



Global Excellence in Cotton Technology

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Process Protocol

Optimized Parameters and Operational Recommendations for Efficient Performance of Lint Cleaners in Ginneries

Two types of cleaning cylinders — spike type and spade type — were evaluated under three-cylinder and six-cylinder configurations to study their effect on cleaning efficiency, lint loss, and fibre quality. The operating speed was varied from 250 to 475 rpm, and the experiments were designed using a full factorial design. The results revealed that the spike-type six-cylinder lint cleaner, operated at 275 rpm, achieved the highest cleaning efficiency of about 35% with acceptable lint loss ($\approx 1.1\%$) and moderate neps generation. Fibre characteristics such as upper half mean length, micronaire, and strength remained within acceptable limits, while brightness (Rd value) improved considerably after cleaning. The developed optimization model achieved a desirability index of 0.947, indicating high reliability of this operating condition. In comparison, spade-type cleaners were found to be gentler in action, causing less fibre damage, though their cleaning efficiency was relatively lower ($\approx 26\%$). For spade-type cleaners, higher operating speeds (450–475 rpm) resulted in better cleaning without significant deterioration in fibre properties.

Recommendations:

- Spike-type cleaners are suitable where higher cleaning efficiency and improved brightness are required.
- Spade-type cleaners are preferable for long-staple or premium-quality cotton, where fibre preservation is a priority.

Award



Dr. A. S. M. Raja, Head, Quality Evaluation and Improvement Division (QEID) and Chairman of the BIS Physical Methods of Test Sectional Committee (TXD-01), received the “Committee of the Year Award – 2025” on behalf of TXD-01 for its outstanding work in standardization. The award was conferred by the Bureau of Indian Standards (BIS), New Delhi, on the occasion of World Standards Day 2025 at NITS, Noida on October 14, 2025.

Awareness Programme



The Ginning Training Centre (GTC), Nagpur, organized two farmers' awareness programmes under the Pradhan Mantri Dhan-Dhaanya Krishi Yojana (PMDDKY) and the National Mission on Pulses on 11th October 2025 at,

1. Mohpa Village, Kalmeshwar, District, Nagpur.
206 farmers participated (under MGMG)
2. Wadgaon village (Rajdi), District Amravati.
226 farmers participated.

Event Organised



World Cotton Day Celebration @ GTC , Nagpur

The Ginning Training Centre, Nagpur in collaboration with CITI-CDRA, Mumbai, organized a special program on the occasion of World Cotton Day on October 7, 2025. The event was themed "World Cotton Day: Empowering Farmers through Cotton." 100 farmers participated.

Conference Participation

- Dr. S.K. Shukla, Director, delivered an invited talk on "Cotton Quality Standards" during the session "Sustainable Farm to Fabric Ecosystem: Multifaceted Innovations in Natural Fibre Cultivation, Processing and Value Chains" in the National Conclave on "Weaving India Together – Natural Fibres, Innovation & Livelihoods from the North East and Beyond" at NASC Complex, New Delhi, on October 07, 2025. Dr. A. S. M. Raja, Head, QEID, Dr. A. Arputharaj, Senior Scientist, also participated in the conference.
- Dr. S.K. Shukla, Director, was panelist in the session "Evolving Trends in Cotton Farming", in 4th Global Cotton Conference on October 07, 2025, organized by CITI, New Delhi. Dr. A. S. M. Raja, Head, QEID, Dr. A. Arputharaj, Senior Scientist, also participated in the conference.

MoU signed



An MoU was signed between ICAR-CIRCOT, Mumbai and the Cotton Textiles Export Promotion Council (TEXPROCIL), Mumbai, on October 07, 2025. at the 4th Global Cotton Conference in New Delhi, for the promotion of Kasturi Cotton Bharat and technology development for traceability in the cotton value chain.

Publications

RESEARCH PAPER

- Pandiselvam, R., Rajbongshi, B., Deepali, D., Akoijam, T., Nickhil, C., Arputharaj, A., & Süfer, Ö. (2025). "Advances in non-invasive techniques for enhancing cottonseed oil quality and shelf life: A sustainable approach". Journal of Food Measurement and Characterization. <https://doi.org/10.1007/s11694-025-03653-4>. (NAAS: 8.9)
- Basak, S., D. B. Shakyawar, D. P. Ray, L. Ammayappan, Manisha Jagadale, Naveen Jose, A. S. M. Raja, S. Sinha, and R. Dhantole. (2025) "Cotton-jute fibre reinforced natural rubber and cactus leaf gel based flame resistant composite for automobiles." Cellulose. 1-29. <https://doi.org/10.1007/s10570-025-06784-5> (IF: 4.8, NAAS: 10.8)

POPULAR ARTICLE

- डॉ कनिका शर्मा, डॉ मनोज कुमार, डॉ. अजीनाथ डुकरे, डॉ सुजाता सक्सेना 'कपास के पौधों में पाए जाने वाले गॉसिपॉल का औषधीय महत्व और संभावनाएँ' अंबर, अंक 10, 2023.

Educational Visits

- A group of 40 students from Maharashtra College of Arts Science and Commerce, Mumbai, visited ICAR-CIRCOT, Mumbai on October 1, 2025
- A group of 50 students from SASMIRA Textile Technology, Mumbai, visited ICAR-CIRCOT, Mumbai in two batches on October 13, & 17 2025

Transfer

- Shri Umrao Meena, Senior Technician (T-2) transferred from ICAR- CIRCOT- Sirsa unit to ICAR-CAZRI, Jodhpur w.e.f. 23.10.2025.

Superannuation

- Shri Deepak Ganpat Gole, Technician (T1) Mechanical Processing Division- ICAR- CIRCOT, Mumbai superannuated on 31.10.2025.

Obituary

- Shri H. R. Laxmivenkatesh, Retired Assistant Chief Technical Officer, expired on October 30, 2025.

Swachh Bharat Activities

The 'Swachhta Hi Seva Campaign 2025' was observed at ICAR-CIRCOT, Mumbai & GTC Nagpur from September 17, 2025 to October 2, 2025.



Vigilance Awareness Week

The 'Vigilance Awareness Week 2025' is being observed at ICAR-CIRCOT from October 27, 2025, to November 2, 2025. Vigilance oath was administered by the Director In-charge to all staff on October 27, 2025.



National Unity Day

The National Unity Day was observed at ICAR-CIRCOT on October 31, 2025. The Oath of National Unity was administered by the Director to all staff members. An inspiring short film titled “Ek Bharat, Shreshtha Bharat” was arranged for all staff. Also, a Unity Run/Unity Walk was undertaken by all staff led by the Director in areas surrounding the Institute premises.



ICAR CIRCOT in NEWS

विश्व कपास दिवस मनाया गया

नागपुर | ओटाई प्रशिक्षण केंद्र, भा.क.अनु.प.-केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान (सिरकोट), नागपुर द्वारा भारतीय वस्त्र उद्योग परिसंघ-कपास विकास एवं अनुसंधान संघ, मुंबई के सहयोग से ओटाई प्रशिक्षण केंद्र, नागपुर में विश्व कपास दिवस मनाया गया। कार्यक्रम का उद्देश्य कपास को एक वैश्विक प्राकृतिक रेशा (फाइबर) के रूप में उसकी महत्ता के बारे में जागरूकता बढ़ाना और उत्पादकता तथा फाइबर गुणवत्ता में सुधार के लिए तकनीकी नवाचारों को प्रोत्साहित

करना था। कार्यक्रम में मुख्य अतिथि डॉ. ए. एल. वाघमारे, निदेशक, कपास विकास निदेशालय, नागपुर; रविंद्र मनोहरे, जिला अधीक्षक कृषि अधिकारी, नागपुर; भावेश शाह, अध्यक्ष, विदर्भ कॉटन एसोसिएशन; रविंद्र दफ्तरी, दफ्तरी एग्रो-बायोटेक, वर्धा; डॉ. वर्षा सातनकर, प्रभारी अधिकारी एवं वरिष्ठ वैज्ञानिक, ओ.प्र.के., नागपुर; जी. एच. वैराले, समन्वयक, सीआईटीआई-सीडीआरए, मुंबई; तथा डॉ. के. पांडियन, वरिष्ठ वैज्ञानिक, ओ.प्र.के., नागपुर उपस्थित थे।



कपास उपज वृद्धि में योगदान के लिए सत्येकार सम्मानित

ब्यूरो | कन्नड/कामठी. विश्व कपास दिवस पर कपास का उत्पादन बढ़ाने की दिशा में उत्कृष्ट कार्य के लिए सिरकोट नागपुर एवं सीआईआई सीडीआरए के संयुक्त तत्वावधान में आयोजित कार्यक्रम में किसान नेता संजय सत्येकार का शॉल व सम्मान चिह्न देकर सत्कार किया गया। कार्यक्रम में सीआरसीआई नागपुर के डायरेक्टर अरविंद वाघमारे, जिला कृषि अधीक्षक रवींद्र मनोहर, सिरकोट के के. पांड्यन, वर्षा साटणकर, विदर्भ कॉटन एसोसिएशन अध्यक्ष भावेश शाह, गोविंद वैराले, रवींद्र दफ्तरी आदि उपस्थित थे।



World Cotton Day celebrated at Ginning Training Centre, ICAR-CIRCOT, Nagpur

Nagpur 8 October: The Ginning Training Centre (GTC), ICAR-Central Institute for Research on Cotton Technology (CIRCOT), Nagpur, in collaboration with the Confederation of Indian Textile Industry - Cotton Development and Research Association (CITI-CDRA), Mumbai, celebrated World Cotton Day on 7th October 2025 at GTC, Nagpur. The event aimed to promote awareness about the significance of cotton as a global natural fibre and to encourage technological innovations for improving productivity and fibre quality. The function was graced by Dr. A. L. Waghmare, Director, Directorate of Cotton Development, Nagpur, as Chief Guest, Shri Ravindra Manohare, District Superintending Agriculture Officer, Nagpur; Shri Bhavesh Shah, President, Vidarbha Cotton Association; and Shri Ravindra G. Daftari, Daftari Agro-Biotech, Wardha, as Guests of Honour, Dr. Varsha Satankar, Officer In-charge and Sr. Scientist, GTC, Nagpur, Shri G.H. Wairale, Coordinator, CITI-CDRA, Mumbai, and Dr. K. Pandiyan, Senior Scientist, GTC, Nagpur. Dr. Varsha Satankar, extended a

warm welcome and presented an overview of the program. She highlighted cotton fibre quality, value addition to cotton by-products and various initiatives under the Technology Mission on Cotton (TMC) aimed at enhancing productivity and supporting farmers. Shri G.H. Wairale, delivered the introductory address, emphasizing the importance of adopting the High Density Planting System (HDPS) for higher yields and profitability. He urged farmers for better marketing strategies to secure fair returns. Shri Ravindra Manohare encouraged farmers to become Smart Farmers by creating digital Farmer IDs and using AI-based mobile applications for crop-related information. Shri Bhavesh Shah stressed on HDPS adoption, enhancing lint percentage, and ensuring cotton traceability to boost India's export potential. Shri Ravindra G. Daftari highlighted the use of improved and pest-resistant cotton varieties to

increase yield and quality. Delivering the keynote address, Dr. A. L. Waghmare compared global and Indian cotton productivity and emphasized the need to improve yield, increase exports, and reduce imports through technological advancement and farmer education. In the technical session, Dr. D. U. Patil spoke about the problem of contamination in cotton and shared practical solutions to minimize impurities during picking, storage, handling and ginning. Dr. S. V. Ghadge elaborated on the value addition to cotton by-products, highlighting how cotton stalks, instead of being burnt, can be chipped and sold to nearby industries for generating additional income to farmers. During the event progressive farmers were felicitated for their efforts in adopting innovative cultivation techniques and contributing to sustainable cotton production. The program was conducted by Dr. Shekh Mukhtar Mansuri, and ended with the vote of thanks proposed by Shri Jagdish Neralwar. About 125 farmers from vidarbha region attend the program.



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हर कदम, हर डगर
 किसानों का हमसफर
 भारतीय कृषि अनुसंधान परिषद

