamil Nadu were monitored on 27 October 2023.



Visit to seed villages on cassava varieties at Salem, Tamil Nadu

- Visited seed village demonstration plots & organized trainings on drone demonstration for *micronol* spray at Mettupatti village, Namakkal district on 25 October 2023, Manthiyur village of Tenkasi district on 07 November 2023 and Vellayuthasamy Kudiyeruppu, Tenkasi district, Tamil Nadu on 09 November 2023.



Glimpses of the demonstrations in seed villages

- Inspected the fields of seed village demonstration plots for quality planting material production of Chinese potato var. Sree Dhara at Akathethara panchayat, Palakkad district, Kerala and celebrated Kisan Diwas on 23 December 2023.
- More than 100 drone demonstrations were conducted in Namakkal district, Tamil Nadu during 23-26 October 2023, Ambasamudram, Tenkasi district, Tamil Nadu during 06-09 November 2023 and Kodur, Malappuram district, Kerala during 14-17 November 2023. Over 320 farmers and various stakeholders participated. The program showcased the transformative potential of drone technology in agriculture.
- Four on-farm trials were conducted for the evaluation of biofortified hybrids of sweet potato at Kannur, Ernakulam, Wayanad and Thiruvananthapuram districts of Kerala.
- Hundred demonstrations were conducted with cassava, yam, elephant foot yam, yam bean and colocasia at farmers' fields in Keutenmari and Saragchida Gram Panchayats (53 Nos.) and Brahmanagaon and Sorisapal Gram Panchayats (47 Nos.) of Mayurbhanj district for the second year during 2023-24.

- Hundred FLDs were conducted at farmers' fields in Dumuriguda and Khedapada GPs of Kolari block (34 Nos.), Pitamahal GP of Rayagada block (12 Nos.), Hatamuniguda and Chatikona GPs of Bissamcuttack block (43 Nos.) and Bhairabgad GP of Muniguda block (11 Nos.) of Rayagada district.
- Demonstrations on tuber crops were done at Judoambha, Gajapati district, Odisha under TSP.



Tuber crops demonstration at Gajapati district

Training programmes

On campus programmes

- A paid training programme on 'Advances in quality planting material production in tuber crops' was organised by Division of Crop Production, ICAR-CTCRI during 20-22 November 2023.
- A paid training programme on 'Soil, water and plant analysis for efficient nutrient management' was organized by Division of Crop Production, ICAR-CTCRI during 18-22 December 2023.



Training on quality planting material production in tuber crops



Training on soil, water and plant analysis for efficient nutrient management

- Training on 'Agrotechniques and value addition in tropical tuber crops' was organized in collaboration with VFPC, Govt. of Kerala for 28 farmers on 19 October 2023 and 02 November 2023.
- Training on 'Improved technologies of tropical tuber crops' was organized for 12 RAWE students of ITM University, Gwalior, Madhya Pradesh during 16 October to 17 November 2023.

- Training on ‘Tapioca production and value addition’ was organized for 45 farmers in collaboration with Department of Horticulture, Government of Tamil Nadu during 21-22 December 2023.
- Ten trainings on ‘Value addition and entrepreneurship development in tuber crops’ were conducted with the participation of 245 trainees.
- Training programme on ‘Tuber crops based snack foods and pasta’ was organized for 16 entrepreneurs from KCAET, Tavanur, Malappuram, Kerala on 06 October 2023 and for 18 entrepreneurs from Kottayam, Kerala on 28 October 2023.
- Training programme on ‘Value addition and entrepreneurship development in tuber crops’ was organized for
 - 26 aspiring entrepreneurs from KADS DCL, Thodupuzha, Idukki, Kerala on 12 October 2023.
 - 20 entrepreneurs from different districts of Kerala on 18 October 2023.
 - 34 entrepreneurs from Krishi Bhavan, Pathanapuram, Kollam, Kerala on 14 November 2023.
 - 30 entrepreneurs from KB, Chetanur on 16 November 2023.
 - 28 entrepreneurs from KB, Kollam district of Kerala on 06 December 2023.
 - 23 entrepreneurs from Profugo Real FPO, Wayanad, Kerala on 18 December 2023.
 - 16 entrepreneurs from College of Agriculture, Vellanikara on 20 December 2023.
 - 34 farmers from Puthukotai district, Tamil Nadu on 22 December 2023.

Off campus programmes

- Launching of ‘Tuber crops scheme 2023-24 cum training programme & distribution of agricultural inputs’ was organized on 05 October 2023 at Parakkode, Pathanamthitta, Kerala under SCSP programme for the benefit of 150 farmers and other stakeholders. Shri. Chittayam Gopakumar, Hon’ble Deputy Speaker, Kerala Legislative Assembly was the chief guest.



Glimpses of the programme and distribution of farm inputs and planting materials

- Sensitization farmer training was organized at Nanjilpalayam village of Karur district, Tamil Nadu on 10 October 2023 under SCSP program with the participation of 30 SC farmers.
- Training cum sensitization programs was organised under SCSP programme at Mannarkudi block of Thiruvavarur district on 11 October 2023 and at Nagapattinam district, Tamil Nadu on 12 October 2023 with the participation of 20 and 15 SC farmers, respectively.



Glimpses of the training under SCSP programme in Tamil Nadu

- A Training programme for the Technical staff of ICAR-CTCRI was organized in collaboration with the Institute of Management in Government (IMG), Thiruvananthapuram for 27 technical staff during 16-18 October 2023 at IMG, Thiruvananthapuram.
- An Awareness cum training programme on ‘Protection of Plant Varieties and Farmers’ Rights Act, 2001’ was organized by ICAR-CTCRI, Thiruvananthapuram at ICAR-KVK Namakkal, Tamil Nadu on 26 October 2023 for the benefit of farmers, students and other stakeholders. The programme was sponsored by PPVFR Authority, Ministry of Agriculture and Farmers’ Welfare, Government of India, New Delhi. The programme was presided by Dr. G. Byju, Director, ICAR-CTCRI. He emphasized the importance of climate resilient varieties of tuber crops and significant achievements of varietal improvement programmes at ICAR-CTCRI for addressing the food and nutritional security in the country. Dr. Shaik N. Meera, Director, ICAR-ATARI, Hyderabad inaugurated the event and he stressed upon the importance of farmers varieties of tuber crops and benefits of the PPVFR Act, 2001 for the farmers and researchers. Shri. Rajganesh, Legal Advisor, PPVFR Authority, New Delhi, Dr. M. Selvaraju, Dean, VC&RI, TANUVAS, Namakkal and Dr. P.P. Murugan, Director of Extension Education, TNAU, Coimbatore were the Guests of Honours. The technical publication on Tuber Crops-PPVFRA and Registration of Farmers’ Varieties in Tamil and English were released. Dr. P. Murugesan, Principal Scientist, ICAR-CTCRI; Dr. D. Jaganathan, Senior Scientist, ICAR-CTCRI and Dr. K. Ambasankar, Head,

ICAR-CIBA, Chennai delivered talks in the technical session. A total of 150 participants consisting of farmers, NGO representatives, Subject Matter Specialists, Project-Coordinators of KVKs, students and other stakeholders participated in the programme.



Training on PPVFRA at ICAR-KVK, Namakkal

- Quality planting materials of cassava varieties Sree Reksha and Sree Vijaya were distributed to Kanni tribes at Karraiyyar village, Ambasamudram, Tirunelveli district of Tamil Nadu for establishing seed village demonstration plots on 06 November 2023.
- A stakeholders interface programme on site specific nutrient management in Chinese potato was organized at Pallakal, Podhukudi, Ambasamudram taluk of Tirunelveli district, Tamil Nadu on 06 November 2023.
- An awareness cum training program was held at Attur, Tamil Nadu on 21 November 2023 under SCSP programme of AICRPTC Thiruvananthapuram.

Off-campus training programmes/Interaction meetings organized by the Regional Station:

Sl. No.	Title of programme	Panchayat, District, State	No. of beneficiaries
1.	Interaction meeting with the beneficiary farmers and to monitor the tuber crops demonstration	Bissamcuttack, Muniguda, Kolnara and Rayagada blocks of Rayagada district	100
2.	Interaction meeting with the beneficiary farmers and to monitor the tuber crops demonstration	Bangriposi and Kuliana blocks of Mayurbhanj district, Odisha	100
3.	Tropical tuber crops technologies for livelihood improvement and commercial farming	College of Agricultural Engineering and Technology, OUAT, Bhubaneswar	18
4.	Production and value addition in tuber crops during the interstate exposure visit under ATMA	Anakapalli, Visakhapatnam and Manyam districts of Andhra Pradesh	19
5.	10 th Indigenous Seed & Food Festival organized by Desi Bihan Suraksha Manch	Sambalpur, Odisha	500
6.	Value addition in tuber crops	Punjasargi, Mohana, Gajapati district	80
7.	Value addition in tuber crops	Gortili, Bissam Cuttack, Rayagada district	70
8.	Production and value addition in yam, colocasia, sweet potato and elephant foot yam	Balasore district, Odisha	25
9.	Value addition in tuber crops	Pukali, Pottangi, Koraput district	66
10.	Value addition in tuber crops	Peta, Lamtaput block, Koraput district	
11.	Agro-techniques in tuber crops during exposure visit under ATMA	Bhadrak district, Odisha	50

Seminars/Workshops/Interface Meetings/Field Diagnostic Visits Organized

Brainstorming on Chinese potato for empowering stakeholders: challenges and strategies

ICAR-CTCRI organized a one-day Brainstorming meeting on ‘Chinese potato for empowering stakeholders: challenges and strategies’ on 06 October 2023 the participation of over 100 stakeholders from Kerala, Tamil Nadu, and Karnataka. The meeting was inaugurated by Dr. P. Irene Vethamoni, Dean (Horticulture), Tamil Nadu Agricultural University, Coimbatore. In her inaugural address, she highlighted the nutritional richness of Chinese potatoes, emphasizing their high-calorie content and essential nutrients and she stressed the need for developing high-yielding, pest-disease resistant varieties tailored to different agro-climatic zones. Dr. Sheeba Rebecca Isaac, Associate Director of Research, RARS, Kumarakom, Kerala was the Guest of Honour. She underscored the input responsiveness of Chinese potato cultivation and discussed

the potential for increasing yields. Dr. G. Byju, Director, ICAR-CTCRI, presided the meeting and highlighted the significant role played by Chinese potatoes in the agricultural landscape of Kerala and Tamil Nadu, covering over 2000 hectares in India. A special address was delivered by Mr. B. Muralidharan, Technical Advisor, M/s Linga Chemicals, Madurai, adding an industry perspective to the discussion.





Glimpses of Brainstorming on Chinese potato for empowering stakeholders



Inauguration of Exhibition organized in connection with NCTTC 4 STAR

National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience (NCTTC 4 STAR 2023)

A National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food systems & Resilience (NCTTC 4 STAR 2023) was jointly organised by Indian Society for Root Crops (ISRC) and ICAR-CTCRI, Thiruvananthapuram during 28-29 November 2023 at the HQ. The conference was inaugurated by Dr. B. Neeraja Prabhakar, Vice Chancellor, Sri Konda Laxman Telangana State Horticultural University, Telangana. The function was presided by Dr. G. Byju, Director, ICAR-CTCRI, Thiruvananthapuram and Dr. R. Dinesh, Director, ICAR-Indian Institute of Spices Research (IISR), Kozhikode was the Guest of Honour. A total of 150 participants including various stakeholders, viz., Scientists, Associate Professors, Assistant Professors, and students representing various ICAR Institutes, AICRP TC Centres and State Agricultural Universities attended the Conference. Apart from one plenary lecture and eleven lead lectures, 130 research papers were presented in the oral and poster sessions.

Nutrised Villages to promote biofortified varieties established in Dhalai, Tripura

As a part of the Nutrised village scheme, two farmers workshop cum awareness programmes organized on biofortified sweet potato were organized at Dhalai district, Tripura during 23-25 December 2023. During these workshops, ten farmers were identified as 'Nutrised farmers' for producing quality planting materials of biofortified sweet potato varieties. One hundred and seventeen tribal farmers (Chakma and Tripuri tribe) participated in these workshops.



Nutrised village programme at Dhalai, Tripura



Lightening of lamp by the dignitaries at the National Conference

Rainbow diet campaign for promoting nutrient-rich sweet potato varieties launched in Assam

As a part of the Nutrised village scheme, a 'Farmers awareness programme on biofortified sweet potato' was organized through MSME Incubator, NEHU, Tura and Agricultural Technology Application Research Institute, Guwahati at the Pragjyotishpur University, Hajongbari, Assam on 29 December 2023. Dr G. Kadirvel, Director, ATARI, Guwahati was the Chief Guest and he introduced the biofortified varieties to the farmers and also distributed inputs to 10 nutrised farmers. Various food products developed from biofortified sweet potato such as nutrient-rich jam and jelly, purple and orange cakes and muffins, orange and purple coloured nutrient rich noodles and pasta, low-oil and high nutrient vacuum fried chips were introduced to the farmers. Dr. Sasikumar, R., Associate

Professor and In-Charge of MSME Incubator, NEHU. A total of 91 farmers from Hajongbari and Thakurkuchi villages took part in the event.



Rainbow diet campaign at Guwahati, Assam

Farmers workshop cum awareness programmes on biofortified sweet potato in Meghalaya

Two farmers workshop cum awareness programmes on biofortified sweet potato were organized at Wahkhen village, Meghalaya on 27 December 2023 as well as in Wadagokgre village, Garo Hills on 28 December 2023. A total of 122 farmers participated in the programme.



Farmers workshop cum awareness programme at Meghalaya

Field Diagnostic Visit

Field diagnostic visits on management of mealybugs in cassava were conducted in different villages of Yethapur, Pethanaickenpalayam, Attur, Vazhapadi and Thalaivasal blocks of Salem district of Tamil Nadu during 18-21 December 2023.

Exhibitions

ICAR-CTCRI participated in the following exhibitions:

- Exhibition in connection with XVI Agricultural Science Congress and ASC Expo, Transformation of Agri-food Systems for achieving sustainable development goals organized by National Academy of Agricultural Sciences, New Delhi and ICAR-Central Marine Fisheries Research Institute, Kochi during 10-13 October 2023 at Hotel Le Meridien, Kochi, Kerala.



Exhibition at Hotel LeMeridien, Kochi, Kerala

- Exhibition in connection with All India Seminar on 'Processing and value addition in agriculture for increasing farmers income – An engineering perspective' at Visvesvaraya Bhavan, The Institutions of Engineers, Thiruvananthapuram during 25-26 October 2023.
- Exhibition in connection with Awareness-cum-Training Programme on Provisions of the Protection of Plant Varieties and Farmers Rights (PPVFR) Act, 2001 on 26 October 2023 at ICAR-KVK, Namakkal, Tamil Nadu.



Exhibition at KVK, Namakkal

- Huddle Global 2023 exhibition organized by Kerala Startup Mission during 16-18 November 2023 at Adimalathura, Thiruvananthapuram.
- Exhibition in connection with International Conference on Environmental Pollution and Health: Governance for a Sustainable Future (ICEGSF 2023) at Department of Environmental Sciences, University of Kerala during 22-24 November 2023.
- Exhibition in connection with National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience at ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram during 28-29 November 2023.
- Exhibition during the Product Launch-cum-Stakeholder Workshop on 'Strategies for Commercialising Biofortified Foods' at Chennai on 18 December 2023.

Exposure visits to ICAR-CTCRI

- One day exposure visit cum trainings on 'Improved technologies of tuber crops' were organized for the benefit of 206 farmers, 854 students and 98 officials during this period at ICAR-CTCRI, Sreekariyam, Thiruvananthapuram.

Mera Gaon Mera Gaurav Programme

- A farmers programme was organized at Naruvamoodu, Pallichal on 27 October 2023 by a team of Scientists from ICAR-CTCRI. Dr. Susha V.S., Assistant Professor, Dept. of Agronomy, College of Agriculture, Vellayani, Thiruvananthapuram imparted training on role of millets in agri-food systems. Planting materials of cassava var. Sree Reksha and sweet potato var. Sree Arun were distributed. Thirty five farmers attended the programme.



Glimpses of the programme and distribution of planting materials under MGMG

Swachh Bharat Abhiyan

Swachhata Pakhwada

Swachhata Pakhwada (Swachhtha Hi Seva) was organized from 15 September to 02 October at ICAR-CTCRI. Swachhtha Pledge was taken by all officials in the Institute. Apart from daily cleaning drives in the Institute premises,

cleaning campaigns were organized at Government Ayurveda dispensary on 26-09-2023 and at Veli Tourist Village, Thiruvananthapuram on the occasion of World Tourism Day on 27 September 2023 and Anganvadi and nearby residences of Karakulam Panchayat, Thiruvananthapuram. The programme concluded on Gandhi Jayanthi on 02 October 2023. The Swachhata Special Campaign 2.0 for the disposal of pending matters started on Gandhi Jayanthi 154th birth anniversary of Mahatma Gandhi at ICAR-CTCRI, Thiruvananthapuram on 02 October 2023. After paying floral tributes to Mahatma, a human chain was formed by all staff members in front of the Institute, led by the Director, Dr. G. Byju, which was followed by a swachhata shramdan.



Glimpses of Swachhata campaign

Activities of Agribusiness Incubator

Product-launch cum stakeholder workshop

● ICAR-CTCRI ABI along with M/s MicroNutrich, Chennai organised a Product Launch-cum-Stakeholder Workshop on 'Strategies for Commercialising Biofortified Foods' at Chennai on 18 December 2023. The workshop was inaugurated by Dr. S. Pandian IRS, Additional Commissioner of Income Tax, Chennai in the presence of Dr. G. Byju, Director, ICAR-CTCRI and Mr. Arun Baral, CEO, HarvestPlus. Scientists from IIRR, KAU, Murugappa Foundation and few local colleges in Chennai, and startups participated.

- Incubatee enrolment M/s Cropnrich Agri Private Limited, MP-III-126 A, Cheruvanassery, Pariyaram PO, Wayanad, Kerala has enrolled as Incubatee of ICAR-CTCRIABI.
- MoU was signed for establishment of Satellite Incubation Centre at College of PG Studies in Agricultural Sciences, Central Agricultural University (Imphal), Umiam, Meghalaya.

Technology Commercialization/ Linkages/ Collaborations

- ICAR-CTCRI signed an MoU with Linga chemicals Pvt. Ltd., Madurai on 17 October 2023 for the

commercial production of *Micronol* for Chinese potato.

- ICAR-CTCRI signed MoU with M/s Xobu Foods and Beverages Private Limited, Rajahmundry, East Godavari, AP, for consultancy service in ‘Development of biofortified sweet potato value chain for industrial production in Telengana, Karnataka & Odisha’ on 28 November 2023; Revenue generation – Rs. 5,24,128/-).
- ICAR-CTCRI signed an agreement with the District Administration to develop and scale customized Rainbow Diet food matrices for meeting the nutrition need of children of Keonjhar district, Odisha on 05 December 2023.



MoU signing with M/s Xobu Foods, Hyderabad, Telangana



MoA signing with the District Administration, Keonjhar district, Odisha

- ICAR-CTCRI has signed an MoU with M/s MicroNutrich Pvt. Ltd. for commercialising biofortified varieties of sweet potato and other crops on 18 December 2023.



Signing MoU with M/s MicroNutrich Pvt. Ltd

- In collaboration with ICAR-IISR, Kozhikode, three bio capsules were formulated based on encapsulation technology of ICAR-IISR (Indian Patent No. 361021 dated 13.08.2013) containing *Trichoderma asperellum* and *Bacillus* spp. in a gelatine capsule for delivery to agricultural crops. These organisms ensure growth promotion and disease suppression in tuber crops and vegetables. The advantages of encapsulation of the microbes include high microbial population (10⁹-10¹¹ CFU/g), extended shelf life (18-24 months), low production and transportation cost, and provision for eco-friendly crop management by reducing 20-25% in the usage of chemical pesticides/fertilizers.

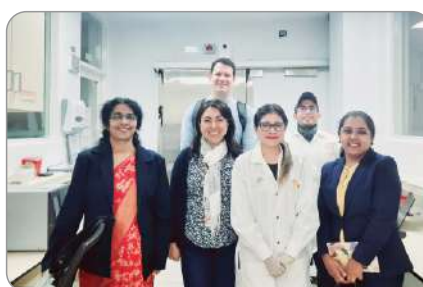


Biocapsules of *Trichoderma asperellum* and *Bacillus* spp.

- ICAR-CTCRI in collaboration with Rubber Research Institute of India, Kottayam, Kerala studied the possibility of utilizing leaves from two varieties of rubber as a source for producing hydrogen cyanide, bioformulations and biopesticides. Preliminary results revealed that the variety RII 403 can be used as a raw material for methane production as 149.3 litres of crude biogas kg⁻¹ was obtained. The bio formulations and biopesticides derived from the leaves are being evaluated for their insecticidal properties.
- Two ICAR-CTCRI technologies, viz., Sweet potato vacuum-fried chips and Sweet potato nutribar were selected for branding by Kerala Startup Mission.

Capacity building Trainings attended by staff

Sl.No.	Name	Particulars of the training	Period
1	Dr. Shirly Raichal Anil Dr. C. Visalakshi Chandra	Marker-assisted selection and advanced molecular breeding tools at International Potato Centre (CIP), Av. La Molina 1895, La Molina, Lima, Perú.	15-20 October 2023



ICAR-CTCRI scientists at International Potato Center (CIP), Lima

2	Technical Personnels	Training at Institute of Management in Government, Thiruvananthapuram	16-18 October 2023
3	Dr. E.R. Harish Dr. Sujatha T. P. Dr. Rahana S.N.	Biological data exploration and visualization using R, organized by ICAR-IISR, Kozhikode, Kerala (Online)	06-08 November 2023
4	Dr. T. Krishnakumar	A taste of the future: What's next for safety and quality testing in the food industry? Organized by Separation Science (Online)	16 November 2023
5	Dr. Sangeetha B. G.	Next generation sequencing and data analysis organized by ICAR-NAARM, Hyderabad (Online).	16-20 November 2023
6	Dr. Rahana S.N.	Training on 'Advances in quality planting material production of tropical tuber crops' organized by ICAR-CTCRI	20-22 November 2023
7	Dr. V. Ramesh	One day workshop on J-Gate@CeRA at TNAU, Coimbatore, Tamil Nadu	05 December 2023
8	Dr. G. Suja	MDP Training on Leadership Development at ICAR-NAARM, Hyderabad.	10-23 December 2023
9	Dr. S. Sunitha Dr. J. Suresh Kumar	Hands on training on Farm design in farming system perspective organized by AINPOF, ICAR-IIFSR.	20 December 2023

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

Sl.No.	Name of the participants	Programme	Particulars of the programme
1	All Scientists	Brainstorming meeting on Chinese potato for empowering stakeholders: challenges and strategies	Organized by ICAR-CTCRI 06 October 2023
2	Dr. G. Suja	Brainstorming session on Think Tank /2023	Organized by Dean, Horticulture, TNAU Presented a talk on 'Future research focus in tropical tuber crops' (Online) 09 October 2023
3	Dr. J. Sreekumar Dr. A. N. Jyothi Dr. N. Krishna Radhika Dr. D. Jaganathan	XVI Agricultural Science Congress and ASC Expo: Transformation of Agri-food systems for achieving sustainable development goals	NAAS, New Delhi and ICAR-CMFRI, Kochi 10-13 October 2023
4	Dr. M. Nedunchezhiyan (Invited speaker) Dr. Asha K. I. Dr. N. Krishna Radhika	International Seminar on Exotic and Underutilized Horticultural Crops, themed 'Priorities and Emerging Trends'	ICAR-IIHR, Bengaluru, India. 17-19 October 2023
5	Dr. V.S. Santhosh Mithra	Workshop on Greener Cities, Healthier Lives: Urban Agriculture Unleashed	Organized by College of Agriculture, Thiruvananthapuram in collaboration with the French Institute of India and Alliance Francaise, Thiruvananthapuram 18 October 2023
6	Dr. G. Suja	Sensitization Meeting on data collection for calculation of Ecosystem Services of Natural Farming Experiments under AINPOF (Online)	26 October 2023
7	Dr. K. Laxminarayana	Workshop on Challenges and Opportunities in Horticulture for Doubling Farmers' Income,	Organized by Krishi Vigyan Kendra, Khordha, ICAR-CIFA, Bhubaneswar 27 October 2023

8	Dr. C. Pradeepika Dr. B.G. Sangeetha	International Conference on Biochemical and Biotechnological Approaches for Crop Improvement (IBBACI 2023)	NASC, Newdelhi 07 August 2023
9	Dr. G. Suja	Karshika Seminar organized as a part of Keraleeyam, Thiruvananthapuram	02 November 2023
10	Dr. M.S. Sajeev Dr. T. Krishnakumar	QRT meeting of AICRP on PHET	TNAU, Coimbatore 06-08 November 2023
11	Dr. K. Laxminarayana	International Convention on Millets	Organized by Department of Agriculture & Farmers' Empowerment, Govt. of Odisha. 09-10 November 2023
12	Dr. V.S. Santhosh Mithra	Seminar on Modern day challenges and opportunities in Kerala's Agriculture held at under the auspices of Coir Board and Bharatiya Kisan Sangh	ICAR-CTCRI, Thiruvananthapuram. Chaired the session on High-Tech Agriculture and use of Drones 20-21 November 2023
13	All Scientists and Technical Personnel	National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems and Resilience (NCTTC 4 STAR 2023)	ICAR-CTCRI, Thiruvananthapuram 30 November 2023
14	Dr. D. Jaganathan	Annual Review Meeting under TMOC scheme of the Coconut Development Board funded project titled Soil health management in coconut-based cropping system involving tuber crops for enhanced yield and income (Online)	Coconut Development Board, Kochi 01 December 2023
15	Dr. M.N. Sheela Dr. T. Makesh Kumar Dr. M.L. Jeeva	National Conference on Advancements in global virus research towards one health	Indian Virological Society, New Delhi and ICAR-NRCB, Tiruchirappalli, 01-03 December 2023
16	All Scientists	World Soil Day	ICAR-CTCRI, Thiruvananthapuram 05 December 2023
17	Dr. V.S. Santhosh Mithra	National Seminar on Soil and Water Symbiosis for Sustainable Agriculture, organized	College of Agriculture, Vellayani, Thiruvananthapuram in connection with World Soil Day 2023 Delivered lead talk on the theme 'IoT in Soil Science' 06 December 2023
18	Dr. G. Byju Dr. Asha K.I. Dr. K. Susan John Dr. S.S. Veena Dr. D. Jaganathan Dr. H. Kesava Kumar Dr. T. Krishnakumar	Review meeting of ICAR Institutes by Secretary, DARE and DG, ICAR, New Delhi (Online)	14 December 2023
19	Dr. S.S. Veena	Workshop on sexual harassment at the workplace	Partners for Law in Development and Sakhi Women's Resource Centre, Thiruvananthapuram 20 December 2023
20	Dr. S. Sunitha Dr. J. Suresh Kumar	6 th CWSS International weed conference on 'Agricultural Innovations for Sustainable Development Goals with Special Focus on Natural Farming (AISDGONF-2023)'	Kalyani, West Bengal 30 September 2023

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Research papers

1. Ajeesh, B.R., Koundinya, A.V.V., Senthilkumar, K. M., Vivek Hegde and Kalidas Pati. 2023. Genetic diversity in cassava based on agronomical, physiological and EST-microsatellite markers under moisture stress conditions. *Indian J. Hort.* **80**(40): 319-325 (NAAS Score: 5.58).
2. Amrutha, P.R., Jeeva, M.L., Sreelatha, G.L., Akhil, K.M., Tom Cyriac and Shilpa, S.U. 2023. Efficacy of *Bacillus licheniformis* - a biocontrol agent against *Colletotrichum gloeosporioides* Penz. (Penz. & Sacc.) causing anthracnose in greater yam (*Dioscorea alata* L.). *Egypt. J. Biol. Pest control.* **33**(1):112, <https://doi.org/10.1186/s41938-023-00755-3> (NAAS score: 8.40)
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8. Kishore, A., Singh, A., Sharanagat, V.S. and Pati, K. 2023. Structural, thermo-functional, and rheological properties of dielectric modified underutilized Jicama (*Pachyrhizus, spp.*) Starch. *Starch/Starke.* 2300167. (NAAS score: 8.69)
9. Megha Madhavan, V.R. Vishnu, S. Shanavas and A.N. Jyothi. 2021. Phenolic content and *in vitro* bioactivities of Chinese Potato (*Plectranthus rotundifolius*) tuber extracts. *J. Root Crops*, **47**(1&2):16-23.
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8. Sajeev, M. S., Jyothi, A.N., Krishnakumar, T. and Pradeepika, C. 2023. Technological Innovations for entrepreneurship development in tuber crops. In: *Souvenir, National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience (NCTTC4 STAR 2023)*. Indian Society for Root Crops & ICAR-Central Tuber Crops Research Institute, 28-29 November 2023, ICAR-CTCRI, Thiruvananthapuram, Kerala, India. pp. 95-101.
9. Sheela, M.N., Asha, K.I., Mohan, C., Asha Devi, A., Shirly Raichal Anil, Visalakshi Chandra, C. and Manas Ranjan Sahoo. 2023. Breeding Strategies for the Improvement of Tropical Tuber Crops under Changing Climatic Conditions. In: *Souvenir, National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience (NCTTC4 STAR 2023)*. Indian Society for Root Crops & ICAR-Central Tuber Crops Research Institute, 28-29 November 2023, ICAR-CTCRI, Thiruvananthapuram, Kerala, India. pp.30-35.
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 53. Shirly Raichal Anil, Sheela, M.N., Ravi, V., Gireesh, K.K., Sreeja Devi, P.S., Jyothi, A.N., Santhosh Mithra, V.S., Visalakshi Chandra, C., Gruneberg Wolfgang, Sampriti Baruah. 2023. Application of AI for quantifying for carotenoid content of biofortified sweet potato. In: *Book of Abstracts of National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food systems & Resilience (NCTTC 4 STAR) 28-29 November 2023* at ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India.
 54. Sruthi, T., Susan John, K., Jeeva, M.L. And Makesh Kumar, T. 2023. Management of symptom expression of cassava mosaic disease (CMD) through plant nutrients. In: *Book of Abstracts, National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food systems & Resilience (NCTTC 4 STAR) 28-29 November 2023* at ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India. p. 93 .
 55. Suja, G., Harishma S.J., Byju G., Seena Radhakrishnan A.R., Sreekumar, J., Veena S.S., Jyothi A.N., Sunitha S., Jaganathan, D. and Sheela, M.N. 2023. Organic management of tuber crops for safe and sustainable agri-food systems. In: *Book of Abstracts. National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience (NCTTC 4 STAR 2023)*. 28-29 November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India, p. 45.
 56. Sujatha T.P., Rinku Mariam Varghese., Eleeshwa Shaji. and Sheela, M.N. 2023. Isolation of genomic DNA of lesser yam and white yam without liquid nitrogen. In: *Book of Abstracts, National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food systems & Resilience (NCTTC 4 STAR) 28-29 November 2023* at ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India

57. Thomas, I.P. and Makesh Kumar, T. 2023. Evaluation of transgenic cassava resistance lines by grafting against Sri Lankan cassava mosaic virus. In: *Abstract book, Virocon-2023, Advancements in Global Virus Research towards One Health*, 01-03 December 2023, Hotel Courtyard by Marriott, Tiruchirapalli, Tamil Nadu. 189 p.
58. Veena, S.S., Jeeva, M.L., Byju, G., Sunitha, S., Karthikeyan, S., Sreekumar, J. and Nileena, P. 2023. Current scenario and future prospects in the management of fungal diseases of elephant foot yam. In: *Book of Abstracts, National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems & Resilience*, 28-29 November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India. p.83.
59. Visalakshi Chandra C., Jyothi, A.N., Sreekumar, J., Bishal Gurung., Shanavas, S. and Senthil@ Sankar. 2023. Postharvest Physiological deterioration (PPD) response and association with agronomic and biochemical traits in cassava clonal progenies. In: *Book of Abstracts, National Conference on tropical tuber crops for sustainability, tradition, agri-food systems and resilience (NCTTC 4STAR)*, 28-29 November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India, p.136.

Technical/Extension folders/Leaflets

1. Jaganathan, D., Muthuraj, R., Sheela Immanuel and Byju, G. 2023. Seed villages for quality planting material production in Chinese potato: A success story. Technical folder. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala.
2. Lalitha Natarjana and Sivakumar, P.S. 2023. Eri Silkworm Rearing on Cassava - A Remunerative Enterprise for Meghalaya. ICAR-Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala, India. 6 pp.
2. Murugesan, P, Jaganathan, D., Velmurugan, K. and Sathya, S. 2023. The protection of plant varieties and farmers rights Act 2001 and registration of farmers varieties. Technical folder. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, and Kerala. (English and Tamil).
4. Muthuraj, R., Jaganathan, D., Prakash, P. and Byju, G. 2023. Seed villages for quality planting material production in cassava: A success story. Technical folder. ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala.
5. Veena, S.S., Jeeva, M.L. Byju, G. 2023. *Postharvest rot in Elephant Foot Yam*. Technical Leaflet, ICAR-Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala.

E-Publication

2. Arutselvan, R., Jeeva, M., Veena, S., Makesh Kumar, T., Pati, K., Chauhan, V., Gowda, H., Nedunchezhiyan, M. and Laxminarayana, K. 16 October 2023. *Pectobacterium carotovorum* strain PC1 16S ribosomal RNA gene, partial sequence. OR675420. URL: <https://www.ncbi.nlm.nih.gov/nuccore/OR675420>.

Chapters in Training manual

1. Kumar. H.K. 2023. Nematode management in tropical tuber crops. In: *Training manual on Advances in quality planting material production of tropical tuber crops*. (Eds. K. Sunil Kumar and R. Muthuraj), 20-22 November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala. pp. 93-95.
2. Kumar. H.K. 2023. Soil nematodes as indicators of soil health. In: *Training manual on Soil, plant and water analysis for efficient nutrient management*. (Eds. V. Ramesh and K. Susan John), 18-22 December 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala. pp. 80-86.
3. Prakash, P., Jaganathan, D. and Sheela Immanuel. 2023. Area, production and economics of tropical tuber crops. In: *Training manual on Advances in quality planting material production of tropical tuber crops*, 20-22 November 2023, ICAR-CTCRI, Sreekariyam, Thiruvananthapuram, Kerala, India, 05-09 pp.

Radio talk

1. Dr. K. Susan John delivered a radio talk on 'Soils of Kerala and their nutrient requirement' in 'Vayalum Veedum' programme, All India Radio, Thiruvananthapuram, 09 October 2023.
2. Dr. V.S. Santhosh Mithra participated in the 'Vayalum Veedum' programme of All India Radio on the topic 'Smart Farming: Enthi, Enthinu', which was broadcasted on 24 December 2023.

Institute publications

1. ICAR-AICRPTC. 2023. *Proceedings. Mid-Term Review Meeting (2023) of ICAR-All India Coordinated Research Project on Tuber Crops*, 30 November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram 695 017, Kerala, India, 98 p.
2. Harish, E.R., Veena, S.S., Kumar, H.K. and Sangeetha, B.G. 2023. Proceedings of brainstorming meeting on management of mealybugs in cassava: Present status and future strategies (BS-MMBC 2023). ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala, India, 24 p.
3. Jaganathan, D., Makesh Kumar, T., Senthilkumar, K.M., Prakash, P., Krishna Radhika, N., Suresh Kumar, J., Sangeetha, B.G., Pradeepika, C. and Arutselvan, R.

2023. *Ranking document of ICAR-CTCRI 2022*. ICAR-CTCRI, Sreekariyam, Thiruvananthapuram, Kerala, India, 1010p.

- Jyothi, A.N., Jaganathan, D., Kalidas Pati, Kesava Kumar, H., Senthilkumar, K.M., Suresh Kumar, J. and Pradeepika, C. 2023. *ICAR-CTCRI Newsletter* (Quarterly), Vol. 40, Issue No. 3, ICAR-CTCRI, Sreekariyam, Thiruvananthapuram, Kerala, India, 28 p.

Major Institute Events

- Second quarterly review meetings of scientists were conducted during 03-04 October 2023 under the Chairmanship of Dr. G. Byju, Director, to review the progress achieved during the quarter (July-September 2023) and to prioritize the targets for scientists.
- World soil day programme was held on 05 December 2023 at ICAR-CTCRI HQ. The Chief guest of the programme was Dr. Sabu Joseph, Professor and Director, School of Earth Sciences, University of Kerala. Thirty school students attended along with staff and students at ICAR-CTCRI.

At the Regional Station of ICAR-CTCRI, Bhubaneswar, Odisha 50 farmers from MGMG adopted Pubusahi Village, Khruda Block, Dumuduma and Aiginia of Khruda district participated in the programme. Dr. Ranjan Kumar Patra, Professor & Head (Soil Science) Retired, from OUAT, Bhubaneswar, delivered the presidential address for World Soil Day, emphasizing global goals like combating biodiversity loss and promoting soil health. Dr. G. Byju, Director, ICAR-CTCRI, Thiruvananthapuram was the Chief guest.

Governance & Security and India in the World. It also discussed how to engage youth in contribution towards Viksit Bharat@2047. Vice Chancellors of Universities, academicians and students participated in the discussions. Dr. Byju, Director participated and shared his ideas regarding Viksit Bharat in a panel discussion. The research scholars viz., Ms. Reshma, Ms. Devi Sanjeev, Ms. S.U Shilpa, Dr. Pravi Vidhyadharan, and Dr. Senthil@Shankar also participated.



Director, ICAR-CTCRI and research scholars with Hon'ble Governor Shri. Arif Mohammed Khan



World Soil day celebration at ICAR-CTCRI HQ



Director, ICAR-CTCRI delivering special lecture on World Soil day celebration at RS, Bhubaneswar

Institute Review Meeting

Review of progress of work of ICAR-CTCRI by Dr. Himanshu Pathak, Secretary, DARE and DG, ICAR, New Delhi was conducted on 14 December 2023. Dr. G. Byju, Director, ICAR-CTCRI presented the overall achievements and action plans in the review meeting. DG, ICAR appreciated the achievements of ICAR-CTCRI and congratulated the Director for his excellent presentation.



Review meeting by Secretary, DARE & DG, ICAR



Viksit Bharat@2047- Voice of Youth at Raj Bhavan

Kerala Raj Bhavan organized 'Viksit Bharat @2047 - Voice of Youth' programme on 11 December 2023. Hon'ble Prime Minister Shri. Narendra Modi inaugurated the event via video conferencing and launched Viksit Bharat @2047 Ideas Portal. Shri. Dharmendra Pradhan, Hon'ble Minister for Education delivered the welcome address via video conferencing. Hon'ble Governor Shri. Arif Mohammed Khan addressed the participants of the event at Raj Bhavan. The event had discussions on various thematic areas of Viksit Bharat such as Empowered Indians, Thriving and Sustainable Economy, Innovation and Science & Technology, Good

Hindi corner

The meeting of the Official Language Implementation Committee (OLIC) of ICAR-CTCRI for the III quarter from October to December 2023 was held on 15 December 2023 under the Chairmanship of Dr. G. Byju, Director and Chairperson (OLIC). Chairman OLIC reviewed the progress of OL activities at the Institute. It was decided to conduct a Hindi class (one hour) for the interested staff of ICAR-CTCRI once in a week. It was also decided to celebrate the World Hindi Day-2024 on 10 January 2024.

Hindi Workshops

During this period, two Hindi workshops were organized, one on 20 October 2023 on the topic 'Role of Official Language Implementation in Central Government Offices'. The workshop was inaugurated by Dr. G. Suja, Director (i/c). Sh. Anil. B, Deputy Director, Central Hindi Directorate, Ministry of Education, Govt. of India conducted the class where 29 participants comprising 12 officers and 17 staff attended. Another Hindi workshop was organized on 07 December 2023 on the topic, 'Easy methods for using Official Language in your work place' for the staff. The workshop was inaugurated by Dr. M. R. Sahoo, Director (i/c). Sh. T. Rangarajan, Assistant Director (OL), Southern Air Command, Thiruvananthapuram conducted the class where 35 participants comprising 17 officers and 18 staff attended.



Hindi Workshop on 'Role of Official Language Implementation in Central Government Offices'



Hindi Workshop on 'Easy methods for using Official Language in your work place'

Director's official visits

- Dr. G. Byju, Director inaugurated the training of Technical Staff at IMG, Government of Kerala, Thiruvananthapuram on 16 October 2023.
- Dr. G. Byju, Director inaugurated the 'Space on Wheels' programme jointly organized by Vigyan Bharati and ISRO at Loyola School, Thiruvananthapuram on 17 October 2023.
- Dr. G. Byju, Director, delivered invited talk on 'Climate change: a major threat to agrifood systems' at University of Agricultural Sciences (UAS), GKVK, Bangalore organized by Indian Society of Soil Science Bangalore Chapter & Dept of Soil Science and Agricultural Chemistry, College of Agriculture, GKVK, Bangalore on 20 October 2023.
- Dr. G. Byju, Director delivered felicitation address at National seminar on 'Processing and value addition in agriculture for increasing farmers income- an agricultural perspective', Institution of Engineers Hall, Thiruvananthapuram on 25 October 2023.
- Dr. G. Byju, Director, ICAR-CTCRI attended the 'Awareness-cum-training programme on provisions of Protection of Plant Varieties and Farmers Right (PPVFR) act, 2001' at ICAR-KVK, Nammakal, Tamil Nadu on 26 October 2023.
- Dr. G. Byju, Director attended 63rd Institute Management Committee (IMC) meeting of NAARM, Hyderabad, Telangana on 03 November 2023



Attending 63rd Institute Management Committee (IMC)



- Dr. G. Byju, Director, ICAR-CTCRI monitored the work progress of All India Research Project on Tuber Crops (AICRP TC) Centre at Tapioca and Castor Research Station (TCRS), TNAU, Yethapur, Salem on 07 November 2023. He also participated in Farmers Training on 'Cassava Production and Value Addition' and distributed agro inputs to 50 beneficiary farmers. He also monitored the Decentralized Seed Multipliers (DSM) in selected seed villages.



Monitoring the work progress of All India Research Project on Tuber Crops (AICRP TC) Centre at Tapioca and Castor Research Station (TCRS), TNAU, Yethapur, Salem



- Dr. G. Byju, Director discussed with Sri Lalithaditya Neelam IAS, MD, The Salem Starch and Sago Manufacturers Service Industrial Cooperative Society (SAGOSERVE) on 07 November 2023.
- Dr. G. Byju, Director visited broodstock development, breeding and seed production facilities of high value marine fin fishes and ornamental fishes at ICAR-CMFRI, Regional Station, Tamil Nadu on 11 November 2023.
- Dr. G. Byju, Director visited ICAR-CPCRI Regional Station, Kayamkulam on 16 November 2023.
- Dr. G. Byju, Director delivered valedictory address National Seminar on Phytochemistry and Translational Research at Kerala Academy of Sciences, CLIF, Kariyavattom on 18 November 2023.
- Dr. G. Byju, Director was the Chief Guest for valedictory function of International Conference on Environmental Pollution and Health organized during 22-24 November 2023 at Department of Environmental Sciences, University of Kerala.
- Dr. G. Byju, Director inaugurated the arrowroot starch extraction unit a licensed technology of ICARI-CTCRI, at Berthili tribal hamlet, Rayagada district on 03 December 2023.



Inauguration the arrowroot starch extraction unit
Director with Gongriya tribes



- Director, Dr. G. Byju visited the Regional Station during 01 to 06 December 2023. He visited different experimental fields and also participated in the World soil day celebrations at the Regional Station.



Director' visit at Regional Station Bhubaneswar



- Director, Dr. G. Byju served as a panel member for the discussion at the workshop on Viksit Bharat@2047-Voice of Youth along with Vice Chancellors of Kerala, Director, SCTIMST and Director, IISER, Raj Bhavan, Kerala on 11 December 2023.



Director served as a panel member for the discussion at the workshop on Viksit Bharat@2047- Voice of Youth



Meeting of Director with Governor, Kerala

- Dr. G. Byju, Director inaugurated the product launch cum stakeholder workshop on 'Strategies for Commercializing Biofortified Foods' on 18 December 2023 at V7 Hotels, Porur, Chennai.

New project sanctioned

- A consultancy project on 'Cassava Custard' has been initiated on 01 November 2023 for six months in collaboration with M/s KCM Agri Clinic (PI: Chintha Pradeepika, Co-PIs: A.N. Jyothi and M.S. Sajeev, Budget: Rs. 8.42 Lakhs).
- Rainbow Diet Campaign for Odisha: Development and Scaling of Customised Rainbow Diet Food Matrices for Combating Malnutrition among Children in Keonjhar District (MoU signed on 04 December 2023; Budget: Rs 683.30 lakhs; Funding agency: District Mineral Foundation, Keonjhar, Odisha).

Distinguished Visitors

- Dr. P. Irene Vethamoni, Dean (Horticulture), Tamil Nadu Agricultural University, Coimbatore.

- Dr. B. Neeraja Prabhakar, Vice Chancellor, Sri Konda Laxman Telangana State Horticultural University, Telangana.
- Dr. R. Dinesh, Director, ICAR-Indian Institute of Spices Research (IISR), Kozhikode
- Dr. Sheeba Rebecca Isaac, Associate Director of Research, RARS, Kumarakom, Kerala
- Dr. Stephen Winter Department Plant Viruses, Leibniz Institute DSMZ, German Collection of Microorganisms and Cell Cultures GmbH, Braunschweig, Germany
- Dr. Sabu Joseph, Professor and Director, School of Earth Sciences, University of Kerala.
- Sh. Anil. B, Deputy Director, Central Hindi Directorate, Ministry of Education, Govt. of India
- Sh. T. Rangarajan, Assistant Director (OL), Southern Air Command, Thiruvananthapuram

Honours, Awards and Recognitions

- Dr. K. Laxminarayana visited along with Sri. Kusha Kumar Agarwal, Deputy Director of Horticulture (Hqrs.), Directorate of Horticulture and verified potato seed stock different districts of Haryana, Punjab and West Bengal states and verified the certified potato respectively.
- Dr. D. Jaganathan served as an External Examiner for a M.F.Sc. thesis of Extension, Economics and Statistics, Kerala University of Fisheries and Ocean Studies (KUFOS), Panangad, Kochi & submitted on 06 October 2023 and an external expert for two Defense seminars of Ph.D. Scholars of College of Agriculture, Vellayani, Thiruvananthapuram on 30 October 2023 and 13 November 2023, respectively.
- Dr. K. Laxminarayana participated in the Rashtriya Mahila Kisan Diwas celebrated at ICAR-Central Women in Agriculture, Bhubaneswar on 15 October 2023.
- Dr. S. Sunitha conducted qualifying viva voce of one Ph.D. student from KAU, Vellayani on 09 October 2023 and three M.Sc. (Ag.) students at COA, Vellanikkara, Thrissur, Kerala on 18 October 2023.
- Dr. M.S. Sajeev acted as the Technical Committee Member for the Two day All India Seminar on Processing and Value addition in Agriculture for increasing farmers income-an Engineering Perspective, 25-26 October 2023, Institution of Engineers (India), Kerala State Centre, Thiruvananthapuram.
- Dr. M.S. Sajeev was the invited member for International Workshop on Food Loss & Waste Prevention in the South Asian Region, held at New Delhi during 30 October to 01 November 2023 organized by Division of Agricultural Engineering, Indian Council of Agricultural Research, New Delhi.
- Dr. P. Murugesan Conferred with Fellow of IAHS 2023 in horticulture during the 10th IHC, Guwahati 06-09 November 2023.

- Dr. P. Murugesan delivered an invited lecture in the theme forgotten foods in International Convention on Millets on 10 November 2023 at Odisha organised by Department of Agriculture, Govt. of India under Millet Mission.
- Dr. K. Laxminarayana attended the final Thesis Viva Voce of M.Sc. (Ag.) students from the Department of Soil Science & Agricultural Chemistry, College of Agriculture, OUAT, Bhubaneswar on 08 November 2023.
- Dr. G. Suja received the ISA Gold Medal 2022 on 22 November 2023.
- Dr. M. S. Sajeew evaluated the business plan of MSME entrepreneurs for back ended subsidy, SFAC, Thiruvananthapuram on 23 November 2023.
- Dr. G. Suja received Fellow of ISRC on 28 November 2023 in the NCTTC 2023.
- Dr. T. Krishnakumar received the Best Oral Presentation Award for the research paper titled 'Effect of different packaging materials on the quality & shelf-life of cassava flour during storage' in the National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems and Resilience (NCTTC 4 STAR 2023) held during 28-29 November 2023 at ICAR-CTCRI, Thiruvananthapuram, Kerala.
- Dr. Sreekumar, J. received the Best Oral Presentation Award for the research paper titled AI Assisted Approaches in Revolutionizing Plant Breeding: Advancements authored by in the National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agrifood systems and Resilience, 28-29 November 2023, ICAR-CTCRI, Thiruvananthapuram, Kerala, India.
- Dr. Jaganathan, D. received the Best Oral Presentation Award for the research paper titled Farmer participatory demonstrations on improved varieties of cassava: Potentials and Strategies authored by Sheela Immanuel, Muthuraj, R., Prakash, P. and Byju, G. in the National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agrifood systems and Resilience, 28-29 November 2023, ICAR-CTCRI, Thiruvananthapuram, Kerala, India.
- Prakash, P., received the Best Poster Presentation Award for the research paper titled Cassava cultivation in India: Growth trends, challenges and sustainable strategies authored by Jaganathan, D. and Sheela Immanuel in the National Conference on Tropical Tuber Crops for Sustainability, Tradition, Agrifood systems and Resilience, 28-29 November 2023, ICAR-CTCRI, Thiruvananthapuram, Kerala, India.
- Shilpa, S.U. received the best poster award for the paper entitled 'Utilizing endophytic growth promoting bacteria inhabiting taro to mitigate leaf blight'. (Authors: Shilpa, S.U., Jeeva M. L., Veena S.S., Amrutha, P.R. and Cyriac, T.) in the National Seminar on National Conference on Tropical tuber crops for sustainability, tradition, agri-food systems and resilience held during 28-29, November 2023, ICAR-Central Tuber Crops Research Institute, Thiruvananthapuram, Kerala.
- Ms. Nalishma Raghu received the Best Research Paper award (Poster) for the poster Evaluation of Drought Indices for the Screening of Sweet Potato Varieties Under Moisture Stress' (Authors: Nalishma Raghu, M.M. Viji, Roy Stephen, R.V. Manju, Saravanan Raju and K.M. Senthilkumar) in the National conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems and Resilience (NCTTC 4STAR) held during 29-30 November 2023 at ICAR-CTCRI, Thiruvananthapuram.
- Ms. Reshma Maria Joseph received the Best Research Paper award (Poster) for the poster 'A Modified Method for Isolation of Total RNA from Sweet Potato *Ipomoea batatas* (L.) Lam.' (Authors: Reshma Maria Joseph, Shirly Raichal Anil, Krishna Radhika N, Senthilkumar K M, Prakash Krishnan B) in the National conference on Tropical Tuber Crops for Sustainability, Tradition, Agri-Food Systems and Resilience (NCTTC 4STAR) held during 29-30 November 2023 at ICAR-CTCRI, Thiruvananthapuram.
- Dr. Sheela Immanuel acted as Question paper setter for the M.F.Sc course on Monitoring, evaluation and Impact assessment, KUFOS, 30 November 2023.
- Resmi, T.R. got the best poster award for the research paper entitled 'Cloning and characterization of sweet-potato infecting begomoviruses from field-infected sweet potato plants'. (Authors: Resmi, T.R., Vidhyadharan, P. and Makesh Kumar, T.) in Virocon-2023, Advancements in Global Virus Research Towards One Health held during 01-03 December 2023 at Hotel Courtyard by Marriott, Tiruchirappalli, Tamil Nadu.
- Thomas, I.P. got the best poster presentation award for the research paper entitled 'Evaluation of transgenic cassava resistance lines by grafting against Sri Lankan cassava mosaic virus (Authors: Thomas, I.P. and Makesh Kumar, T.) in Virocon- 2023, Advancements in Global Virus Research Towards One Health held during 01-03 December 2023 at Hotel Courtyard by Marriott, Tiruchirappalli, Tamil Nadu.
- Pravi Vidyadharan bagged the best poster presentation award for the research paper titled 'Lateral flow immunoassay for on-site detection of viral diseases of tuber crops' (Authors: Resmi, T.R., Vidyadharan, P., Jayakrishnan J.T., Jeeva M.L. and Makesh Kumar T.) in Virocon-2023, Advancements in Global Virus Research Towards One Health held during 01-03 December 2023 at Hotel Courtyard by Marriott, Tiruchirappalli, Tamil Nadu.
- Dr. T. Krishnakumar set the final theory question paper

for the course on BAE 108 Heat and Mass transfer (2+1) for B.Tech. (Agricultural Engineering) and FPE 102 Heat and Mass transfer for B.Tech. (Food Technology/Energy and Environmental Engineering) of Tamil Nadu Agricultural University (TNAU), Coimbatore. Dr. P.S. Sivakumar was the Jury Member of ‘Tigers’ Claw’ a business pitching competition at the Huddle Global 2023 of Kerala Startup Mission during 16-17 November 2023.

- Dr. K. Laxminarayana, has participated in the 10th Indigenous Seed Festival as Guest of Honour being organized by Desi Bihan Surakshya Manch, Sambalpur, Odisha on 02 December 2023.
- Dr. Sheela Immanuel handled the course on Rural Sociology for PGDAEM students of MANAGE at SAMETI, Thiruvananthapuram on 14 December 2023.
- Dr. K. Laxminarayana participated as a Technical Expert in the meeting of State Variety Release Committee at Directorate of Horticulture, Krushi Bhavan, Bhubaneswar, Govt. of Odisha on 28 December 2023.
- Dr. K. Laxminarayana participated as a member in the Technical Expert Committee for finalization of SOP for production of Certified Seed Potato in Odisha using ARC technology on 28 December 2023 under the Chairmanship of Principal Secretary to Govt., DAFE, Odisha by virtual mode.
- Shilpa, S.U. Received award for the best paper published in the *Journal of Root Crops* Volume 47 (1 &2) by the Indian Society of Root Crops for the article titled ‘Harnessing the diversity of bacterial endophytes isolated from wild and cultivated taro plants against *Phytophthora colocasiae*’. (Authors: Shilpa, S.U, Jeeva M.L., Veena S.S., Amrutha, P.R., Makesh Kumar, T. and Cyriac, T.).
- Dr. K.I. Asha and Dr. A. Asha Devi were nominated as Virtual Biodiversity Cadre, Kerala State Biodiversity Board from ICAR-CTCRI.
- Dr. C. Mohan acted as External examiner for evaluation of two M. Sc. (Ag.) Genetics and Plant Breeding thesis, Tamil Nadu Agricultural University, Coimbatore.
- Dr. Sheela M. N. acted as external examiner for evaluation of two Ph.D. Genetics and Plant Breeding thesis, College of Agriculture, Vellayani, Kerala Agricultural university.
- Dr. Susan John K. and Dr. V. Ramesh acted as judges for 11 oral presentations competitions made by research scholars and students in the World Soil Day celebrations 2023 at Department of Soil Science and Agricultural Chemistry, College of Agriculture, Vellayani, Thiruvananthapuram on 06 December 2023.
- Dr. S. Sunitha attended the defense seminar of a Ph.D. scholar from KAU, Vellayani, Thiruvananthapuram on 07 December 2023.
- Dr. P.S. Sivakumar acted as Panelist in the Workshop on the Behaviour Change Communication best practices to promote natural farming, organized by VERTIVER at Delhi on 08 December 2023.
- Dr. S. Sunitha evaluated M.Sc.(Ag.) thesis from KAU, Vellayani, Thiruvananthapuram on 12 December 2023. Dr. P.S. Sivakumar acted as expert member of the Review team of KSCSTE-ED-SC-ST-WISTEM project on 12 December 2023.
- Dr. P.S. Sivakumar was an expert for evaluating student projects presented at the IDEA FEST organized By the Kerala Startup Mission on 18 December 2022.
- Dr. G. Suja delivered a Guest Seminar on the topic Organic farming for safe & sustainable agri-food systems with special reference to tuber crops, at Dept. of Agronomy, TNAU, Coimbatore on 29 December 2023.
- Dr. S. Sunitha delivered a guest seminar on the topic Water footprint of root and tuber crops at Department of Agronomy, TNAU, Coimbatore, Tamil Nadu on 29 December 2023.
- Dr. G. Suja acted as external examiner of Public Defense Examination of a Ph.D. student from Dept. of Agronomy, Directorate of Crop Management, TNAU, Coimbatore on 29 December 2023.
- Dr. S. Sunitha acted as external examiner of public defense examination of a Ph.D. student at Department of Agronomy, Directorate of Crop Management, TNAU, Coimbatore on 29 December 2023.
- Dr. V. Ramesh acted as external examiner for M. Sc (Ag.) thesis from Department of SS&AC, AC&RI, TNAU, Madurai.
- Dr. A.N. Jyothi attended (online) the Technical Committee meeting of Kerala State Pesticide Testing Laboratory, Thiruvananthapuram for the technical evaluation of bids for disposal of left over pesticides on 30 December 2023.

Media Coverage

Sl.No.	Date	News Title	Name of the Newspaper
1	06.10.2023	Kaarshika upakaranangalum nadil vasthukkalum nalki	Malayala Manorama, Pathanamthitta
2	06.10.2023	Koorkka krishi sammelanam innu	Kerala Kaumudi
3	06.10.2023	Udghaadanamcheythu	Kerala Kaumudi
4	07.10.2023	Koorkka krishi crodeekarana sammelanam	Desabhimani
5	07.10.2023	Session on Chinese potato organised	The Hindu
6	07.10.2023	Brainstorming meet held on cultivation of Chinese potato	The New Indian Express
7	14.10.2023	Training of farmers on production of new variety of cassava tuber	Dinathanthi
8	14.10.2023	Training on Cultivation of New Varieties of Cassava	Dinamalar
9	26.10.2023	Seminar on Conservation and Registration of Crop Varieties at Namakkal	Thinamalar
10	28.10.2023	New Varieties in Koonavelampatti near Rasipuram - Maravalli Plant	Thinathanthi
11	30.10.2023	Seminar on Crop Variety Protection	Dinakaran
12	30.10.2023	Awareness seminar for farmers on crop variety registration	Kalaikathir
13	02.11.2023	Training Course on Cassava Cultivation Techniques	Aishwaryaam
14	09.11.2023	Madurakkizhangu krishi vilaveduppinerungi: rainbo dayattu campain vijayathilekku	Malayala Manorama, Paalakkad
15	10.11.2023	CTCRI, IISR develop three biocapsules for farm sector	The Hindu
16	15.11.2023	Kizhanguvila gaveshana kedrathinu amgeekaaram	Kerala Kaumudi
17	15.11.2023	Digital university cteri gaveshanakendram	Desabhimani
18	25.11.2023	Kedra kizhanguvila gaveshana kedrathil desheeya sammelanam	Desabhimani
19	26.11.2023	Kaarshika samskrithiyude ormakalunarthi vrishchika kaarthika	Malayala Manorama
20	27.11.2023	Dvidina desheeya sammelanam	Kerala Kaumudi
21	29.11.2023	Dvidina sammelanam	Kerala Kaumudi
22	29.11.2023	National Conference on tuber crops inaugurated at CTCRI	Indian Express
23	29.11.2023	Dvidina desheeya sammelanam samaapichu	Janayugam
24	30.11.2023	Jaivakrishikku "vala'maayi bio capsule	Malayala Manorama
25	30.11.2023	3 Biocapsules to aid farming developed	Indian Express
26	05.12.2023	CTCRI, Odisha govt. to fight malnutrition in Keonjhar	The Hindu
27	07.12.2023	Loka mannu dinam aacharichu	Malayala Manorama
28	12.12.2023	Restore India's intellectual heritage, says Governor	The Hindu
29	22.12.2023	Karshakarkku nadil vasthkkkal vitharanam cheythu	Desabhimani
30	22.12.2023	Karshakarkku nadil vasthukkal nalki	Malayala Manorama
31	25.12.2023	Nutriseed villages to promote biofortified varieties established in Dhalai	Tripura Times
32	25.12.2023	Nutriseed to promote biofortified varieties	North East Colours
33	27.12.2023	Maracheeni krishi : kadambanaadu karshakare sahaayikkan kizhangu vila gaveshana kedram	Kerala Kaumudi



കുടുംബശ്രീ പദ്ധതിയിൽ പങ്കെടുത്ത കുട്ടികൾക്ക് സമ്മാനം നൽകുന്ന ചടങ്ങ്.

മലയാള മനോരമ

കുടുംബശ്രീ
2023 ഒക്ട 10

കുടുംബശ്രീ പദ്ധതിയിൽ പങ്കെടുത്ത കുട്ടികൾക്ക് സമ്മാനം നൽകുന്ന ചടങ്ങ്.

കുടുംബശ്രീ പദ്ധതിയിൽ പങ്കെടുത്ത കുട്ടികൾക്ക് സമ്മാനം നൽകുന്ന ചടങ്ങ്. കുടുംബശ്രീ പദ്ധതിയിൽ പങ്കെടുത്ത കുട്ടികൾക്ക് സമ്മാനം നൽകുന്ന ചടങ്ങ്.

കൂർക്ക കൃഷി സമ്മേളനം ഇന്ന്

തിരുവനന്തപുരം: കിഴക്കുശവണ കേന്ദ്രത്തിൽ കൂർക്ക കൃഷി സമ്മേളനം ഇന്നു നടക്കും. രാഹിഡെ 10 ന് കായനത്തൂർ കോർക്കി കസർവകലാശാല ഡീൻ ഡോ. പി.ഐ.എൻ. ദേവമണി ഉദ്ഘാടനം ചെയ്യും. കമ്മിഷൻ ആർ.എ.ആർ.സി.യിലെ ഗവേഷണവിഭാഗം അസോസിയേറ്റ് ഡയറക്ടർ ഡോ. ഷീബാ രേബേക്കാ, സി.ഐ.സി. ഡയറക്ടർ ഡോ. ജി.വൈ.ജി. അദ്ധ്യക്ഷത വഹിക്കും. കൂർക്ക കൃഷി നേരിടുന്ന വെല്ലുവിളികൾക്ക് പരിഹാരം തേടുകയാണ് ലക്ഷ്യം. നൂറോളം വിദഗ്ദ്ധർ പങ്കെടുക്കും.



പുതിയ ലക്ഷ്യ മൂലപ്പട്ടി കൃഷിയിൽ പങ്കെടുത്തവർ.

പുതിയ ലക്ഷ്യ മൂലപ്പട്ടി കൃഷിയിൽ പങ്കെടുത്തവർ

പുതിയ ലക്ഷ്യ മൂലപ്പട്ടി കൃഷിയിൽ പങ്കെടുത്തവർ. പുതിയ ലക്ഷ്യ മൂലപ്പട്ടി കൃഷിയിൽ പങ്കെടുത്തവർ.

കേരള കാമുനി

ഒറ്റമരുന്നിനെക്കുറിച്ച്

കേരളം: കേരളം നിലവിലുള്ള മരുന്നുകളെക്കുറിച്ച് വിവരങ്ങൾ നൽകുന്ന ഒരു സെഷൻ സംഘടിപ്പിച്ചു. **The Hindu Bureau** Thiruvananthapuram.

Brainstorming meet held on cultivation of Chinese potato

Brainstorming meet held on cultivation of Chinese potato. The Hindu Bureau Thiruvananthapuram.

കുർക്കി കൃഷി ക്രോഡീകരണ സമ്മേളനം

കുർക്കി കൃഷി ക്രോഡീകരണ സമ്മേളനം. തിരുവനന്തപുരം: കിഴക്കുശവണ കേന്ദ്രത്തിൽ കൂർക്ക കൃഷി ക്രോഡീകരണ സമ്മേളനം നടന്നു.

നാമകർമ്മങ്ങൾ

പയിറ്റ് രക്മ പട്ടാകാപ്പു കൃഷിക്ക് കൂർക്കകൃഷി

നാമകർമ്മങ്ങൾ. പയിറ്റ് രക്മ പട്ടാകാപ്പു കൃഷിക്ക് കൂർക്കകൃഷി.

കൂർക്ക കൃഷി ക്രോഡീകരണ സമ്മേളനം

കൂർക്ക കൃഷി ക്രോഡീകരണ സമ്മേളനം. തിരുവനന്തപുരം: കിഴക്കുശവണ കേന്ദ്രത്തിൽ കൂർക്ക കൃഷി ക്രോഡീകരണ സമ്മേളനം നടന്നു.

മരവിനി കൃഷി: കടമ്പനാട് കർഷകരെ സഹായിക്കാൻ കിഴക്കു വീള ഗവേഷണ കേന്ദ്രം

മരവിനി കൃഷി: കടമ്പനാട് കർഷകരെ സഹായിക്കാൻ കിഴക്കു വീള ഗവേഷണ കേന്ദ്രം. മരവിനി കൃഷി: കടമ്പനാട് കർഷകരെ സഹായിക്കാൻ കിഴക്കു വീള ഗവേഷണ കേന്ദ്രം.

മലയാള മനോരമ

കാർഷിക സംസ്കൃതിയുടെ

കാർഷിക സംസ്കൃതിയുടെ

കാർഷിക സംസ്കൃതിയുടെ

Personalia

Superannuation/Retirement

Sl.No.	Name	Position Held	Date of Retirement
1	Mr. P. Udayakumar	Skilled Support Staff	31.10.2023

Transfers

Sl.No.	Name	From	To
1	Dr. Rahana S. N.	ICAR-IIOPR, Palode	ICAR-CTCRI, Thiruvananthapuram



Tuber Crops for Food, Health, Wealth and Prosperity

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