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## From Director's Desk...

Cotton production in the world is projected to be 24.9 million tons during 2017-18, with an acreage of around 31.7 million hectares and average productivity of 785 kg of lint per hectare. Asian countries has emerged as the dominant players in the global cotton arena. Asian countries

comprising India, China and Pakistan accounts for about 55 per cent the world cotton production. About 80 per cent of the Cotton mill use is in the Asian countries. On the trade front Bangladesh, Vietnam and China are the major importers of cotton accounting for around 50 per cent of the world Cotton imports. The Asian textile hub is emerging as the most competitive and efficient market for cotton textiles.

Despite these promising trends, the cotton production and processing regions of Asia are facing challenges which includes small holder farming system, low level of mechanization, plant protection aspects, restricted access to technologies due to IPR related issues, vulnerability to climate change, issues of productivity & quality of the fibre, appropriate processing technologies, trade practices etc. In order to bring in a holistic effort to address these common concerns and promote the regional co-operation in the cotton Research across the Asian countries, the International Cotton Advisory Committee (ICAC, Washington) has established the Asian Cotton Research and Development Network (ACRDN) in 1999. The transnational issues among the Asian countries are being deliberated in the ACRDN meeting and the joint strategies are evolved to address the challenges. So far six meetings of this network have been organized.

The 7<sup>th</sup> Asian Cotton Research and Development Network (ACRDN) meeting (for more details please visit website: <http://www.isci.org.in/>) is being organized at Nagpur during September 15-17, 2017 by Indian Society for Cotton Improvement (ISCI) in Collaboration with International Cotton Advisory Committee (ICAC), ICAR-Central Institute for Cotton Research (CICR) and ICAR-Central Institute for Research on Cotton Technology (CIRCOT). The theme of this international event is “Production of Quality Fibre and Doubling of Farmers Income”.

**Dr. P. G. Patil**  
Director



## Special News

### ICAR-CIRCOT “Paper Pulp Technology” released during the ICAR Foundation Day Celebrations at New Delhi on July 16, 2017

A 'Paper Pulp Technology' for preparation of high quality currency grade paper from cotton has been developed by a multi-disciplinary team of scientists at the Institute. The paper made by this technology can be used for producing high quality currency grade paper, which has the durability twice as that of the present currency notes. The paper produced at the Institute was tested by the Security Paper Mill, Hosangabad. This technology was released on the 89<sup>th</sup> ICAR Foundation Day ceremony on July 16, 2017 at NASC Complex, New Delhi by Shri. Radhamohan Singh, Hon'ble Union Minister of Agriculture and Farmers' Welfare in presence of the DG and top officials of the ICAR. Dr. P. G. Patil, Director, ICAR-CIRCOT and the multidisciplinary research team attended the function and the technology release event.



**CIRCOT Paper Pulp Technology released during the ICAR Foundation Day Celebrations on July 16, 2017**

### Ganesh Shankar Vidyarthi Hindi Patrika Award 2015-16

Hindi Patrika “अंबर” published by the Institute received the third prize (joint award) under the Ganesh Shankar Vidyarthi Hindi Patrika Award Scheme 2015-16, amongst institutes/centres situated in A&B region. The award was presented on the occasion of the 89<sup>th</sup> ICAR Foundation Day on July 16, 2017 by Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture & Farmer Welfare and Shri Sudarshan Bhagat, Hon'ble Union Minister of State for Agriculture & Farmer Welfare and was received by Dr. P. G. Patil, Director, CIRCOT, Smt. Trupti Mokal and Mrs. Prachi Mhatre, CIRCOT Rajbhasha Cell in the presence of Dr. Trilochan Mohapatra, Secretary, DARE and DG ICAR, Shri. S. K. Roul, Additional Secretary, DARE and Secretary, ICAR and Mr. S. K. Singh, Additional Secretary, DARE & Financial Advisor, ICAR.





## Special News



**Dr. P. G. Patil, Director, ICAR-CIRCOT, Smt. Trupti Mokal and Mrs. Prachi Mhatre receiving Ganesh Shankar Vidyarthi Hindi Patrika Award 2015-16**

## Technology Insight

### Cotton / PLA / Bamboo blended garments using environment-friendly processes

Three component blend yarns and fabrics were produced using cotton, bamboo viscose and PLA fibres using four different blend ratios of 60/20/20, 50/30/20, 50/20/30 and 40/30/30 respectively. The fibres were spun into yarns using compact ring spinning machine to a count of 40s. The yarns were then knit into single jersey structure with a fabric GSM of 110. After chemical pretreatments, the PLA part was first dyed using supercritical dyeing method that uses no water for dyeing. Then the cotton and bamboo parts were dyed with low salt reactive dyes. As we know that supercritical dyeing completely eliminates the use of water and low salt dyeing reduces effluent load, the product produced is environment friendly when compared to the conventional ones. The dyed fabrics were then stitched into garments.

The product has the functionalities of improved smoothness and softness with better moisture wicking ability suitable for use as high end casual wear.



**Cotton/Bamboo/PLA blended garment**





## Trainings

### Double Roller Ginning Technology & Basics of Cotton Grading

Ginning Training Centre, Nagpur organized a one week training program on “Double Roller Ginning Technology and Basics of Cotton Grading” during July 10-15, 2017. Nine participants representing ginning industries from Maharashtra, Gujarat, Madhya Pradesh and Haryana attended the training program. The training course covered various aspects such as fibre quality assessment like fibre length, strength, fineness and maturity, cotton trading and marketing, DR ginning technology, automation & ginning settings, repairs and maintenance of ginning and pressing machinery, humidification in ginning system, cotton by-product utilization etc. Guest lectures on cotton trading, cotton marketing, pre-engineered building structures for cotton and bale storage were delivered by invited experts. The trainees were taken for industrial visits to M/s Bajaj Steel Industry & M/s Sri Bhagirath Textiles Ltd.



**Participants of the training program on “Double Roller Ginning Technology and Basics of Cotton Grading” during July 10-15, 2017 at GTC, Nagpur**

### Production and Post-Harvest Processing of Cotton

GTC, Nagpur is imparting various training programs for the benefit of cotton growing farmers.

In this line, two batches of farmer's coordinated through ATMA, were trained in the area of “Production and Post-harvest Processing of Cotton”. Thirty Eight farmers from Jalna, Maharashtra and fifty five farmers from Jalna and Buldhana, participated in the training programs held during July 17-20 and July 24-27 respectively. The training programs were designed in a manner so as to provide first-hand information on recent techniques to enhance cotton productivity and remunerate additional income in cotton cultivation. The training module dealt with best cotton production management practices, biological inputs in cotton farming, pest and disease management techniques, cotton marketing, fibre quality parameters and by-products utilization. The farmers were taught about the value-addition to biomass for additional income generation. The training also covered practical sessions on compost preparation and production of oyster mushroom using cotton stalks. Trainees were also taken to CCRI, Nagpur, M/s Neem Foundation, Gondkhairy, Tehsil- Kalmeshwar, Nagpur and M/s Ankur seeds Pvt. Ltd., NERI farms.



**Farmers from Jalna, Maharashtra attending the training at GTC, Nagpur during July 17-20, 2017**



**TRAININGS**





## Trainings

### Value Addition to Cottonseed

Three day training program on “Value Addition to Cottonseed” was organized at ICAR-CIRCOT, Mumbai, from July 20 to 22, 2017. Ten participants from industry, academia and research organizations participated in the training program. Dr. P. G. Patil, Director, ICAR-CIRCOT inaugurated the program. Dr. Sujata Saxena, Course Coordinator, Principal Scientist & Head I/C CBPD and Shri A. K. Chowdhury, Secretary, All India Cottonseed Crushers' Association (AICOSCA), Mumbai were present on the occasion. The training consisted of lectures on products obtained from cottonseed viz. linters, cottonseed hull, meal and oil and potential for further value addition to these products. The practical sessions on various analytical procedures for evaluation of properties of cottonseed and its products as well as the processes for further value addition to these products were organized.



**Inaugural function of training program on “Value Addition to Cottonseed” at ICAR-CIRCOT on July 20, 2017**

The course was aimed to understand the basics of cotton grading, quality evaluation and its importance in trading, fibre attributes and their impact on yarn quality, contamination in cotton, marketing and commercial aspects of cotton, ginning & mechanical processing and its effect on cotton economics, harvesting and storage practices and global importance of Indian cotton. Hands-on training and demonstrations on fibre properties (length, fineness, maturity and tenacity), cotton grades, spinning and yarn testing were conducted. Both theoretical and practical knowledge about cotton fibre quality testing using High Volume Instrument (HVI) and Advanced Fibre Information System (AFIS) was given to trainees. The participants also visited Cotton Association of India (CAI), Cotton Green, Mumbai to get exposure about commercial grading of cotton. There were twelve participants representing ginning industry, cotton trade and Cotton Corporation of India.



**Participants of “Quality Evaluation of Cotton” training with Secretary DARE & DG, ICAR**

### Quality Evaluation of Cotton

A five day training program on “Quality Evaluation of Cotton” was organized at Mumbai from July 24 to 28, 2017. The training was inaugurated by Dr. Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) on July 24, 2017.



## TRAININGS





## Event

### Swachha Bharat Abhiyan

Cleanliness Programs were organized by the Chemical and Biochemical Processing Division (CBPD) on July 14, 2017 for cleaning the Biochemical Processing Section and by the Quality Evaluation and Improvement Division (QEID) on July 29, 2017 for clearing the residual cotton remaining after testing cotton samples and storing properly for further disposal. All the staff members of both the CBPD and QEID as well as research students participated actively and enthusiastically in the cleaning activities.

## Visits

### Director's Visits

- ◎ The 89<sup>th</sup> ICAR Foundation Day and Award Ceremony at AP Shinde Auditorium, Pusa, New Delhi on July 16, 2017.
- ◎ Directors' Conference at ICAR New Delhi on July 16, 2017 to discuss various prioritized research, administrative and technical issues.
- ◎ A meeting with regard to release of Bt cotton hybrids/varieties on July 17, 2017 at Shastri Bhavan, New Delhi.
- ◎ Conference on "Productivity and Product Diversification Challenges for Natural Fibres" during "Textile India 2017" at Ahmedabad on July 2, 2017.
- ◎ ICAR New Delhi on July 30, 2017 in connection with presentation of the SFC document in respect of thematic area "Fibre Processing and Value Addition" and meeting with IFAD authorities at SMD on July 31, 2017.
- ◎ ICAR New Delhi on July 30, 2017 in connection with presentation of the SFC document in respect of thematic area "Fibre Processing and Value Addition" and meeting with IFAD authorities at SMD on July 31, 2017.

### Delegates' Visits

- ◎ Dr. Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) visited the Institute on July 24, 2017. He interacted with the participants of the training program and had a meeting with scientists to review the progress in respect of "Paper Pulp Technology" launched on the ICAR Foundation Day.



**Dr. Trilochan Mohapatra, Secretary, DARE & DG, ICAR interacting with scientists of ICAR-CIRCOT regarding Paper Pulp Technology**

- ◎ Dr. Trilochan Mohapatra, Secretary (DARE) and DG (ICAR) visited the Institute on July 24, 2017. He interacted with the participants of the training program and had a meeting with scientists to review the progress in respect of "Paper Pulp Technology" launched on the ICAR Foundation Day.



**Shri. Chhabilendra Roul, Additional Secretary (DARE) & Secretary (ICAR) being briefed by Dr. P. K. Mandhyan about the fibre quality analysis at Surat unit of ICAR-CIRCOT Mumbai**





## Visits

### Students' Visits

A visit to Mechanical Processing Division, Yarn and Fibre Testing section was arranged for sixty students from Synthetic & Art Silk Mills' Research Association (SASMIRA), Worli, Mumbai on July 21, 2017 in order to understand the spinning process and various yarn and fibre testing methods. They were also briefed about the various other institute activities.



**Students from SASMIRA at ICAR-CIRCOT, Mumbai on July 21, 2017**

## Meeting

### Quinquennial Review Team (QRT) visit to GTC, Nagpur

The QRT, under the chairmanship of Dr. N. C. Patel, Vice Chancellor, Anand Agricultural University, Anand visited GTC, Nagpur on July 25, 2017. The QRT members, Dr. G. R. Anap, Former Head, TTD and International Cotton Ginning Consultant, Dr. N. J. Thakor, Former Head, Department of Agril. Process Engineering, DBSKKV, Dapoli, Dr. V. D. Gotmare, Head of Textile Manufacture, VJTI, Mumbai, Dr. M. K. Sharma, CEO, M/s Bajaj Steel Industries, Nagpur and Dr. Sujata Saxena, Pr. Scientist & Member secretary, QRT were present during the meeting. Dr. S. K. Shukla, Sr. Scientist & Officer In-charge, GTC made a presentation on the achievements, research activities and infrastructure facilities at GTC. The QRT members interacted with scientists and staff.

The QRT members visited ginning plant, scientific cottonseed processing plant, fibre testing laboratory, particle board plant and microbiology lab. The QRT also visited M/s Precision Tooling Engineers, Nagpur and M/s Bajaj Steel Industries Limited, Nagpur.

A stakeholder meet was organized during the visit of QRT, to gather the inputs from stakeholders to devise future roadmap for GTC. The stakeholders representing diverse fields like cotton growers, cotton procurement, ginners, textile mills, cottonseed processors, surgical cotton manufacturers, biomass based industries and entrepreneurs participated. Dr. N. C. Patel, Chairman QRT in his address suggested that scientists should work for development of small machinery integrated with efficient sensor technology to process even small quantity raw material with higher efficiency.



**The QRT members visiting the Pilot plant facility at GTC, Nagpur**



**The QRT members along with GTC scientists at the particle board plant**





## Workshops/ Lectures

### Participation in Lectures/Workshops

- ICAR-CIRCOT Participated in mega international event “Textile India 2017” organized by the Ministry of Textiles, Govt. of India at Mahatma Mandir, Gandhinagar, Gujarat from June 30 to July 2, 2017 showcasing its technologies and products.
- Scientists from ICAR-CIRCOT Dr. S. V. Ghadge, Dr. A. S. M. Raja, Sh. A. Arputharaj, Dr. P. S. Deshmukh, Dr. T. Senthil Kumar and Dr. Jagajanantha attended Narendra C. Sheth Memorial lecture on Cotton at Hotel Blue Sea, Worli, Mumbai on July 6, 2017.
- Scientists Er. Archana Mahapatra, Dr. Sharmila Patil and Dr. Manoj Kumar attended a two day workshop on “Nano and Biotechnology: Innovation and Revolution” organized by Ramnarain Ruia College in collaboration with Harrisburg University, Pennsylvania, USA at Ruia College Matunga, Mumbai during July 14-15, 2017.
- ICAR-CIRCOT participated in AGRI INTEX 2017, an agricultural trade fair held at CODISSIA Trade Fair Complex, Coimbatore from July 14 to 17, 2017.



ICAR-CIRCOT stall at AGRI INTEX-2017

- ICAR-CIRCOT participated and showcased its technologies, skill development programs and Agri-Business Incubation facilities in one day Indo-Global Education and Skill Expo-2017 organized by the Indus Foundation on July 17, 2017 at The Lalit Hotel, Santacruz, Mumbai.



ICAR-CIRCOT stall at Indo-Global Education and Skill Expo-2017

- Er. V. G. Arude, Scientist, ICAR-CIRCOT delivered a guest lecture on the topic “Cotton Scenario, Post-harvest Processing and Value Addition to Cotton By-products” at Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune, Maharashtra on August 1, 2017 for senior officers of Maharashtra Cotton Growers Marketing Federation.



Er. V. G. Arude, Scientist, delivering a guest lecture at Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune, Maharashtra.





## Human Resource Development

- Dr. Manoj Kumar, Scientist, ICAR-CIRCOT attended a training program on “Value addition to Cottonseed” during July 20-22, 2017 at Mumbai.

## Publications

- Mageshwaran Vellaichamy and Parnavi Vijay Gaonkar (2017). “Biological treatment of banana pseudostem fibre: effect on softening and mechanical properties”. *International Journal of Current Microbiology and Applied Sciences* 6(5), pp. 1268-1274.

## Personnel

### Obituary

Shri G. Moosad, ex-employee of ICAR CIRCOT expired on July 6, 2017. He had joined ICAR as Jr. Clerk at CIFT, Cochin in 1976 and worked as Superintendent at CIRCOT during 1999 to 2001. CIRCOT fraternity deeply mourned the sad demise and prayed for peace to the departed soul in the condolence meet.

### Participation in sports

Tereza Theofilo D'Souza, Personal Assistant, ICAR-CIRCOT-MPD participated in the following:

- Barefoot run organized for Late Runner Lokesh Waghmare on July 2, 2017.
- Stood 8<sup>th</sup> in 10 km run in the age category of 40 years and above in the “Texathon- Farmer is the King of Cotton” organized by SASMIRA at Worli, Mumbai on July 9, 2017.
- Brand ambassador of Mira Bhayander 10 km run and winner of Mira Bhayander 5 km run organized on July 23, 2017.
- Stood 2<sup>nd</sup> at run organized for a cause “Conserve Water” at Malad Mindspace, Mumbai on July 30, 2017.



**Tereza Theofilo D'Souza, Personal Assistant, ICAR-CIRCOT participating in various running events**

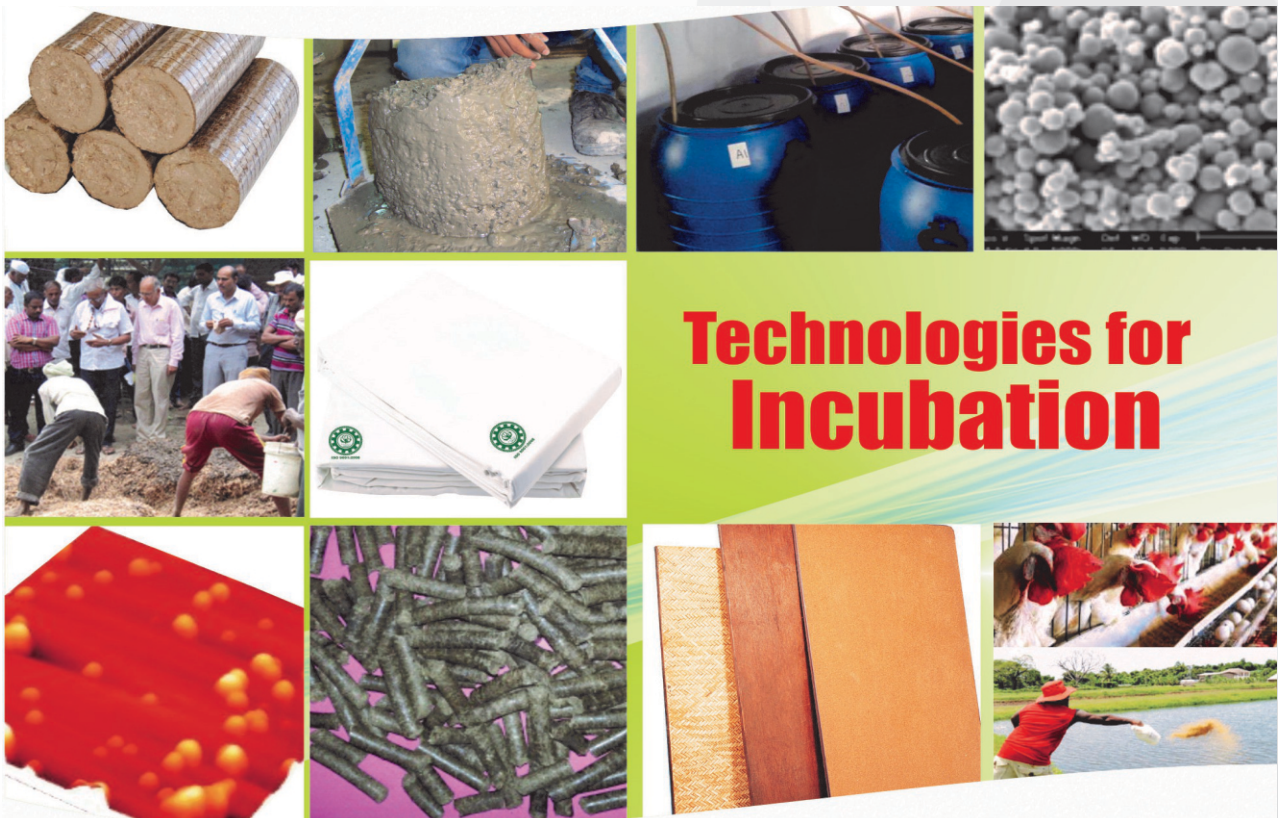




# Agri-Business Incubation

## Technologies Available for Incubation at the ICAR-CIRCOT ABI Centre

- 1) Ecofriendly preparation of absorbent cotton for medical & hygiene products.
- 2) Nanofinishing Technologies for Cotton Textiles
  - a) Antimicrobial
  - b) UV protection
  - c) Water repellency
- 3) Cotton rich blends for functional textile applications
- 4) Innovation Finishing processes for garments & home textiles: Mosquito repellent, pesticide protection cloths & denim fading
- 5) Software module for non-metameric color matching in textiles
- 6) CIRCOT Calibration Cotton for global outreach
- 7) Sustainable business model for cotton at village level:
  - a) Quality based trading
  - b) Supply chain logistics for cotton stalk (custom hiring)
  - c) Value addition to cotton biomass
  - d) CIRCOT mini card for sliver preparation
- 8) Microbial Degossypolisation cottonseed meal for use as feed in poultry, fish & piggery sectors
- 9) Enhancing farmers and other stakeholders income by Cotton value chain: via startup & entrepreneurship development
- 10) Cotton Trading based on Quality Parameters for better price remuneration by Farmers



**Technologies for Incubation**



## Upcoming Events

### Calendar of training cum-skill development programmes for the year 2017-18

S.No.	Title of Training	Period	Fees (Rs) (excluding Service tax)
1	Absorbent Cotton Technology	02-04 Aug., 2017	15, 000
2	Advances in Applications of Nanotechnology	11-15 Sept., 2017	25,000
3	Quality Evaluation & Spinning performance of Indian Cottons using Advanced Techniques	20-22 Sept., 2017	10,000
4	Spinning of Technical Yarn	05-07 Oct., 2017	10,000
5	Basic & advanced Statistical Techniques for Research	15-17 Nov., 2017	8,000
6	Characterization of Materials Using X-Ray Diffractometer (XRD)	19-21 Dec., 2017	30,000
7	Basic and Advanced Techniques for Evaluation of Textile Materials	04-06 Jan., 2018	10, 000
8	Advances in Microscopy	16-18 Jan., 2018	15, 000
9	Electrospinning Technologies & their Applications	23-25 Jan., 2018	10,000
10	Fibre Reinforced Composite	07-09 Feb., 2018	10,000
11	Quality Evaluation of Cotton	07-11 Aug., 2017 11-15 Sept., 2017 23-28 Oct., 2017 20-24 Nov., 2017 29 Jan.-. 2 Feb, 2018 19-23 Feb., 2018	10,000
12	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	07-12 Aug., 2017 18-23 Sept. 2017 09-14 Oct., 2017 13-18 Nov., 2017 18-23 Dec., 2017 15-20 Jan., 2018 12-17 Feb.,2018	10,000
13	Customized training programme for students & academia*	Two days (Dates can be finalized as per the requirement)	2,000
14	Customized training programme for students & academia*	One day (Dates can be finalized as per the requirement)	1,000





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