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## Director's Desk...

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ICAR-CIRCOT, with the vision of achieving global excellence in Cotton technology is undertaking the basic and strategic research in processing of cotton and its agro residues, development of value added products, cotton quality assessment besides organizing skill development programmes and providing Agri-Business incubation services.

The Institute's Paper Pulp Technology, for preparation of high quality currency grade paper from cotton, was released during the ICAR foundation day celebrations. During 2017-18, the Institute organized 28 skill development programmes in specialized areas of cotton processing & value addition to biomass, nanotechnology & its applications, electro spinning technology, advances in microscopy, XRD, absorbent cotton technology etc. Three new training programmes on instrumental evaluation of clothing comfort, knitting & knit garments and fibre reinforced composites were introduced for the first time.

CIRCOT is playing a key role in development of the cotton sector in the African nations by assisting UNCTAD, Geneva in establishing "Priority cotton by-product activities for development" in Zimbabwe, Tanzania, Zambia and Uganda. The Institute has successfully conducted an international short-term training programme on "Post-Harvest Management of Cotton and Value Addition to Crop Residues" for the African nationals at Nagpur. The programme was funded by the Ministry of External Affairs, GoI under the India Africa Forum Summit III.

The Agri-Business Incubation Centre has admitted one new incubatee during this year and the success of existing in-house incubatee M/s GREYY was showcased in the Festival of Innovation and Entrepreneurship (FINE) organized at the President House, New Delhi.

The Institute has signed 2 MoUs for technology commercialization and incubation, acquired three patents, organized 20 awareness programmes, participated in 5 exhibitions and organized one Technology & Machinery Demonstration Mela at Nagpur. The Institute's internal revenue generation through technology licensing, research consultancy, commercial testing services, skill development programmes and agri-business incubation has crossed ₹ 150 lakhs during 2017-18.

**(P. G. Patil)**  
**Director**

## Technology Insight

### Single Locking Cotton Feeder for Enhancing Ginning Efficiency of Double Roller Gin

Spike cylinder single locking cotton feeder was developed with the concept of single locking of cotton bolls with an aim to improve the efficiency of double roller gin in terms of increased ginning output and reduced energy consumption. It comprises of a pair of feed rollers, pair of spike cylinders and grid bar, housed in a feeder hopper and chute for cotton distribution on either side of the beater. It maintains constant feeding rate of individual locules at the ginning point. The speed of spike cylinder and moisture level of raw cotton were optimized using RSM for long and medium staple cotton so as to maximize ginning output and minimize the specific energy requirement for ginning. Quadratic model was fitted for prediction of ginning output and specific

energy. Optimum moisture level of 7.38 & 7.15 % and spike cylinder speed of 307 & 297 RPM with desirability of 0.9185 & 0.8923 was arrived using multiple regression analysis for long and medium staple cotton respectively. Use of single locking cotton feeder for long and medium staple cotton resulted in 22 & 25 % increase in ginning output and 12 & 13.5 % reduction in specific energy requirement respectively as compared to conventional system comprising of auto feeder. Single locking feeder showed significant improvement in colour grade of cotton. Other HVI and AFIS fibre quality parameters remained unaffected. With these advantages, single locking feeder would be highly useful for cotton ginneries.



Spike cylinder single locking cotton feeder was developed at ICAR-CIRCOT

## Trainings

### Cotton Quality Assessment, Grading and Marketing

A three-day training programme on “Cotton Quality Assessment, Grading and Marketing” was organized at GTC, Nagpur for Senior Agricultural Marketing Inspectors during March 07-09, 2018. Total 10 officials representing 8 districts of Uttar Pradesh participated in the training programme. The trainees were deputed by Deputy Director, Agricultural Marketing and Export, Lucknow, Govt. of Uttar Pradesh with aim to double the farmers' income by 2020 through

promotion of cotton cultivation and quality based marketing in the state. The training programme covered practicals and lectures on cotton quality parameters, manual stapling, grading, marketing, operation of different testing equipment, etc. Besides, trainees were also provided detailed information about the facilities and infrastructure needed to establish a cotton testing laboratory.



Group Photo- Training programme on “Cotton Quality Assessment, Grading and Marketing”

## Events

### Webcast of Krishi Unnati Mela

ICAR-CIRCOT enthusiastically participated in the live webcast of inaugural function and Honorable Prime Minister's speech at Krishi Unnati Mela-2018 on March 17, 2018. Director along with scientists and technical officers assembled in the Conference Hall to

witness the event live. The Director also spoke on the occasion reiterating some of the points from Honourable PM's speech and urged the staff to work harder to help achieve the goal of doubling farmer's income.



Live webcast of inaugural function of Krishi Unnati Mela-2018

### Fire-Fighting Demo

A fire-fighting demonstration was organized on March 17, 2018 to acquaint the staff about the

operation of fire extinguishers. The demonstration was conducted by Nishant Enterprises, Thane.



Firefighting demonstration on March 17, 2018

## Swachh Bharat Abhiyan

A cleanliness drive was organized in the Chemical and Biochemical Processing Division on March 31, 2018 whereby many empty chemical bottles and containers, cardboard boxes and broken glassware were cleared by the

CBPD staff. The waste cotton and fabric samples left out after testing were removed, filled in the boxes for proper disposal. All the staff members of CBPD participated in the cleaning programme.



CPBD staff during the cleaning programme

## Visits

### Director's Visits

- Dr. P. G. Patil, participated in the Annual Review Workshop on Consortia Research Projects on Natural Fibres, Secondary Agriculture and Health Foods held at NASC Complex, New Delhi during March 4-6, 2018 under the chairmanship of DDG (Engg).
- Dr. P. G. Patil attended the Director's Conference held at AP Shinde Auditorium, Pusa, New Delhi during March 8-10, 2018. He participated in the deliberations on prioritizing research activities, administrative and technical issues.
- Dr. P. G. Patil delivered invited speech as expert speaker on "Priority cotton by-products activities for development" in the National Capacity Building Workshop organised at Kampala, Uganda by UNCTAD, Geneva during March 14-16, 2018.



Dr. P. G. Patil, Director ICAR-CIRCOT delivering lecture during Workshop organised at Kampala, Uganda by UNCTAD

### Students' Visits

- Two students from Acharya NG Ranga Agricultural University, Andhra Pradesh, who are doing thesis work related to cotton crop, visited Quality Evaluation Unit at Guntur on March 1, 2018. Mr. K. Thiagarajan, unit I/c briefed about the principles of fibre testing on High Volume Instrument.



Students of Acharya NG Ranga Agricultural University, visited CIRCOT's QE unit at Guntur



**Students of IARI, New Delhi at ICAR-CIRCOT**

- Fourteen students from IARI, New Delhi visited ICAR-CIRCOT on March 9, 2018. They were taken to Nanotechnology Lab and briefed about the technology and its applications. They visited exhibition room and were also informed about CIRCOT's specialized training courses.

- Twenty eight students from Biotechnology Department of Mithibai College, Vile Parle, Mumbai visited ICAR- CIRCOT on March 23, 2018. They visited SEM, AFM and Nanotechnology labs. They were briefed about the institute activities and specialized training courses being organized in the institute.



**Students of Mithibai College, Vile Parle, Mumbai at ICAR- CIRCOT**

## Meetings

### Annual Review Meeting of CRP on Natural Fibres

Annual Review meeting of Consortia Research Project on Natural Fibres was held on March 5, 2018 under the chairmanship of Dr. K. Alagusundaram, DDG (Agril. Engg.) in the presence of Dr. S. N. Jha ADG (Process Engg.) at NASC Complex, New Delhi. Dr. P. G. Patil, Director, ICAR-CIRCOT and Nodal officer and PIs of the project from lead centre and cooperating centres viz. ICAR-NIRJAFT, Kolkata; ICAR-CICR, Nagpur; TNAU, Coimbatore and AAU, Jorhat participated in

the meeting and presented the progress of their projects. Four new proposals to be taken up during 2018-20 were also presented during the meeting. Hon'ble Director General (ICAR) Dr. Trilochan Mahapatra reviewed the progress of the CRPs at Krishi Bhawan, New Delhi on March 6, 2018. Dr. A. S. M. Raja, Project Coordinator of CRP on Natural Fibre presented the salient achievements of the project during the meeting.

## Women Complaint Cell Meeting

A meeting of the Women Complaint Cell was conducted at GTC, Nagpur on March 22, 2018. The meeting was chaired by Er. Varsha Satankar, Scientist,

GTC and attended by all 6 members including outside member, Dr. Alka Chaturvedi, Prof. & Head, PG Dept., RTMNU, Nagpur.

## IRC Meeting

The 118<sup>th</sup> IRC meeting was held on March 26-27, 2018 chaired by Dr. P.G. Patil, Director, ICAR-CIRCOT and attended by all Scientists and Technical Officers (ACTO & above). The progress of research of the ongoing research projects, final reports of the completing projects and new project proposals were discussed in the IRC meetings. The Chairman insisted

that the scientists should strengthen the research consultancy and bring in Industry partners to collaborate in their research projects for the ease of technology commercialization. The achievement of the Institute in revenue generation (> Rs. 1.5 crore) and the efforts of GTC, Nagpur for its contributions (> Rs. 50 Lakhs) were acknowledged in the meeting.



118<sup>th</sup> IRC meeting at ICAR-CIRCOT

## TV Talk

### TV Talk on DD Sahyadri

Dr. P. G. Patil, Director participated in a TV talk show "Aamchi Maati Aamchi Maanasa" (आमची माती आमची माणसं) hosted by DD Sahyadri and discussed on "Absorbent Cotton Production Technology" (कापसापासून अवशोषक कापूस निर्मिति). The programme highlighted cotton scenario of India and current status

of absorbent cotton sector in India. The discussion covered topics such as absorbent cotton and its applications, absorbent cotton technology developed by ICAR-CIRCOT, raw materials and machineries used for production of absorbent cotton, quality parameters, packaging and storage for absorbent



cotton and associated environmental issues. Dr. P. G. Patil also briefed about the role of ICAR-CIRCOT in entrepreneurship development by offering regular trainings and consultancy services in absorbent cotton

technology. The programme was broadcasted on March 26, 2018 at 6.30 p.m. and on March 27 at 6:30 a.m. on Sahyadri Channel of Doordarshan.



Dr. P. G. Patil, Director, ICAR-CIRCOT in a TV talk show on DD Sahyadri

## Impact of CIRCOT Technology

Dr. V. Mageshwaran and Er. Varsha Satankar scientists from GTC, Nagpur visited Amgaon, Kadki, Palasgaon and Digras villages of Selu Taluka, Wardha Dist., Maharashtra on March 13, 2018 and conducted a survey among 60 farmers on adoption of ICAR-CIRCOT technologies on “Preparation of bio-enriched compost from cotton stalks and cultivation of oyster mushroom using cotton stalks”. The feedback was gathered using a suitably developed and pretested questionnaire. The analysis of questionnaire revealed that ICAR-CIRCOT initiatives on transfer of these farmer-friendly technologies through various awareness programs and

demonstrations had positively impacted on knowledge of use of these technologies in increasing farmers' income.



Er. Varsha Satankar gathering feedback from farmers of Amgaon Village, Wardha

## Human Resource Development

- One day workshop on “Hindi Ka Prayog Aur Hamari Manasikata” by Dr. Sulbha Kore was organized on March 09, 2018 which was attended by scientific, technical and administrative staff of the institute.



Hindi Workshop by Dr. Sulbha Kore on March 09, 2018

- The Institute's HRD cell organized a one day training programme for scientists and technical staff on “Textile Processing” by Dr. G. S. Nadiger, Textile Consultant & Former Director of Laboratories (Textile Committee) on March 20, 2018. Five scientists and twelve technical staff of the Institute attended the programme. The subject covered includes innovation in research, sustainability and life cycle assessment.



Dr. G. S. Nadiger conducting the training programme on “Textile Processing”

- A training programme on “Industrial Safety and First Aid” was organized for skilled supporting staff of the institute on March 24, 2018. Shri. Shivajirao B. Bagat, Deputy Controller of Civil Defense, Mumbai delivered lectures on Safety measures in the work place and procedures for first aid. He also demonstrated various safety measures to be taken while facing accidents and provided hands on training on how to handle injured persons. Twelve staff members participated in the training programme. This training was organized by the HRD cell of the institute and was coordinated by Dr. Senthil Kumar, Scientist, MPD. Dr. Sujata Saxena, Director In-charge, graced the inaugural and closing events.



Training Programme on “Industrial Safety and First Aid” for Skilled Support Staff

## Publications

### Research Paper

P. K. Mandhyan, R. P. Nachane, P. G. Patil, B. R. Pawar, Hamid Hasan and S. S. Venkatkrishanan (2018). Influence of segregation of cotton bales based on its fiber attributes in yarn properties. Journal of Natural Fibers, DOI: 10.1080/15440478.2018.1453429

### Technical/Popular Articles

- “Value addition to cottonseed” by P. G. Patil, P. S. Deshmukh, V. G. Arude and A. K. Bharimalla in Marathi magazine 'Shetkari Masik' by Agricultural Commissioner Office, Pune, March 2018, page 27

- “Value Addition to Cotton Stalks” by V. G. Arude, P. G. Patil and P. S. Deshmukh published in published in Marathi magazine 'Shetkari Masik' by Agricultural Commissioner Office, Pune, March 2018, page 28-31
- “Nanocellulose: a Novel Additive for Coating Films” by Archana Mahapatra, Sharmila Patil, Jyoti Dhakane, A. K. Bharimalla and P. G. Patil. PaintIndia, Vol. XVIII, No. 3, March, 2018. Page 53-54

### Other publications

Leaflet on “Cotton Blended T-Shirt – A product of ICAR-CIRCOT ABI Centre Incubatee”



The leaflet features a black t-shirt on the left and a collage of t-shirts in red, blue, and grey on the right. The text on the leaflet includes:

**COTTON BLENDED T-SHIRT**  
A Product of  
ICAR-CIRCOT-ABI Centre Incubatee

**Address for Communication**

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Sr. Scientist, TTD, Principal Investigator - ICAR-CIRCOT-ABI Centre

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## Participation

### Meeting

Dr. Sujata Saxena, Principal Scientist & Head I/c CBPD, ICAR-CIRCOT participated in the expert meeting on “The role of the textile and fashion industry in the creation of corporate benchmarks for the UN sustainable Development Goals” jointly organized by the Netherlands consulate, Mumbai and World Benchmarking Alliance, Netherlands on March 15, 2018 at Hotel Oberoi, Mumbai.

### Conference

Dr. P. K. Mandhyan, Dr. P. S. Deshmukh, Dr. C. Sundaramoorthy and Dr. Krishna Prasad attended the “International Textile Conference on Global and Indian Perspective (Textile 4.0)” during March 22-23, 2018 organized by “The Textile Association of India” (TAI) at Hotel Lalit, Mumbai.

### Guest lectures

- Dr. V. Mageshwaran, Scientist, GTC, Nagpur delivered a guest lecture on “Rapid composting of cotton stalks: A strategy towards nutrient cycling in the rhizosphere of cotton fields” on March 16, 2018 at ICAR-NBAIM, Mau, UP in a training programme on “Rhizosphere Microbiology: Classical to Omic Approaches” organized during March 12-21, 2018. The trainees were also demonstrated with rapid composting of paddy straw using ICAR-CIRCOT technology.



**Dr. V. Mageshwaran demonstrating technology for rapid composting of paddy straw**

- Dr. Sujata Saxena, Principal Scientist & Head I/c CBPD delivered a guest lecture on “Organic Cotton and its Processing” at National seminar on “Recent Trends in Eco-friendly Textiles and Sustainable Fashion” organized by J. D. Birla Institute, Kolkata during March 27- 28, 2018.

### Exhibition/Mela

- ICAR-CIRCOT's ABI Centre Incubatee M/s GREYY, Navi Mumbai got selected for participation in the Festival of Innovation and Entrepreneurship (FINE) held during March 19–23, 2018 at The President of India House, New Delhi. FINE is a unique initiative of the Office of the President of India to recognize, respect and reward grassroots innovations and foster a supportive ecosystem. The five days exhibition had participation from various industry, academic and research organizations. Mrs. Savita Kovind, Hon'ble First Lady of India and Dr. Sanjeev Saxena, ADG (IP&TM) Unit visited incubatee stall during the FINE exhibition and encouraged them.



**Mrs. Savita Kovind, Hon'ble First Lady of India visiting Incubatee stall**



**Dr. Sanjeev Saxena, ADG (IP&TM) Unit visited incubatee stall during the FINE exhibition**

- ICAR-CIRCOT participated in exhibition of Krishi Unnati Mela 2018 at New Delhi held during March 16-18, 2018. The main objective of this fair was to expand the potential of agriculture and also double the income of farmers by 2022. Krishi Unnati Mela was inaugurated on March 16, 2018 by the Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh. The Honorable Prime Minister, Shri Narendra Modi, addressed the Krishi Unnati Mela on March 17, 2018. Over 800 stalls were set up by the Central and State Governments, various organizations in the fair. Large number of farmers from across the country visited the fair and gained useful knowledge and information. About 25 thousand farmers attended the first day of the fair.



**ICAR-CIRCOT's stall at Krishi Unnati Mela, New Delhi**

- Ginning Training Centre, Nagpur participated in Kisan Mela organized at ICAR-CCRI, Nagpur on March 17, 2018 in connection with the Krishi Unnati Mela at New Delhi. The stall setup by ICAR-CIRCOT was visited by over 1100 farmers and over 100 officials.



ICAR-CIRCOT's stall at Kisan Mela, Nagpur

## MoU signed

- Memorandum of Understanding (MoU) was signed with M/s Forech Mining & Construction International LLP, New Delhi for licensing the technology to manufacture Technical Textile Reinforced Rubber Composite Sheet for making "ICAR Flexi-Check Dam" on March 27, 2018.



MoU signing with M/s Forech Mining & Construction International LLP, New Delhi

- Memorandum of Understanding (MoU) was signed with Mr. Sandeep Nikam, entrepreneur from Pune, Maharashtra on March 27, 2018 admitting him as an Incubatee in the Agri-Business Incubation Centre of CIRCOT for “Preparation of Value Added Products Using Banana Fibre”.



MoU signing with Mr. Sandip Nikam from Pune

## Personnel

### Transfer

- Smt. Bindu Venugopal, Sr. Technical Officer, Transferred from ICAR-CIRCOT, Mumbai to Quality Evaluation Unit of CIRCOT, Guntur with effect from March 13, 2018 (FN)
- Smt. Binu Sunil, Sr. Technical Officer, Transferred from ICAR-CIRCOT, Mumbai to Quality Evaluation Unit of CIRCOT, Sirsa with effect from March 17, 2018 (AN)
- Dr. (Smt.) Sheela Raj, Chief Technical Officer, Transferred from ICAR-CIRCOT, Mumbai to Quality Evaluation Unit of CIRCOT, Coimbatore with effect from March 20, 2018 (AN).

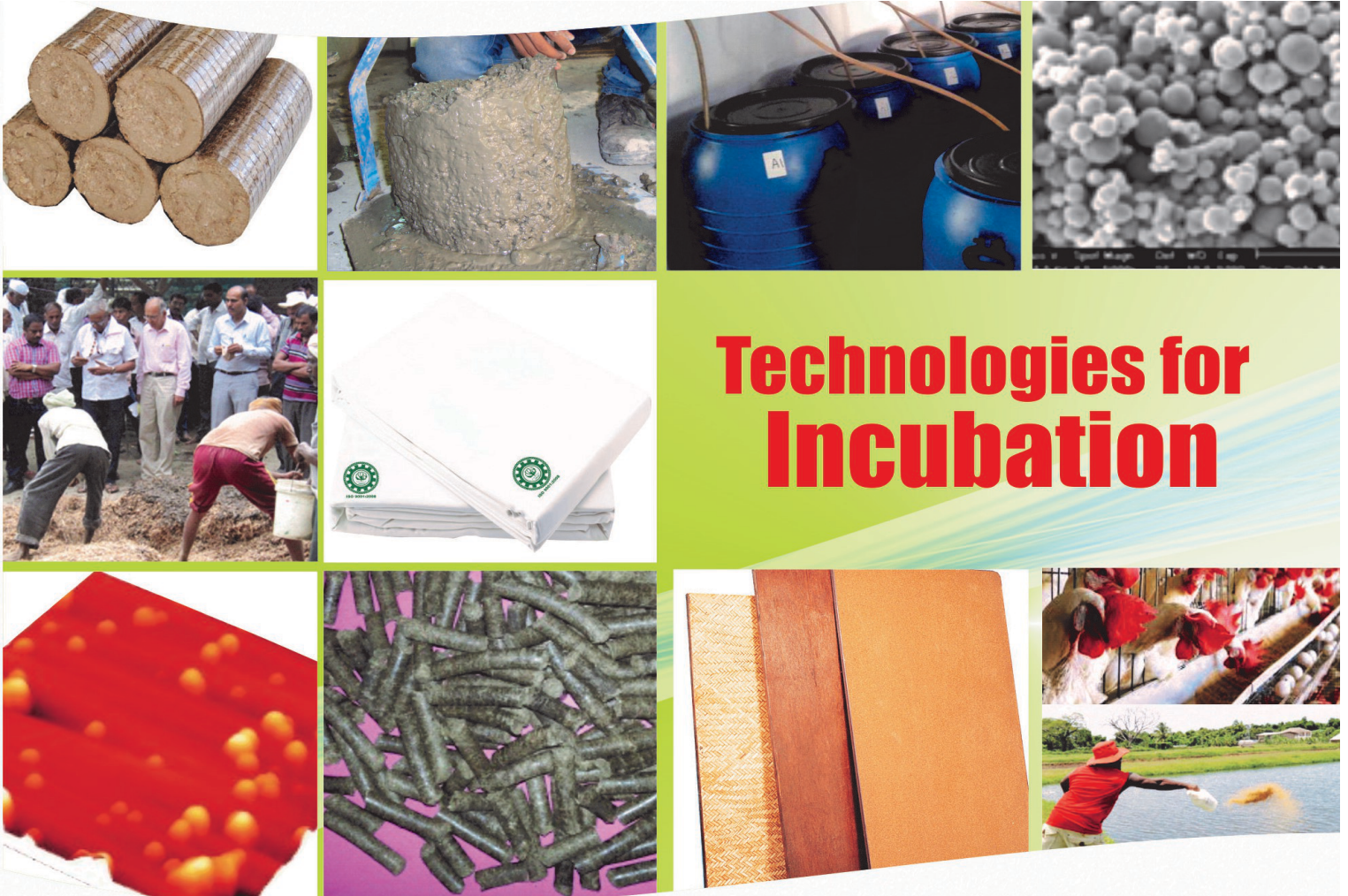
## Agri-Business Incubation

### 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



## Upcoming Events

### Calendar of training cum-skill development programmes for the year 2018-19

S.No.	Title of Training	Period	Fees (Rs) (excluding GST)
1	Instrumental Evaluation of Clothing Comfort	15-19 May, 2018	50,000
2	Value addition to Cottonseed	05-07 June, 2018	12, 000
3	Knitting & knit Garments	11-13 June, 2018	10, 000
4	Absorbent Cotton Technology	02-04 Aug., 2018	15, 000
5	Quality Evaluation & Spinning performance of Indian Cottons using Advanced Techniques	04-07 Sept., 2018	10,000
6	Advances in Applications of Nanotechnology	24-28 Sept., 2018	25,000
7	Electrospinning for Nanofibre Production & its Applications	03-05 Oct., 2018	10,000
8	Basic & Advanced Statistical Techniques for Research	12-15 Nov., 2018	6,000
9	Spectroscopic & Chromatographic Techniques for Material Characterization	27-29 Nov., 2018	10, 000
10	Instrumental Evaluation of Clothing Comfort	10-15 Dec., 2018	50,000
11	Characterization of Materials Using X-Ray Diffractometer (XRD)	27-29 Dec., 2018	30,000
12	Advances in Microscopy	17-19 Jan., 2019	15, 000
13	Basic and Adnaved Technques for Evaluation of Textile Materials	17-19 Jan., 2019	10,000
14	Fibre Reinforced Composite	04-06 Feb., 2019	10,000
15	Quality Evaluation of Cotton	21-25 May, 2018 23-27 July, 2018 06-10 Aug., 2018 24-29 Sept., 2018 22-26 Oct., 2018 26-30 Nov., 2018 21-26 Jan., 2019 18-22 Feb., 2019	10,000
16	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	21-26 May, 2018 18-23 June, 2018 30 July-04 Aug., 2018 24-29 Sept. 2018 22-27 Oct., 2018 12-17 Nov., 2018 17-22 Dec., 2018 21-26 Jan., 2019 11-16 Feb., 2019	10,000
17	Customized training programme for students & academia*	Two days (Dates can be finalized as per the requirement)	2,000
	Customized training programme for students & academia*	One day (Dates can be finalized as per the requirement)	1,000

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