



CITRUS NEWSLETTER

ISO 9001 : 2008 Certified Organization



ICAR - CENTRAL CITRUS RESEARCH INSTITUTE, NAGPUR

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October to December, 2015

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From the Director's Desk.....



Dear Readers,

This quarter – October to December, 2015 has been very significant from the point of view of intensive all-round activities at the institute. As a part of 30th Anniversary celebration of the institute, a “National Symposium on Sustainable Citrus Production- Way forward” was attended by more than 200 delegates from across the country and 35 Invited speakers/experts in various aspects of citrus research delivered lectures. Very comprehensive 'Souvenir' was released along with 'Abstract book' on the occasion. Institute also organized 21-day long Winter School which was attended by 26 trainees from 11 states.

Institute distributed 50 soil health cards on the eve of “World Soil Day” as a part of “International Year of Soils” on 5th

December and 200 more of these are to be prepared and distributed in coming days.

ICAR-CCRI received ISO9001:2008 Certification during the quarter which is a matter of great pride and increased responsibility for the organization.

The quarter witnessed unprecedented crop of Nagpur mandarin in Vidarbha and surrounding area which indicated need for more postharvest infrastructure, quick policy decisions at government level and proactive role of growers for retail marketing of produce. Institute organized entrepreneurship development programme in citrus processing and invited all stakeholders including interested entrepreneurs / farmers, banks, NHB and SFAC representatives. Institute also participated in four different Agri/Horti. Exhibitions during the quarter and organized training for tribal farmers at Nandurbar, Maharashtra.

In this year during planting season (June- October), institute distributed more than two lakh planting material and generated revenue of about Rs. 85 lakh including TMC programme. The year 2015 came to an end with many achievements and contributions from the ICAR-CCRI, Nagpur. I extend season's Greetings and best wishes for New Year – 2016 to all the stakeholders, scientists, members of ISC and citrus growers.

CITRUS SECTOR

Citrus acreage and production in India recorded phenomenal growth during 1961 to 2012-13 with increase in area from 90,700 ha to 10,42,000 ha and production from 8,23,000 metric tonnes to 100,89,000 metric tonnes. This overall average growth was roughly 20% annually. But during last 5 years this growth was around 4 % only annually indicating there is not much scope in increasing area. Further increase in production shall come from increase in per hectare productivity only. Kinnow, due to its prolific bearing and high income to growers, recorded unprecedented growth during

last 10 years. During 2004-05, Kinnow area was 19,360 ha with 2,90,400 tonnes production that increased to 48,182 ha with 11,08,618 tonnes during 2014-15. This increase in production posing serious problem of postharvest losses due to crash in prices in the given situation of lack of infrastructure for storage and processing and also marketing. Small growers are unable to market their fruit at retail level neither they have capacity to bear risk of marketing produce at distant markets. They have to sell produce at whatever price traders offer in such a glut situation. It will be better if we focus on creating awareness about farmer producer companies strengthening them financially and also developing more postharvest infrastructure rather than increasing further area.

FROM THE INSTITUTE

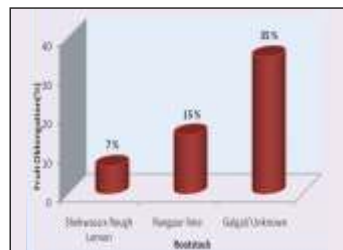
Research Highlight

Nagpur mandarin growers in some parts of Vidarbha are facing a severe problem of physiological disorder in fruit shape i.e. oblongation, locally known as 'Wai-va' since past few years. This physiological disorder is mainly predominant in Morshi, Warud, Achalpur and Paratwada tehsils of Amravati district. ICAR-CCRI, Nagpur has conducted an extensive survey of affected and non-affected orchards. Fruit oblongation was more in Nagpur mandarin on Galgal rootstock as compared to Rangpur and was minimum on Shekwasa X Rough lemon.

The length-breadth ratio of oblongated fruits was higher due to which it showed the abnormal fruit shape as compared to the



Different shapes of oblongated fruits in Nagpur mandarin



Fruit Oblongation (%) in Nagpur mandarin on different rootstocks



Abscisic acid (ABA) concentration (µg kg⁻¹) in different rootstocks of Nagpur mandarin

normal fruits. The reduction of TSS and Vitamin C content and increase in acidity and peel thickness were also recorded in oblongated fruits as compared to the normal fruits in all rootstocks. More importantly, abscisic acid (ABA) level found to be increased (~80 µg kg⁻¹) in plants with excess soil moisture with higher number of oblongated fruits as compared to the normal fruits (~15 µg kg⁻¹). It indicated that

soil moisture was excess during fruit growth and development stages accompanied with higher levels of ABA and oblongated fruits in affected orchards. Hence, the first year preliminary observation indicated that there is a necessity to minimise the excess soil moisture for reduction of ABA concentration in fruits to minimize fruit oblongation during fruit growth stages.

Institute Activities/ Events Organised

National Symposium on Sustainable Citrus Production - Way Forward : ICAR-Central Citrus Research Institute, Nagpur organized a 3-day National Symposium on "Sustainable Citrus production - Way Forward" to commemorate 30 years of its service during 27-29 November, 2015 in collaboration with Indian Society of Citriculture (ISC), Nagpur and Technology Mission on Citrus for Vidarbha, Marathwada and Chhindwara.



Dignitaries displaying Valencia Sweet orange

A view of the gathering during the opening session

Dr. Anil Bonde, Member of Legislative Assembly, Morshi, Maharashtra, the Chief Guest of the opening session on 27th November, 2015, stressed the need to reduce cost of production and appealed to scientists to develop production techniques so that crop survives during hailstorms. Dr. S.P. Ghosh, former DDG (Hort.), ICAR presided over the opening session and stated that forecasting and forewarning can play important role in this changing climatic scenario. Shri. S. Navin Sona, IAS, Director General, Vasant Naik Agricultural Management Training Institute, Nagpur the Guest of Honour, said that risk management and fruit quality improvement are two challenges which farmers are facing and capacity building should be oriented to achieve these objectives.

Dr. S.B. Dandin, former Vice-Chancellor, University of Horticultural Sciences, Bagalkot, Karnataka inaugurated the Symposium on 28th November as Chief Guest. Dr. Dandin laid emphasis on improving infrastructure and capacity building for better prices during marketing and reduction in post-harvest losses. Sh. Krupalji Tumane, Member of Parliament from Ramtek constituency, the Guest of Honour, of inaugural session emphasized the need to conduct research on citrus with respect to climate change. He said insect pests and disease dynamics has changed and extreme events like droughts, floods and hailstorm have become common. Dr. T. Jankiram, ADG (Hort.Sci.), ICAR, presided over the

inaugural session. He stated that old heritage orchards needs to be protected as mother trees of high quality fruit.



Dignitaries lighting the lamp and releasing the publication

Dr. M. S. Ladaniya, President, ISC and Director, ICAR-CCRI welcomed guests and presented overview of achievements of the institute and briefed about the activities of Technology Mission on Citrus and the Indian Society of Citriculture. Dr. A. K. Srivastava, Secretary, ISC and Pr. Scientist (Soil Science) proposed Vote of thanks.



Dr. T. Janakiram, ADG (Hort. Sci.), ICAR, New Delhi handing over the Soil Health Card to the citrus grower



Dr. S.P. Ghosh being presented the ISC Honorary Fellowship

Honorary Fellowship of ISC were presented to Dr. S. P. Ghosh, Ex-DDG (Hort.), ICAR, New Delhi and Dr. R. Sri Hari Babu, Professor (Rtd.), ANGRAU, Hyderabad and the ISC Fellowships to Dr. R. M. Gade, Associate Dean, Vasantnao Naik College of Agril. Biotechnology, Yavatmal (M.S.) (2014-15) and to Dr. Dinesh Kumar, Pr. Scientist (Hort.) (2015-16). Dr. Shyam Singh Best Scientist Award was presented to Dr. A. K. Dubey, Pr. Scientist (Hort.), ICAR-IARI, New Delhi (2014-15). The Souvenir and Abstracts were released by the dignitaries. Soil Health Cards were also distributed to the Citrus growers.

More than 200 delegates including citrus experts, horticulturists, State Department officials, Development agencies, University faculties, Scientists and Students participated.

International Year of Soils - 2015 : 68th UN General Assembly declared 2015 as the International Year of Soils (IYS) and the slogan was Healthy soils for Healthy life. **World Soil Day was celebrated by ICAR-CCRI** on 5th December, 2015 and a function was organised in collaboration with Technology Mission on Citrus for Vidarbha and State Agriculture Department at Taluka Kalmeshwar district Nagpur during which 'Soil Health Cards' were distributed to citrus growers. Dr. M.S. Ladaniya, Director, ICAR-CCRI, Nagpur presided over the function

while Sh. Uday Patil, Deputy Commissioner, MANREGA, was the Chief Guest. Vijay Nimje, Sub-Divisional Agriculture Officer, Katol was the guest of honour. Addressing the gathering, Patil appreciated work of CCRI for such farmers oriented programme and assured all possible help related to water conservation, farm ponds, fruit crop plantation and community farming.



Sh. Uday Patil, Chief Guest addressing the gathering

Dr. M. S. Ladaniya, Director, ICAR-CCRI, handing over the Soil Health Card to the Citrus grower

Dr. Ladaniya stressed the need and importance of Soil Health Card and advocated farmers to make best use of the information provided for fertilizer and manure application based on the need. Dr. R. A. Marathe, Nodal Officer, Soil Health Cards and Pr. Scientist and TMC Staff viz. Shri. G. M. Borkar, Shri. D. O. Garg and Ms. Chaitali Thakare, provided training to citrus growers on the occasion and made all efforts for soil sampling and analysis.

Training Programmes

On-Campus

Winter School

A 21 days Winter School on 'Precision Citriculture for Sustainable Production and Post-harvest Management' sponsored by ICAR was organized by ICAR-CCRI, Nagpur during 15th October – 4th November, 2015. The purpose of the Winter School was to provide advanced training and update the knowledge and skills in precision citriculture. Dr. M.S. Ladaniya, Director was Course Director, Dr. Dinesh Kumar, Principal Scientist (Hort.) and Dr. C.N. Rao, Principal Scientist (Ento.) were Course Co-ordinators. A total of 26 trainees from eleven different states have participated. Dr. K.R. Kranthi, Director, ICAR-CICR, Nagpur was Chief Guest during the inaugural programme. Dr. Vilas Sapkal, Former VC, RTM Nagpur University who was Chief Guest



Dr. M.S. Ladaniya, Director addressing the Winter School participants

Dr. Vilas Sapkal, Former VC RTM Nagpur University distributing certificate to trainees

during the valedictory programme distributed certificates to trainees.

Entrepreneurship development programme on Citrus processing : ICAR- CCRI, Nagpur organized one day "Entrepreneur Meet" for commercialisation of technologies on December 30, 2015. The meeting was sponsored under National Agricultural Innovation Fund Project of ICAR. The purpose of the meet was to provide common platform to all stakeholders including Entrepreneurs for establishment of small scale processing industry and also to update their knowledge and skill in the field of processing sector.



Dr. M.S. Ladaniya, Director addressing the entrepreneurs

About 18 persons participated in the meet which comprised of 10 entrepreneurs who were interested to establish an industry for the development of value added products. All other stakeholders comprising National Horticulture Board, State Bank of India, Syndicate Bank, and YES Bank, Consultants of Venture Capital Scheme for Agribusiness Development Small Farmers Agribusiness Consortium, New Delhi, equipment/machine manufacturers for the processing industry and also Chartered Accountants for framing of the project reports participated.

The meeting was inaugurated at the hands of Dr. M.S.Ladaniya, Director, ICAR-CCRI, Nagpur. In his address Dr. Ladaniya briefed the participants about the overview of processing sector of citrus fruits by emphasizing importance of the establishment of small scale processing industry for the manufacturing of value added products developed from acid lime and mandarins keeping in view ample availability of these fruits in Vidarbha. He motivated the entrepreneur to come forward as now it is a need of the hour and the only ultimate way to increase the income of producers/farmers.

Dr. Dinesh Kumar conducted the meeting and explained the objective of the programme. Dr. Kumar presented the technologies developed under the processing lab of ICAR-CCRI, Nagpur. The programme ended with the vote of thanks proposed by Dr. A. D. Hucheche, Principal Scientist (Hort.).

Off-Campus

- Technology Mission on Citrus for Vidarbha and ICAR-CCRI conducted one day training programme on 7th October, 2015 at Pachgaon village of Nagpur district

selected under SansadAdarsha Gram Yojana by Shri Nitinji Gadkari, Union Minister for Road Transport, Highway and Shipping. The training programme was inaugurated by Dr. M.S. Ladaniya, Director, ICAR-CCRI and Mission Leader, TMC. Mrs. Punyasheela Meshram, Sarpanch, Pachgaon; Sh. P.N. Pande, Taluka Agriculture Officer, Umred; Dr. I.P. Singh, Pr. Scientist (Hort.) and Dr. C.N. Rao, Pr. Scientist (Ento.) and TMC Coordinator, Sh. D.O. Garg, SMS (Ento.), TMC, Shri G.M. Borkar, SMS (Pl. Path.) and Ms. Chaitali Thakre, SMS, TMC imparted training. More than 100 citrus growers attended the training programme.

- **Celebration of 'Jai Kisan Jai Vigyan' Week :** ICAR-CCRI celebrated 'Jai Kisan Jai Vigyan' Week from 23 to 29 December, 2015 on the birth anniversary of former Prime Ministers Shri Atal Bihari Vajpayee and Late Shri Chaudhary Charan Singh. Training programme on 'Production Technology of Citrus' under Tribal Sub-Plan (TSP) was organized by ICAR – CCRI, Nagpur on December 29, 2015 at Nandurbar (MS) in collaboration with Krishi Vigyan Kendra, Nandurbar in tribal area of Maharashtra. Eighty five tribal farmers from five different notified villages attended training. Prof. R.R. Nawale, Guest of Honor and Founder president of Dr. Hedgewar Seva Samiti (HSS) a trust, who runs the KVK, emphasised the diversification in agriculture through fruit crops. Mr. Tale, Deputy Programme Coordinator of ATMA requested farmers to use this opportunity to adopt new technologies. The Chairman of function Mr. Lalit Pathak, Secretary, HSS highlighted the importance of horticulture and appealed farmers to start citrus production especially acid lime. Training kit was distributed to participants. Mr. R.M. Patil, SMS (Horticulture) compared the programme and Dr. A.A. Murkute, Sr. Scientist, CCRI proposed vote of thanks. Dr. I.P. Singh, Dr. A.A. Murkute, Dr. C.N. Rao and Dr. A.K. Das imparted the training and made all efforts for organizing the programme.



Dr. A.A. Murkute talking on Citrus Production Technology during the training

Group of tribal farmers participated in training

Memorandum of Understanding : MoU signed between Sant Gadge Baba Amravati University and ICAR – Central Citrus Research Institute, Nagpur for guiding M.Sc./Ph.D. students and their research at ICAR-CCRI, Nagpur.

Other Extension Activities

Exhibition

ICAR-CCRI participated in the following exhibitions and put up a stall and displayed the technologies :

- State level Expo., Conference and Workshop : Orange and Agriculture festival 2015 organised by KrushiMitra from 1-4th October, 2015 at APMC Tah. Warud, Dist. Amravati, Maharashtra. Director and



Agriculture festival, Warud

Scientists delivered lectures and had interactive session with the farmers.

- 7th **AGRO-VISION** exhibition held at Reshimbag, Nagpur from 11-14 December, 2015.



7th AGRO-VISION

- Hort-Fair' exhibition at University of Horticultural Sciences, Bagalkot(Karnataka) from 19-21 December, 2015.

- "Agro Tech – 2015" on the eve of 117th Birth Anniversary of Late Dr. PanjabraoDeshmukh at Dr. PDKV, Akola from 27-29th December, 2015.



Horti Fair, Bagalkot

Radio Broadcast

- A radio talk on 'Rejuvenation of declining Nagpur mandarin orchards' by Dr. Vinod Anavrat, Pr. Scientist (Extension) broadcast on AIR, Nagpur on 22nd October, 2015.

Visit to CCRI

Farmers

A total of 390 farmers from Madhya Pradesh and 95 farmers from Rajasthan visited the Institute during the quarter.

Officers/ Trainees

- 34 Agricultural Assistants trainee's from RAMETI, Nagpur visited CCRI on 7th October, 2015.
- 20 trainee Officer (Group-B) from Department of Agriculture, Govt. of Maharashtra undergoing training at VANAMATI, Nagpur visited CCRI on 12th October, 2015.

Students

- 30 students of B.Sc. (Agri.) from College of Agriculture, Gadchiroli, visited the Institute, on 20th October, 2015.

Awards and Recognition

- ICAR-Central Citrus Research Institute, Nagpur received 'Karyalay Deep Puraskar 2015' for doing intensive use of Hindi in day to day office work and publishing technical bulletin in Hindi for the citrus growers. The award was sponsored by Rajbhasha Sansthan, New Delhi. The award was given on the occasion of 79th Seminar cum Hindi Workshop held during 14-16 October, 2015 at New Delhi. Dr. I. P. Singh, Pr. Scientist (Hort.) and Hindi Officer

received the award on behalf of the Institute.

- Dr. (Mrs.) Anjitha George, Scientist (Ento.) was



Dr. I. P. Singh receiving the Karyalay Deep Puraskar 2015

awarded Doctoral Degree in Agri. Entomology from TNAU, Tamil Nadu w.e.f. 24th November, 2015.

- Dr. Dinesh Kumar, Principal Scientist (Hort.) was



Dr. Dinesh Kumar being conferred the ISC Fellowship 2015-16

awarded "Indian Society of Citriculture Fellowship for the year 2015-16" during the National Symposium on "Sustainable Citrus Production Way Forward" at ICAR-CCRI, Nagpur during 27-29 November, 2015.

- **ISO 9001:2008 Certification** : ICAR – Central Citrus Research Institute (CCRI), Nagpur, the premier institute on citrus research in the country has been awarded the ISO 9001 : 2008 from Swiss Cert Pvt. Ltd. for quality



in research, extension and other relevant services on citrus. It is a matter of pride that within a year of upgradation to institute level and on eve of 30th Anniversary Institute has got this prestigious recognition. It reaffirms claim that the Institute follows all the standard operating procedures (SOPs) followed at the international level. A two-member team from the certifying agency

identified by Swiss Cert Pvt. Ltd. New Delhi conducted a detailed auditing of the diagnostic and analytical procedures used by the institute during research and development activities. It also checked documentation procedures that the institute administration, accounts section and scientists are following as per international norms. The certificate is valid for a period of three years w.e.f. 26th November, 2015.

Meetings Organised

- **IJSC Meeting:** The IJSC meeting was held on 4th December, 2015 under the Chairmanship of Dr. M.S. Ladaniya, Director, ICAR-CCRI.

Human Recourse Development

- Dr. Kiran Bhagat, Scientist (Pl. Physiology) attended 21 days Winter School on 'Precision Citriculture for Sustainable Production and Post-harvest Management' held at ICAR-CCRI, Nagpur during 15th October – 4th November, 2015.
- Sh. Prasanth Tej Kumar, Scientist (Agriculture Biotechnology) has been deputed for three months training under Dr. S. R. Bhatt, Pr. Scientist at NRCPB, New Delhi w.e.f. 9th November, 2015.
- Dr. D.K. Ghosh, Pr. Scientist (Plant Pathology) attended "Management Development Programme on Leadership Development (a Pre-RMP Programme)" held at NAARM, Hyderabad during 30th November to 11th December, 2015.
- Dr. Ashok Kumar, Sr. T. O. attended the "Competence Enhancement Training Programme for Technical Officers" held at NAARM, Hyderabad from 14th–23rd December, 2015.

Good Governance / Swachh Bharat Mission :

- Swachh Bharat Abhiyan' : Hon'ble Prime Minister announced Swachh Bharat Mission to achieve a clean India by 2019 the 150 Birth Anniversary of Mahatma Gandhi for which a Nationwide Swachhta Abhiyan (National Cleanliness Campaign) is being organised. A cleanliness campaign was organized at premises of ICAR-CCRI also on 2nd October, 2015. Director of the Institute administered the pledge 'Swachhta Shapath' to all the staff members and this was followed by an intensive cleaning campaign at the office premises, farm, residential quarters, etc. by all the staff members of CCRI and TMC led by the Director.



Dr. M.S. Ladaniya administering the oath and cleanliness campaign in progress

- **"Mera Gaon Mera Gaurav"** (My Village My Pride): A scheme launched by Hon'ble Prime Minister wherein the Scientists/Officers will adopt villages and provide

information to farmers on technical and other related aspects within a time frame through personal visits is being implemented. ICAR-CCRI, Nagpur adopted two villages viz. Panchgaon and Hetikundi of Maharashtra under "Mera Gaon Mera Gaurav".

Personnel

Appointment

- Sh. Prashant Tej Kumar J. appointed as Scientist (Agriculture Biotechnology) w.e.f. 9th October, 2015.
- Sh. Ashish Warghane, as a Senior Research Fellow (SRF) (Virology Laboratory) under CRP on Diagnostics and Vaccines w.e.f. 23rd November, 2015.

FEEDBACK: Bumper crop of mandarins during Ambia season (harvesting in October-December) has been recurring phenomenon since decades. It seems we learned little from our past experiences. Prices crash as a result and there is a hue and cry for a while and again without taking any corrective step we focus on increased production. Now the time has come to think about infrastructure development for fresh fruit handling, storage, retail stores for producers and processing/value addition. Any system without participation of growers will lead to exploitation of growers. Present system of marketing is without participation of growers and hence the resource-poor grower is helpless. Rich growers with large acreage of mandarin can manage marketing of crop and can take risks in marketing. Grower with small holding is helpless and sells crop to traders/ contractors at throw-away price. Increased mandarin acreage in Rajasthan and Madhya Pradesh resulting in increased production along with Kinnow crop of North-western states plus bumper Ambia crop of Nagpur mandarin in Vidarbha (Maharashtra) during October-December (2015) coupled with vagaries of weather like heavy unprecedented rains in South India (Tamil Nadu, Andhra Pradesh, Karnataka), increased import duty by Bangladesh and earthquake in Nepal – all these factors crippled market for mandarins and resulted in unprecedented losses to growers. We must learn the lessons - policy-makers, growers and Government agencies must learn the lesson, from what had happened and strategize to deal with such a situation in the future. Research institutes like ICAR-CCRI or for that matter Agricultural Universities can provide only technologies, technical help or intellectual opinion about what can be done. Actions by growers' companies, Government agencies and policies by law-makers will pave the way for change in scenario and good returns to the citrus growers.

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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