

# Cotton Innovate

A Monthly Newsletter from ICAR-Central Institute for Cotton Research, Nagpur



Fall armyworm, *Spodoptera frugiperda* on Non Bt G. *Barbadense*  
Contributed by Dr. K. Rameash, Principal Scientist, Entomology ICAR-CICR, RS, Coimbatore

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COTTON INNOVATE

### PGPRs in alleviating drought stress in cotton

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3- Senior Scientist, Agricultural Microbiology, ICAR-CICR, Nagpur

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*A total of 34 native PGPRs were tested in repeated experiments and 7 inoculants were shortlisted based on plant growth and physiological drought tolerance traits. Microbial seed treated (Sphingomonas sp.) plants have shown better growth under drought stress conditions than control plants in terms of plant height, leaf temp (25.90 C), leaf chlorophyll content (37.4 SPAD value) and RWC (85 %). Out of 7 PGPRs, 3 microbial inoculants for e.g Solibacillus sp, Pseudomonas sp. Sphingomonus sp were found promising in terms of shoot and root growth traits under pot study. Sixteen bacterial isolates tested for osmotic tolerance (PEG 8000) 50 g/L (0.05 Mpa), (100 g/L (0.15 Mpa), (150 g/L (0.30 Mpa), (200 g/L (0.49 Mpa), (250 g/L (0.73 Mpa) and observed IAA activity and protein level. Under field conditions, soil bacillus (T3), Micrococcus luteus (T4) and T-7 (VM) microbial consortia has better growth potential in terms of no of sympodia, plant height and SPAD value for chlorophyll greenness.*

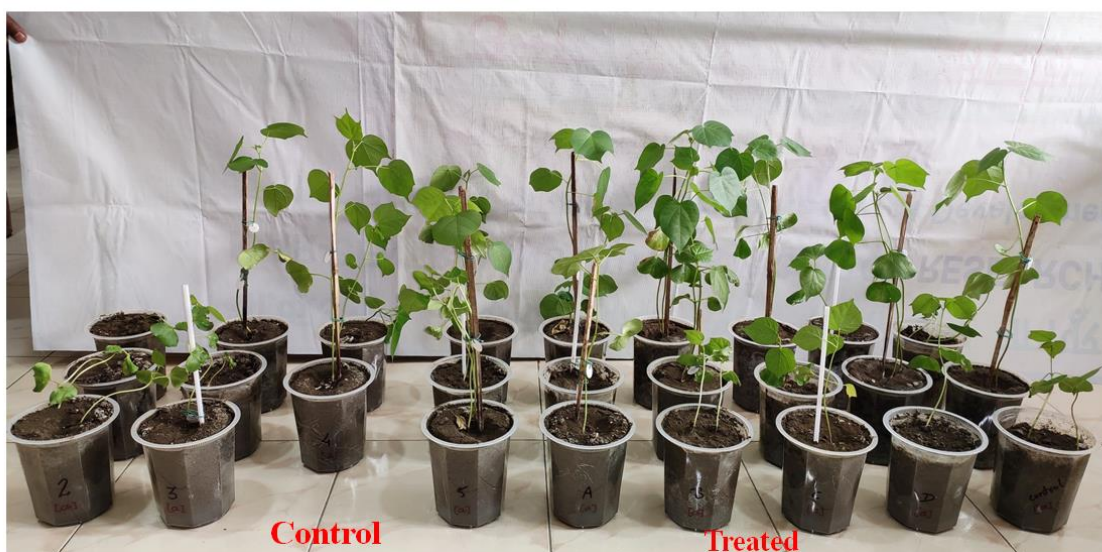


Fig.1 Forty days cotton plants subjected 10 days drought stress to microbial seed inoculated Suraj plants

## CICR Happenings

### **ICAR-CICR organized one day “Farmers training cum seed distribution” program under DAPST scheme**

One day “Farmer’s training cum seed distribution” program was organized on 2nd March, 2023 at KVK, Sonapur, Gadchiroli under centrally sponsored development action plan for schedule tribes, DAPST (formerly Tribal Sub Plan) scheme. On this occasion, a team of scientists and subject experts comprising Dr. Dipak T. Nagrale, Senior Scientist (Plant Pathology), Dr. Ulhas Galkate, SMS (Veterinary science), KVK-CICR, Nagpur, Mr. D. V. Thatod, SMS (Agri. Engineering), Mr. N. P. Buddhewar, SMS (Agrometeorology) and Dr. P. N. Chirade, SMS (Agronomy), KVK-Gadchiroli interacted and guided the tribal farmers on several issues of cotton crop production, pests and diseases protection, farm mechanization, summer moong cultivation practices and integrated farming systems. This program was organized under chief guidance of Dr. YG Prasad, Director, ICAR-CICR, Nagpur and Dr. V. Chinna Babu Naik, Sr. scientist and nodal officer (DAPST), ICAR-CICR, Nagpur.



At the outset, Dr. Dipak T. Nagrale briefed about the DAPST scheme for development of tribal farmers with advanced agrotechniques of cultivation and their overall livelihood enhancement. Dr. Ulhas Galkate exclusively explained the importance of selection of improved breeds for dairy and goat farming, importance of artificial insemination, animal feed, nutrition and vaccination for animal health. During the event, for summer season cultivation improved variety of moong IPM 410-3 (Shikha) @ 8 kg seeds per acre per farmer were distributed to the participant tribal farmers of Gadchiroli district. Dr. Dipak T. Nagrale explained about summer season crop pests and disease management along with significance of seed treatment in cotton and other field crops. Dr. P. N. Chirade explained summer moong cultivation and production technologies. Mr DV Thatod sensitized the farmers on importance of farm mechanization in maximizing farm produce and minimizing the cost of cultivation in agriculture. Dr. Dipak T. Nagrale and Dr. Ulhas Galkate coordinated the training program. Mr. Haresh Maraskolhe, Y.P.-I (TSP scheme) assisted in the coordination of program. Vote of thanks was proposed by Mr. D. V. Thatod. More than 60 tribal farmers from the Gadchiroli district attended and got benefitted from the program.



Conducted programs	Co-ordinators	Venue and Date	No. of ST beneficiaries			Input distributed/skill imparted
			Male	Female	Total	
Training programme organized under TSP for tribal farmers from Hingna and Parsheoni tehsil in farmer's meet during national conference held on 4 <sup>th</sup> March 2023 at Dr. Ambedkar college, Deekshabhoomi, Nagpur	Dr. V. Chinna Babu Naik Dr. Dipak T. Nagrale	Dr. Ambedkar college, Deekshabhoomi, Nagpur (04.03.2023)	50	0	50	Farmers meet on Agri-innovations for sustainable productivity
Distribution of tarpaulin as critical input to the tribal farmers belong to Hingna tehsil of Nagpur district under TSP at CICR, Nagpur	Dr. V. Chinna Babu Naik Dr. Dipak T. Nagrale	ICAR-CICR, Nagpur (09.03.2023)	15	0	15	Distribution of tarpaulin as critical input
Distribution of tarpaulin, Battery operated sprayer and pesticide protection kit as critical input to the tribal farmers belong to Parsheoni tehsil of Nagpur district Under TSP at CICR, Nagpur	Dr. V. Chinna Babu Naik Dr. Dipak T. Nagrale	ICAR-CICR, Nagpur (13.03.2023)	27	03	30	Distribution of tarpaulin (15 nos), Battery operated sprayer (10 nos) and pesticide protection kit (05 nos) as critical input

### Demonstration of cotton stalk shredding to farmers

A total of 65 farmers, comprising of 25 males and 40 females, were given a demonstration of the cotton stalk shredder at ICAR-CICR, Nagpur on 11<sup>th</sup> March, 2023. During the visit, the farmers were educated on the benefits and significance of cotton stalk shredding in enhancing soil organic carbon content. This field trip was organized by ICAR-NBSS and LUP, Nagpur under the SCSP scheme.



### Survey and monitoring of cotton fields in MGMG Hingna cluster, Nagpur

A team of scientists from ICAR-CICR, Nagpur comprising of Dr. Dipak T. Nagrale, Senior Scientist (Plant Pathology) and Dr. Rakesh Kumar, Scientist (Agricultural Biotechnology) surveyed and monitored cotton fields after harvesting of cotton from the fields in “Mera Gaon Mera Gaurav” (MGMG) adopted villages (Metaumari, Nildoh, Khairi, Kinhi and Dhanoli), Taluka-Hingna, Nagpur district on 31<sup>st</sup> March, 2023. During the field survey in the villages, it was noticed that after cotton picking, a few farmers’ cotton fields were not terminated within time and stalks were left abandoned in the fields. Such practice increases the infestation of pink bollworms and pupation in the fields and results in higher pest infestation in the ensuing season. Hence the farmers were told about its drawbacks and were educated about timely termination of cotton and adoption of suitable measures for disposal of cotton stalks to reduce insect-pests and disease incidence. During the field survey and visits, Dr. Dipak T. Nagrale, interacted and provided the required information to the farmers on “Integrated cotton diseases management” during the entire cotton growing season. Similarly, Dr. Rakesh Kumar, provided the information on benefits of Bt cotton in the management of “Bollworm complex of cotton” and sensitized the farmers about the application of suitable insecticides to be used for the management of particular cotton insect pests.

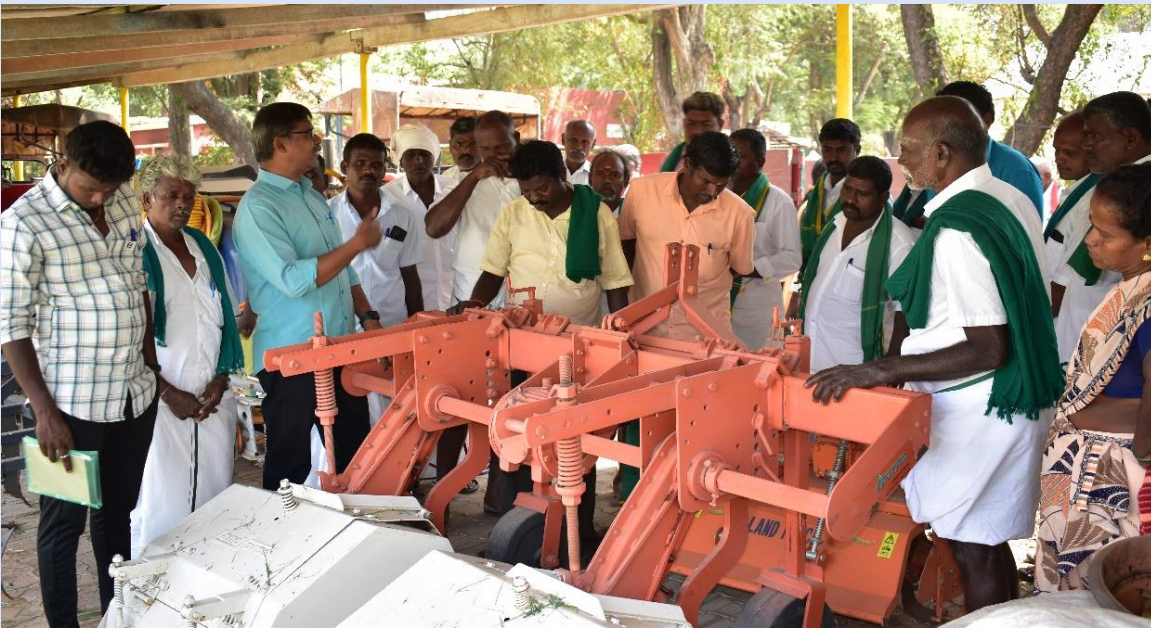


## Training program on "Integrated Crop Management (ICM) in Cotton" conducted at ICAR- CICR, RS, Coimbatore

A training program was conducted on "Integrated Crop Management (ICM) in Cotton" to forty cotton growers from Thiruvannamalai district under SSEPERS/ATMA scheme of Tamil Nadu at ICAR-CICR, Regional Station, Coimbatore during 07.03.2023 and 08.03.2023 (Two days). Dr P Nalayini, PC and Head (Incharge) was the convener, Dr R Raja, Principal Scientist and Dr P Valarmathi, Scientist were the co-conveners of the training program.

The resource persons and topic for the training program were as follows; Dr P Nalayini, PC and Head (Incharge)- Scenario of cotton in India; Dr K Sankaranarayanan, Principal Scientist- High Density planting system (HDPS) in cotton; Dr K Shankar Ganesh, Senior Scientist- Emerging pests in cotton and their management; Dr D Kanjana, Senior Scientist- Best nutrition management practices for cotton; Dr J Annie Sheeba, Senior Scientist-Physiological disorders and their management in cotton; Dr A Sampath Kumar, Senior Scientist-Diseases and their management in cotton; Dr K Baghyalakshmi, Scientist- Bt cotton hybrids and Dr A Karthik, Technical officer- Farm visit and use of farm implements.





### Mega exhibition on Azadi ka Amrit Mahotsav

A Mega exhibition on Azadi ka Amrit Mahotsav was organized by the Central Bureau of Communication, Government of India, and the Ministry of Information and Broadcasting, Tamil Nadu. Dr(Mrs.) P. Nalayini, Principal scientist acted as convener to showcase CICR technologies, varieties and achievements in a Mega exhibition on Azadi ka Amrit Maotsav during March 14-21,2023 at S.N Arangam, Coimbatore. Dr K. Sankaranarayanan, Principal Scientist and Dr. A. Manivannan, senior scientist acted as Co conveners. A team of scientists, technical staff and Young Professionals participated actively in the week-long programme and explained the students and general public about CICR and its achievements.



### **Students visit ICAR-CICR, RS, Coimbatore**

Second year M.Sc. students (Genetics and Plant Breeding), Dept of Botany from Kerala University visited ICAR, CICR, Regional Station on March 1, 2023. The students interacted with Dr. S. Manickam, Principal Scientist (Genetics and Plant Breeding), and got exposure to the cotton crop and research activities carried out by the Institute.



Seventy B.Sc. and M.Sc. Botany students from Government arts college, Coimbatore visited the Regional Station of ICAR, CICR, Coimbatore on March 7, 2023 as part of their study tour programme. The students interacted with Dr A. Manivannan, Senior Scientist (Genetics and Plant Breeding), and got exposure to the institute activities. They got acquainted with the inception, research activities and significant achievements in various areas of the Station.

Students of B.Sc. and M.Sc. Zoology students from Sri Vasavi College, Erode, visited the Regional Station of ICAR, CICR, Coimbatore on March 21, 2023 as part of their study tour programme. The students interacted with Dr. K. Baghyalakshmi and learned about the various institute activities.

### **Students visits ICAR-CICR, RS, Sirsa**

Twenty Five Post Graduate Students of Chandan Mal karnani National Post graduate Collage, Sirsa have visited ICAR-CICR, Regional Station, Sirsa on March 01, 2023. Exposure visit was done to the research fields and laboratories by the scientists of the station. An interaction session between students and scientists was also a part of the programme in which the students were being acquainted with ongoing cotton improvement, production and protection technologies of the institute.





### Scientists' Corner:

- Dr. Rishi Kumar, Principal Scientist (Entomology) attended a Kisan Mela on Natural Farming and delivered the lecture on IPM in Cotton at KVK, Sirsa on March 01, 2023. A total of 500 farmers and farm women participated in the programme.
- Dr YG Prasad, Director ICAR-CICR attended the 16th Meeting of the Board of Management, Navsari Agricultural University, Navsari on 2nd March, 2023 through virtual mode.
- Dr YG Prasad, Director ICAR-CICR participated in the review meeting to discuss updated pilot project proposal on cotton of ICAR-CICR on 02nd March, 2023 in hybrid mode under the Co-chairmanship of Joint Secretary (Crops), DA&FW and Joint Secretary (Fibre), MoT.
- Dr (Mrs.) P. Nalayini, Principal scientist, ICAR-CICR, Regional station, Coimbatore had been invited to participate as chief guest in Millet's conclave entitled "Native millets for sustainable health " at Kongu Nadu Arts and Science college, Coimbatore on March 3, 2023. The event was sponsored by Coimbatore chapter of Indian science congress and Millets foundation and Tan Millets. Dr. Nalayini delivered the key note address on the millet's scenario of world and India and emphasized the potential of millets as climate smart and nutrients dense crops and requested the student community to act as ambassadors to spread the importance of millets-based diet for healthy living.



- Dr YG Prasad, Director, ICAR-CICR participated in the Annual Conference of ICAR Directors, Vice Chancellors and Industries during 4-5th March, 2023 at Bharat Ratna Dr. C Subramaniam Auditorium NASC Complex, Pusa, New Delhi organized by ADG (TC), ICAR, Krishi Bhawan, New Delhi.
- Dr. Rishi Kumar, Principal Scientist (Entomology), Dr. S. K. Sain, Principal Scientist (Plant pathology), Dr. Amarpreet Singh, Scientist (ss), (Agronomy), Dr. Subhash Chandra, Scientist (SS) Plant Breeding and Dr. Debashis Paul, Scientist (Seed Technology) attended Pre-IRC/Divisional IRC conducted at ICAR-CICR, Regional Station, Sirsa and also presented the progress report of the projects implemented during 2022-23 under the chairmanship of Dr. S. K. Verma, Principal Scientist (Plant Breeding) on March 06, 2023.
- Dr YG Prasad, Director, ICAR-CICR attended the first Steering Committee Meeting on Pilot Project on "Awareness and Extension Services on Best Farm Practices for Cotton Farmers to Improve Yield, Quality and Sustainability chaired by Chairman-cum-Managing Director, CCI held on 08.03.2023. During the meeting, he briefed about the project through virtual mode.
- Farm Advisory Committee meeting was held on 8th March 2023 under the chairmanship of Dr YG Prasad, Director & Chairman, FAC, ICAR-CICR, Nagpur, Dr VN Waghmare, Dr VS Nagrale, Dr MV Venugopalan, Dr S S Mahajan, Dr P Deulkar, Dr Sanjay Singh FAO and Ulhas Nandankar, Senior Farm Superintendent attended the meeting.
- Dr. Rishi Kumar, Principal Scientist (Entomology), Dr. S. K. Sain, Principal Scientist (Plant pathology), Dr. Amarpreet Singh, Scientist (SS), (Agronomy), Dr. Subhash Chandra, Scientist (SS) Plant Breeding and Dr. Debashis Paul, Scientist (Seed Technology) attended the meeting regarding the update and discussion held during Director Annual Conference through hybrid mode on March 08, 2023
- Dr YG Prasad, Director, ICAR-CICR, Dr MV Venugopalan and Dr AH Prakash participated in the meeting on 9th March 2023 to discuss the need to revive soils through regenerative agriculture, increase yields by adopting global best practices and to establish a marketable brand identity for Indian cotton invited by Dr Jigar Raval, first secretary (ITOU/Economics/ Energy & Climate Change) Embassy of India, Washington D.C. through virtual mode.

- Dr. Rishi Kumar, Principal Scientist (Entomology) conducted the Viva-voice of Ph.D. student of SKNRAU, Jobner on March 10, 2023.
- Dr YG Prasad, Director, ICAR-CICR, Nagpur invited the meeting of the scientists from National Remote Sensing Centre and ICAR-CICR on 13th March 2023 to discuss the proposed MoU on "Establishment of Cosmic ray soil moisture instrument for validation of model computed soil moisture under National Hydrology Project (NHP)" between NRS, Hyderabad and ICAR-CICR, Nagpur. Dr MV Venugopalan, Dr G Balasubramani, Dr GI Ramkrushna and Dr A Manikandan attended the meeting.



- Dr. Rishi Kumar, Principal Scientist (Entomology) attended the meeting of Indian Cotton Association Ltd. on March 22, 23 and presented the roadmap for sowing during next season as well as production and protection strategies to be adopted by the farmers.
- Dr Ramkrishna GI senior Scientist (Agronomy) and Dr Babasaheb Fand Senior Scientist (Agricultural Entomology) attended the "Scientists-Farmers' -Industry interactions" programme on 26/03/2023 at Dhamangaon, Dist. Burhanpur, Madhya Pradesh and delivered lectures on "improved cotton production practices" and "Integrated Management of Cotton pests", respectively to the participants. About 200 farmers from three talukas of Burhanpur district namely Burhanpur, Khaknar and Neapanagar attended the program and get benefited from the various lectures delivered by the experts. The officials from State Agriculture Department, State Agriculture University and KVK have also participated in the programme.



- Dr. Rishi Kumar, Principal Scientist (Entomology) and Dr. Subhash Chandra, Scientist (SS) Plant Breeding attended pre-season meeting of stakeholders for PBW management at CCSHAU, Hisar on March 27, 2023. The meeting organized under chairmanship of Hon'ble Vice Chancellor of CCSHAU, Hisar. The action taken report and action plan for PBW management in the ensuing season was presented by Dr. Rishi Kumar. A discussion on Block wise demonstration of PBW management strategies and publication of a pocket dairy for use of farmers on Cotton production technologies was suggested by Hon'ble Vice-Chancellor, CCSHAU, Hisar.
- Dr YG Prasad, Director, ICAR-CICR, Nagpur along with Dr Ramkrushna GI, Er. Gautam Majumadar participated in the interactive meeting with M/s Shaktiman regarding way forward for taking trials with Shaktiman cotton for evaluation of cotton genotypes amenable to mechanical picking on 30th March 2023 at ICAR-CICR, Nagpur.
- Dr. S. K. Sain, Principal Scientist (Plant pathology) Dr. Amarpreet Singh, Scientist (ss), (Agronomy) participated in the First Project Implementation Committee meeting for North Zone participating Centres of the Cotton Corporation of India (CCI) Pilot Project "Awareness and Extension Services on Best Farm Practices for Cotton Farmers to improve yield, quality and sustainability" chaired by the Director, ICAR-CICR, Nagpur held on March 20, 2023 through virtual mode.

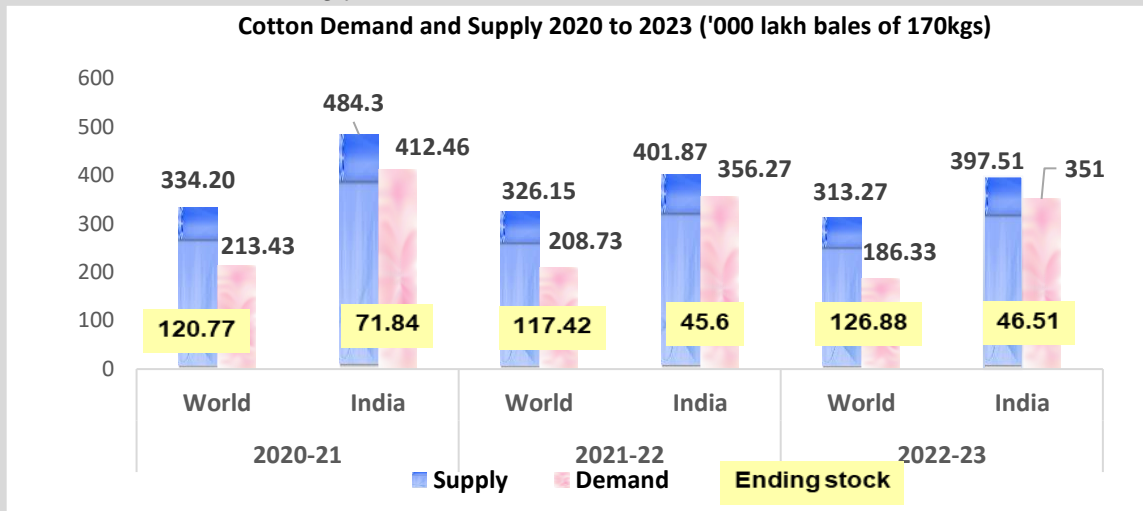
### **Publication**

- Nalayini, P., D.Blaise and H.R. Mundafale. 2023. Stale seedbed technique and leguminous cover crops as components of integrated weed management in irrigated cotton. Indian Journal of weed science. 55(1):46-49.

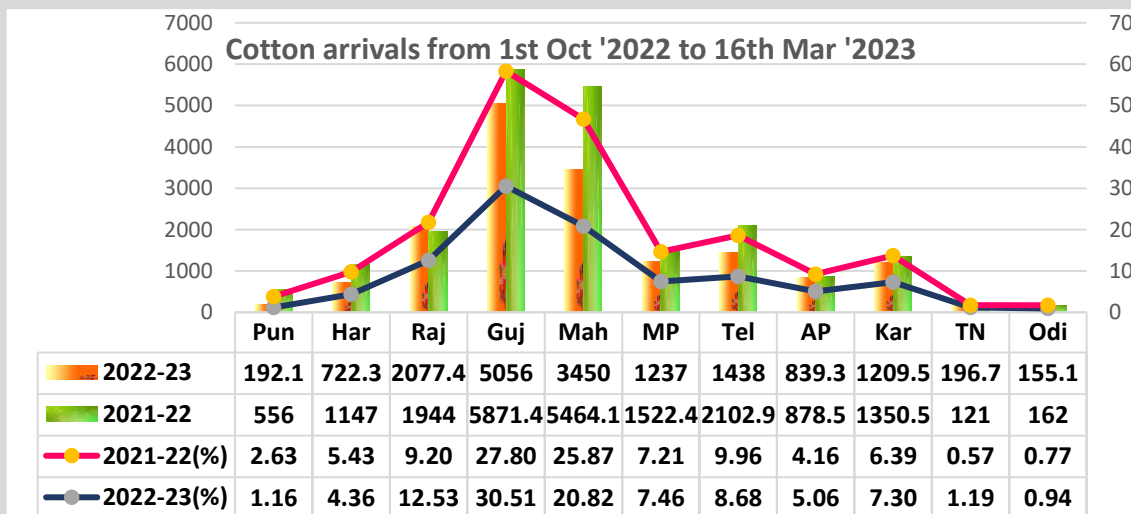
## Cotton trade scenario during March 2023

**Dr. Isabella Agarwal, Principal Scientist, Economics, ICAR-CICR, RS, Coimbatore**

World cotton demand continued to recover in 2021. Following the large decline in consumption due to COVID shutdowns and restrictions in 2020, world consumption made a remarkable 17 million bale recovery to reach almost 120.0 million for the 2020-21 marketing year.



Supply was higher than demand both at world level and national level but it got narrowed down during 2021-22 and 2022-23 in case of India. Easing of lockdown restrictions resulted in some recovery in domestic cotton demand and its consumption almost increased by 32 per cent during 2020-21. In addition to this, cotton exports from India also witnessed revival. The competitive Indian cotton prices provided support to cotton exports. Even while cotton prices in India witnessed an upward trend, they remained lower compared to the international cotton prices. This enabled the Indian cotton prices to be competitive in the global market and, in turn, provided support to cotton exports from India.



Cotton arrivals in India during Oct '2022 to Mar '2023 were higher in Rajasthan to the tune of 12.53 per cent when compared to the same period during 2021-2022. Marginal increase in arrivals was recorded in Gujarat, MP, AP, Karnataka, Tamil Nadu and Odisha. Low cotton arrivals were registered in the cotton markets of Punjab, Haryana, Maharashtra and Telangana during 2022-2023 when compared to 2021-2022.

# कापसातील पिसवांमुळे शेतकरी बेजार



अंप्रोवन वृत्तसेवा

यवतमाळ : दरवाढीच्या अपेक्षेने साठवणूक केलेल्या कापसात डर्टी माईटचा (पिसवा) प्रादुर्भाव झाल्याने शेतकरी कुटुंबीयांना त्वचारोगांचा सामना करावा लागत आहे. अंगाला खाज सुटण्याचे प्रमाणही यामुळे वाढीस लागल्याने शेतकऱ्यांच्या चिंतेत अधिकच भर पडली

“ भाववाढीच्या अपेक्षेने कापसाची साठवणूक केली. परंतु दर तर तेजीत आले नाहीत मात्र साठवणूक केलेल्या कापसात पिसव्यांचा प्रादुर्भाव वाढला आहे. यातूनच अनेक प्रकारच्या त्वचाविकारांना सामोरे जावे लागत आहे. - देवानंद राठोड, शेतकरी, उमरी, आणी, यवतमाळ

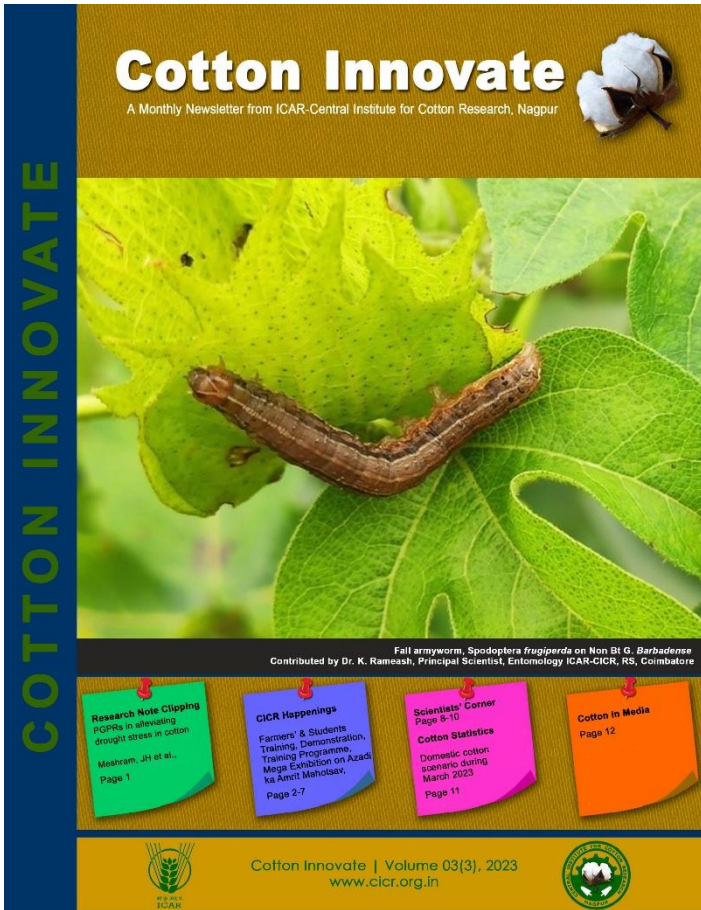
“ साठवणूक केलेल्या कापसावर क्लोरोसील २० टक्के इसीची फवारणी केल्यास पिसव्यांचे नियंत्रण बऱ्याच अंशी शक्य आहे. शेतकऱ्यांनी हा उपाय करावा. - गजानन बुक्कावार, संचालक गजानन कृषी सेवा केंद्र, आणी

“ जेथे धूळ किंवा तत्समस्थिती असते, अशा भागात पिसव्या कापूस किंवा अन्य सामानात लपून राहतात. हे अत्यंत सूक्ष्म असल्याने डोळ्याने दिसत नाहीत. त्यांच्यामुळेच त्वचेवर असे परिणाम दिसत आहेत. ही शेतातील नसून घरातील किड आहे. - डॉ. बाबासाहेब फंड, तज्ज्ञ, केंद्रीय कापूस संशोधन संस्था, नागपूर.

आहे. भाव केव्हा वाढणार, असा प्रश्न आज सिलिंडरचे भाव वाढले मात्र कापसाचे गावखेड्यात विचारला जात आहे.

कापसाचे दर ७६०० रुपयांवर स्थिरावले आहेत. गेल्या हंगामाप्रमाणे कापसाचे दरात तेजी येईल, अशी अपेक्षा शेतकऱ्यांना होती. गेल्या हंगामात ११ हजार रुपयांपर्यंतचा दर कापूस उत्पादकांना मिळाला. यंदा मात्र उत्पादन खर्चाची भरपाई होण्याची शक्यता नाही. त्यामुळे शेतकऱ्यांची चिंता वाढली आहे. दरवाढीची अपेक्षा असलेल्या शेतकऱ्यांनी घरातच कापसाची साठवणूक केली आहे. परंतु नव्या खरीप हंगामाचे वेध लागले असतानाच दरात सुधारणा होत नसल्याची स्थिती आहे. परिणामी शेतकरी दुहेरी विवंचनेत सापडला आहे. अशातच घरात साठवलेल्या कापसात पिसवांचे प्रमाण वाढीस लागले आहे. या पिसव्या चावा घेत असल्याने अंगावर पुरळ उठणे, खाज सुटणे अशा समस्यांना शेतकरी कुटुंबीय सामोरे जात आहेत.

Sakad Agroone, 18 March, 2023



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