

***Proceedings of XXIV (24<sup>th</sup>) Meeting of the  
RESEARCH ADVISORY COMMITTEE (RAC) of  
ICAR-CIRCOT, Mumbai  
Held During 27-28 Feb, 2018***



***March, 2018***

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

## **Proceedings of XXIV Research Advisory Committee (RAC) Meeting held during February 27-28, 2018**

The Twenty-fourth meeting of the Research Advisory Committee (RAC) of ICAR-CIRCOT was held in the conference hall during February 27 and 28, 2018. Dr. Nawab Ali, Former DDG (Agricultural Engineering) and Chairman, RAC presided over the meeting and the following members were present:

### **RAC Members:**

1. **Dr. S. N. Jha**, ADG (Process Engineering), ICAR, New Delhi
2. **Dr. G. S. Nadiger**, Former Director of Laboratories (Textile Committee), Mumbai
3. **Dr. B. K. Behera**, Head, Department of Textile Technology, IIT, New Delhi
4. **Dr. Narendra G. Shah**, Professor, Centre for Technology Alternatives for Rural Areas (CTARA), IIT, Mumbai
5. **Dr. Debasis Nag**, Former Director, NIRJAFT, Kolkata
6. **Dr. Anup Rakshit**, Executive Director, Indian Technical Textile Association
7. **Shri Drupatrao Bhagwan Sawale**, IMC member representing agricultural/rural interests
8. **Smt. Kranti Sandeep Somvanshi**, IMC member representing agricultural/rural interests
9. **Dr. P. G. Patil**, Director, ICAR-CIRCOT, Mumbai
10. **Er. V. G. Arude**, Member Secretary RAC, ICAR-CIRCOT, Mumbai

**All Head of Divisions and scientists of the institute attended the meeting. List of participants are given in Annexure I. The meeting proceeded as per the agenda items (Annexure II).**

### **1. Welcome and Opening Remarks**

**Er. V. G. Arude**, Scientist and Member Secretary, RAC, welcomed the chairman and the members of the RAC and requested the chairman to conduct the proceedings of the meeting. **Dr. P.G. Patil, Director, ICAR-CIRCOT** presented the salient research achievements and activities of the institute during the past one year. In his presentation he highlighted the important research achievements viz., **paper pulp technology for currency grade paper, mosquito repellent finishing, cotton feeding system for improved ginning efficiency, activated carbon from cotton stalks and salt free dyeing technology**. He mentioned that 28 skill development programmes were organized and the institute is implementing the schemes of the

government such as Swachh Bharat mission, cashless transaction etc. **He further stated that the institute has generated remarkable revenue of 1.2 crores during the current financial year which is all time high and by the end of financial year, the amount could reach 1.5 crores.**

**Dr. Nawab Ali, Chairman in his opening remarks** mentioned that the institute should have presence in the cotton rich areas of Central India. **He highlighted the need for the technologies to be technically feasible and economically viable benefiting the stakeholders.** He suggested that pilot plants may be established to demonstrate the scalability of the results achieved under lab conditions. Impact analysis should be carried out annually and the intangible benefits from the technology that accrue to the stakeholders should be ascertained.

## **2. Action Taken Report on Proceedings of XXIII RAC**

The Action Taken Report on the Proceedings of 23<sup>rd</sup> RAC, which was held during February 8-9, 2017 was presented by Er. V.G. Arude, Member Secretary, RAC and the same was accepted.

## **3. Release of ICAR-CIRCOT Publication**

On the occasion, Chairman and the Members released the publications on success stories of the technology developed by the institute and the schedule of the skill development programme for the year 2018-19. The publications released are as under

**3.1 ICAR-CIRCOT – Portable Laboratory Model Gins (Annexure 3)**

**3.2 ICAR-CIRCOT – Nanocellulose (Annexure 4)**

**3.3 ICAR-CIRCOT – Calibration Cotton (Annexure 5)**

**3.4 ICAR-CIRCOT – Bajaj Cotton Pre-cleaner (Annexure 6)**

**3.5 ICAR-CIRCOT – Antimicrobial Cotton Bed Sheets (Annexure 7)**

**3.6 ICAR-CIRCOT Training Calendar for 2018-19 (Annexure 8)**

## **4. Presentation of Progress of the Research Work**

The progress of research activities carried out in the institute under different core areas during the period 2017-18 were presented by the respective Heads/PI/Coordinator, as per details given below:

### **4.1 Pre-ginning and Ginning**

Er. V.G. Arude, Scientist, Mechanical Processing Division (MPD)

### **4.2 Mechanical Processing, Technical Textiles and Composites**

Dr. T. Senthilkumar, Scientist, MPD

### **4.3 Characterization-Cotton and other Natural Fibres, Yarns and Textiles**

Dr. P.K. Mandhyan, Senior Scientist, and Head (In-charge), Quality Evaluation and Improvement Division (QEID)

### **4.4 Chemical and Biochemical Processing & Biomass and By-product Utilization**

Dr. Sujata Saxena, Principal Scientist and Head (In-charge), Chemical and Biochemical Processing Division (CBPD)

#### **4.5 Entrepreneurship and Human Resource Development**

Er. A.K. Bharimalla, Senior Scientist, Head (In-charge), Transfer of Technology Division(TTD)

#### **4.6 Extra Mural Project on preparation of Specialty Grade Pulp from Cotton Linters by Blending with Pulps from other Cellulosic Materials for High End Applications**

Dr. N. Vigneshwaran, Principal Scientist, CBPD

#### **4.7 Consortia Research Project (CRP) on Natural Fibres**

Dr.A.S.M. Raja, Principal Scientist, CBPD & Coordinator, CRP on Natural Fibres

### **5. Discussion and Remarks**

5.1 **Dr. G.S.Nadiger** expressed that it's worth mentioning the work done by the institute in the area of nanocomposites, mosquito repellent finishing and the inter-disciplinary approach in organizing the skill development programmes. He advocated the accreditation of the Calibration cotton – Standard Reference Material and also to get accreditation for the microbiology laboratory. He mentioned that composites have diversified applications and suggested that scientists should look for more innovative applications and products. **He opined that imparting anti-microbial property in cotton fibre itself rather than blending with commercially available anti-microbial fibres should be explored.**

5.2 **Dr. B. K. Behera** opined that the Research Advisory Committee should take active part in guiding the institute to identify the research initiatives based on the current scenario and future requirement. **He advised the scientist to focus their research activity in one or two major research areas so that they can achieve excellence in the field.** He suggested that collaboration between departments would improve the quality of research by combining the ideas together. He expressed that all the technical staff should be involved in the research activities of the institute. **He mentioned that application of cotton in active or sports textiles has good scope as at present it is dominated by synthetic fibre,** hence he urged that the institute should focus on development of **cotton based sportswear.** Looking into the scientific manpower and expertise available with the institute, he suggested not to explore the area of development of non-woven machines and instruments for textile testing.

5.3 **Dr. S. N. Jha,** urged the RAC members to develop suitable research strategy for the institute. He raised the concern about the depleting scientific manpower and the need for its improvement. **He appreciated the efforts of the institute towards revenue generation and suggested that more revenue should be generated through technology licensing, commercialization and consultancy.** **He emphasized the need for water and energy audit for the products/technology developed at the institute** as these resources are becoming scarce. He also suggested that the environmental pollution caused due to dust emission in cotton processing industry should be addressed. Impact

assessment of technologies in terms of tangible and intangible benefits should be documented. He urged the scientists to focus more on quality publications with more citations.

- 5.4 **Dr. Narendra G Shah** appreciated the development of technology for mosquito repellent finish in textiles and the progress made in development of activated carbon from the cotton stalks. He opined that scientist, while developing the product or technology should have the application in focus, so that the technology developed is taken to the end users easily. He suggested that a research team can focus on development of feed materials from cotton stalks.
- 5.5 **Dr. Debasis Nag** mentioned about the first Agricultural Start-up conference organized in New Delhi recently and suggested that the institute can take advantage by promoting new start-ups based on the technologies developed. North East development is one of the top priorities of the Government and natural fibre policies are being revised by the Governments of Assam and Mizoram to give more importance to fibres like Ramie, Jute, Silk and Bamboo. ***CIRCOT can focus on development of cotton blends with other natural fibres for the fabrics development.*** In case of activated carbon, the possibility of commercialization through Government agencies can be explored. He opined that the institute has to focus towards development of ***cotton rich textiles for health care and suggested to establish pilot plant facilities for the perfected technologies.***
- 5.6 **Dr. Anup Rakshit** expressed that the institute is progressing in the right direction and mentioned that natural fibres has wide scope in technical textiles. He advised to ***explore the application of activated carbon in industrial textiles such as filtration.*** He also expressed that bio-composites is a flourishing area and due care should be taken in selection of polymers during the development of fibre reinforced composites.
- 5.7 **Smt. K. S. Somvanshi** said that food, clothing and shelter are the basic necessities of humans. The institute is developing technologies such as processing machinery, value added products from cotton by-produce for the benefit of the farmers. ***The institute should focus on further improvement of income level of the farmers. She expressed that along with mosquito repellence, the possibility of development of fabric having repellence for other insects also can be explored.***
- 5.8 **Shri Drupatrao Bhagwan Sawale** praised the work done by the institute and expressed that the committee should suggest the ***institute to take more farmer centric research activities.*** He suggested that the skill development programme should focus on creating employment opportunities for the rural youth and entrepreneurship development.
- 5.9 **Chairman, Dr. Nawab Ali** expressed that the scientist should develop their expertise in one or two research areas. ***The guidelines for IRC to be***

**formulated and the load of scientist should be properly assessed and ensured that 75 per cent time is allocated for research and 25 per cent for institute building activities.** The chairman expressed that while formulating research programmes the Vision document of the institute should be kept in mind. He stresses that diversified application of cotton and its by-produce to improve their utilization and value addition has to be taken on priority. He opined that custom hiring model should be adopted to promote mechanical harvesting of cotton. The Institute can also focus on development of feasible products from natural fibres such as Banana. The institute has made significant efforts in removal of the gossypol from the cottonseed meal, it can rather **focus on extraction of the gossypol for its further application.**

5.10 **Dr. P. G. Patil**, Director, ICAR-CIRCOT in his response to the comments of RAC members and chairman pointed out that the **interest of the farmers as well as industry is given priority while planning research, skill development and extension activities.** Institute is facing a serious concern of depleting manpower, financial resources, and age-old equipment. The institute has to work within the mandate, however **he assured that the suggestions given by the RAC will be taken care while formulating new research programmes.**

## 6. Major Recommendations

- 6.1 **Formulate research programme on application of cotton in sports textiles and cotton rich textiles for health care**
- 6.2 **Attempt extraction of edible starch from cotton stalks**
- 6.3 **Document the impact of the institute technology that are commercialized.**
- 6.4 **Explore development of natural fibre based green composites**
- 6.5 **Develop activated carbon based industrial textiles**
- 6.6 **Develop microencapsulation liquor that can impart temporary mosquito repellent to the fabrics.**
- 6.7 **Demonstrate the custom hiring model for mechanical harvesting of cotton**

- **Visit to Various Research Laboratories and Exhibition Room on 27.02.2018**

Chairman and members of RAC visited various research laboratories and facilities of the institute which include nano-cellulose pilot plant, Kawabata Evaluation System, XRD, SEM, spinning and exhibition room and interacted with the scientist and technical staff during their visit.

- **Lecture on the occasion of RAC and Science Day on 28.02.2018**

Dr. B.K. Behera, Head, Department of Textile Technology, IIT, New Delhi & Member, RAC delivered a lecture on the topic **“3 D Fabrics and their**

**Applications**” on the occasion of the RAC and the Science day. All the Scientist and Technical staff (T-6 and above) attended the lecture.

***The meeting ended with a vote of thanks by Dr. C. Sundaramoorthy, Senior Scientist and Nodal Officer, PME Cell.***

**(Dr. Nawab Ali)**

Chairman, RAC

**(Er. V.G. Arude)**

Member Secretary, RAC





## **Annexure I**

### **List of Participants of the 24<sup>th</sup> RAC meeting held on 27 and 28<sup>th</sup> February, 2018**

1. **Dr. Nawab Ali**, Former DDG (Engineering), ICAR & Chairman RAC
2. **Dr. S. N. Jha**, ADG (PE), ICAR and Member RAC
3. **Dr. G. S. Nadiger**, Former Director of Laboratories (Textile Committee), Member RAC
4. **Dr. Anup Rakshit**, Executive Director, Indian Technical Textile Association, Member RAC
5. **Dr. Narendra G. Shah**, Professor CTARA, IIT-B, Mumbai, Member RAC
6. **Dr. B. K. Behera**, Head, Dept. of Textile Technology, IIT, New Delhi, Member RAC
7. **Dr. Debasis Nag**, Former Director, ICAR-NIRJAFT, Member RAC
8. **Shri D. B. Sawale**, IMC member representing agriculture/rural interest, Member RAC
9. **Smt. K. S. Somvanshi**, IMC member representing agriculture/rural interest, Member RAC
10. **Dr. P. G. Patil**, Director, ICAR-CIRCOT
11. **Shri. V. G. Arude**, Scientist and Member Secretary, RAC
12. **Dr. Sujata Saxena**, Principal Scientist and Head I/C, CBPD
13. **Dr. Ashok Kumar Bharimalla**, Senior Scientist & Head I/C TTD
14. **Dr. P. K. Mandhyan**, Senior Scientist & Head I/C QEID
15. **Shri Sunil Kumar**, Senior Administrative Officer
16. **Shri S. V. Kasabe**, Assistant Finance & Accounts Officer
17. **Dr. S. K. Chattopadhyay**, Principal Scientist
18. **Dr. D. M. Kadam**, Principal Scientist
19. **Dr. A. S. M. Raja**, Principal Scientist
20. **Dr. N. Vigneshwaran**, Principal Scientist
21. **Dr. S. V. Ghadge**, Senior Scientist
22. **Dr. P. S. Deshmukh**, Senior Scientist
23. **Dr. C. Sundaramoorthy**, Senior Scientist
24. **Shri Arputharaj**, Scientist
25. **Dr. R. Guruprasad**, Scientist
26. **Dr. T. Senthilkumar**, Scientist
27. **Dr. P. Jagajanantha**, Scientist
28. **Dr. SharmilaPatil**, Scientist
29. **Smt. Archana Mahapatra**, Scientist
30. **Dr. Manoj Kumar**, Scientist
31. **Smt. Jyoti P Dhakane**, Scientist
32. **Shri S. Banerjee**, ACTO
33. **Shri Narayanan K**, STO
34. **Smt. HemangiPednekar**, STA

**Annexure II**  
**Agenda of 24<sup>th</sup> RAC meeting held on Feb 27 & 28, 2018**

<b>Day 1: Feb 27, 2018</b>	
<b>Time</b>	<b>Agenda item</b>
10.00 am	<ul style="list-style-type: none"> <li>• Visit to Various Research Laboratories and Exhibition Room</li> </ul>
<b>Venue: Conference Room</b>	
11.00 am	<ul style="list-style-type: none"> <li>• Welcome address and briefing of major achievements and activities of the institute for the period from April 2017 to February 2018 - Dr. P. G. Patil, Director</li> </ul>
11.30 am	<ul style="list-style-type: none"> <li>• Release of Publications</li> </ul>
11.35 am	<ul style="list-style-type: none"> <li>• Opening remarks by Members and Chairman</li> </ul>
12.30 pm	<ul style="list-style-type: none"> <li>• Action Taken Report on the Proceeding of 23<sup>rd</sup> RAC meeting held on February 8 &amp; 9, 2017: - Er. V. G. Arude, Member Secretary, RAC &amp; In-charge, PME</li> </ul>
1.00 pm onwards	<ul style="list-style-type: none"> <li>• Presentation of research achievements : Core-area wise               <ol style="list-style-type: none"> <li>I. Pre-ginning and Ginning: Er. V. G. Arude, Scientist, Mechanical Processing Division (MPD)</li> <li>II. Mechanical Processing, Technical Textiles and Composites: Er. V. G. Arude, Scientist, Mechanical Processing Division (MPD)</li> <li>III. Characterisation of Cotton and other Natural Fibres, Yarns and Textiles: Dr. P. K. Mandhyan, Senior Scientist and Head (In-charge), QEID</li> <li>IV. Chemical and Biochemical Processing Biomass &amp; By-product Utilisation: Dr. Sujata Saxena, Principal Scientist and Head (In-charge), CBPD</li> <li>V. Entrepreneurship and Human Resource Development: Er. A. K. Bharimalla, Senior Scientist and Head (In-charge), TTD</li> </ol> <ul style="list-style-type: none"> <li>• Presentation on Extra Mural Project on Preparation of Specialty Grade Pulp from Cotton Linters by Blending with Pulps from other Cellulosic Materials for High End Applications : Dr. N. Vigneshwaran, Principal Scientist</li> <li>• Presentation on CRP on Natural Fibres: Dr. A. S. M. Raja, Principal Scientist &amp; Co-ordinator, CRP on Natural Fibres</li> </ul> </li> </ul>
<b>Day 2: Feb 28, 2018</b>	
10.00 am	<ul style="list-style-type: none"> <li>• Discussion and Remarks of RAC Members and Chairman on ICAR-CIRCOT's Achievements</li> </ul>
11.30 am	<ul style="list-style-type: none"> <li>• Recommendations and Concluding Remarks: RAC Members &amp; Chairman</li> </ul>
11.55 am	<ul style="list-style-type: none"> <li>• Vote of Thanks: Dr. C. Sundaramoorthy, Sr. Scientist &amp; Nodal Officer PME</li> </ul>
12.30 - 1.30 pm	<ul style="list-style-type: none"> <li>• Lecture on '3D Fabrics and Their Applications' by Dr. B. K. Behera, Prof &amp; Head, Department of Textile Technology, IIT, New Delhi &amp; RAC Member (All RAC Members, Invitees, HODs, Scientists &amp; Technical Staff)</li> </ul>

## **Annexure**

**Front covers of the CIRCOT Publications released on 27 Feb., 2018.**

- Annexure-III : Success Story of ICAR-CIRCOT Portable Laboratory Model Gins**
- Annexure-IV : Success Story of ICAR-CIRCOT Nanocellulose**
- Annexure-V : Success Story of ICAR-CIRCOT Calibration Cotton**
- Annexure-VI : Success Story of ICAR-CIRCOT Bajaj Cotton Pre-cleaner**
- Annexure-VII : Success Story of ICAR-CIRCOT Antimicrobial Cotton**
- Annexure-VIII : ICAR-CIRCOT Training Calender 2018-19.**



*Success Story*

**ICAR-CIRCOT**

## **Portable Laboratory Model Gins**

*Solution for Quick Ginning for Fibre Quality Assessment for Traders & Researchers and for Preparation of Seed for Sowing to Farmers*



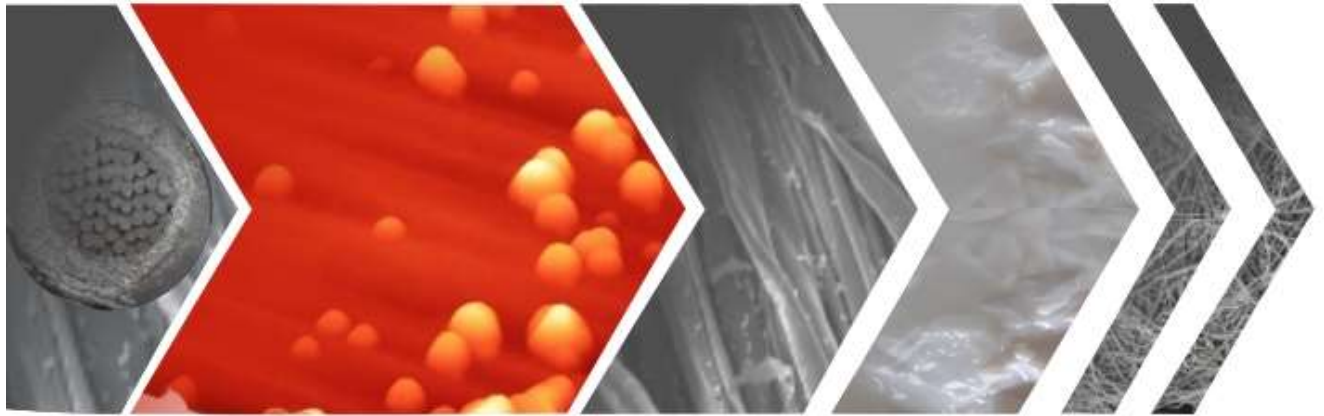
**Developed by**

भा.कृ.अनु.प. - केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान  
ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D.A.R.E., Ministry of Agriculture & Farmers Welfare, Govt. of India  
Alenwala Road, Matunga, Mumbai- 400019 (MS) INDIA



*Success Story*  
**ICAR-CIRCOT**  
**Nanocellulose**

*To Improve the Spinning Potential of Cotton Fibres*



## Annexure V

ICAR-CIRCOT Leaflet No. 174/2018



# *SUCCESS STORY* **ICAR-CIRCOT Calibration Cotton**

*A Standard Reference Material of high quality*



**Developed by**

**भा.कृ.अनु.प. - केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान**

**ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)**

**D.A.R.E., Ministry of Agriculture & Farmers Welfare, Govt. of India**

**Adenwala Road, Matunga, Mumbai- 400019 (MS) INDIA**

## Annexure VI



ICAR-CIRCOT Leaflet No. 173/2018



ISO 9001:2015

*SUCCESS STORY*

# **ICAR-CIRCOT Bajaj Cotton Pre-cleaner**

*For Improved Ginning Performance & Lint Quality*




**Developed by**

भा.कृ.अनु.प. - केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान  
ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D.A.R.E., Ministry of Agriculture & Farmers Welfare, Govt. of India  
Adenwala Road, Matunga, Mumbai- 400019 (MS) INDIA

## Annexure VII

ICAR-CIRCOT Leaflet No. 172/2018





**SUCCESS STORY**

# ICAR-CIRCOT

## ANTIMICROBIAL COTTON BED SHEETS

*Healthcare & Hygiene Product*



**Developed by**

भा.कृ.अनु.प. - केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान  
ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D.A.R.E., Ministry of Agriculture & Farmers Welfare, Govt. of India  
Adenwala Road, Matunga, Mumbai- 400019 (MS) INDIA



## Annexure VIII

ICAR-CIRCOT Leaflet No. 177/2018



# ICAR-CIRCOT TRAINING CALENDAR 2018-19



भा.कृ.अनु.प. - केंद्रीय कपास प्रौद्योगिकी अनुसंधान संस्थान  
ICAR - Central Institute for Research on Cotton Technology (ICAR-CIRCOT)  
D.A.R.E. Ministry of Agriculture & Farmers Welfare, Govt. of India  
Adenwala Road, Matunga, Mumbai- 400019 (MS) INDIA