



Citrus Newsletter



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From the Director's Desk.....



Dear Readers,

The North-Eastern-Hill (NEH) region of India, one of the mega biodiversity hotspots in the world, is a rich reservoir of citrus germplasm in our country. Several Citrus species and their natural hybrids are known to have originated and exist in this region. This region is the natural home for various endangered species of Citrus viz. *Citrus indica*, *C. assamensis*, *C. latipes*, *C. ichagensis*, *C. macroptera*, and other citrus species viz. *C. medica*, *C. aurantium*, *C. reticulata*, *C. megaloxycarpa*, *C. jambhiri*, *C. aurantifolia*, *C. grandis*, *C. limon* and *C. karna*. This natural and undisturbed populations of citrus gene pool made this region as a “country's treasure trove of citrus germplasm”. All total six indigenous citrus cultivars of this region have been registered under geographical indications (GI). The citrus sector in the NEH states is expanding, although slowly. According to Ministry of Agriculture and Farmers Welfare, Govt. of India, in 2010-11, the citrus area in the NEH region was 1,08,600 hectares, with an

annual production of 5,05,000 tonnes. During 2021-22, the area increased to 1,66,770 hectares, and output climbed to 9,83,000 tonnes registering more than 26% increase in productivity from 4.65 t/ha to 5.89 t/ha.

In NEH region, most of the plantations are of seedling origin, whereas high and early income with budded plants that start commercial crop 3-4 years after planting is the future of citrus industry in the region. In water-logging prone areas, there is an enormous opportunity to expand area under citrus through high-tech raised-bed planting system with high density and fertigation, whereas, in hillslopes, planting in half-moon terrace along with grass barrier strip is the best option. The citrus growers in the region still follow the traditional farming practices without or negligible use of agro-inputs which results in citrus decline. The centuries-old practice of cultivating citrus must be improved through seamless blending of traditional wisdom and modern scientific knowledge. The region also has huge scope of citrus based integrated farming system, not only for year-round food-nutritional-income security, but also for conserving natural resources and increasing resilience against changing climate. The region also has the potential to cultivate citrus under a certified organic or natural farming method.

The indigenous citrus cultivars of the NEH region are distinct in terms of taste, flavour, and medicinal value, indicating a promising future for the development of novel processed and functional food products. Furthermore, lack of appropriate fruit packaging, regional branding, transportation, and marketing are significant hurdles that must be overcome for the citrus industry in the NEH region

to succeed. Aside from native citrus species, the region also provides ample possibility for cultivation of various exotic kinds of mandarin and sweet orange that thrive in cold agro-climatic conditions. Many of these concerns are being addressed with the establishment of RRCC, Biswanath Chariali, Assam for the greater benefits of citrus growers of NEH region. ICAR-CCRI is working diligently in this field to make the NEH Region Atmanirbhar in Citriculture.

FROM THE INSTITUTE
Research Highlight

➤ **Customized micronutrient mixture for Nagpur mandarin**

- Micronutrients are customized based on prevalent frequency of micronutrient deficiencies.
- Customized micronutrient mixture caters to metabolic requirements of these nutrients by Nagpur mandarin.
- Dose of customized micronutrient mixture is much lower than individual dose of straight micronutrient fertilizers.



➤ **Acid lime Nutri-jelly**

- Acid lime are rich source of vitamin C, antioxidants and minerals and provide healthy option for people of all age groups. It will help to boost immune system. Jelly is famous and has much demand among the children's. The developed technology *i.e.* Acid lime Nutri-jelly is enriched with added nutrients and is having sharp texture and tender.
- This technology can prove to be a source of secondary income to farmers and start-up as he/she can set a micro industry using this technology.



Acid lime Nutri-jelly

International Patent granted

International Patent : US Patent entitled “Compositions and Methods for systemic delivery of cargos in vascular plants” with inventors Swadeshmukul Santra, Ali Ozcan, Dilip K. Ghosh, Sunil Kokane, Pranav Kumar and Ashwani Kumar Sharma granted on 25th January, 2022 (ICAR-CCRI, Nagpur; IIT Roorkee and UCF, Florida, USA).

Institute Activities/ Events Organized

PM Kisan Samman Nidhi Yojana : Programme of Hon'ble Prime Minister Shri Narendra Modi Ji address to the farmers on the occasion of PM Kisan Samman Nidhi Yojana organised on 1st January, 2022 in which 102 participants (20 women, 70 men and 12 officials) attended (Virtual).



Participants at PM Kisan Samman Nidhi Yojana

Farmers Awareness Campaign

Organized “Farmers Awareness Campaign” on efficient and balanced use of fertilizers on 21st June, 2022 in collaboration with Vasantrao Naik Marathwada Krishi Vidyapeeth under the webinar entitled “Citrus irrigation and Nutrition Management”. Lectures were delivered by Dr. A.K. Srivastava, Pr. Scientist on Nutrient management in Citrus and Dr. D.T. Meshram, Pr. Scientist on “Irrigation and fertigation management in Citrus”. The webinar was attended by more than 35 progressive farmers from Nagpur, Amravati and Wardha districts. The queries by the farmers were answered by the scientists. The meeting was facilitated by Shri Subodh Moharil, Dept. Director, VANAMATI, Nagpur.



View of webinar

Important Visitor

Dr. Trilochan Mohapatra, DG, ICAR: Dr. Trilochan Mohapatra, Hon'ble Secretary, DARE, Govt. of India and DG, ICAR, New Delhi visited ICAR- CCRI, Nagpur on 26th June, 2022. His visit started with the plantation of an ornamental citrus plant of Calamondin (*Citrus madurensis*) in CCRI campus. It was followed by inauguration of newly constructed Farmers' Hostel building and newly renovated Type-III residential quarters for the staff of the institute. Subsequently he visited the CCRI nurseries which is producing diseases-free planting materials and appreciated this excellent effort of Dr. Dilip Ghosh, Director and his team of CCRI scientists. DG also examined the subsurface irrigation system in Nagpur mandarin blocks and appreciated the research in this area that has potential to save about 60 to 70 % irrigation water



Inauguration of Farmers' Hostel by Dr. Trilochan Mohapatra, DG, ICAR

as compared to drip irrigation system. He was happy to see the solar sensor based irrigation system. Dr. Mohapatra also visited the demonstration trial of exotic sweet orange and grapefruit experimental blocks of CCRI. During his interaction with staff of CCRI, Hon'ble DG drew attention towards several important issues of current agricultural scenario of India. He also spoke about the necessity of developing FPOs and strengthening infrastructure for producing good quality planting materials.

Important Events

National Workshop on Production of Disease-free Citrus Plants in PPP mode

National Workshop on "Production of Disease-free Citrus Planting Material in PPP mode" was organised on 26th June, 2022. Hon'ble Union Minister Shri Nitin Gadkari was the Chief Guest and presided over by Dr. Trilochan Mohapatra, Secretary, DARE, GoI and DG, ICAR, New Delhi. Prof. C.D. Mayee, Ex Chairman, ASRB and

Dr. S.K. Chaudhari, DDG (NRM) were the Guests of Honour. Dr. Dilip Ghosh, Director, ICAR-CCRI informed about CCRI's achievements in different areas of citriculture particularly in production of superior quality disease-free planting material that has a huge demand among the farmers. Dr. Trilochan Mohapatra, in his presidential address, highlighted the need to leverage the skill development programmes & Govt. schemes of MIDH and NHB to train the private nursery owners for developing the disease-free planting material using CCRI developed technology. Chief Guest, Shri Nitin Gadkari, appreciated the PPP model through which CCRI developed nursery technologies have been commercialized. He also advised CCRI to conduct performance audit of the licensee nursery owners to grant them ratings and certificates of standard. He urged the scientists to standardize quality parameters for exporting citrus



Hon'ble Shri Nitin Gadkariji and other dignitaries along with licencees of CCRI

fruits and to do need based research with the support and collaboration of developed countries. The dignitaries released various publications and inaugurated facility centres of the Institute during the occasion. The programme registered participation by the officers from SAUs, NHB, NABARD & State Horticulture Department, citrus growers and citrus nursery owners from 5 different States. During the technical session CCRI scientists viz., Dr. A. A. Murkute, Dr. N. Vijayakumari, Dr. A.K. Das and Dr. G.T. Behere along with Dr. S.K. Sharma of NHB delivered lectures covering different areas of scientific citrus nursery development. Dr. A. A. Murkute conducted the programme and Dr. Dinesh Kumar proposed vote of thanks.

Training Programmes

On-Campus

- ICAR-CCRI in collaboration with Department of Agriculture, Govt. of Maharashtra organized a training on Management of *Ambia* Bahar in Nagpur Mandarin and Sweet Orange with Special Reference to fruit drop management for officials of Government of Maharashtra and Farmers on 28th January, 2022 in which 42 trainees (21 citrus growers and 21 Agriculture Officers) participated. Chief Guest Dr. Shivaji Sarode, Ex-Director of Research, Dr. PDKV Akola highlighted the areas of concern in citrus farming. Shri. Ravindra Bhosale, JDA (Nagpur Division), Guest of Honour expressed that this training would prove useful in managing the fruit drop problem of citrus crop in Vidharbha region. Dr. Dilip Ghosh, Director, ICAR-CCRI briefed about the training programme. Technical session included “Disease management in citrus” - Dr. A.K. Das, Pr. Scientist; “Integrated management of insect pests in *Ambia* Bahar” - Dr. G.T. Behere, Pr. Scientist; “Management of cropping in Nagpur mandarin and mosambi



Shri Ravindra Bhosale addressing the trainees

sweet orange” - Dr. A.D. Huchche, Pr. Scientist; Diagnosis and management of nutrient constraints in Nagpur mandarin” - Dr. A.K. Srivastava, Pr. Scientist. The technologies of Bordeaux paste preparation and its application and methods of soil sampling were demonstrated. Progressive farmer, Shri. Rishikesh Sontakke of Amravati district of Maharashtra shared his experience about successful adoption of CCRI techniques in his citrus orchard. The training was co-ordinated by Dr. Sangeeta Bhattacharyya, Scientist.

- ICAR-CCRI in collaboration with Department of Agriculture, Govt. of Maharashtra, organized a training on Management of *Ambia* Bahar in Citrus on 2nd February, 2022. A total of 34 trainees (16 citrus growers and 18 Agriculture Officers of

Government of Maharashtra) participated. Chief Guest, Dr. D.M. Panchbhai, Associate Dean, College of Agriculture, Nagpur highlighted the importance of timely pruning and appealed farmers to practise the knowledge gained in training program in their respective orchards. Shri. Ravindra Bhosale, Joint Director of Agriculture, (Nagpur Division), Guest of Honour, highlighted the areas of concern in citrus farming. Dr. Dilip Ghosh, Director, ICAR-CCRI explained about the importance of integrated approaches that include proper nutrient application, water management, disease and insect control to solve the citrus fruit drop issue. Technical session included “Integrated disease management in citrus” - Dr. Dilip Ghosh, Director; “Integrated management of insect pests in *Ambia* Bahar” - Dr. G.T. Behere, Pr. Scientist; “Management of cropping in Nagpur mandarin and mosambi sweet orange” - Dr. A.D. Huchche, Pr. Scientist; “Importance of proper nutrient management and water management” - Dr. A.K. Srivastava, Pr. Scientist. The technology of Bordeaux mixture preparation, its application and methods of soil sampling were demonstrated to the trainees at the experimental field. The trainees were also shown samples of insect pests of citrus. Shri Dadarao Kale, a progressive farmer shared his experience about successful adoption of CCRI techniques in his citrus orchard that has helped him to get higher yield as well successful management of citrus fruit drop problem. The training was co-ordinated by Dr. Sangeeta Bhattacharyya, Scientist.



Dr. D.M Panchbhai, addressing the trainees

- One-day training and exposure visit of 35 farmers from Narmadapuram district, Madhya Pradesh on 11th March, 2022 under the ATMA (SMAE) Inter State Farmers' Training Program scheme of Project Director ATMA Hoshangabad.

Off-Campus

- A training on “Production Technology of Citrus” organized on 28th March, 2022 in Police Dadalora Khidki, APO, Sawargaon, Gadchiroli district of Maharashtra under the Tribal Sub-Plan (TSP) in collaboration with Krishi Vigyan Kendra, Gadchiroli and Dr. P.D.K.V., Akola. The team of scientists of CCRI comprising Dr. A.D. Huchche, Pr. Scientist, Dr. N.M. Meshram, Sr. Scientist and Dr. Sangeeta Bhattacharyya, Scientist interacted with 129 tribal farmers and farm women of Sawargaon. Shri Sandeep S. Karhale, Program Coordinator, KVK, Gadchiroli addressed the participants and sensitized them about the nutritive value of citrus as well as the remunerative aspect of this commercial crop. The scientists encouraged the farmers to plant citrus saplings on a trial basis and later on plan for large scale cultivation. Saplings of acid lime were distributed to all participants along with other agricultural inputs like bio-fungicide packets, secateurs *etc.* Mr. Ramesh Patil, the Head of Police Help Camp, Sawargaon proposed vote of thanks.



Scientists interacting with tribal farmers at Gadchiroli

- Training cum workshop for citrus farmers on “Citrus cultivation to Harvesting” in Washim district, Maharashtra on 22nd April, 2022 in which 15 participants participated.
- As a part of “Kisan Bhagidari, Prathamikta Hamari” programme of *Azadi ka Amrit Mahotsav*, a training cum workshop was organized in collaboration with State Department of Agriculture, Maharashtra and Regional Fruit Research Station, Katol on 25th April, 2022 at Shendurjanaghat, Warud taluka of Amravati district, Maharashtra to assess various problems of citrus cultivators and address the issues of fruit drop. The team of scientists of CCRI comprising Dr. A.D. Huchche, Pr. Scientist, Dr. R.K Sonkar, Pr. Scientist, Dr. D.T. Meshram, Pr. Scientist, Dr.

Sangeeta Bhattacharyya, Scientist and Dr. Ashok Kumar, ACTO interacted with 46 citrus growers. Provided information on management of fruit drop, water management, importance of root stock selection, plant protection and rejuvenation technologies of declined citrus orchards to farmers and also answered their queries. Mr. Rajput, Taluka Agriculture Officer, Warud, Dr. Megha H. Dahale, Horticulturist, Dr. Y.B. Dharmik, Assistant Professor (Horticulture), Dr. H.B. Goramnagar, Assistant Professor (Horticulture) and Dr. Pradeep N. Dawane, Assistant Professor (Entomology) of Regional Fruit Research Station, Katol were present.

- ICAR-CCRI organized a programme on “Kisan Bhagidari Prathamikta Hamari” under *Azadi ka Amrit Mahotsav* at Lohgarh, Kalmeshwar on 28th April, 2022 which was attended by 70 farmers. CCRI scientists Dr. A.D. Huchche, Pr. Scientist, Dr. U.R. Sangle, Pr. Scientist, Dr. D.T. Meshram, Pr. Scientist, Dr. A. Thirugnanavel, Sr. Scientist and Dr. Kiran Kumar Kommu, Scientist delivered lectures on bio fortification, crop



Experts interacting with citrus growers at Warud

diversification and citrus production technology. Later, they interacted with citrus growers and answered their queries and provided information on orchard management, fruit drop and plant protection measures. State Agriculture Department officials, Ms. Supriya Atram, Agril. Assistant, Bhadala; Ms. Madura Makmalle, Krishi Sevak and Mr. Bhayaji Uike, Gram Secretary, Lohgarh and 2 village members, Sh. Narendra Dahat, Sarpanch, Lohgarh and Sh. Rajendra Darwe, Upsarpanch, Lohgarh were also present.



Scientists addressing citrus growers at Kalmeshwar

Meetings organized

• The first meeting of the Institute Bio-safety Committee (IBSC) of ICAR-CCRI, Nagpur was held on 4th February 2022 under the Chairmanship of Dr. Dilip Ghosh, Director, ICAR-CCRI and Chairman, IBSC, at ICAR-CCRI, Nagpur. The meeting was attended by all the members of the committee: Dr. Amudha Jagannathan, Pr. Scientist, ICAR-CICR, Nagpur (DBT Nominee); Dr. G. Balasubramani, Pr. Scientist, ICAR-CICR, Nagpur (Outside Expert); Dr. Vijay Upadhyaya, Doctor, ICAR-CCRI, Nagpur (Medical Officer); Dr. A.K. Das, Pr. Scientist, ICAR-CCRI (Member) (online); Dr. G.T. Behere, Pr. Scientist, ICAR-CCRI, (Member); Dr. N.M. Meshram, Sr. Scientist, ICAR-CCRI (Member) and Dr. J.P. Tej Kumar, Scientist, ICAR-CCRI (Member Secretary).



IBSC meeting in progress at CCRI

• The virtual 38th meeting of IMC was held on 21st February, 2022 under the Chairmanship of Dr. Dilip Ghosh, Director. Members present were: Dr. B.K. Pandey, ADG (HS-II), ICAR, New Delhi; Dr. S.K. Singh, Head, (Horticulture), IARI, New Delhi; Dr. D.V. Sudhkar Rao, Pr. Scientist, IIHR, Bengaluru; Dr. Anuradha Upadhyay, Pr. Scientist, NRC Grapes, Pune; Dr. Jagadish Rane, I/c Head, NIASM, Baramati; Shri Ashwani Garg, Sr. F&AO, ICAR-CICR, Nagpur; Sh. Y.V. Sorte, AF&AO, ICAR-CCRI, Nagpur (Invitee) and Sh. Yogesh Pathare, AO, ICAR CCRI, Nagpur, Member Secretary.

• XXXIV Institute Research Committee meeting held on 5-6 April, 2022 under the Chairmanship of Dr. Dilip Ghosh, Director, ICAR-CCRI, Nagpur. Dr. Awtar Singh Saini, Pr. Scientist, IARI, New Delhi was an expert. All scientists of CCRI participated.



IRC meeting in progress

• The new Executive Body of the Indian Society of Citriculture (ISC) was constituted on 9th May, 2022 at ICAR-CCRI. Dr. Dilip Ghosh, Director was elected unopposed as President. Other Executive members include Dr. S.S. Malani, Ex-GM, NABARD, Mumbai (Vice-President); Dr. D.M. Panchbhai, Associate Dean, College of Agriculture, Nagpur (Vice President); Dr. R.K. Sonkar, Pr. Scientist, ICAR-CCRI, (Secretary); Dr. A.A. Murkute, Pr. Scientist, ICAR-CCRI, (Joint Secretary); Dr. A.K. Das, Pr. Scientist, ICAR-CCRI (Treasurer). Councillors viz. Dr. H.S. Rattanpal, Sr. Horticulturist, PAU, Ludhiana (North West Zone); Dr. K.P. Bhagat, Sr. Scientist, ICAR-DFR (Central Zone), Pune; Dr. Dinesh Paithankar, Dr. PDKV, Akola (Central Zone); Prof. D. V.R. Sai Gopal, Sri Venkateswara University, Tirupati (Southern Zone) and Dr. R.K. Kakoti, Professor, Assam Agricultural University (North- Eastern Zone). The term of this new Executive Body is for three years *i.e.* up to 2025. The outgoing President Dr. M.S. Ladaniya passed the society's baton to the incoming President Dr. Dilip Ghosh.



Dr. Dilip Ghosh, President along with other Executive Members of ISC

- Approved following technology for commercialization in the ITMU and ITMC meeting
 - Manufacturing of Acid lime nutri-jelly
 - Customised micronutrient mixture for citrus (Citrilite)

AKMU Cell activities

- Internet facility developed for farm to handle e-office and sparrow system.
- Audio visual facility upgraded in the committee Room

Rajbhasha Activities

- The Rajbhasha meeting was held on 16th February, 2022 and 23rd May, 2022 under the Chairmanship of Dr. Dilip Ghosh, Director, ICAR-Central Citrus Research Institute, Nagpur, Nagpur
- Institute organized following online Hindi Workshops for the benefit of staff
 - प्रशासनिक विभागों में पत्राचार एवं टिपण में हिन्दी का प्रयोग by Sh. Manoj Kumar, CTO (Rajbhasha), ICAR, New Delhi on 25th February, 2022.
 - सरकारी कार्यालयों में राजभाषा का महत्व by Dr. Santosh Girhe, Assistant Professor, RTMNU, Nagpur on 28th June, 2022

Memorandum of Understanding signed with:

- Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola on 4th February, 2022 for facilitating students training and research also close cooperation in research and academic activities and will open a new chapter for research and development of citriculture through collaboration and linkages. The MoU was signed by Dr. Dilip Ghosh, Director, ICAR-CCRI, Nagpur and Dr. V.M. Bhale, Vice-Chancellor, Dr. PDKV, Akola in the presence of other faculty /scientists.



MoU with Dr. PDKV, Akola

- M/s. Ashok Agro, Nagpur for Production of Acid lime Nutri-Jelly as an Incubatee under ABI project of ICAR, New Delhi on 7th March, 2022. The incubatee Mr. Sumit Gulabrao Tate, a BPL and Divyang registered with DIPP/ MSME is a start-up entrepreneur. The MoA is aimed to facilitate a close cooperation between both the parties and creating a small platform for uplifting the weaker sections of the society.



MoA with M/s. Ashok Agro, Nagpur

- Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur on 23rd March, 2022 for facilitating students training and research.



MoU with JNKVV, Jabalpur

- Bharat Petroleum Corporation Ltd., (BPCL) for Contract research project on “Evaluation of MAK ADJUVOL as an adjuvant in Imidacloprid and Thiamethoxam against insect pests of Citrus” on 29th March, 2022.



MoU with BPCL, Mumbai

- M/s. Jai Hind Nursery, Bhiwadi, Dist. Alwar, Rajashtan for Containerized nursery propagation technique to produce disease-free citrus planting material on 23rd May, 2022. Dr. Dilip Ghosh,

- Director, ICAR-CCRI, Nagpur and Sh. Anil Kumar, Managing Director, M/s. Jai Hind Nursery signed the MoU on the behalf of their respective organization. Also, present were Dr. A.A. Murkute, Pr. Scientist & Nodal Officer and Dr. G.T. Behere, Pr. Scientist.



MoU with M/s Jai Hind Nursery, Rajasthan

- MoU with Indian Institute of Technology (IIT), Roorkee on 28th June, 2022. To facilitate a close cooperation in research and academic activities and will open a new chapter for research and development of citriculture through collaboration and linkages.



MoU with IIT - Roorkee

Skill development and Capacity Building

- Dr. J. Prasanth Tej Kumar, Scientist :
 - Generic Training in Cyber Security Organized by Ministry of Electronics and Information Technology (MeitY) on 28th January, 2022 (Online).
 - Training Workshop on “Data Visualization Using R” Organized by ICAR-NAARM, Hyderabad during 09 - 11 March, 2022 (Online).
- Dr. Kiran Kumar Kommu, Scientist (Nematology) : “Competency Enhancement Programme for Effective Implementation of training function by HRD Nodal Officers of ICAR” organized by ICAR-NAARM, Hyderabad during 21-23 February, 2022 (Online).

Academic/Educational collaboration with other organization

Student Name	Examiner/Co-guide from CCRI, Nagpur	Title of the thesis, dissertation	Collaborating organization/ SAUs/College	Type of collaboration/ viva-voce examiner/Research at CCRI
Mrs. Vedula Madhavi	Dr. G.T. Behere, Pr. Scientist (Ento.)	Effect of microbial and botanical preparations on sucking insect pests (whitefly and leaf miner) of tomato Crop	Osmania University, Hyderabad	External Examiner for evaluating Ph.D thesis on 2 nd February, 2022
Ms. Bhavna Chouhan	Dr. G.T. Behere, Pr. Scientist (Ento.)	To study the seasonal incidence and screening of different genotypes of field pea against major insect pests	College of Agriculture, JNKV, Jabalpur	External Examiner for evaluation of M.Sc (Agr. Ento.) thesis on 23 rd April, 2022
Ms. Nage Sonal Mahadeo	Dr. N.M. Meshram, Sr. Scientist (Ento.)	Investigations on fruit drop in Nagpur mandarin by insect pest and evaluation of modules for management	Dr. PDKV, Akola	Advisory Member of the Ph.D student
Mr. Varun Saini	Dr. N.M. Meshram, Sr. Scientist (Ento.)	Taxonomic studies on tribe Crabronini (Hymenoptera : Crabronidae : Crabroninae)	IARI, New Delhi	Co-Chairman on 3 rd February, 2022
Mr. Jitendra U. Kuthe	Dr. J.P. Tej Kumar, Scientist 'SS' (Ag. Biotech.)	Genetic diversity analysis of acid lime using SSR marker	Kamla Nehru Mahavidyalaya, Nagpur	Major advisor for M.Sc thesis research work
Ms. Ragini Rajiram Mendhe	Dr. J.P. Tej Kumar, Scientist 'SS' (Ag. Biotech.)	Hands on experience of various methods involved in molecular biology, biochemistry, microbiology, genetic engineering etc.	Rashtrasant Tukadoji Maharaj Nagpur University	Internship of M.Sc (MBGE)

Student Name	Examiner/Co-guide from CCRI, Nagpur	Title of the thesis, dissertation	Collaborating organization/SAUs/College	Type of collaboration/ viva-voce examiner/Research at CCRI
Ms. Kajal Madan Jambhulkar	Dr. J.P. Tej Kumar, Scientist 'SS' (Ag. Biotech.)	Hands on experience of various methods involved in molecular biology, biochemistry, microbiology, genetic engineering etc.	Rashtrasant Tukadoji Maharaj Nagpur University	Internship of M.Sc (MBGE)

Linkage with other organization

- Collaboration in the project entitled “Geospatial Assessment of citrus species in citrus gene sanctuary of Meghalaya” with North Eastern Space Application Centre (NESAC), Barapani, Meghalaya with Dr. Evening Stone Marboh, Scientist 'SS' as PI and Dr. A.A. Murkute, Pr. Scientist as Associate.
- Development of sensor based fertigation scheduling for improving water productivity and nutritional density in citrus (*Citrus reticulata*) - DST-SERB funded project with Dr. D.T. Meshram, Pr. Scientist as P.I.

Publications:

Research Papers (In peer Reviewed Journals)

- Gupta, D.N., Rani, R., Kokane, A.D., Ghosh, D.K., Tomar, S. and Sharma, A.K. (2022). Characterization of a cytoplasmic 2-Cys peroxidase from *Citrus sinensis* and its potential role in protection from oxidative damage and wound healing. *International Journal of Biological Macromolecules*, 209, 1088-1099 (NAAS Rating : 12.95).
- Srivastava, A.K., Das A.K., Tej Kumar J.P., Bora, P., Ansari, F.A. and Bhate, R. (2022). Bioprospecting microbiome for soil and plant health management amidst Huanglongbing threat in citrus : A review. *Frontiers in Plant Science*, 13:858842 (NAAS Rating : 12.63).
- Ghosh, D.K., Kokane, A.D., Kokane, S.B., Mukherjee, K., Tenzin, J., Surwase, D., Deshmukh, D., Gubyad, M., Biswas, K.A. (2022). Comprehensive analysis of Citrus Tristeza variants of Bhutan and across the World.

Frontiers in Microbiology, 13, 797463 (NAAS Rating : 11.64).

- Kumar, D., Ladaniya, M.S., Gurjar, M. and Kumar, S. (2022). Impact of drying methods on natural antioxidants, phenols and flavanones of immature dropped *Citrus sinensis* L. Osbeck fruits. *Scientific Reports*, 12, 6684 (NAAS Rating : 10.38)
- Kumar, D., Ladaniya, M.S., Gurjar, M., Kumar, S. and Mendke, S. (2022). Metabolic diversity of flavonoids and antioxidant potential for characterization of underutilized citrus species for nutritional security. *Plants*, 11 (7), 862: 1-12. (NAAS Rating : 9.94)
- Shashank, P.R., Naveena, N.L., Rajgopal, N.N., Elliott, T.A., Sreedevi, K., Sunil, S., and Meshram, N.M. (2022). DNA barcoding of insects from India: Current status and future perspectives. *Molecular Biology Reports*, 49(11): 10617-10626 (NAAS Rating : 8.32).
- Kumar, K.K., George, A., Behere, G.T., Thorat, Y.E., Ingle, D. and Sinh, D.P. (2022) Pathogenicity of *Heterorhabditis indica* against developmental stages of *Eudocima materna* L. (Lepidoptera, Erebidae). *Egyptian Journal of Biological Pest Control*, 32, 65 (NAAS Rating : 8.00)
- Ranebennur, H., Rawat, K., Rao, A., Kumari, P., Chalam, V.C., Meshram, N., and Rao, G.P. (2022). Transmission efficiency of a 'Candidatus Phytoplasma australasia' (16SrII-D) related strain associated with sesame phyllody by dodder, grafting and leafhoppers. *European Journal of Plant Pathology*, 164(2): 193-208 (NAAS Rating : 7.91).
- Das A.K., Rao, C.N., George, A., and Chichghare, S. (2022). Molecular identification and characterization of the Asian citrus psyllid vector, *Diaphorina citri* (Hemiptera : Psyllidae) and the transmitted Huanglongbing-associated bacterium, *Candidatus Liberibacter asiaticus* in India. *Journal of Plant Pathology* 104, 1097–1110 (NAAS Rating : 7.73).
- Vijayakumari, N., Lahane, Y.B., and Rekha. A, (2022) : Ploidy analysis among Citrus mutants using leaf meristematic tissue. *Journal of Horticultural Sciences*, 17(1), 37-43 (NAAS Rating : 5.08).

Oral Papers Presented in Seminar/ Symposia/ Conferences etc.

- National Conference on Climate Resilient and Sustainable Development of Horticulture at Kanpur, Uttar Pradesh during 28-31 May, 2022)
 - Srivastava, A.K. “Climate Smart Nutrient Management in fruit crops”
 - Kumar D., Ladaniya, M.S., Gurjar, M., and Kumar, S. (2022) “Prospects of Post-Harvest Management, Value-addition and Waste utilization in Citrus fruits pp. 169-170”
- Das, A.K. (2022) : “Diagnosis and management of important fungal and bacterial diseases of citrus” for National Symposium on Plant Health Management and beyond 2020 during 6-7 May, 2022 at Dr. Y.S. Parmar University of Horticulture & Forestry, Nauni, Solan.
- Bhattacharyya, S., Mallick, S., Burman, R.R., Padaria, R.N., Paul, S. and Sharma, J.P. (2022). “Comparing the Status of Livestock Farming in Model Villages and Sansad Adarsh Gram Yojana Villages of Maharashtra and Telangana” (Virtual Mode). “10th National Seminar On Agriculture and More: Beyond 4.0” organized by Society for Community Mobilization for Sustainable Development (MOBILIZATION) in collaboration with SKUAST-K and SKUAST-J at Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, main Campus, Shalimar, Srinagar from May 26-28, 2022.
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Extension Guides

- Citrus greening disease and its integrated management (2022) – ICAR-CCRI Extension Guide–1. (English)
- लिंबूवर्गीय फळांमध्ये ग्रीनिंग रोग आणि त्याचे एकात्मिक व्यवस्थापन (2022) – भा.कृ.अनु.प.–के.लिं.फ.सं.सं. विस्तार मार्गदर्शिका – 2 (मराठी)



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- नागपूरी संत्रा आणि मोसंबी फळगळ व्यवस्थापन (2022) – भा.कृ. अनु.प.-के.लिं.फ.सं.सं. विस्तार मार्गदर्शिका – 4 (मराठी)

Book Chapter

- Singh, A.K., Kumar, M., Ahuja, A., Vinay, B.K., Kumar, K.K., Thakur, S., Paschapur, A.U., Jeevan, B., Mishra, K.K., Meena, R.P. and Parihar, M. (2022). Entomopathogenic nematodes: a sustainable option for insect pest management. In: Rakshit, A., Meena, V.S., Abhilash, P., Sarma, B.K., Singh, H.B., Fraceto, L., Parihar, M. and Singh, A.K. (eds.), Biopesticides Volume 2: Advances in Bio-Inoculants, Woodhead publishing, pp. 73-92.

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- Bhattacharyya, S. and Ghosh, D. (2022). Management of *Ambia* Bahar in Nagpur Mandarin and Sweet Orange with Special Reference to Fruit Drop Management to Officials of Government of Maharashtra and Farmers. Training program organized by ICAR-CCRI on 28th January, 2022.
- Bhattacharyya, S. and Ghosh, D. (2022). Management of *Ambia* Bahar in Nagpur Mandarin and Sweet Orange with Special Reference to Fruit Drop Management to Officials of Government of Maharashtra and Farmers. Training program organized by ICAR-CCRI on 2nd February, 2022.
- Bhattacharyya, S. and Ghosh, D. (2022). Training Program on Citrus for ATMA nominated Farmers of Narmadapuram (Madhya Pradesh). Training program organized by ICAR-CCRI in collaboration with ATMA Hoshangabad on 11th March, 2022.

Popular Articles

- Ghosh, D., and Das, A.K. (2022) : लिंबुवर्गीय बागा वाचवण्यासाठी सिट्रस ग्रीनिंग रोगाचे व्यवस्थापन, Agrowon on 14th April, 2022.
- Dutta, S., Paul, P., Bhattacharyya, S. and Mandal, T.K. (2022). Carbon Neutral Village. Food and Scientific Reports, 3(6): 53-57.

Participation of Scientist in workshop/ meeting etc.

- Dr. Dilip Ghosh, Director :
- Annual Review Meeting of consultative group on CGIAR CG Centres on 7th February, 2022 (Virtual).

- ICAR-University-NAAS-Stakeholders Interface Meeting at ICAR-NIAASM, Baramati, Maharashtra on June 17, 2022 (Virtual).
- Director Conference, ICAR, New Delhi on 13th April, 2022 (Virtual).
- Dr. Dilip Ghosh, Director, Scientists and staff : Inaugural programme of farm office cum field laboratory of ICAR-DFR, Pune on 3rd January, 2022
- Dr. A. K. Srivastava, Pr. Scientist (Soil Science) : National Conference and climate resident and Sustainable Development of Horticulture Schedule during May 28th to 31st, 2022 at Kanpur, Uttar Pradesh.
- Dr. A.D. Huchche, Pr. Scientist (Hort.) :
 - Pre-Research Review Committee meeting of Department of Horticulture (Fruit Science), Dr. PDKV, Akola on 3rd March, 2022
 - Citrus Cluster Export facilitation meeting convened by Maharashtra State Agricultural Marketing Board, Pune under the Chairmanship of Collector, Aurangabad on 11th March, 2022.
- Dr. A.D. Huchche, Pr. Scientist (Hort); Dr. Dinesh Kumar, Pr. Scientist (Hort) and Dr. N.M. Meshram, Sr. Scientist (Agri. Ento.) : Kharif crop review meeting of Maharashtra Agriculture Department convened by Secretary, Agriculture, MS Mr. Eknath Davle on 29th April, 2022 at VANAMATI, Nagpur.
- Dr. Dinesh Kumar, Pr. Scientist (Hort.) :
 - Meeting of the Codex Coordination Group (CCG3): Foods of Plant Origin (Sub-group on Fresh Fruits & Vegetables) for 22nd session of the Codex Committee on Fresh Fruits and Vegetables (CCFFV) on 18th February, 2022 (Virtual).
 - 25th meeting of Scientific Panel, FSSAI, Ministry of Health and Family Welfare, New Delhi on 8th April, 2022 at FSSAI, HQ, New Delhi.
 - Meeting with Hon. Shri. Nitin Gadkari Ji and presented technologies on “Citrus fruit processing & development of value added products” on 28th May, 2022.
 - IPR Workshop on IPR-Patent & Design filing on 8th February, 2022 under NAIF project (Virtual).

- Dr. G.T. Behere, Pr. Scientist (Ento.):
 - First meeting of the multi-institutional committee constituted by the Govt. of Maharashtra under the Chairmanship of Vice Chancellor, Dr. P.D.K.V., Akola to address the issues associated with the fruit drops in Nagpur mandarin and sweet oranges, Dr. P.D.K.V., Akola on 4th January, 2022.
 - Brain Storming Session on “Roadmap for Short Hole Borer Management in Pomegranate” organized by ICAR-National Research Centre on Pomegranate, Solapur on 20th, May, 2022 (Virtual).
 - Annual General Body Meeting of National Academy of Agricultural Sciences (NAAS), New Delhi on 4th-5th June, 2022 (Virtual).
 - Dr. D.T. Meshram, Pr. Scientist (L&WME):
 - Meeting by Maharashtra State Agriculture Marketing Board, Pune Divisional Office, Aurangabad on 21st January, 2022 under the chairmanship of District Collector and Chairman, Mosambi Cluster Facilitation Cell, Aurangabad to discuss about Mosambi Cluster Facilitation Cell (Virtual).
 - “Meeting of Concept Note on Crop Diversification” organized by Head, Department of Agronomy, Dr. P.D.K.V., Akola on 1st February, 2022 (Virtual).
 - ZREAC meeting of Central Vidarbha Zone at Yawatmal on 16th June, 2022.
 - Dr. N.M. Meshram, Sr. Scientist (Ento.): Director nominee, kharif crop review meeting of Maharashtra State Department of Agriculture under the chairmanship of Hon'ble Minister of Agriculture, Maharashtra at Vanamati, Nagpur on 29th April, 2022.
 - Dr. A. Thirugnanavel, Sr. Scientist (Hort.):
 - International e-conference on “Recent advancements and applications in plant biologics” held during 27-28 January, 2022 (Virtual)
 - Nursery Accreditation programme by NHB at Taluka Fal Rob Vatika, Nachagaon, Deoli Taluk, Wardha district and Taluka Fruit Nursery, Jam village, Samudrapur Taluk, Wardha district on 17th February, 2022
 - Dr. Sangeeta Bhattacharyya, Scientist (Extension):
 - 14th Meeting of Maharashtra State Horticulture and Medicinal Plant Board (Pune) on 12th May, 2022 through virtual mode.
 - National Dialogue on Extension Services for Efficient Delivery of Horticultural Technologies: A way forward (by ICAR-IIHR) on 20-21 May, 2022 through virtual mode.
 - District Level Meeting of PMFME Yojana at Chatrapati Sabhagriha, Nagpur on 24th May, 2022.
 - **AICRP (Fruits) : Citrus research**
 - Dr. Dilip Ghosh, Director; Dr. A.K. Srivastava, Pr. Scientist (Soil Science); Dr. R.K. Sonkar, Pr. Scientist (Hort.); Dr. A.K. Das, Pr. Scientist (Plant Patho.); Dr. D.T. Meshram, Pr. Scientist (L&WME); Dr. A. Thirugnanavel, Scientist 'SS' (Hort.) and Dr. Evening Stone Marboh, Scientist 'SS' participated in IX Group Discussion of the All India Coordinated Research Project (Fruits) during 8-11 March, 2022 organized by IIHR, Bengaluru (Virtual).
- Lectures delivered in training at other Institute/Organization**
- Dr. Dilip Ghosh, Director: “Challenges of Citrus Greening Disease: Present Status on its Diagnostics and Management” in three days online workshop under NAHEP-IDP on Recent trends in plant protection on 30th March, 2022 at Acharya N.G. Ranga Agricultural University, Agricultural College: Bapatla.
 - Dr. A.D. Huchche, Pr. Scientist (Hort.) : 'Management of *Ambia* and *Mrig* crops of Nagpur mandarin and sweet orange' to the Agricultural Assistants and citrus growers of Nagpur and Amravati division at RAMETI, Nagpur on 4th January, 2022.
 - Dr. Dinesh Kumar, Pr. Scientist (Hort.):
 - “Export oriented management of citrus fruits and a glance to CCRI” on 6th January, 2022 during training course on “Market Extension Service” at Directorate of Marketing, DMI, Nagpur.
 - “Marketing, Processing and Value addition of fruits” on 10th January, 2022 during training course on “Market Extension Service” at Directorate of Marketing, DMI, Nagpur.
 - Keynote lecture on “Small scale processing with reference to South Asia” on 11th April, 2022 during International webinar on “Citrus Production is not Enough- Wakeup call on Postharvest handling, Processing technology, and Value chain management” organized by Department of Agriculture & Environmental Sciences, NIFTEM, Ministry of Food Processing Industries, Govt. of India.

- Dr. G.T. Behere, Pr. Scientist (Ento.):
 - A journey of Cotton Bollworm *Helicoverpa armigera* from old to new world” (virtual mode) to the students of Biotechnology of Guru Ghasidas Vishwavidyalaya, Bilaspur on 3rd March, 2022, a program supported by Department of Biotechnology, Govt. of India.
 - Identification and management of major insect pests of citrus in the training programme for farmers during 14-15th March, 2022 organized by Central Integrated Pest Management Centre, Regional Centre, Nagpur DPPQ & S, GOI, New Delhi.
 - Integrated management of insect pests and mites in mandarin and sweet orange orchards to the farmers group of Krishi Sayadri FPO, Ahmednagar on 21st April, 2022
- Dr. N.M. Meshram, Sr. Scientist (Ento.):
 - Insect Pest management to students of Dr. P.D.K.V., Akola, on 12th March, 2022 (Virtual).
 - Scanning Electron Microscopy- Sample preparation, data acquisition and interpretation” to the students of Central University of Haryana, Mahendergarh on 4th March, 2022, a program supported by Department of Biotechnology, Govt. of India.
- Dr. A. Thirugnanavel, Sr. Scientist (Hort.):
 - ICAR-CCRI, Nagpur for the IV B.Sc (Hons.) Agriculture students of Kumaraguru Institute of Agriculture, Tamil Nadu on 26th March, 2022 (Virtual).
 - “Citrus breeding in India” to Ph.D (Fruit Science) students of ICAR - Indian Institute of Horticultural Research, Bengaluru on 16th April, 2022 (Virtual).
- Dr. Sangeeta Bhattacharyya, Scientist (Extension):
 - 'Market led Extension: Role in empowerment of Livestock & allied farm stakeholders' on 2nd March, 2022 in the 21 days Winter School on “Advanced Extension & Communication strategies for sustainable livelihood through Animal Husbandry & Allied farming system” from February, 15th to 07th March, 2022 at Dept. of Veterinary & A.H. Extension Education, F/O-VAS, West Bengal University of Animal and Fishery Sciences, Kolkata in which 34 trainee officers participated (Virtual).

- “Index Development” and “Gross Happiness Index and its significance and importance” on 8th March, 2022 to students of Department of Agricultural Extension and Communication, Post Graduate Institute, Mahatma Phule Krishi Vidyapeeth (MPKV) Rahuri Dist. Ahmednagar, Maharashtra during the “e-Training Course on ICAR JRF/SRF, NET/ARS Exam Preparation” from 15th February to 10th March 2022 (Virtual).
- Citrus – Graduate reading programme for Agri./Horti. PG students organized by Dr YSRHU-COH, Ananthrajupeta, Andhra Pradesh during 8-12-2021 to 14-02-2022.
 - Dr. R.K. Sonkar, Pr. Scientist (Hort.): Citrus Rootstocks on 3rd January, 2022
 - Dr. A.K. Srivastava, Pr. Scientist (Soil Science) : INM in citrus on 5th January, 2022.
 - Dr. Dilip Ghosh, Director : Management of viral diseases in citrus and production of disease free planting material on 24th January, 2022
 - Dr. A.K. Das, Pr. Scientist, (Plant Patho.) : Diagnostic approaches and management strategies in fungal and bacterial diseases of citrus on 26th January, 2022.

Other Extension Activities

Exhibition

- Institute participated in Krishi Exhibition and disseminated its technologies at Vigyan Bharati Science Exhibition during 22-28 February, 2022 at VNIT, Nagpur. There was display of more than 30 fruit samples, plant samples, Trichoderma packets, fruit fly traps, wax coated and shrink wrapped fruits, RTS and publications of the institute.



Hon'ble Shri Nitin Gadkari-ji visited CCRI Stall

• **Survey**

• A field visit was undertaken by a team of multi-disciplinary scientists Dr. A.D. Huchche, Pr. Scientist, Dr. R.K. Sonkar, Pr. Scientist, Dr. G.T. Behere, Pr. Scientist and Dr. Sangeeta Bhattacharyya, Scientist on 22-23 March, 2022 in Amravati division of Maharashtra to examine/study the present situation of the *Ambia* crop and interaction with farmers about the issues related to fruit drop. They visited four representative Nagpur mandarin orchards and a few surrounding those in the Shirajgaon Kasba (Chandur Bazar taluka), Dawargaon (Amravati taluka) and Kharpi in Achalpur-Parathwada tehsil (Chandur Bazar-Morshi subdivision). The team interacted with 31 citrus growers about various problems encountered by them particularly in citrus cultivation. They answered the queries of the cultivators and also provided them with information on orchard management and plant protection technologies. The team also visited their mandarin orchards and examined the leaf and fruit samples of *Ambia*. The team was accompanied by Dr. A.Y. Thakre, Associate Professor, Agricultural Research Station, Achalpur Dr. P.D.K.V., Akola and Ms. Rani N. Sripadwar, Agriculture Assistant, Dawargaon. Advisories on citrus greening and precautionary measures to avoid fruit drop in rainy seasons were also distributed to the citrus growers.



Scientists interacting with citrus growers of Shirajgaon Kasba

- Dr. A.K. Das, Pr. Scientist (Plant Patho.) and Dr. A.A. Murkute, Pr. Scientist (Hort.) visited and inspected the Nursery and Post-entry Quarantine (PEQ) facility of M/s. Vilash Vishnu Shinde, Sahyadri Agro Farm, Post Adagaon, Nashik – 422003 on 25th March, 2022.
- Dr. A.A. Murkute and Dr. G.T. Behere visited the Nagpur mandarin orchards and interacted with farmers of Krishi Sayadri FPO at Ahmednagar on 21st April, 2022
- A field visit was undertaken by a team of multi-disciplinary scientists comprising of Dr. A.D. Huchche, Pr. Scientist, Dr. D.T. Meshram, Pr. Scientist, Dr. U.R. Sangle, Pr. Scientist and Dr. A. Thirugnanavel, Sr. scientist on 7th April, 2022 in Ramtek tehsil, Nagpur district, Maharashtra to examine/study the present situation of the *Ambia* crop and interaction with farmers about the issues related to fruit drop. Visited four representative Nagpur mandarin orchards at Deolapar and Zinzoria and the team interacted with citrus growers about various problems encountered by them particularly in citrus cultivation. The team visited their mandarin orchards and examined the leaf and fruit samples of *Ambia*. Citrus growers were sensitized to undertake appropriate protection measures against the insects, incidence of *Phytophthora* and adoption of drip irrigation systems. The Co-ordinator Incharge of the Go Vidnyan Anusandhan Sansthan, Deolapar apprised about the various indigenous cow based products useful for organic farming and expressed intent to extend co-operation if CCR1 wanted for citrus farming. The team was accompanied by Mr. Dinesh Bhoje, TAO, Ramtek and Ms. Shashwati Dofe, Agri. Asst. Deolapar circle and Mr. Khemendra Fulbel, Agriculture Supervisor.
- A field visit was undertaken by a team of multi-disciplinary scientists Dr. R.K. Sonkar, Pr. Scientist, Dr A.K. Das, Pr. Scientist, Dr. Kiran K. Kommu, Scientist and Dr. Sangeeta Bhattacharyya, Scientist on 8th April, 2022 in Kalmeshwar and Katol talukas of Nagpur, Maharashtra to assess various problems of citrus cultivators and to address the issues of fruit drop in those areas. The team visited several Nagpur mandarin orchards. The team interacted with 29 citrus growers and enquired about the problems faced by them in citrus cultivation. The scientists answered the queries of the cultivators and also provided them with information on orchard management, plant protection and rejuvenation

• technologies. Demonstrations were done by scientists on pruning of citrus plants. Observations were made that white grub, gummosis and nutrient deficiency symptoms were predominant in Kalmeshwar while in Katol, citrus growers faced fruit drop issues. The team was accompanied by Mr. Ujwal R. Dakhote, Agriculture Assistant, Mohpa (Kalmeshwar), Dr. Pradeep N. Dawane, Citrus Entomologist and Dr. Ekta D. Bagde, Citrus Pathologist of Regional Fruit Research Station, Katol. Distributed copies of Joint Advisories on Plant Protection in Citrus prepared by ICAR-CCRI and Dr. P.D.K.V., Akola to the citrus growers. Advisories on Citrus Greening and precautionary measures to avoid fruit drop in rainy seasons were also distributed to the citrus growers. They were also sensitized to follow these management strategies accordingly to prevent the aggravation of these problems in



Scientists with citrus orchards in Kalmeshwar

S. No.	Name of College and Place	No. of Students and Staff	Date
1.	Centre Point School, Nagpur	20 students	21 st Feb., 2022
2.	College of Agriculture, Nagpur	11 M.Sc. students 2 faculty members (Plant Pathology)	4 th March, 2022
3.	Kamla Nehru Mahavidyalaya, Nagpur	40 girls and 12 boys 2 faculties	4 th March, 2022
4.	G.H. Rasoni University, Saikheda	12 boys and 53 girls and 6 faculties	5 th March, 2022
5.	Rashtrasant Tukdoji Maharaj Nagpur University	10 M.Sc students 3 research scholars and 1 teacher (Zoology Dept.)	23 rd March, 2022
6.	College of Agriculture, Vidisha district, M.P. (JNKVV, Jabalpur)	39 students of 4 th year II semester students of B.Sc. Agri	28 th March, 2022
7.	College of Agriculture, PDKV, Nagpur	170 1 st and 2 nd year M.Sc students	29 th March, 2022
8.	College of Agriculture, J.N.K.V.V, Jabalpur (MP)	35 students	30 th March, 2022
9.	Sevadal Mahila Mahavidyalay, Nagpur	53 students	1 st April, 2022
10.	College of Agriculture Engineering and Technology, Dr. P.D.K.V, Akola	65 students	12 th May, 2022

Visit to CCRI

State Farmers	District	No. of Famers and Date
Madhya Pradesh	Narmadapuram	35 farmers 11 th March, 2022



Students from Kamla Nehru Mahavidyalaya, Sakkaradara, Nagpur

Trainees / Officers

- Inter-institute Bankers' Institute of Rural

- On-location Training Programme on Climate Resilient Agriculture and Livelihoods for NGOs and FPOs” on 24th March, 2022.
- Forty Agricultural Inputs Vendors from the Regional Agricultural Extension Management Training Institute, Nagpur was organized on technology developed by the Central Citrus Research Institute, Nagpur to impart knowledge on extension services during 30th March, 2022.

Advisories issued

- Hailstorm damage in Citrus orchards on 12th January, 2022 (English and Marathi)
- Management of insect pests in *Ambia* bahar on 21st February, 2022 (Marathi)
- Management of citrus greening disease on 3rd March, 2022 (English and Marathi). Also, published in local newspapers and WhatsApp group of citrus growers.
- Rising temperature and fruit drop amongst more than 1500 citrus growers through WhatsApp on 21st April, 2022 (Marathi and English)
- Management of Mealy bug in Nagpur mandarin and sweet orange orchards on 25th May, 2022 (Marathi).
- Joint Advisory of CCRI and P.D.K.V related to pest and disease management of citrus disseminated amongst more than 1500 citrus growers through Whatsapp on 16th June, 2022 (English and Marathi).
- CCRI extension guides related to citrus greening and fruit drop disseminated amongst more than 1500 citrus growers through WhatsApp on 27th June, 2022.

Regional Research Centre for Citrus (RRCC), Biswanath Chariali, Assam

- To address the issue of declining orchards, ICAR - CCRI Nagpur in collaboration with ICAR-KVK, Wokha, Nagaland organized a training under CCRI-NEH on Production Technology of Citrus at Lotsu Village, Wokha District, Nagaland on 28th February, 2022 in which Fifty-two (52) farmers participated. Chief Guest, Shri. Medemshiba, District Horticultural Officer, Wokha district, Nagaland and Guest of Honour, Mr. R. Thechamo Ovung, Chief, village Council, Lotsu village. DHO, highlighted the status of agriculture in the village and shared the significant achievements of the department with the advent of central schemes like NHMNEH and MIDH. Village Council Chief, in his address, stressed importance of active participation of

farmer and utilize the knowledge of scientists of CCRI, Nagpur. Dr. R.K. Sonkar, Pr. Scientist, Dr. U.R. Sangle, Pr. Scientist, Dr. A. Thirugnanavel, Scientist and Dr. Evening Stone Marboh, Scientist from CCRI and Dr. B.L. Mhalo Tungoe (SMS) and Mrs. Megokhono Meyase, (SMS) from KVK-Wokha delivered lectures covering quality planting material production, new varieties suitable for NEH region, importance of rootstocks, raised bed planting system, pest and disease management, rejuvenation of declined orchards and vegetable cultivation for improving livelihood. The farmers were practically demonstrated for dead wood pruning, Bordeaux paste preparation, identification of nutrient deficiency symptoms, etc.



Farmers training at Wokha District, Nagaland

- A training on “Production Technology of Horticultural Crops” was organized by ICAR-CCRI, Nagpur, Maharashtra in collaboration with ICAR-KVK, Diphu, Karbi Anglong, on 3rd March 2022. A total of 50 farmers from Sarmen Hanse village under Lumbajong block, Karbi Anglong participated. Dr. Subal Maibangsa, Incharge, KVK, Karbi Anglong highlighted the role of KVK as well as the objective of the training programme in addressing the needs of the farming community in the area. Dr. R.K. Sonkar, Principal Scientist, gave an introduction of ICAR-CCRI, Nagpur and under the leadership of Dr. Dilip Ghosh, Director, ICAR-CCRI, who focussed on strengthening the citrus industry in north eastern region. Dr. R.K. Sonkar, Pr. Scientist, Dr. U.R. Sangle, Pr. Scientist, Dr. A. Thirugnanavel from ICAR-CCRI, Nagpur Dr. Evening Stone Marboh, Scientist 'SS' and Mr. Shourov Dutta, SMS, KVK, Karbi Anglong, Assam graced the technical sessions as experts. The experts appraised the participants about the important horticultural practices relevant to the area, the role of multi-storey cropping system,

- important species and varieties of citrus, importance of quality planting materials and choice of right rootstocks, rejuvenation of declined citrus orchards and management of insect pests and diseases, which was followed by farmer-scientist interaction. After the session, farmers were demonstrated on ways to identify declined plants and practical measures to address the same. All the participated farmers were provided with starter kits in knapsack bags comprising of pruners and biopesticides.



Farmers training at Diphu, Assam

- Training programme was jointly organized at Jampui Hill Block, by the ICAR-Central Citrus Research Institute, Nagpur and the Directorate of Horticulture and Soil Conservation on April 28, 2022. BAC Chairman Biakchungnunga was present as the Chief Guest. Dr. P.B. Jamatia, Director of Horticulture and Soil Conservation, was the special guest. The Agricultural officers and experts of North Tripura Krishi Vigyan Kendra (KVK) and sixty (60) orange cultivators took part in the training programme. “Earlier, we used to cultivate oranges in the Jampui Hills and the profit after selling it in the market was quite less. But now, since we are cultivating areca nuts, the margin and profit rate is almost double than what it was during orange cultivation,” one of the orange grower said during the interaction programme.



**Dr. Dilip Ghosh, Director,
addressing the citrus growers at Jampui Hills**

- A team of citrus expert led by Dr. Dilip Ghosh, Director, alongwith Dr. A.K. Das, Pr. Scientist (Plant Patho.), Dr. A.A. Murkute, Pr. Scientist (Hort.), and Dr. G.T. Behere, Pr. Scientist (Ento.) visited the orange growing regions of Jampui Hills in North Tripura and Killa region in South Tripura during 26th to 29th April, 2022. In the recent past the productivity of orange plants has come down in Jampui Hills and the areas under cultivation have also shrunk. The state government of Tripura therefore sought the help of ICAR-CCRI, Nagpur to revive and rejuvenate the orange cultivation at Jampui hills, North Tripura.

The experts also visited orange cultivation area at North Baramura village council under Killa Block on April 29. They interacted with the local orange cultivators in a workshop held at Killa Block office. MLA Rampada Jamatia, Director of Horticulture and Soil Conservation Dr. P.B. Jamatia, other officers of the department and 50 orange growers were present. The experts discussed on maintaining orange nurseries, caring for plants in pre- and post- rainy season and on various other important production and protection technologies.



**Dr. Dilip Ghosh, Director and Scientists
visiting citrus orchards of Jampui Hills**

Infrastructure at RRCC

- Screenhouse for citrus germplasm - 02
- Screenhouse for protected/foundation mother block - 01
- Screenhouse for nursery multiplication block – 01
- Transformer substation
- Electricity main panel



• Good Governance / Swachh Bharat Mission

- Cleanliness was observed at the office, farm and residential campus.

Celebration

- Republic day on 26th January, 2022 and Martyrs day on 30th January, 2022, Anti-terrorism day on 21st May, 2022.
- World Pulses Day : Celebrated World Pulses Day on the theme “Pulses to empower youth in achieving sustainable Agrifood systems” on 10th February, 2022 in which 34 participants including 19 farmers and 15 staff attended. Chief Guest Dr. Dilip Ghosh, Director, ICAR-CCRI highlighted the significance and importance of Pulses in day to day life. Dr. D.T. Meshram, Pr. Scientist briefed on the history and importance of the day. Lectures on “Importance of Pulses in Food” - Dr. U.R. Sangle, Pr. Scientist and “Nutritional Aspects of Pulses” - Mr. Venkatraman Bansode, Scientist were delivered. Mr. Venkatraman Bansode proposed vote of thanks.



Glimpses of World Pulses Day

- Under *Azadi ka Amrit Mahotsav*, institute celebrated National Science Day with the theme “Integrated Approach in Science and Technology for Sustainable Future” on 28th February, 2022 in honour of Sir C.V. Raman. The Chief Guest, Prof. Raju B. Mankar, Director, Laxminarayan Institute of Technology, Nagpur highlighted the 17 Sustainable Development Goals (SDGs), adopted by the United Nations in 2015 as an universal call to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. Dr. Dilip Ghosh, Director, ICAR-CCRI highlighted the activities of the institute and how it is catering to the various stakeholders like farmers, entrepreneurs, state and university staff with its scientific acumen. Around 65 participants including 10th class students of the Centre point school, Nagpur along with their staff and CCRI staff attended the programme.



Students in National Science Day

- The international Yoga day was celebrated on 21st June, 2022 with the theme “Yoga for humanity” in collaboration with Janardan Swami Yogabhyasi Mandal, Nagpur. The programme was chaired by Dr. Dilip Ghosh, Director of the Institute. He appealed to all the staff to practice Yog postures and Pranayam consistently to build up positive energy and immunity during the post COVID period. The Yog teachers from Janardan Swami Yogabhyasi Mandal Sh. Nagesh Ghodki, Sh. Manoj Mundhada and Ms. Kamini Ghodki conducted the Yog exercises and demonstrations. Sh. Nagesh Ghodki narrated the importance of various postures and advantages of their regular practice on human health. The programme was coordinated by Dr. J.P. Tej Kumar, Scientist, Sh. S.L. Shirkhedkar, ACTO and Dr. Ashok Kumar, ACTO.



Glimpses of the Yoga Day

Distribution of disease-free planting material under CCRI

- A total of 58,685 disease free planting material of citrus rootstocks distributed and revenue of Rs. 40,10,238/- generated under Nursery Programme.

Awards Honours and Recognition

Awards

- Dr. Dilip Ghosh, Director : Dr. R.S. Paroda Award by CHAI during National Conference on “Climate Resilient and Sustainable Development of Horticulture” at 14th Swadesh Prem Jagriti Sangosthi – 2022 organized by CSAUA&T, Kanpur, Uttar Pradesh during 28-31 May, 2022.



Dr. Dilip Ghosh, Director receiving award

Honours and Recognition

- Dr. Dilip Ghosh, Director :
 - Personal Guest of Shri Mohan ji Bhagwat, Hon'ble Sarsanghachalak of Rashtriya Swayamsevak Sangh, lecture on “Hindutva and National Integration” as a part of the golden jubilee celebrations of Lokmat Media Group's Mother Edition, Nagpur on 6th February, 2022 at Nagpur.
 - Chief Guest at the Inauguration programme of Bangala – Marathi Shabdakosh on 19th February, 2022 at Pressclub, Civil lines, Nagpur
 - Panellist for the Session VI on Disease management and session on Interaction with the farmers in IX Group Discussion of the All India Coordinated Research Project (Fruits) during 8-11 March, 2022 (Virtual).
 - Chief Guest of Technology Demonstration Mela – 2022 & National Workshop on Increasing Farm Income through Value-addition to Cotton stalks and other Agro-Residues on 21st March, 2022 at GTC, ICAR-CIRCOT, Nagpur.
 - Guest of Honour, 46th Foundation Day at ICAR-CICR, Nagpur on 1st April, 2022
 - Member of National Advisory Committee, National Conference on Horti Phyto Path Organized by Plant Protection Advisory Cell, Dr. YSR Horticultural University, Andhra Pradesh on 11th - 12th, May 2022 (virtual).
 - Chief Guest in Webinar on Citrus Fruits Processing & Value Addition organized by National Institute of Food Technology Entrepreneurship and Management, Thanjavur (NIFTEM-T) on 26th May, 2022 (virtual).
 - Guest of Honour for “Garib Kalyan Sammelan – Shath Pratishat Sasakthikaran” at ICAR-KVK-CICR, Nagpur on 31st May, 2022.
 - Member, National Advisory Committee, 2nd Indian Horticulture Summit – 2022, organized

by SHRD, Ghaziabad, U.P. held at NAU, Gujarat, 27-29 April, 2022

- Dr. A.K. Das, Pr. Scientist (Pl. Patho.) : As a DBT representative for the Institutional Biosafety Committee (IBSC) constituted at ICAR-CICR, Nagpur and CSIR-National Environmental Engineering Research Institute (NEERI), Nagpur
- Dr. A.A. Murkute, Pr. Scientist (Hort.) : DDG nominee for the Assessment Committee of ARS Scientists at ICAR-NBSS&LUP, Nagpur on 14th June, 2022.
- Dr. G.T. Behere, Pr. Scientist (Ento.) :
 - Elected as a Fellow-National Academy of Biological Sciences (NABS), Chennai, Tamil Nadu in March, 2022
 - Appointed as a Vigilance Officer of ICAR-CCRI, Nagpur w.e.f. 26th April, 2022 by ICAR, New Delhi.
- Dr. A. Thiruganavel, Scientist 'SS' : Acted as a member for Nursery Accreditation committee for evaluating the Taluka Fal Rob Vatika, Nachagaon, Deoli Taluk, Wardha district and Taluka Fruit Nursery, Jam village, Samudrapur Taluk, Wardha district on 17.2.2022.
- Dr. Sangeeta Bhattacharyya, Scientist (Extension) :
 - IARI Merit medal nominee for 60th Convocation, 2022. Nominated from Division of Agricultural Extension, ICAR-IARI in Ph.D category and competed against 22 nominees by preparing and presenting pre-recorded Merit medal presentation and facing jury panel on 7th February, 2022.
 - Awarded Doctorate of Philosophy in the discipline of Agricultural Extension on the topic “Socio-economic Impact of Sansad Adarsh Gram Yojana in Maharashtra and Telangana” at the 60th Convocation of ICAR – IARI, New Delhi on 11th February, 2022.

Felicitation

- Hon'ble Dr. Trilochan Mohapatra, Secretary, DARE, GOI and DG, ICAR, New Delhi was felicitated by the Directors and Scientists of ICAR based Institutes at Nagpur on 25th June, 2022.



Felicitation of DG, ICAR

Personnel

Appointment/Joining

Permanent Staff

- Sh. Yogesh J. Jadhao, Technical Officer (Library) joined the Institute on 22nd March, 2022 on transfer from ICAR-CIFE, Mumbai.

Contractual Staff

- Sh. Rishikesh Bharaskale, Young Professional (YP-I) w.e.f. 18th February, 2022.
- Sh. Umesh K. Sarode, Young Professional-I w.e.f. 25th May, 2022.
- Sh. Virendra S. Manohare, Young Professional-I w.e.f. 25th May, 2022.
- Sh. Ravi D. Khante, Young Professional-I joined w.e.f. 25th May, 2022.

Promotion

- Dr. A. Thirugnanavel, Scientist 'SS' (Hort.) promoted as Sr. Scientist w.e.f. 6th May, 2019.
- Dr. J.P. Tej Kumar, Scientist (Agril. Biotech.) promoted as Scientist-SS w.e.f. 1st July, 2019.
- Dr. Kiran Kumar Kommu, Scientist (Nematology) promoted as Scientist-SS w.e.f. 6th July, 2020.

- Dr. N.M. Meshram, Sr. Scientist (Ento.) promoted to the next higher grade w.e.f. 23rd June, 2021.
- Sh. Yashwant Sorte, Assistant Finance and Account Officer to the Finance Account Officer w.e.f. 20th May, 2022.
- Mrs. Jayshree Kolwadkar promoted to T-6 w.e.f. 8th December, 2020 (DPC on 4th April, 2022).

Transfer

- Sh. Yogesh Pathare, Administrative Officer transferred to ICAR-CIFE, Mumbai from ICAR-CCRI, Nagpur on 31st May, 2022.

Study Leave

- Sh. Venkatraman Bansode, Scientist (Food Technology) relieved on 9th March, 2022 for pursuing Ph.D programme at National Institute of Technology, Rourkela, Odisha for three years.

Superannuation/relieving

- Dr. A.D. Huchche, Pr. Scientist (Hort.) superannuated on 30th April, 2022.
- Sh. S.L. Sardar, SSS and Sh. A.N. Saneshwar, SSS superannuated on 30th June, 2022.

Probation

- Dr. Sangeeta Bhattacharyya, Scientist (Extension) : cleared ARS Probation from 4th January, 2021 (DPC conducted on 12th May, 2020)

Edited by

Dr. A.K. Das, Pr. Scientist (Pl.Patho.), **Dr. Kiran Kumar Kommu**, Scientist 'SS' (Nematology),
Dr. Sangeeta Bhattacharyya, Scientist (Extension) and **Dr. Dilip Ghosh**, Director

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