



# CITRUS NEWSLETTER



## ICAR - CENTRAL CITRUS RESEARCH INSTITUTE, NAGPUR

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### From the Director's Desk.....



#### Dear Readers,

On July 28<sup>th</sup> 2015, ICAR-CCRI, Nagpur, completed 30 years of its service to the citrus industry of the country. Foundation stone of the then 'Regional Citrus Station' was laid by late Hon'ble Shri. Narasinha Rao, then Defense minister of India on 28<sup>th</sup> July 1985. On 30<sup>th</sup> Anniversary of its establishment, one-day brain storming dialogue on greening and viral diseases was organized at the institute. The event was very successful and more than 100 delegates including well-known pathologists, virologists, scientists, officials of state departments, Govt. agencies and students participated. In case of systemic diseases like viral and greening diseases, prevention is better than cure. Production and supply of disease-free planting material, management of insect vectors and sanitary measures can go a long way in containing spread of these diseases. Long term strategies could be development of disease resistant rootstock and scion varieties. The Institute also started publication of Hindi version of CCRI Newsletter from 2015 and its issues were released during Rajbhasha fortnight celebration

in September. Institute also started publication of Hindi version of its Annual Report from 2013-14. Under Tribal Sub-Plan (TSP) programme, a training was organized at KVK Pratapgarh in Rajasthan where around 100 tribal farmers were trained and plantation of Nagpur mandarin block was taken up at KVK, Pratapgarh.

### CITRUS SECTOR

There are wide range of processed products of citrus that are available in the market. It also shows considerable business and at the same time competition for new products. For academic purpose some products and manufacturers are as follow without any intention to promote a particular product or company: Orange squash is being marketed by Mapro Foods Pvt.Ltd, Kissan, Messrs. Foodrite, Haldiram Foods and several others. Similarly, lemon squash is being marketed by Kissan and Haldiram Foods. Lemon barley water is being marketed by Messrs Foodrite and Mala's Food. Lime juice cordial of Kissan is also available. In pure orange juice segment, companies like B-Natural, Dabur (Real Brand) and Sunkist are in the market. The product brand like "Sach" and Mosambi Delight are manufactured by Schreiber Dynamix Dairies Ltd, Baramati, Pune, come in category of drink or RTS having 18-26% juice. The Sach and Mosambi Delight are marketed in Tetra pack by Pepsi Co. India Holdings Pvt. Ltd. Tropicana is a well-known brand of Pepsi in packaged 100% orange juice. Daburs are also marketing orange and carrot mixed juice with Real brand. Minute Maid Nimbu Fresh and Nimbooz brand products as RTS are from Coca Cola India & Pepsico India Holdings, respectively. Imported sparkling carbonated beverages such as Sanpellegrino-Aranciate Rossa (12% red orange juice) and Limonata (16% lemon juice) are available in India. Apart from these products and companies, there are several local and regional players in citrus beverage segment. This shows that considerable citrus fruit is being processed in the country also.

### FROM THE INSTITUTE

#### Research Highlight

**NRCC Nagpur Mandarin Seedless-4 : A new seedless mandarin variety :** With increasing emphasis on increased production along with improved fruit quality as desired in international market for export, ICAR-Central Citrus Research Institute (CCRI), Nagpur identified seedless Nagpur mandarin variety for Cultivation. This variety is named as NRCC Nagpur Mandarin Seedless- 4. Presently grown Nagpur mandarin, is a seeded cultivar. The seediness of Nagpur mandarin (13-15 seeds/fruit) is not preferred by both consumers and processors. Other Mandarin growing countries



*13 year old plant of NRCC Nagpur  
Mandarin Seedless- 4 and fruits*

having seedless mandarin cultivars are Israel and Spain which grow Clementine. Japan and China grow Satsuma mandarin. This new variety will be preferred in domestic market and export. The yield potential of this new cultivar is 27.15 tons per ha (produced 98 kg fruits per plant) at plant age of 10-13 years. It contains less than 2.57 seeds per fruit comparison to 12.68 seeds in Nagpur mandarin based on 9 years field data at CCRI. It is clonal selection based on natural mutation and selected for attractive bigger size fruit, high yield (679 fruits/plant), medium large, upright plant growth; deep orange colour fruit at ripening, sweet, good flavour and juicy, fruit weight -145.9g, fruit size (61.61 X 70.23mm), peel thickness (3.24mm), number of segment per fruit (10.02), TSS (10.44), acidity (0.72%) and juice (46.06%). Whereas seeded Nagpur mandarin produced 520 fruits per year per plant with 12.68 seeds per fruit. This year about 2000 plants of new seedless variety were produced and distributed to the progressive farmers, nursery men, Govt. department and KVK all over the country. In Rashtriya Kisan Mela on citrus in month of October, 2014 at CCRI, Nagpur, plants of this new variety were also distributed at the hands of DDG (Hort. Sci.), ICAR. This seedless variety is already planted in Warud and Paratwada area of Maharashtra in farmer's field at 4 locations for demonstration.

#### **Institute Activities / Events Organized**

##### **Brain storming dialogue on Viral and Greening Diseases of Citrus : Challenges & way forward**

One-day Brainstorming dialogue was jointly organized by ICAR-CCRI and Technology Mission on Citrus (TMC) at CCRI, Nagpur on 28<sup>th</sup> July, 2015 on the occasion of 30<sup>th</sup> anniversary of the institute to discuss strategies to tackle emerging threats of greening and viral diseases of citrus and work-out the future roadmap. The chief guest Dr. C. D. Mayee, former chairman, ASRB, New Delhi inaugurated the dialogue on 28<sup>th</sup> July, 2015 while Dr. Paul Khurana, Former V.C., RDVV Jabalpur & Retd. Director, CPRI, Shimla, Dr. Y.S. Ahlawat, Retd. Emeritus Scientist, IARI, New Delhi and Dr. P.K. Chakravarti, ADG (Pl. Protection), ICAR were guests of honour.

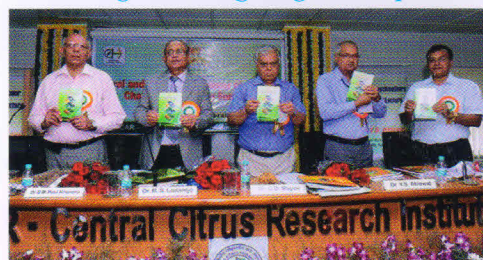
The inaugural session commenced after observing two minute silence to pay tributes to former President of India, Bharat Ratna, Dr. A.P.J. Abdul Kalam.

Dr. M.S. Ladaniya, Director, CCRI welcomed the guests and delegates and presented overview of 30 years of achievements of CCRI. Dr. C.D. Mayee suggested that genetically modified citrus utilizing suitable resistant gene of wild citrus species or cultivated plant need to be developed for resistance to greening. It could be possible for other scion varieties and rootstocks also. He said prevention should be the best policy in case of virus, virus-like and greening (Huanglongbing) pathogens.

Dr. P.K. Chakravarty stressed on skill development and human resource development in pathogen diagnosis and creation of good facilities across the country for the purpose. Dr. Y.S. Ahlawat delivered lecture on 'Citrus virus research in India : Important milestone' in memory of Dr. S.P. Raychaudhuri who



*Dignitaries lighting the lamp*



*Dignitaries releasing the CCRI publications*

can be rightly called as father of Indian plant virology for his pioneering contributions from early 1950s to 1980s. Dr. S.P. Capoor who contributed immensely in citrus virology and greening disease etiology was also remembered. During the discussions the easy to use kits which do not require costly equipments like PCR and RT-PCR were also reported for greening and citrus mosaic badna virus (CMBV). Twelve invited speakers delivered the lectures. Dr. M.S. Ladaniya (Director, CCRI) stressed on the need of practical approach of preventing spread of viral and greening diseases through budwood certification programme and wide area insect vector management. The RNAi technology and cross protection through mild strains of viruses for resistance to viruses and greening need further research.

A Souvenir, a technical bulletin on Greening diagnostics and an extension bulletin on improved nursery practices for citrus were released on the occasion. More than 116 delegates including experts, young researchers, participants from quarantine and private agencies participated.

A Bio-control laboratory for production of talc-based *Trichoderma* product was also inaugurated on the occasion.



*Dignitaries inaugurating the  
Trichoderma Biocontrol lab*

**Foundation Day celebrations :** The Institute celebrated its foundation day on 28<sup>th</sup> July. Several events like essay, quiz and sports competition were organized during the week in which the entire staff of the Institute participated. The prizes were distributed during the Brain Storming Dialogue held on 28<sup>th</sup> July, 2015 at the hands of Dr. C. D. Mayee, Former Chairman, ASRB, New Delhi.



*CCRI staff participating in Musical chair*



*Dr. C. D. Mayee distributing the prizes*

**Hindi Pakhwada :** Hindi Pakhwada was celebrated at the institute from 14-28<sup>th</sup> September, 2015 during which various competitions like essay, quiz, translation, extempore talks were organized. The concluding programme was organized on 29<sup>th</sup> September, 2015 in which Dr. B.S. Dhillon, Former Dean, Post Graduate Studies, PAU, Ludhiana and Shri Lokendra Singh, Dy. Director, CIMS, Nagpur graced the occasion and prizes were distributed. On this occasion the issue of Santra Sanwad and Hindi version of Citrus Newsletters were released. Dr. I.P. Singh, Pr. Scientist (Hort.) gave a brief background of the activities done in Hindi during the year 2014-15. Dr. M.S. Ladaniya, Director expressed satisfaction for the work being done in Hindi at the Institute. Shri Lokendra Singh kept the staff engrossed with his exemplary poetry. Dr. A.A. Murkute, Sr. Scientist (Hort.) proposed vote of thanks.

A Hindi workshop for encouraging the staff to work in Hindi was organized on 26<sup>th</sup> September, 2015. Dr. Umesh Singh, Prof. Mahatma Gandhi International Hindi University, Wardha and Sh. Sompal Singh, Hindi Prof., Rajbhasha Department under Ministry of Home Affairs, Nagpur were the key speakers.



*Dr. B.S. Dhillon addressing the Institute staff*

**Sadbhavna Diwas :** Observed Sadbhawan Diwas (Rajiv Gandhi Birthday) on 20<sup>th</sup> August, 2015.

**Workshop on IPR :** A one-day workshop on 'Technology Transfer and Commercialization: IPR issues' to sensitise the scientists and technical staff of the Institute about the importance of transfer of technology and its commercialization was held on 25<sup>th</sup> August, 2015. Dr. Sudha Mysore, Pr. Scientist & Head (Economics & Statistics) and PI, Zonal Technology Management Centre (ZTMC), South Zone, IIHR, Bengaluru, was the Guest Speaker Dr. A. D.

Huchche, Nodal Officer, NAIF Unit, CCRI, Nagpur introduced the guest speaker and elaborated the importance of technology transfer through commercialization in tune with the IPR guidelines of ICAR.

Dr. M. S. Ladaniya, Director CCRI, welcomed the speaker and highlighted the purpose of organizing such workshops for sensitizing and educating the technology innovators for ensuring effective dissemination of technology to the stakeholders as well as for resource generation through technology commercialization. Dr. Sudha Mysore in her exhaustive talk on 'Technology transfer through commercialization elaborated upon various components of IPR related guidelines. Dr. A. K. Das, Pr. Scientist (Plant Pathology) proposed a vote of thanks.



*Dr. Sudha Mysore, Pr. Scientist & Head addressing the participants during the workshop*

### Training Programmes

#### On-Campus

A one-day training programme was organized on 15 September, 2015 for the Citrus Nurserymen jointly by CCRI and TMC. The training programme of Citrus nurserymen was held to train the nurserymen with latest technology, so that, disease-free planting material can be raised by them. "Planting of new orchard with disease-free material not only keeps the orchards disease-free, but, also leads to excellent production and increases life of the trees to about 30 years," said Dr. M.S. Ladaniya, Mission Leader of Technology Mission on Citrus for Vidarbha, Marathwada and Chhindwara and Director, CCRI of ICAR at Nagpur. Dr. I.P. Singh, Pr. Scientist and Dr. C.N. Rao Co-ordinated the programme. About 36 citrus nurserymen from private and State Government nurseries attended the training.

#### Off-Campus

A training (under TSP) for the tribal farmers of Pratapgarh in Rajasthan was organized on 31<sup>st</sup> August, 2015 which was attended by 90 farmers. Training included lectures, discussion and visit to orchards. Dr. A.D. Huchche, Pr. Scientist (Hort.), Dr. A.K. Das, Pr. Scientist (Pl. Pathology) and Dr. V. Anavrat, Pr. Scientist (Extn.) surveyed the citrus orchards around Pratapgarh area along with the KVK officers on 1<sup>st</sup> September, 2015.



*Dr. A.D. Huchche, Pr. Scientist (Hort.) addressing the trainees*

- Agriculture Awareness Week : Dr. M. S. Ladaniya, Director, CCRI guided the farmers regarding organic cultivation practices at Pachgaon (Umred) identified under Sansad Adarsh Gram Yojana by Shri Nitinji Gadkari on 1-7 July Krishi Jagruti Saptah organised by Department of Agriculture, Maharashtra.

#### Distinguished Visitors

- Dr. B. S. Dhillon, Former Dean, Post Graduate Studies, PAU, Ludhiana and Dr. S.K. Sharma, Director, ICAR-CIAH, Bikaner visited CCRI laboratories, experimental farm and nursery on 28<sup>th</sup> September, 2015.

#### Other Extension Activities

##### Visit to CCRI

- A total of 4 farmers from Maharashtra, 50 from Gujrat and 344 from Madhya Pradesh visited the Institute during the quarter.
- Twenty trainees undergoing training at VANAMATI, Nagpur visited the Institute on 1<sup>st</sup> September, 2015.

##### Recognition

- Dr. M. S. Ladaniya, Director, CCRI was invited as Guest of Honour and delivered a talk during stakeholders consultation meeting on 'Export of Oranges from Maharashtra State' organized by APEDA, Export Facilitation Centre at Karanja (Ghadge), Distt. Amravati, M.S. on 16<sup>th</sup> September, 2015.
- Dr. M. S. Ladaniya, Director was Chief Guest for inaugural ceremony of Hindi Fortnight held at CICR, Nagpur on 14<sup>th</sup> September, 2015.

##### Meetings Organised

- The first meeting of ISO 9001:2008 regarding planning, implementation and work to be done for ISO certification was held on 10<sup>th</sup> July, 2015 to appraise the scientists and staff regarding the important steps for ISO 9001:2008.
- **RAC Meeting** : The 19<sup>th</sup> meeting of Research Advisory Committee was held under the Chairmanship of Dr. S.P. Ghosh, Ex- Deputy Director General (Hort.), ICAR on 11<sup>th</sup> August, 2015 at ICAR-CCRI, Nagpur. Following committee members were present Dr.B.S. Bhumannavar, Pr. Scientist (Retd.), NBAIR, Bengaluru and Member; Dr. B.K. Singh, Pr. Scientist (Agril. Ext.), Member/CATAT, IARI, New Delhi; Dr. M.S. Ladaniya, Member / Director, CCRI; Dr. T. Janakiram, Member/ADG (Hort.), ICAR; Shri Sunil S. Shinde, Member/Ex-MLA; Dr. A.K. Das, Member Secretary/Pr. Scientist (Pl. Pathology)



*The RAC meeting in progress*

- **Rajbhasha Meeting** : The quarterly Rajbhasha Meeting was held on 8<sup>th</sup> July, 2015.

#### Human Recourse Development

- Sh. C.V. Bankar, ACTO : Training programme on 'Capacity Building of Agriculture Library Professional in NARS' at PJTSAU, Hyderabad from 22-31 July, 2015.
- Dr. D.K. Ghosh, Pr. Scientist (Pl. Pathology) : Training programme on 'LAMP Technique for rapid detection of Phytoplasma' at Nong Lam University, Vietnam during 3-12 August, 2015.
- Dr. C.N. Rao, Pr. Scientist (Ento.) and Dr. A.A. Murkute, Sr. Scientist (Hort.): Training programme on 'Analysis of Experimental Data' held at NAARM, Hyderabad during 17-22 August, 2015.
- Sh. S.L. Shirkhedkar, Sr. T.O.: Training programme on 'Competence Enhancement Training programme for Technical Officers of ICAR' held at NAARM, Hyderabad during 19-28 August, 2015.
- Sh. Y.V. Sorte, AF&AO : Management Development Programme on 'Public Procurement' held at NIFM, Faridabad during 31 August – 5 September, 2015.

#### Good Governance/Swachh Bharat Mission :

The fluorescent lamps were replaced with LED bulbs to reduce electricity consumption.

#### Personnel

##### Appointment

- Sh. D. R. Surwase (Technical Assistant, TMC) w.e.f. 24.7.2015
- Mr. Paresh G. Bhojar, (SRF) w.e.f. 24.7.2015
- Mrs. Shaila R. Bute, (Computer Operator) w.e.f. 25.7.2015.
- Sh. Layant S. Borkar, (Young Professional II) w.e.f. 7.8.2015
- Dr. Vijay T. Kore (Young Professional II) w.e.f. 10.8.2015.
- Sh. Prafula Jalamkar, (Young Professional-II) w.e.f. 10.8.2015
- Sh. Vishal P. Fule, (Young Professional-II) w.e.f. 20.8.2015.
- Ms. Saroj R. Deshmukh, (SRF) w.e.f. 21.8.2015.
- Ms. Heena Aafrin, (Field Assistant) w.e.f. 7.9.015
- Sh. Vinod G. Mate, (Field Assistant) w.e.f. 10.9.2015.
- Sh. Prashant H. Samrit, (Project Assistant) w.e.f. 15.9.2015.

##### Relieving

- Ms. Saroj R. Deshmukh, Field Assistant has been relieved on 20.8.2015.

**FEEDBACK** : Monsoon rainfall is the lifeline of Indian agriculture and so to the farmers of the country growing various crops and citrus is no exception to it. The total precipitation and its distribution during June to September determine monsoon flowering in Nagpur mandarin, sweet orange and also in acid lime. In June to September season, 2015 there was an average deficit of 14% in national rainfall. In north-west India deficit was 17% while in central, southern peninsula and east and north-east India it was 16, 15 and 8%, respectively. During this season distribution was not normal and number of rainy days were less. Heavy rains occurred during 4-7 days during June, July, August and September and rest of the days were almost dry. This resulted in very high temperatures that caused fruit drop and abnormal incidence of pest like mites in citrus during August-September. Thus unexpected climatic changes are increasing cost of production in the form of increased pesticide sprays. This situation also leads to need for more energy due to increased need of irrigation. Normal rainfall otherwise would have taken care of watering of crops.

**Edited by** : Dr. M. S. Ladaniya, Director, Dr. A. K. Das, Pr. Scientist (Pl.Path.),

Dr. C. N. Rao, Pr. Scientist (Ento.) and Dr. A. A. Murkute, Sr. Scientist (Hort.)

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**Postal Address** : P. B. No. 464, Shankar Nagar, P.O., Amravati Road, Nagpur – 440010 (Maharashtra)

**Phone No.** : 0712-2500249, 2500615, 2500813 **Fax** : 0712-2500813

**Website** : nrc Citrus.nic.in **E-mail** : citrus8\_ngp@sancharnet.in, director.ccri@icar.gov.in

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