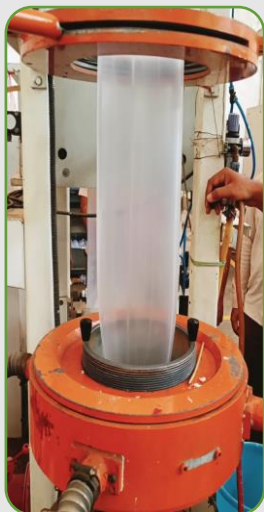




## ***Technology of the Month: Novel Bionanocomposite Films: An Eco-friendly Alternative to Synthetic Packaging***



\* Nanocellulose - reinforced biocomposite films were successfully produced using melt compounding and blown film extrusion processes. The optimized formulation consisted of a ternary blend of tapioca starch and commercially available biopolymers. Nanocellulose (NC), synthesized from cotton linters, was used as a green filler to enhance the functionality of the biocomposite films. The melt compounding of the biopolymers and NC was carried out in a twin-screw extruder. This optimized process protocol resulted in strong, flexible blown films with a uniform thickness of 40-50  $\mu\text{m}$ . NC reinforcement significantly improved the elasticity modulus (toughness) and water vapour barrier properties of the film without compromising tensile strength. Given the commercial viability of extrusion technology, the developed process protocol holds significant potential for the large-scale production of biodegradable nanocomposite films. These films present a sustainable alternative to synthetic packaging materials, which are increasingly scrutinized for their environmental impact.

## **MoU signed**



\* An MoU was signed with Non-Conventional Fibres Association (NCFA) on October 08, 2024, for 'Collaborative research of mutual interest, Entrepreneurship development and Agri startup incubation, Knowledge/Information sharing, Joint Seminars/Conferences, training programmes and make available the facilities of laboratory' for research and development purpose.

## **Demonstration / Awareness Programme**



1. A group of 24 farmers from ATMA, Narsinghpur, Madhya Pradesh, visited Ginning Training Centre, ICAR-CIRCOT, Nagpur on October 16, 2024, under the ATMA scheme.
2. A group of 18 individuals, including 3 representatives from the State Agriculture Department and the remaining farmers, from Taluka-Pathriya, District Mungeli, Chhattisgarh, visited the Ginning Training Centre, ICAR-CIRCOT, Nagpur, on October 17, 2024.

## **Vigilance Awareness Week**



\* Vigilance Awareness Week 2024 is being observed from October 28 to November 3, 2024 with the theme 'Culture of Integrity for Nation's Prosperity'. On October 28, 2024 all staff of the Institute took Integrity Pledge.

## Stakeholder Interactions

- Dr. A. S. M. Raja & Dr. A. Arputharaj attended two meetings of the Sub-Committee on Quality Standards and Nomenclature for New Varieties of Extra Long Staple (ELS) Cotton under the "Kasturi Cotton Bharat" Program organized by TEXPROCIL on September 27, 2024 in Mumbai and also on October 11, 2024.
- Dr. N. Vigneshwaran, participated in the industry interface meet on "ICAR Technologies for Textile Industry - Cotton and Other Natural Fibres" at IIFA-2024 held at ICAR-CIPHET Ludhiana on October 04, 2024 and presented the technologies of ICAR-CIRCOT to stakeholders. Title of the presentation was "ICAR-CIRCOT technologies for nanofinishing of cotton textiles".
- Dr. N. Vigneshwaran & Dr. Manoj Mahawar participated in the Brainstorming session on "Efficiency of Nano Fertilizers in Sustaining Yield of Onion and Garlic" held on October 09, 2024 at ICAR-DOGR, Pune and presented about ICAR-CIRCOT Nanofertilizer Technologies. Representatives from M/s. RCF, Mumbai, M/s. Coromandel International, Hyderabad and M/s. IFFCO, Mumbai, were also present.



## Skill Development Programmes

1. Training on "Cotton Grading, Procurement and Marketing" was conducted for ten CCI officers during September 30 to October 04, 2024, at Mumbai.
2. Ginning Training Centre, Nagpur organized a 3- day training programme on 'Best Post Harvest Management Practices for production of premium cotton bales' under SMART Cotton for Lead Resources Person from October 07-09, 2024 for 32 participants.
3. A custom-designed training programme on 'Nano-Finishing of Textile Fabrics with Particular Emphasis on wool' was organized during October 14 to 23, 2024 for four participants from SKUAST, Kashmir.



## Human Resource Development

- A training webinar on J-GateNext@CeRa, conducted by Shri Nihal Mali from Informatics Publishing Limited, Bengaluru was organized for all staff on October 03, 2024.
- Dr. G. T. V. Prabu, attended the National Workshop (online) on 'How to write a Research Paper' jointly organized by Training and Education Centre, ICAR-Indian Veterinary Research Institute, Pune and Indian Society for Veterinary Surgery (ISVS), on October 18, 2024.



## Swachh Bharat Mission

- \* The Swachhata Hi Seva (SHS) Campaign 2024 with the theme "Swabhav Swachhata - Sanskaar Swachhata", which had started from September 15, 2024 and culminated on October 02, 2024. The Ginning Training Centre, ICAR-CIRCOT Nagpur, in collaboration with Confederation of Indian Textile Industry (CITI) - Cotton Development and Research Association (CDRA), Nagpur, organized cleanliness drives in Village Wathoda, Taluka Kalmeshwar, District Nagpur, on September 30, 2024 and conducted an awareness program and campaign on cleanliness at Village Wathoda & Ubali, Taluka Kalmeshwar, District Nagpur, on October 02, 2024. About 40 farmers, including 15 women, participated in the programme.



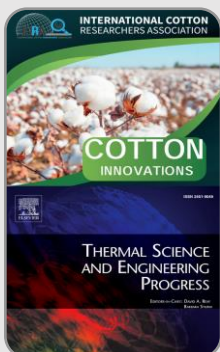
## Awards & Accolades

- Dr. Ajinath Dukare joined as an editorial board member (Section: Applied life science) on the "Discover Applied Science (IF-2.8) journal, published by Springer.



## Publications

- (1) Pandiselvam, Sneha Davison, M. R. Manikantan\*, Anjitha Jacob, S.V. Ramesh, Shameena Beegum (2024). Comparative Study on Infrared Radiation and Hot Air Convective Drying of Coconut: Effect on Oil Quality Features, Thermal Science and Engineering Progress, Doi: <https://doi.org/10.1016/j.tsep.2024.102950>
- (2) R. Pandiselvam, Sneha Davison, M. R. Manikantan\*, G. Jeevarathinam, Anjitha Jacob, S.V. Ramesh, Shameena Beegum (2024). Infrared-Aided Hot Air Drying of Coconut: Impact on Drying Kinetics and Quality Metrics, Journal of Food Process Engineering, Doi: <https://doi.org/10.1111/jfpe.14668>.
- (3) Pundir, A., Thakur, M. S., Prakash, S., Kumari, N., Sharma, N., Parameswari, E., ... & Kumar, M. (2024). Fungi as versatile biocatalytic tool for treatment of textile wastewater effluents. Environmental Sciences Europe, 36(1), 1-15.
- (4) S. K. Shukla, V. G. Arude, 2024. Rotary Tubular Drum Dryer for Quarantine of Pink Bollworm Infested Cottonseeds in Indian Gineries. Cotton Innovations, Published International Cotton Researchers Association (ICRA). Volume 4; Issue 6: 12-19.



# Glimpses of Activities

**Workshop for Special Project on Cotton Technology, Oct 30, 2024**



**One-day Training on "Best Cotton Picking & Post-Harvest Practices for the Production of Kasturi Quality Cotton" at ICAR-NBSS & LUP, Nagpur (Oct 18, 2024)**



**Centenary Lecture by Dr. R.P. Kachru (Sep 30, 2024) on the topic,  
'Paradigm Shift for R&D Programme in Agriculture using Matrix Approach'**



**The Hitavada Nagpur (Oct 23, 2024)**



## Lokmat – Marathi (Oct 22, 2024)

### कापूस काढणीपश्चात व्यवस्थापन पद्धतीवर प्रशिक्षण



नागपूर : जिनिंग ट्रेनिंग सेंटर, भा. कृ. अनु. प.-केंद्रीय कापूस तंत्रज्ञान संशोधन केंद्र (सिरकॉट) नागपूर, कॉन्फेडरेशन ऑफ इंडियन टेक्सटाईल इंडस्ट्री (सीआयटीआय)- कॉटन डेव्हलपमेंट अँड रिसर्च असोसिएशन (सीडीआरए) मुंबई आणि द कॉटन टेक्सटाईल एक्सपोर्ट प्रमोशन कौन्सिल (टेक्सप्रोसिल) मुंबई यांच्या संयुक्त विद्यमाने भाकृअनुप-एनबीएसएस अँड एलयूपी, ऑडिटोरियम, नागपूर येथे 'सर्वात्कृष्ट कापूस पिकिंग' आणि काढणीपश्चात व्यवस्थापन पद्धती' या विषयावर एक दिवसीय प्रशिक्षण कार्यक्रमाचे आयोजन करण्यात आले. एएसआरबी, नवी दिल्लीचे माजी अध्यक्ष डॉ. सी. डी. मायी, संचालक (सिरकॉट) डॉ. एस. के. शुक्ला, संचालक डॉ. एन. जी. पाटील, डॉ. वाय. जी. प्रसाद, सहसंचालक उदयसिंह खरात, जी. एच. वैराळे, भावेश शहा, डॉ. व्ही. जी. आरुडे, डॉ. के. पांडियन, गोस्वामी, दफ्तरी कार्यक्रमाला उपस्थित होते. प्रारंभी डॉ. के. पांडियन यांनी पाहुणे व शेतकऱ्यांचे स्वागत केले आणि कार्यक्रमाची माहिती दिली. कस्तुरी ब्रँडच्या कापसाचा दर्जा टिकवून ठेवण्याचे महत्त्व सांगितले. डॉ. वाय. जी. प्रसाद यांनी नागपुरातील केंद्रीय कापूस संशोधन केंद्राद्वारे कापूसवरील एचडीपीएस प्रकल्पावर भर देणाऱ्या उपक्रमांची माहिती दिली.

## Dainik Bhaskar (Oct 23, 2024)

### कपास चुनने और कटाई उपरांत प्रबंधन का प्रशिक्षण

नागपुर | ओटाई प्रशिक्षण केंद्र, भा.कृ. अनु.प.- केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान (सिरकॉट), नागपुर, भारतीय कपड़ा उद्योग परिसंच (सीआईटीआई) -कपास विकास एवं अनुसंधान संघ (सीडीआरए), मुंबई और सूती कपड़ा निर्यात संवर्धन परिषद (टेक्सप्रोसिल), मुंबई के सहयोग से भा.कृ. अनु.प.- एन.बी.एस.एस. एंड एल.यू. पी.,नागपुर के ऑडिटोरियम में 'कस्तुरी गुणवत्तायुक्त' कपास के उत्पादन के लिए कपास चुनने और कटाई उपरांत प्रबंधन के सर्वोत्तम तरीके पर एक दिवसीय इन-हाउस प्रशिक्षण कार्यक्रम का आयोजन किया गया। ए.एस.आर.बी., नई दिल्ली के पूर्व अध्यक्ष डॉ. सी.डी. माई, भा.कृ.अनु.प. सिरकॉट, मुंबई के निदेशक डॉ. एस.के. शुक्ला, भा.कृ.अनु.प.- एन.बी.एस.एस. एंड एल.यू. पी.,नागपुर के निदेशक डॉ. एन.जी. पाटील, केंद्रीय कपास अनुसंधान संस्था नागपुर के निदेशक डॉ. वाई.जी. प्रसाद, संयुक्त निदेशक, टेक्सप्रोसिल, मुंबई उदयसिंह खरात, महाराष्ट्र कपास फेडरेशन, नागपुर के पूर्व महाप्रबंधक जी.एच. वैराळे और वीसीए, नागपुर के अध्यक्ष भावेश शाह, प्रधान वैज्ञानिक, सिरकॉट, मुंबई डॉ. वी.जी. आरुडे, वरिष्ठ वैज्ञानिक डॉ. के. पांडियन और नोडल अधिकारी, स्मार्ट प्रोजेक्ट, महाराष्ट्र सरकार गोस्वामी उपस्थित थे।



Contact us:

**Dr. S. K. Shukla**

Director

ICAR-Central Institute for Research on Cotton Technology  
Adenwala Road, Matunga, Mumbai 400019.

URL: <https://circot.icar.gov.in/>

Email: [director.circot@icar.gov.in](mailto:director.circot@icar.gov.in)

Tel: 022-24146002