



A Monthly Insight into the ICAR-CIRCOT E - News Letter



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From Director's Desk...



The Cotton is the most important crop in Asia and Africa and millions of people depend on the Cotton Industry for their livelihoods. It generates export revenues, employment – income for families in rural areas. Recently in many countries, the cotton productivity has declined & this resulted in declining returns to the farmers.

Cotton is mainly processed to obtain lint, but it also produces the important by-products such as cottonseed and cottonstalk. Making full use of cotton by-products can bring economic benefits and additional income to small cotton producers.

In the month of November there is huge crop losses in Maharashtra due to infestation of boll worm and about 1.8 m ha area estimated to be infested. This leads to the sharp decline in India's fibre productivity and production. The quality of cotton is also deteriorated and ginning industries are working at 50-60% of their capacities. Urgent intervention in policy issues and appropriate guidance to the farmers is the need of hour to come out of this serious situation.

P. G. Patil
Director





Technology Insight

Nanocellulose based Kraft Paper with improved functionality

Kraft paper is majorly used for packaging purpose. To increase the reusability and recyclability, good mechanical strength of kraft paper is essential. Reinforcing kraft paper with nanocellulose was conceived for this purpose. Nanocellulose produced from refining process using cotton linters as raw material was reinforced in kraft paper in order to improve the properties of the kraft paper. Upon addition of nanocellulose, mechanical properties of kraft paper such as tensile strength, bursting strength, fold endurance, tearing strength improved. Tensile strength increased by more than three times with addition of 20% nanocellulose in the pulp. For the same concentration, tearing strength, bursting strength and folding endurance were found to increase by 1.5, 1.2 and 6 times, respectively. Increase in mechanical properties might be due to strong inter-fibre bonding at increasing nanocellulose concentration. It is attributed to the fact that nanocellulose imparts strong hydrogen bonding between fibres; resulting in strong network of fibres in the kraft paper.



Trainings

Basic and Advanced Statistical Techniques for Research

A four-day training programme on “Basic and Advanced Statistical Techniques for Research” was organized during November 7-10, 2017 at ICAR-CIRCOT, Mumbai. There were 10 participants representing researchers, academicians and students.

The programme covered the basic and advanced statistical analytical techniques used in research and also provided a hands-on experience of working with the advanced statistical softwares such as SAS for the participants. The participants were also exposed to the use of open source R software for statistical analysis. Dr. P. G. Patil, Director, CIRCOT presided over the valedictory function and distributed the certificates to the participants.



Participants getting hands-on training on statistical tools

Farmers' Training

Farmers' training on “Cotton Production and Post-Harvest Processing” was conducted at GTC, Nagpur twice during the month of November, 2017. A total of 69 progressive farmers from Jalgaon district of Maharashtra attended the training programme sponsored by ATMA.



Group photo of farmers training held at GTC, Nagpur during November, 2017

The four-day training programme covered series of topics such as best management practices in cotton cultivation, precision farming, integrated nutrient and pest management, biological inputs and preparation of briquettes & pellets from cotton stalks. Farmers were given demonstration on preparation of compost and cultivation of oyster mushroom using cotton stalks for fetching better remuneration. The pilot plant facilities available at GTC were also shown to the farmers. They were taken to industry visits at M/s Ankur Seeds, CICR Nagpur and CCRI Nagpur. At the end of the training programme, CIRCOT Compost Culture was given to farmers in order to promote preparation of compost from cotton stalks.

Sh. Rajesh Kumar, Deputy Superintendent of Police, Anti-Corruption Branch, Central Bureau of Investigation, Mumbai who delivered a lecture on the theme was the chief Guest for the function. In his address, Director Dr. P. G. Patil emphasized on the need to follow probity and rule of law in all walks of life.

Swachha Bharat Abhiyan

As a part of the implementation of the Swachh Bharat Mission, a cleanliness drive was arranged in the CIRCOT, Mumbai premises on November 15, 2017. Articles kept near the pump house for condemnation/disposal were segregated and stored for further disposal through auction. The work was accomplished in a team spirit by forming a human chain. All the staff members enthusiastically participated in the cleaning programme.

EVENTS

Events

Vigilance Awareness Week

Vigilance Awareness Week was observed in the Institute during October 30 to November 4, 2017. Dr. P. G. Patil, Director administered the integrity pledge to all the employees of the Institute and urged them to undertake e-integrity pledge through Central Vigilance Commission portal. Half day seminar on “My Vision: Corruption Free India” was arranged on November 6, 2017.



Cleanliness being carried out in the Institute campus premises



Vigilance Awareness Week-2017 observed at ICAR-CIRCOT Mumbai



Cleanliness being carried out in the Institute campus premises

Communal Harmony Week and Flag Day

Communal Harmony Week was observed in the Institute from November 19-25, 2017. The prescribed national integration pledge was taken by all staff members at Head Quarters as well as regional stations on November 24, 2017. Flag Day was also observed on the same day. Donations were collected from the staff for physical and psychological support of the orphan or destitute children affected by violence and to promote fraternity among the people, maintain peace, communal harmony and national integration.



Dr. P. G. Patil, Director addressing the staff on Communal Harmony Week and Flag Day

Constitution Day

As per the directives received from the Ministry of Social Justice and Empowerment, Govt. of India and on the occasion of the 125th Birth Anniversary of Dr. B. R. Ambedkar, the Constitution Day was celebrated in the Institute on November 27, 2017. The “Preamble” to the constitution was read by the Director, Dr. P. G. Patil and the same was followed by the staff members. Further, many staff members expressed their views on the constitution and enlightened its importance.



Dr. P. G. Patil, Director administering an integrity pledge



Visits

Director's Visits

- The 3rd National Conclave on Standards for Technical Textiles held at FICCI Federation House, New Delhi on November 3, 2017
- Dr. P. G. Patil, Director delivered a invited presentation on “Priority Cotton By-products Activities for Development” during national workshop on commercialization of cotton by-products organized by UNCTAD, Geneva in Dar es Salaam, Tanzania during November 15-17, 2017. *This workshop was a part of a UN project “Promoting Cotton By-products in Eastern and Southern Africa” in partnership with UNECA and COMESA being implemented in Tanzania, Uganda, Zambia and Zimbabwe. Representatives from relevant stakeholders viz. Tanzania Cotton Board (TCB), Tanzania Cotton Growers Association (TACOGA), Agricultural Development Research Foundation (ADRF), Ministry of Industry, Trade & Investment and UNCTAD participated in the workshop.*



Dr. P. G. Patil, Director at UNCTAD Workshop in Tanzania

Delegates' Visits to the Institute

Dr. K. K. Singh, Director, Central Institute of Agricultural Engineering (CIAE), Bhopal visited the Institute on November 18, 2017 and interacted with the scientists of Agricultural Engineering and related disciplines. He referred to the proceedings of the workshop on "Mechanization of Cotton Cultivation, Harvesting and Ginning: Challenges, Opportunities and Way Forward", which was held at the Institute on November 5, 2017 and suggested that CIRCOT, CIAE and CICR should work together to find out the solution for various issues such as the failure of pneumatic planters in wet black soils. It has been agreed that the mechanization of cotton picking needs to be continued further through the TMC project under which this was presently being carried out has now ended and CICR, CIRCOT, CIAE and other institutes should continue the on-going research to fine tune the cotton picking mechanization technologies. Issue of developing stock puller-cum-chipper for cotton farmers was also discussed. Dr. Singh elaborated on the work done by CIAE in farm mechanization and informed that the inclined plate planter developed by CIAE, Bhopal has been widely adopted by farmers for Bt cotton in Haryana. That technology can be popularized in other cotton growing states too. Dr. Singh took a brief review of current research being carried out by scientists and urged them to do impact assessment of technologies developed at ICAR-CIRCOT and he shared the experience of CIAE in this matter.



Dr. K. K. Singh, Director, CIAE Bhopal, interacting with CIRCOT scientists



Dr. K. V. Prasad, Director, ICAR- Directorate of Floricultural Research, Pune visited Nanocellulose Pilot Plant of ICAR-CIRCOT

A group of 30 faculty members who attended Quality Improvement Programme on "Advanced Textile Materials" at Veermata Jijabai Technological Institute (VJTI), Mumbai visited ICAR-CIRCOT on November 02 and 03, 2017 to understand nanocellulose production and nanomaterial characterization facilities. The scientists and technical officers of the Institute demonstrated various production and characterization facilities.



Dr. N. Vigneshwaran explaining about nanocellulose production to visitors

Students' Visits

Students of final year B.Sc. (Agri.) from College of Agriculture, Gulbarga (UAS, Raichur) visited the institute on November 01, 2017. They visited FT, YT and MPD to understand cotton fibre testing and yarn processing in detail. Their queries were answered with a brief on basics of cotton fibre and suitable demonstrations.

Students of College of Agricultural Engineering, Raichur (UAS, Raichur) visited the Institute on November 17, 2017. They were briefed about various tests carried out in FT, YT and MPD of the Institute. Demonstrations were given to them to understand the basic concepts of cotton processing.



Visit of students from College of Agricultural Engg., Raichur

Girl students from Dept. of Biochemistry, St. Francis College, Hyderabad visited the Institute on November 20, 2017. They visited the nano lab in chemical and biochemical processing division to understand the nano particles preparation process. They were briefed about use of nanotechnology in cotton and allied sectors.



Visit of girl students from St. Francis College, Hyderabad

Students from College of Agriculture, Vellayani, Thiruvananthapuram (Kerala Agril. University), visited the Institute on November 28, 2017. They were briefed about CIRCOT history and mandate. They were also told about various specialized training courses conducted by CIRCOT. A visit to FT, YT and MPD sections was arranged to explain about the cotton processing technologies.



Visit of students from College of Agriculture, Vellayani, Thiruvananthapuram

Meetings

Meeting with the officials of APMC, Pune

CIRCOT Scientists- Dr. A. S. M. Raja, Dr. N. Vigneshwaran and Dr. Manoj Kumar had a meeting with Mr. Dilip Shankar Khaire, Chairman and Dr. P. L. Khandagale, Secretary, Agricultural Produce Market Committee (APMC), Pune on November 13, 2017. The meeting was coordinated by Dr. K. V. Prasad, Director of ICAR-Directorate of Floricultural Research, Pune. The purpose of the meeting was to discuss about the possibility of adoption of technologies from ICAR-CIRCOT and ICAR-DFR to add value to the biomass being collected in the APMC, Pune. Various stakeholders including licensed traders and farmers attended this meeting. Based on the discussion, action points were chalked out for faster implementation for the benefit of diversified stakeholders.



ICAR-CIRCOT scientists interacting with the APMC officials at Pune

QRT Meeting

Fifth meeting of the Quinquennial Review Team (2012-17) was held at Mumbai HQs on November 20-21, 2017 under the chairmanship of N. C. Patel, Vice Chancellor, Anand Agricultural University. Dr. G. R. Anap, Former Head TTD and Dr. V. D. Gotmare, Head, Textiles Division, VJTI were the other two members present for the meeting. It started with an interactive meet of team members with CIRCOT stake holders consisting of representatives from cotton trade, textile and cottonseed machinery manufacturers, textile processing auxiliary suppliers, textile processors and garment exporters. Director CIRCOT, Dr. P. G. Patil welcomed the QRT members and after the introductory remarks by the chairman, stake holders expressed their views on performance of the Institute and how its impact can be further enhanced in their respective sectors. Following points emerged from the meeting- although many good technologies have been developed by the Institute but only a few of these have been adopted by the industry. Granting of exclusive rights for the usage to an industry for a limited time at the initial stage can help in refinement and industry adoption of the technologies. Contribution of CIRCOT calibration cotton as an alternative to import from USDA was appreciated. Domestic availability of cotton needed for fine yarn production is low and that issue should be addressed through AICCIP. Attempts should also be made for the development of technologies for better utilization of cottonseed and cotton stalks in collaboration with industry. Eco friendly technologies for cotton wet processing and dyeing are needed and mechanism for monitoring and certification protocols for the eco-friendly nature of the products need to be worked out.



Interactive meet of QRT members with CIRCOT stake holders

After this interactive meet, the QRT interacted with the Director and the scientific staff for their problems and suggestions about how to improve the Institute performance. The SAO & AFAO also provided their inputs. Later the team interacted with technical staff for their views, suggestions and problems. On November 21, another member Dr. N. J. Thakor, former Head Department of APE, DBSKKV, Dapoli also joined the meeting and the team interacted with administrative and technical staff and then held discussions with representatives of various committees. The meeting ended with the vote of thanks by member Secretary Dr. Sujata Saxena, Principal Scientist.

QRT Meeting at Guntur

The QRT visited Quality Evaluation Unit of ICAR-CIRCOT located in the premises of Acharya NG Ranga Agricultural University, Guntur, (A.P.) on November 22, 2017. Team reviewed the available facilities and the work carried out by the unit for the past five years. An interactive meet was held in the university meeting room with various stakeholders including representatives from AP Cotton Association, M/s Rasi Seeds, Monsanto Seeds and university scientists working on cotton. The QRT also visited M/s Kallam Agro Oil Products at Guntur. Shri. Mohan Reddy,

Chairman and MD offered a warm welcome to the QRT members and explained in detail about the scientific processing of cottonseed for extraction of oil and other by products being followed at the mill. He took the team to different sections of the factory and discussed about the problems currently faced by this industry.

Meeting of the Women Complaint Committee

The second tri-monthly meeting of Women complaint cell for year 2017-18 was held on November 25, 2017. The meeting was attended by all committee members. Dr. Alka Chaturvedi, Professor & Head, PGED (Botany), RTMNU, Nagpur participated in the meeting as an outside member. The discussions on safety of women in workplace were held.

TV Talk

Er. V. G. Arude, Scientist delivered TV talk on DD on Value Addition to Cotton Stalk

Er. V. G. Arude, Scientist, delivered a TV talk programme under Krishi Darshan in Marathi on Sahyadri Channel of Doordarshan. The topic of discussion on the talk show was 'Value Addition to Cotton Stalk'. The programme highlighted the status of utilization of cotton stalk for various application and problems encountered thereupon, method adopted for its uprooting, cotton stalk supply chain and its potential industrial applications at rural level. Er. Arude briefed about the economic feasibility of establishment of briquetting

and pelleting plant and preparation of compost from cotton stalk and its benefits to farmers and other stakeholders. The talk was stressed on to increase the farmer's income and to create the wealth from the waste. The talk also covered the role played by ICAR-CIRCOT in creating awareness and training for utilization of cotton stalks for preparation of various value added products. This programme was broadcasted on November, 24 and 27, 2017 on Sahyadri Channel of Doordarshan.



Er. V. G. Arude, Scientist in a TV talk on DD Sahyadri

Awareness Programmes

Mera Gaon Mera Gaurav (MGMG)

Awareness-cum-demonstration program on "Production and Processing of Cotton" was organized at Shegaon (Kund) village in Hinganghat Taluk of Wardha District, Maharashtra on November 10, 2017. The programme was attended by around 40 farmers. Dr. Sharmila Patil briefed about various technologies developed by ICAR-CIRCOT for cotton farmers and ginneries. Dr. M. S. Kairon detailed about the best management practices to be followed to increase cotton productivity with minimum production.

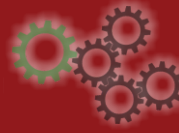
cost. Farmers were advised on the pest and disease prevention measures especially during sowing and growing stage. Shri. G. H. Wairale discussed about marketing and quality evaluation of cotton and also gave demonstration on safety suit to be worn by farmers during pesticide spraying. Er. Varsha Satankar explained on preparation of compost and oyster mushroom cultivation using cotton stalks. Mr. Madhusudan Harne, Panchayat President, Shegaon (Kund) village participated in discussion. The team also visited nearby village Sawali (Wagh) and interacted with farmers. The demonstration of pest & disease identification in cotton field was given to the farmers during field visit.



MGMG Programme at Shegaon (Kund), Wardha



Field visit during MGMG Programme at Sawali (Wagh) village, Wardha



Workshop

Ginning Training Centre, Nagpur organized a one-day workshop on “Application of latest cotton production and processing technologies for maximizing benefits of all stakeholders” in collaboration with Bayer Crop Science, Thane and Confederation of Indian Textile Industries-Cotton Development Research Association (CITI-CDRA), Nagpur. Dr. S. Nimabalkar, former VC, Dr. PDKV, Akola and Chief Guest of the function spoke about remedial measures to curtail the menace of pink bollworm attacks on cotton crops, particularly in Maharashtra as well as safety measures to be followed during pesticide application. Dr. M. K. Sharma, CEO, Bajaj Steel Industries Ltd., Nagpur expressed the need to revise the Indian cotton bale standards to increase its demand and price in global market. Dr. V. S. Nagarare, Principal Scientist presented the do's and don'ts to arrest the menace of pink bollworm attacks on cotton crops. Moreover, the impact of pink boll worm on cotton quality parameters was explained by Er. D. U. Patil, CTO, GTC. Shri G. H. Wairale, Project Coordinator, CITI-CDRA and Shri Sharad Ramekar, Regional Manager, Bayer Crop Sciences talked on cotton scenario and status of cotton mechanization in India. Live demonstrations were also showed by GTC experts on measurement of cotton moisture and Ginning Outturn.



Dr. S. K. Shukla, Officer In-charge welcoming the guests during the workshop



Participation in Events/Seminars

- GTC, Nagpur actively participated in the 9th AgroVision-2017 held at Reshimbhag, Nagpur during November 10-13, 2017. ICAR-CIRCOT exhibited a stall during the entire period of programme and was keenly involved in showcasing ICAR-CIRCOT technologies to the visitors and farmers. Hon. Shri Venkaiah Naidu, Vice President of India, Hon. Shri. Nitin Gadkari, Union Minister of Road Transport and Highways and Hon. Shri. Devendra Fadnavis, Chief Minister of Maharashtra graced the inaugural function. The programme witnessed huge gathering and enthusiasm among the farmers and youngsters.
- Members of Women Complaint Committee Mrs. Sujata Koshy, AAO, Mrs. P. S. Nirali, ACTO, Er. Archana Mahapatra, Scientist, Mrs. Prachi R. Mhatre, Senior Technical Officer and Mrs. Bindu Venugopal, Senior Technical Officer attended a one day seminar on "Women Safety and Empowerment" organised by RI District 3141 at Dr. BMN College of Home Science, Mumbai on November 25, 2017.



Publications

- Mageshwaran, V., Shaikh, A. and Kathe, A. A. 2017. Optimization of process parameters for gossypol detoxification in chemical disinfected cottonseed cake by mixed fungal culture during solid state fermentation. Journal of Scientific and Industrial Research. 76: 714-719.
- Mageshwaran V., Varsha Satankar, Hamid Hasan, S. K. Shukla and P. G. Patil. 2016. On farm utilization of cotton stalks for additional source of farm income. Amber (Hindi article) pp 1-4.



Personnel

Transfer

Er. Chandrika Ram, Senior Technical Officer transferred on deputation for three years from ICAR-CIARI Port Blair to ICAR-CIRCOT, Mumbai on November 10, 2017 on Deputation Basis for three years.

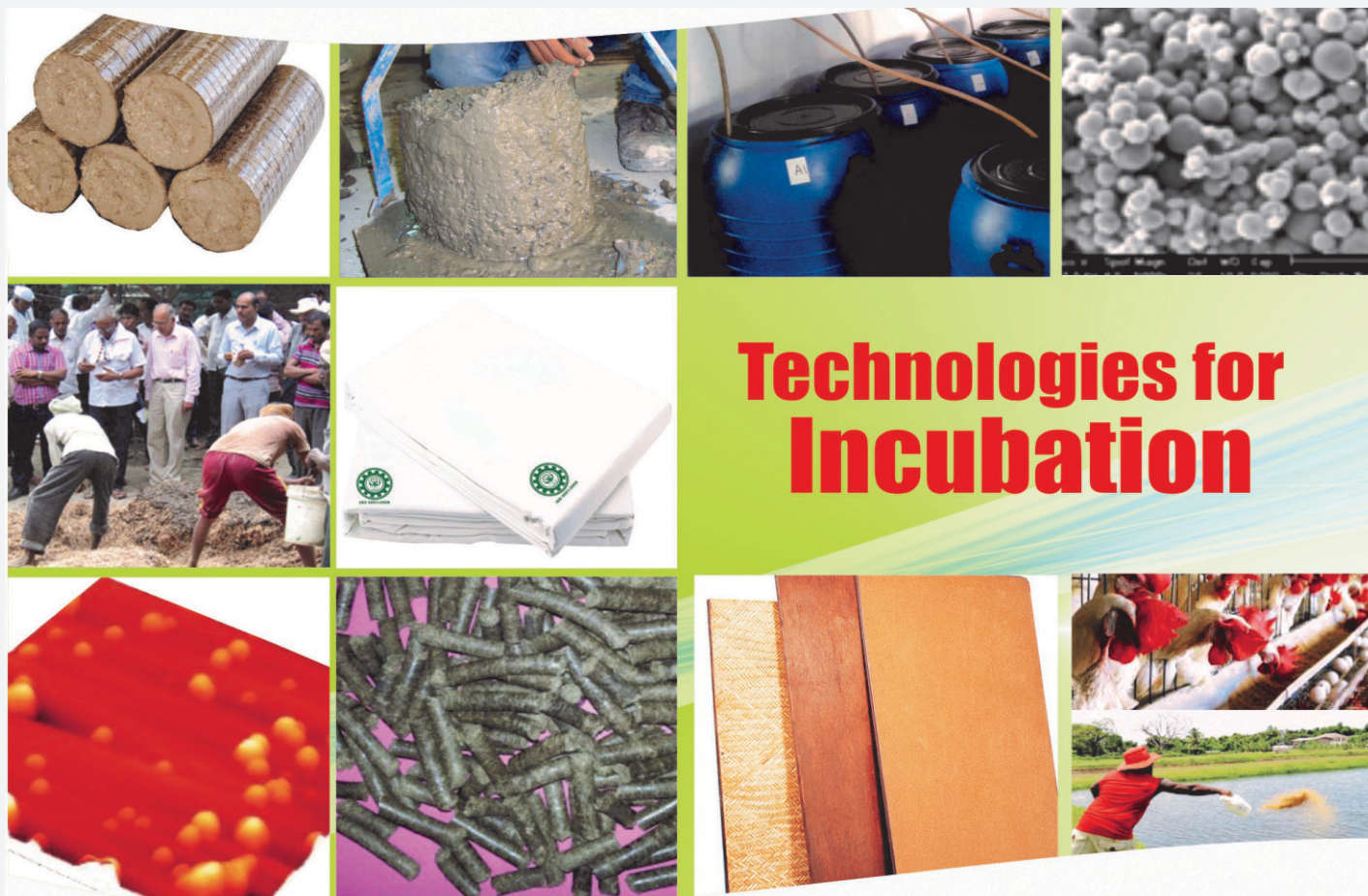
Superannuation

Shri. C. S. Salvi, Skilled Support Staff, ICAR-CIRCOT, Mumbai superannuated on November 30, 2017.

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	Characterization of Materials Using X-Ray Diffractometer (XRD)	19-21 Dec., 2017	30,000
2	Basic and Advanced Techniques for Evaluation of Textile Materials	04-06 Jan., 2018	10,000
3	Knitting & Knit Garments	10-12 Jan., 2018	10,000
4	Advances in Microscopy	17-19 Jan., 2018	15,000
5	Electrospinning for Nanofibre Production & its Applications	23-25 Jan., 2018	10,000
6	Fibre Reinforced Composite	07-09 Feb., 2018	10,000
7	Quality Evaluation of Cotton	29 Jan.-. 2 Feb, 2018 19-23 Feb., 2018	10,000
8	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	18-23 Dec., 2017 15-20 Jan., 2018 12-17 Feb., 2018	10,000
9	Customized training programme for students & academia*	Two days (Dates can be finalized as per the requirement)	2,000
10	Customized training programme for students & academia*	One day (Dates can be finalized as per the requirement)	1,000

For more information please contact:

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