



CITRUS NEWSLETTER



Vol. 24

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From the Director's Desk.....



Dear Readers,

Citrus industry of India is poised for a big change in coming years with respect to planting and irrigation systems. Citrus growers want early and high yields for their investment in plantations. In India, recommended spacing for mandarins, sweet orange and acid lime has been 6 x 6 m or 5 x 5 m since decades. Keeping in view canopy of these plants this spacing was decided. But with such a wide spacing, plants occupy given space in 8-10 years. Commercial crops are harvested 4 years after planting. With low leaf area index and slow growth of canopy,

growers cannot harvest economical benefits of their investment at earliest. The wide spacing is also leading to low productivity as compared to high and very high productivity of citrus as reported from many leading citrus growing countries. All these factors are responsible for change of mind in citrus growers of the country and they are willingly planting citrus at 6 x 3 m and 5 x 3 m. Some growers are trying even less spacing. Water is becoming a very scarce input with every passing year and there is a perceptible awakening among citrus growers to use it judiciously. Citrus growers are turning to drip irrigation system in large numbers and flood irrigation has become thing of past. Even basin irrigation and irrigation in double ring around tree trunk is going to be thing of past in coming 5-10 years. All growers are ready to use drip but cost of the system is the hindrance. Subsidy is not sufficient and not easily available to small and marginal farmers. Although change is slow, the days are not too far when more than 90% citrus cultivation in the country will be on drip. Even in hills this change is going to take place.

CITRUS SECTOR

In spite of several challenges like die-back, decline of trees, twig blight, gummosis and root rots, citrus cultivation has recorded phenomenal growth since early 1960s. The demand for citrus fruits showing upward trend with every passing year and in spite of several problems area has increased 10 times while production increased 15 times since 1961. During 1961, area under citrus cultivation was 82,300 ha with 90,000 metric tonne production while during 1917-18, area under citrus fruits was 10,90,000 ha with 1,25,10,000 metric tonne production. Area increased in many states especially in Maharashtra, Andhra Pradesh, Madhya Pradesh, Rajasthan, Punjab, Gujarat and many north-eastern states including Asom. Higher prices fetched by these fruits in market and relatively less intensive cultivation practices

attract the farmers towards citrus cultivation. Since scope of further area expansion is limited, the real challenge is increasing productivity with increased input use efficiency.

FROM THE INSTITUTE

Research Highlights

Self-incompatible seedless accession of citron

Citron (*Citrus medica*), is an important species originated in India and presumed to be progenitor of acid lime (*Citrus aurantifolia*), Assam lemon (*Citrus limon*), Ada jamir (*Citrus assamensis*) etc. It is one of the very few monoembryonic species of citrus. Therefore, variability in citron is abundant. A promising clone has been identified at ICAR – CCRI, Nagpur from among different collections. It is generally seeded oblong fruit having 12- 20 seeds/fruit. The avg. fruit weight is 130 – 150 g/ fruit with 85 – 95 mm fruit length, 50 – 55 mm fruit diameter and 1.5 to 2.5 mm axial diameter. The yield of 5-year-old tree was about 25 – 30 kg per tree. Rind thickness of fruit ranges between 4.5 to 6 mm and 11-12 segments /fruit are observed. It contains 20 – 25 % juice having acidity 4 – 5% and TSS 7 – 8^o Brix. At maturity it attains a uniform yellow colour. Self-incompatibility is prevalent in citron. Therefore, in the event of self-pollination seedless fruits are developed. To obtain seedless fruits the synchronization of flowering of citron with other citrus species especially, acid lime (*Citrus aurantifolia*) should be avoided. Also, the emasculated flowers produced seedless fruits.



Plant of Citron accession and seedles fruits

Institute Activities / Events Organized

ICAR-CCRI, Technology Mission on Citrus for Vidarbha and ICAR-NBSS & LUP, Nagpur jointly organised a Kisan Mela on 17th March, 2018 which 1000 citrus growers attended. Dr. V. M. Bhale, Vice-Chancellor, Dr. PDKV, Akola, inaugurated the Mela and stated that Vidarbha is famous for its oranges and in the past few years the same is being exported to the distant countries. Dr. P. Chandran, Director Incharge of National Bureau of Soil Survey and Land Use Planning informed that complete mapping of soil in different orange growing pockets of the states has been done and ready to refer data is available for the farmers.



Felicitation of Citrus growers during the KisanMela on 17.03.2018

Dr. A. S. Rajput, Director of Regional Centre for Organic Farming, GoI, advocated use of organic manure and other organic inputs to improve soil health and fruit quality. Dr. M. S. Ladaniya, Director, ICAR-CCRI outlined the research and extension activities of the Institute. While addressing to the farmers he informed that till date 47,000 Citrus growers and more than 2000 Govt. Officials have been trained besides distribution of 27 lakhs disease-free planting material of Citrus. Hon'ble Prime Minister's address to the farmers of the country was directly web telecasted from IARI, Pusa, New Delhi. ICAR-CCRI, Nagpur felicitated 12 citrus growers for higher yield by using CCRI technology. This was followed by the technical sessions and discussion.

Training / Workshop

- One-day workshop on “Indian Patenting Procedures & Commercialization of Patents” was organized under NAIP ICAR, New Delhi in collaboration with RGNIIPM, Nagpur at ICAR-CCRI, Nagpur on 26th March, 2018. All Scientists and Technical Officers participated in the workshop.



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

Training under Tribal Sub-Plan

- One-day training programme was organized under TSP on “Production technology of citrus” by ICAR-CCRI, Nagpu in collaboration with KVK, Dhar (M.P.) on 27th March, 2018 at KVK, Dhar in which 100 tribal farmers participated. Dr. A. K. Das, Dr. P. S. Shirgure, and Dr. A. A. Murkute addressed farmers.



Dr. A. A. Murkute, Pr. Scientist (Hort.) addressing the participants at KVK, Dhar

Memorandum of Understanding (MoU)

- The developed technology “Microbudding propagation technique to shorten the Citrus nursery phase” was commercialized and licence agreement signed on 19th January, 2018 with upfront value of Rs.5,65,700/- as a one-time license fees with M/s KJB Agro, Ootacamund, Tamil Nadu.



Signing of MoU between ICAR – CCRI and M/s. KJB Agro

Meetings organized

- **IMC Meeting :** The XXXIV IMC meeting of ICAR-CCRI was held on 28th March, 2018 under the



IMC meeting held under the Chairmanship of Dr. M. S. Ladaniya, Director

Chairmanship of Dr. M. S. Ladaniya, Director and the members present were Dr. P.S. Tiwari, Head, Agricultural Mechanization Div. CIAE, Bhopal; Dr. Jagdish Prasad, Pr. Sci., and Head, Soil Resource Studies, NBSS&LUP, Nagpur; Dr. D. K. Ghosh, Pr. Sci. (Virology); Sh. Y.V. Sorte, AF&AO, CCRI, Nagpur; Sh. Yogesh Kadian, AO, CCRI, Nagpur, Member Secretary.

Skill development of CCRI Staff:

- Sh. Yogesh Kadian, AO : Training programme on Administrative and Finance Management at NAARM, Hyderabad during 1-7 Feb., 2018.
- Shri C. V. Bankar, ACTO (Library) : Training on “KOHA for Library staff of ICAR” at NAARM, Hyderabad during 5-9 Feb., 2018.
- Mr. V. N. Dhengre, Sr. Technical Officer and Mrs. Jayshree Kolwadkar, Technical Officer : Training on “Statistical techniques for Agricultural Data Analysis” at ICAR-IASRI, New Delhi, 14-23 Feb., 2018.
- Dr. N. Vijayakumari, Pr. Scientist (Horticulture) : Analysis of Ploidy level from the Shoot/root-tip of citrus samples at ICAR-IIHR, Bengaluru, 24thFeb. to 3rdMarch, 2018.

Linkages and collaboration

- A team of staff headed by Sh. Prashant Waghmare, AGM, APEDA, Mumbai and Sh. D. M. Sable, MSAMB, Pune alongwith fruit exporters had a meeting with Dr. M. S. Ladaniya, Director on 23rd February, 2018 at CCRI, Nagpur to discuss strengthening the supply chain for export of Nagpur mandarin. Team later visited Mr. Dhiraj Junghare's orchard. This meeting resulted in export of Mrig crop (Monsoon blossom) Nagpur mandarin by air cargo (3 tonne) to UAE during February and March, 2018.



Dr. M. S. Ladaniya, Director, staff from APEDA and orange exporters in discussion at Mr. Junghare's orchard

- In collaboration with State Agriculture Department, Maharashtra, ICAR-CCRI took up pruning of Nagpur mandarin orchard of Mr. Eknath Choudhari at Warud on 5th January, 2018 in which trees were pruned with the automatic pruning machine.
- Controller of Examination and staff of IGKV, Raipur visited on 23.01.2018 for agreement with CCRI for research of PG and Ph. D Students at CCRI.

Academic collaboration:

- Dr. Ambedkar College, RTMNU, Nagpur :Dr. N. Vijayakumari, Pr. Scientist (Hort.) was the co-guide for student Ku. Payal Ghosh. Thesis title :*In-vitro* propagation in limes and lemons.
- Dr. Ambedkar College, RTMNU, Nagpur :Dr. A. K. Das, Pr. Scientist (Pl. Patho.) was the co-guide for student Mr. Pratik Pali. Thesis title : Fungal endophytes exhibiting diversity and potential as biological control agent against *Phytophthora* disease.

Publications :

Research Papers (In peer Reviewed Journals)

International

- Anjitha George, C.N. Rao, Sonali Ghike and Vijay Dhengre (2017). Relative susceptibility of citrus leaf miner (*Phyllocnistis citrella* Stainton) to commonly used insecticides in Maharashtra, India. *Econ. Entom.* 110(2):525-529.
- Chidambaranathan, P., Jagannadham, P.T.K., Satheesh, V., Kohli, D., Basavarajappa, S.H., Chellapilla, B., Kumar, J., Jain, P.K. and Srinivasan, R. (2017). Genome-wide analysis identifies chickpea (*Cicer arietinum*) heat stress transcription factors (Hsfs) responsive to heat stress at the pod development stage. *Pl. Res.*, pp.1-18.

National

- Anjitha George, Kuttalam and Rao C.N. (2017). Oviposition deterrents for the management of citrus leaf miner, *Phyllocnistis citrella* Stainton (Lepidoptera:Gracillaridae). *Entomon* 42(3): 193-200.
- Ghosh, D. K., Bhoose, S., Sharma, P., Warghane, A. J., Motghare, M., Ladaniya, M S., Krishna Reddy, M., Thorat, V. and Yadav, A. (2017). First report of a 16SrXIV group Phytoplasma associated with Witches' Broom Disease of Acid Lime (*Citrus aurantifolia*) in India. *Pl. Disease*, 101(5) : 831
- Ghosh D K, Motghare M. and Gowda Sidderame (2018). Citrus Greening: Overview of the Most Severe Disease of Citrus. *Adv. Agric. Res. Tech. J.* (2) : 83-100
- Ponnusany V K., Sharma S K., Rishi, N., Ghosh D K, and Baranwal, V K (2018). An isothermal based

recombinase polymerase amplification assay for rapid, sensitive and robust indexing of Citrus yellow mosaic virus. *Acta Virologica* 62(1): 104-108

- Rao C.N., Anjitha George, A.R. Prasad, Hafeez Ur Rehman, Rathod Aravind Kumar, A. Suman Kumar, Sonali Ghike and V.N. Dhengre (2017). Field testing of indigenously synthesised sex pheromone for the management of *Phyllocnistis citrella* Stainton under Central Indian conditions. *Cur. Sci.* 113(12):2298-2304.
- Rao C.N., Sandeep Rahangdale, Anjitha George and V.N. Dhengre (2017). Evaluation of chemical control schedules against Asian Citrus Psyllid, *Diaphorina citri* Kuwayama (Hemiptera: Leptidae). *Ind. J. Agric. Sci.* 87(5):125-128.
- Singh A., Kumar, N., Tomar, P S., Bhoose S., Ghosh D. K., Roy, P., Sharma, A K., (2017). Characterization of a bacterioferritin comigratory protein family 1-Cys peroxiredoxin from *Candidatus Liberibacter asiaticus*. *Protoplasma* 254:1675-1691
- Warghane A J, Misra P., Bhoose S, Biswas K K, Sharma A K, Krishna Reddy M and Ghosh D K (2017). Development of reverse transcription-loop mediated isothermal amplification (RT-LAMP) assay for rapid detection of Citrus Tristeza Virus. *J. Virol. Methods* 250: 6-10
- Warghane A J, Misra P., Ghosh Dipak Kumar (LKN), Shukla P K and Ghosh D K (2017). Diversity and characterization of citrus tristeza virus and *Candidatus Liberibacter asiaticus* associated with citrus decline in India. *Ind. Phytopathol.* 70: 359-367

Papers/Abstracts in Proceedings/ Souvenir of Seminar/Symposia/conferences etc.

- Kumar, D. and Ladaniya, M.S. (2018). Abstract on "Citrus Phytochemical: The "Boon of Nature" for North Eastern Hilly Region. National Conference on Floriculture at ICAR-NRC of Orchid, Sikkim, 16-18 Feb., 2018.

Popular Articles

- Cholla, A.K., Kumar, K.K., Ganga Devi, M. (2018) Management of white grubs using pheromone dispenser technology and biological control methods. *Vyavasayam*, 10(3): 35-36.
- Kumar, K.K. (2018) Role of nematode cuticle in microbial interactions. *Readers Shelf*, 14(6): 38-39
- Kumar, K.K. (2018) DNA bar-coding: A molecular diagnostic tool for nematodes. *Readers Shelf*, 14(6): 39-41.
- Rao, C.N., Ladaniya, M.S. Dinakar Garg (2018).

Limbu Vargiya Phalanvar Kidinche Ekathmic Vyavastapan. Mrugdhara. January, 2018: 44-47.

- Vijayakumari N. (2018). Shoot tip grafting for disease free planting material, *Nursery Today* (24) Jan- Feb 2018.

Papers/Abstracts in Proceedings/ Souvenir of Seminar/Symposia/conferences etc.

- Dr. I.P. Singh, Pr. Scientist (Hort.) and Dr. Kiran Kumar Kommu, Scientist (Nematology) : "Make in North East Agriculture and Allied Sectors" organized by Directorate of Horticulture & Food Processing, Government of Assam, Dibrugarh, 6th January, 2018
- Dr. M. S. Ladaniya, Director and Shri Sunil Kumar U.T., ACTO: "Academia-Industry Interaction Meet" organised by ICAR-CIAE, Bhopal at GTC, Nagpur, 11th January, 2018.
- Dr. A. K. Srivastava, Pr. Scientist (Soil Science) : Technical Advisory Committee meeting CIH, Medziphema, Nagaland, 14th January, 2018
- Dr. A. K. Srivastava, Pr. Scientist (Soil Science) : Internal Review Committee Meeting at Regional Research Station of PAU, Abohar, Punjab, 3-4 March, 2018.
- Dr. Dinesh Kumar, Pr. Scientist (Horticulture): National Conclave on scientific cooperation on food safety and applied nutrition organized by FSSAI at New Delhi, 5-6th March, 2018.
- Dr. M. S. Ladaniya : Director's Conference at ICAR, New Delhi, 8-9th March, 2018.

AICRP (Fruits) : Citrus research

Following activities were undertaken during the quarter under the AICRP (Fruits) at ICAR-CCRI, Nagpur.

- Dr. M. S. Ladaniya, Dr. A. K. Srivastava, Dr. I. P. Singh, Dr. R. K. Sonkar, Dr. P. S. Shirgure and Dr. C.N. Rao participated in the 5th Group discussion of ICAR-AICRP (Fruits) at ICAR-NRCB, Tiruchirappalli during 15-18th Feb., 2018.
- **QRT (AICRP) meeting** : ICAR-CCRI organized a review of the citrus research programme under AICRP on fruits by Quinquinal Review Team on 22-23rd March, 2018. The meeting was held under the Chairmanship of Dr. K.L. Chadha, former DDG (Hort.) ICAR. Other members were Dr. Satyabrata Maiti, Dr. H. K. Senapati, Dr. D.S. Khurdiya, Dr. V. S. Thakur, Dr. B.M.C. Reddy, Dr. Prakash Patil, Project Coordinator (Fruits), ICAR-IIHR, Bengaluru. Citrus Group researchers from all the Citrus Centres participated and presented their work.



AICRP QRT meeting under the Chairmanship of Dr. K. L. Chadha, former DDG (Hort.) ICAR at CCRI

Lectures delivered by CCRI scientists in training at other Institute/ Organisation

- I. P. Singh (2018). 'On-Site DUS testing of citrus' during DUS Review Meeting of PPV&FRA, Govt of India, at ICAR-IISR, Lucknow, UP, 15-17th January, 2018.
- A. K. Das (2018). 'Disease Management in Citrus' in "Kinnow Mahotsav" organized by Agricultural Technology Management Agency (ATMA), Sriganganagar, Rajasthan, 16-17th January, 2018.
- I. P. Singh (2018). "Modern Citrus Nursery" at Department of Horticulture, IGKV, Raipur, 2nd February 2018.
- I. P. Singh (2018). Modern citrus nursery and Management of declining citrus orchard : "State Conclave on Perspective Planning for Resurgent Agriculture and Allied Sector in Arunachal Pradesh" at Itanagar, Arunachal Pradesh, 6-7 February, 2018.
- Director and scientists delivered lecture in the Skill Development Programme (200 hrs.) as per qualification pack for "Citrus Fruit Grower" of ASCI, 1-28 February, 2018, TMC for Chhindwara. Lectures were delivered by Dr. M. S. Ladaniya, Dr. A. K. Srivastava, Dr. N. Vijayakumari, Dr. A. D. Huchche, Dr. I. P. Singh, Dr. A. K. Das, Dr. Dinesh Kumar, Dr. P. S. Shirgure.
- C. N. Rao (2018). "Detection of insecticide resistance in sucking insect pests" in the Winter School, ICAR-CICR, Nagpur, 1st February, 2018.
- Dinesh Kumar (2018). "Marketing and Post-harvest Management" and "Post-Harvest Management in Citrus" during training on "Diploma in agriculture and marketing course at DMI, Nagpur on 9th January and 21st February 2018.
- Dinesh Kumar (2018). "Citrus production and processing" during Technology Demonstration Mela 2018 at Ginning Training Centre (GTC) on 15th February, 2018.

Other Extension Activities

Exhibition

The Institute along with TMC participated in Agricultural/Krishi exhibitions and disseminated technologies through sale of publications and display of exhibits in the following events :

- “Science Expo 2018” at Raman Science Centre, Nagpur during 17-21 January, 2018.
- North Zone Regional Farmers Fair, 23-25 February, 2018 at Trade Facilitation Centre, Varanasi organized by ICAR-IIVR, Varanasi, U.P.



Hon'ble Union Agriculture Minister visiting the CCRI stall at North Zone Regional Farmers Fair, Varanasi, U.P.

- District Agriculture Festival/Exhibition organized by ATMA, Nagpur, 24-28 February, 2018 at Reshimbagh, Nagpur.
- 5th Assam International Agri-Horti Show - 2018 at Dibrugarh, Assam, 5-8 January, 2018 organized by Deptt. of Agri., Govt. of Assam in association with Indian Chamber of Commerce and AAU, Assam.



CCRI Stall at 5th Assam International Agri-Horti Show at Dibrugarh, Assam

Visit to CCRI

During the quarter, the number of farmers, students and trainees visited CCRI, Nagpur are as follows:

Farmers

States	No. of Famers
Maharashtra	129
Madhya Pradesh	252
Gujarat	41
Rajsthan	50
Chhattisgarh	35
Total	507

Students

College/Organization	No. of Students and date of visit
Janta Shikshan Mandal, Raigad, Maharashtra	25 (B.Sc. Agri.), 11.01.2018
College of Hort. & Forestry, Khaggal, Hamirpur, HP	40 (B.Sc. Agri.), 13.01.2018
College of Hort., UHS, Bagalkot, Kolar, Karnataka	40 (B.Sc. Agri.) 27.01.2018
Jankidevi Bajaj College of Science, Wardha, Maharashtra	40 (PG Microbiology) 02.02.2018
Dept. of Food Technology LIT, Nagpur	25 (M.Sc. Microbiology) 16.02.2018
Smt. Radhabai Sarda College, Anjangaon Surji, Amravati,	55 students, 21.02.2018
G. S. Tompe Arts, Commerce and Science College, Chandur Bazar, Amravati,	60 students, 21.02.2018
Brijlal Biyani Science College, Chandur Bazar, Amravati	80 (UG and PG students) 22.02.2018
Anand Niketan College Warora, Chandrapur	34 (UG and PG students) 26.02.2018
Director of Research, UHS, Bagalkot	7 students, 04.03.2018
Post Graduate Dept. of Botany, Dhote Bandhu Science College, Gondia	50 (PG students), 07.03.2018

Trainees/ Officers

- Twenty-five trainees undergoing Winter School training at ICAR-CICR, Nagpur (30th January, 2018).
- Sixteen faculty members undergoing training at Directorate of Marketing and Inspection, Nagpur (21st February, 2018).

Survey / Field day / Visit to Citrus Growers' orchard

- Dr. A. D. Huchche, Dr. Ashok Kumar and Sh. V. N. Dhengre, visited the hailstorm affected citrus orchards of Nagpur and Amravati Districts on 13th February, 2018. The committee suggested plant protection measures to save damaged orchards.



Fruits of Nagpur mandarin dropped due to hailstorm at Amravati district

- Dr. D. K. Ghosh, Pr. Scientist (Plant Pathology) visited the farms at BCKV, Mohanpur (WB) during 19-20 February, 2018 to examine the symptomatic plant in the field of Mohanpur farm.

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

Training Programmes

- One day training programme was organised under NEH plan on "Production technology of Citrus" at RRCC, Biswanath Chariali, Assam on 28-03-2018. The training was inaugurated by Chief Guest, Dr. K.K. Nagle, Director, FMTTI for North East region in presence of Dr. D.N. Hazarika, Professor, Deptt. of



Scientists interacting to the Citrus growers during the training programme at RRCC, Assam

Hort., BNCA; A. K. Upadhyay, Agric. Engg., FMTTI; Dr. I.P. Singh; Dr. R.K. Sonkar and including 19 women farmers from nearby districts attended this programme.

Survey

- Dr. Kiran Kumar, Scientist and In-charge of RRCC, Biswanath Chariali undertook survey of Tinsukia, Wathoigaon, Kakopathar and Borgaon, Assam in Khasi mandarin orchards for studies on plant parasitic nematodes (6-7th Feb., 2018).

Visit

- Dr. V.K. Baranwal, Professor, Division of Plant Pathology, IARI, New Delhi has visited RRCC, Biswanath Chariali on 17th Feb., 2018.

Good Governance / Swachh Bharat Mission

- Cleanliness was observed in the office campus and residential quarters.

Celebration

- Republic day on 26th January, 2018 and Martyrs day on 30th January, 2018

Distribution of disease-free planting material under CCRI

- A total of 860 disease free planting material of citrus rootstocks, fruits and seed were sold and revenue of Rs. 51628/- generated.

Award, Honours and Recognition

- Dr. Prasanth Tej Kumar J., Scientist received Ph.D. degree in the 56th convocation of IARI, New Delhi on 9th February, 2018 in the subject Molecular Biology and Biotechnology.
- Dr. C. V. Bankar, CTO received Ph.D. degree

Welfare Activity/ Sports :

- ICAR-Central Citrus Research Institute, Nagpur participated in the ICAR-Zonal sports tournament of Western Zone held at ICAR-CAZRI, Jodhpur during 16-20 January, 2018.

Technology Mission on Citrus (TMC) for Vidarbha, Marathwada and Chhindwara

TMC was started in the year 2007 at Vidarbha, further extended to Marathwada region in 2009 and Chhindwara region of Madhya Pradesh in 2011 by the NHM (now Mission for Integrated Development of Horticulture, (MIDH)) Min. of Agri., GoI, New Delhi. During the quarter following activities were undertaken:

Skill Development

Vidarbha

- ICAR-CCRI was affiliated to ASCI with SDMS Registration Number - NSDC-REGNo-15733 on 24th January, 2017 with qualification pack on "Citrus Fruit Grower". ICAR-CCRI and TMC conducted following trainings :

- 1) Course Master ID -393244. Training was coordinated by Dr. D. K. Ghosh, in which 15 candidates participated, 15 Jan. – 13 Feb., 2018.
- 2) Course Master ID -396586. 3-31 March, 2018. Training was coordinated by Dr. Dinesh Kumar, in which 14 candidates participated.



Group of trainees at TMC, Vidarbha

Marathwada (Maharashtra)

- TMC for Marathwada organized Skill Development Programme (200 hrs.) for citrus growers as per qualification pack of ASCI from 16th Feb., to 17th March, 2018 in which 15 trainees participated.
- Training was organised on “Nursery management and citrus production technology” from 1-4 Feb., 2018 in which 15 citrus growers participated.

Chhindwara (Madhya Pradesh)

- TMC for Chhindwara organized Skill Development Programme (200 hrs.) for citrus fruit grower as per qualification pack of ASCI during 1-28 February, 2018 in which 17 trainees participated.

Distribution of disease-free planting material under TMC

Vidarbha : A total of 4198 disease-free planting material of citrus were sold and revenue of Rs.2,18,970/- generated during the quarter.

Marathwada : A total of 3,607 disease-free planting material of citrus and rootstock seedlings were sold and revenue of Rs. 2,04,450/- was generated.

Baseline Survey

TMC-Chhindwara (Madhya Pradesh)

The baseline study was conducted in two selected clusters

of Agar Malwa district of Madhya Pradesh viz., Nalkheda and Susner. In each selected cluster, 10 citrus growing villages were selected randomly for the study and 15 farmers were selected in each village. Thus 150 respondents were selected in each cluster. The sample area covered was 300.62 ha. with total 300 respondents.

Technology Demonstrations

Total 42 demonstrations were carried out in farmers' fields during the quarter at Vidarbha (15), Marathwada (16) and Chhindwara (11).

Personnel

Appointment

- Ms. Priyamvada A. Vaidya, YP-II w.e.f. 15.01.2018.
- Sh. Prafulla R. Jalamkar, YP-II, w.e.f. 15.01.2018.
- Ms. Shashi R. Pandey, YP-II w.e.f. 24.01.2018.
- Sh. Layant K. S. Anitya, YP-II w.e.f. 30.01.2018.
- Sh. Dinesh Rathod, YP-II w.e.f. 01.02.2018.
- Ms. Ashwini C. Uikey, YP-II w.e.f. 19.02.2018.

Promotion

- Dr. A. A. Murkute, Senior Scientist (Hort.) promoted to Principal Scientist (Hort.) on 13th February, 2018.

Retirement

- Sh. Govinda Bhojar, TSL Superannuated on 31st March, 2018.

FEEDBACK

Hail storm associated damages in citrus

Hail storms and unseasonal rains during February to April have become common these years and especially this period is very crucial for citrus crops in central India covering large areas of Maharashtra, Madhya Pradesh and some parts of Rajasthan. This period is crucial because it coincides with *Mrig* (Monsoon blossom) crop fruit harvesting and *Ambia* (Spring blossom) flowering. Vidarbha region of Maharashtra and parts of Madhya Pradesh and Rajasthan have suffered losses of Citrus crops to the tune of crores of rupees in past 6-7 years. Research on anti-hail net in orchards or cultivation of citrus in protective cover is the need of the hour and these covers should be such that apart from protection from hails it should also provide barrier to citrus insects and pests without adverse effect on yields and fruit quality.

Edited by : Dr. M. S. Ladaniya, Director, Dr. A. K. Das, Pr. Scientist (Pl. Patho.), Dr. A. A. Murkute, Pr. Scientist (Hort.)
Dr. Anjitha George, Scientist (Ento.) and Dr. Ashok Kumar, Sr. Tech. Officer

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