



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



Happy Diwali 2017



September 2017, Vol. 4. No. 6



From Director's Desk...



India is the leading producer of cotton in the world accounting for one-fourth of the world output covering 36 per cent of the area under global cotton cultivation.

Besides, India is the second largest consumer of the cotton in the world with a robust cotton value chain. Despite these the average productivity levels of Indian cotton is hovering in the range of 500-570 kg lint per hectare, much below the world average of 780 kg lint per hectare and far behind the highest productivity level of about 2300 kg lint per hectare in Australia.

With the present focus of the Nation on doubling of the farmers' income by 2022, it becomes imminent to improve the productivity of cotton but without compromising on the quality. The key challenges in the present cotton scenario of the country are contamination and adulteration that impact the competitiveness of Indian Cotton. In this backdrop, the 7th Asian Cotton Research and Development Network (ACRDN) Meet focusing on the theme "Production of quality fibres and Doubling of Cotton Farmers' Income" was successfully organized at Nagpur during September 15-17, 2017 by Indian Society for Cotton Improvement in collaboration with ICAR-CIRCOT, ICAC and ICAR-CICR. The three day deliberations had taken place among delegates from USA, Australia, Bangladesh, Egypt and India and shared their knowledge and experience for the sustainability of the Cotton in the Asian region.

During the month, the Institute organized skill development programmes for the stakeholders in the areas of Advances in Application of Nanotechnology, Quality Evaluation of Cotton and two programmes for farmers on Cotton Production and Post-harvest Processing. Under MGMG programme a Kisan Goshti cum demonstration programme was organized in Wardha District of Maharashtra. As a part of Swachh Bharat Mission a Swachhta Campaign "Swachhta Hi Seva" has been launched. The Quality Management System of the Institute has been renewed and is now accredited as per IS/ISO 9001: 2015 by Bureau of Indian Standards.

P. G. Patil
Director

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Special News

The 7th Asian Cotton Research and Development Network (ACRDN) Meet

Indian Society for Cotton Improvement (ISCI), Mumbai in collaboration with ICAR-CIRCOT, Mumbai, ICAR-CICR, Nagpur and International Cotton Advisory Committee (ICAC) Washington, organized the 7th Asian Cotton Research and Development Network (ACRDN) Meet at Nagpur during September 15-17, 2017. The theme of this international event was “Production of quality fibres and Doubling of Cotton Farmers Income”. Dr. Terry Townsend, Former Director, ICAC was the Chief Guest of the meeting attended by more than 215 registered delegates including participants from USA, Australia, Bangladesh, Egypt and India. In all, 18 Technical Sessions were conducted covering various aspects of cotton cultivation, genetics, biotechnology, plant protection, mechanization and post-harvest technology.



Dr. P. G. Patil, Director, ICAR-CIRCOT, Mumbai delivering the welcome address at the 7th ACRDN meet held at Nagpur during September 15-17, 2017

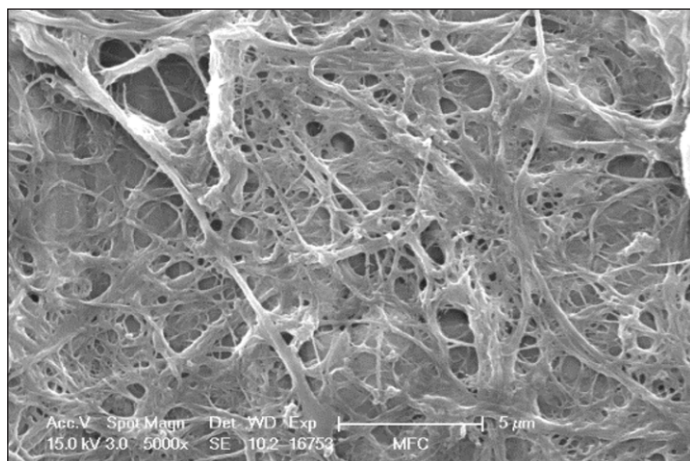


ICAR-CIRCOT staff along with delegates at the 7th ACRDN Meet, Nagpur

Technology Insight

Nano Cellulose Production

Friction grinding process was developed to produce nanocellulose from cotton fibers. Friction Grinder features two ceramic nonporous grinders that are adjustable to have required clearance between the upper and lower grinding stones. Microcrystalline cellulose prepared from cotton linters at a 10% consistency in water was processed through friction grinder with a clearance of 600 μm . During subsequent passes, the clearance was reduced down to 0 μm and further less (-100 μm) to achieve the nanocellulose. The yield was more than 90% and the size was in the range of 50 to 200 nm. The entire process of nanocellulose production from cotton cellulose by friction grinding was optimized. The parameters could be adjusted to produce nanocellulose of different dimensions suitable for diversified applications. The developed process is simple and easily scalable with reduced operational drudgery. Since the aspect ratio of nanocellulose is very high, it forms very good films, having potential applications in nanofilters and masks.



SEM micrograph of nanocellulose produced by friction grinding

Trainings

Farmers Training at GTC, Nagpur

The four-day farmers training programmes on “Cotton Production and Post-Harvest Processing” were organized for two batches of farmers during September 4-7 and September 18-21 at GTC, Nagpur.

The training was attended by twenty six progressive farmers in the first batch and thirty farmers in the second batch. Farmers from Jalgaon district of Maharashtra were benefited from the training programme sponsored by ATMA, Jalgaon. Dr. S. K. Shukla, Officer In-charge, GTC welcomed the participants and briefed about the functions of GTC, Nagpur. The four day training programme covered series of lectures on best management practices in cultivation of cotton, precision farming, integrated nutrient and pest management, biological inputs and preparation of briquettes & pellets from cotton stalks. Farmers were also given demonstration on preparation of compost and cultivation of oyster mushroom using cotton stalks to fetch better remuneration. The pilot plant facilities available at GTC were shown to the farmers and they were taken to field visit at M/s Ankur seeds, Nagpur and ICAR-CCRI, Nagpur. The cotton stalk compost samples were distributed to the progressive farmers to further demonstrate these technologies in their villages.



Group Photo: Farmers from Jalgaon, Maharashtra attending the training programme at GTC Nagpur during September 18-21, 2017

Advances in Applications of Nano Technology

In line with the Government's skill development programmes, a five day self-sponsored training programme on “Advances in Applications of Nanotechnology” was organized at ICAR-CIRCOT, Mumbai during September 11-15, 2017.

Nineteen young researchers from Assam, Bihar, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu, Telangana, Uttarakhand and Uttar Pradesh attended the training programme and received hands-on experience in synthesis and characterization of nanomaterials and their applications in food & agriculture, textiles, composites, sensors, pulp & paper and catalysis. In addition to in-house experts, faculties from IIT Bombay and TIFR, Mumbai were also invited to share their expertise with the trainees. Dr. P. G. Patil, Director appreciated the interest shown by the participants from different areas of research work in attending this training programme.



Participants getting hands-on training on nanotechnology

TV Talk

Dr. P. G. Patil, Director delivered a TV Talk on DD Sahyadri

Dr. P. G. Patil, Director participated in a TV talk show 'Krishi Darshan' hosted by DD Sahyadri, The topic of discussion on the talk show was “कापसा पासून नॅनोसेल्युलोज निर्मिति व त्याचे उपयोग” (Nanocellulose Production from Cotton and its Uses”).



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

The show was broadcast on September 25, 2017 at 6.10 p.m. The deliberations covered the importance of nanotechnology, nanocellulose and its unique properties, production of nanocellulose from cotton linters and its uses, first nanocellulose pilot plant at ICAR-CIRCOT, contribution of ICAR-CIRCOT in developing cost efficient chemo-mechanical process for nanocellulose production and its impact on farmers income and future of agriculture in India.

Dr. P. S. Deshmukh delivered a Radio Talk

Senior Scientist Dr. P. S. Deshmukh participated in Radio Talk on All India Radio (Akashvani), Asmita Vahini, Mumbai. The topic of talk was “सुपायी च्या सालीपासून तंतु उत्पादन आणि त्याचे उपयोग” (Areca Nut Husk Fibre Production and its Uses). The show was conducted by Dr. Santosh Jadhav, Programme Executive, All India Radio and broadcast on September 9, 2017 at 7.30 p.m.

Awareness Programmes

Mera Gaon Mera Gaurav

Kishan Goshti-cum-demonstration programme was organized at Ratnapur village in Deoli Taluk of Wardha District, Maharashtra on September 18, 2017. Dr. P. K. Mandhyan and Dr. N. Vigneshwaran, Senior Scientists, ICAR-CIRCOT, Mumbai visited the village along with cotton experts, Dr. M. S. Kairon, Former Director, CICR, Nagpur, Shri. G. H. Wairale, President, Agro-Plus Foundation, Nagpur and Mr. S. L. Bhanuse, Sr. Technical Officer from Ginning Training Centre, Nagpur. Thirty four farmers attended the meeting arranged in temple premises. Various issues related to cotton cultivation, harvesting and trading of seed cotton were discussed and suggestions were given to the farmers.

Checking of lint quality before selling to the factories, following of proper agronomic practices, judicious use of chemical pesticides were some of the issues discussed. The farmers were also sensitized about the production of briquettes and pellets from cotton stalks for value addition to cotton wastes. The meeting was followed by demonstration of pest & disease identification in cotton field during the field visit.



Mera Gaon Mera Gaurav Programme at Ratnapur, Wardha

Events

Inauguration of Video Conference Facility

Dr. Trilochan Mohapatra, Secretary (DARE) & Director General (ICAR) inaugurated the video conference facility at ICAR-CIRCOT, Mumbai on September 7, 2017. On this occasion, an interactive videoconferencing session was organized with the senior officials of ICAR-CIFE, Mumbai.



Inauguration of videoconferencing facility by Dr. Trilochan Mohapatra, Secretary (DARE) & DG (ICAR) on September 7, 2017



Hindi Day/Week

Hindi Day/Week was celebrated in the Institute during September 14-23, 2017. Various competitions such as hand writing, quiz, technical vocabulary, general knowledge and poetry recitation were conducted during this week. Employees participated in these events with great enthusiasm.

The concluding day was celebrated on September 23, 2017 in the presence of special guest Dr. Rajeshwar Uniyal, Dy. Director (official language), CIFE and Dr. Mrigendra Rai, Assistant Professor, Khalsa College. Dr. P. G. Patil, Director expressed his views on various achievements of Hindi during the year.



Releasing Amber (issue-3) Magazine and Hindi Annual Report on Hindi Day

Dr. Sujata Saxena, Principal Scientist and Chairperson of Hindi Day/Week celebration highlighted on the various achievements during the week. On this occasion Home Magazine Amber (issue-3) and Hindi Annual Report were released. Employees were awarded for passing Parangat exam in Hindi. Shri. B. R. Pawar, Assistant Chief Technical Officer and Smt. Prachi Mhatre, Senior Technical Officer compared the programme and Dr. Manoj Kumar concluded the same with vote of thanks.



Dr. Rajeshwar Uniyal, Dy. Director (official language), CIFE awarding the winners

Hindi Saptah Samaroh at GTC, Nagpur

Ginning Training Centre, Nagpur organized “Hindi Saptah Samaroh” during the period September 14-20, 2017. All the GTC staff participated actively in the programme and conducted various events to promote Hindi in official use. Dr. V. Mageshwaran, Scientist, GTC welcomed Shri. Om Prakash Singh, an eminent Hindi author to felicitate the winners of various events at the valedictory program. Shri Singh, distributed the prizes to winners of the events and praised them.

“Swachhta Hi Seva” Campaign

As part of the implementation of the Swachh Bharat Mission and the instructions received from ICAR, “Swachhta Hi Seva” campaign was launched at ICAR-CIRCOT, Mumbai and conducted from September 15 to October 2, 2017. An action plan for 17 days was prepared and followed strictly without fail. Dr. P. G. Patil, Director, sensitized the staff members about the importance of cleanliness in maintaining healthy lifestyle and standard of living. All the staff members of ICAR-CIRCOT at its headquarters and regional units participated enthusiastically in the cleaning programme.



Glimpses of “Swachhta Hi Seva” Campaign at ICAR-CICOT, Mumbai



“Swachhta Hi Seva” Campaign at GTC, Nagpur



Cleaning programme at Regional Quality Evaluation Unit of CIRCOT, Coimbatore

ICAR CIRCOT Action Plan for Swachhata Hi Sewa Campaign

Sr. No.	Date	Activities accomplished
1	15/09/2017	Display of banners “Swachhta Hi Sewa” at appropriate places and a mass drive of cleanliness
2	16/09/2017	Cleaning programme in Chemical and Biochemical Processing Division (CBPD) of the institute
3	17/09/2017	Seva Diwas: Cleaning and sweeping of entire campus of the institute from 10 am to 12 am
4	18/09/2017	Cleaning programme at Regional Quality Evaluation Unit of ICAR-CIRCOT, Coimbatore
5	19/09/2017	Shapath Grahan programme
6	21/09/2017	Cleaning programme in Administration II Section of the institute
7	22/09/2017	Cleaning programme in Library of the institute
8	23/09/2017	Cleaning programme in Scanning Electron Microscopy (SEM) Lab of the institute
9	24/09/2017	Celebrate Samagra Swachhta Divas
10	25/09/2017	“Sarwatra Swachhta”: cleaning of public places
11	26/09/2017	Cleaning programme in Mechanical Processing Division (MPD) of the institute
12	27/09/2017	Cleaning programme in Administration IV&V Section of the institute.
13	28/09/2017	Cleaning programme in Nano Cellulose Pilot Plant of the institute
14	29/09/2017	Cleaning programme in Quality Evaluation and Improvement Division (QEID) of the institute
15	1/10/2017	Cleanliness drive/ awareness at tourist spot Five gardens in Mumbai and children park of Japanese Garden in Nagpur
16	2/10/2017	Arrange for public function and award ceremony

Visits

Director's Visits

- Director, Dr. P.G. Patil attended a meeting at the ASRB, New Delhi as a member of the committee for promotion of Senior Scientist to Principal Scientist on September 6, 2017.
- Director, Dr. P.G. Patil visited Nagpur from September 13-18, 2017 to conduct the 7th Asian Cotton Research & Development Network (ACRDN) Meet as an Organizing Secretary.

Farmers Visit

- A group of twenty one farmers from Chindawara, Madhya Pradesh visited GTC, Nagpur on September 14, 2017 under Pradhan Manthri Keth Thirth Yojana. Er. Varsha Satankar, Scientist, GTC explained to the farmers about various activities undertaken at GTC, Nagpur including ginning and cotton by-products utilization.



Group photo of Madhya Pradesh Farmers visit to GTC, Nagpur

Students' Visit

- Twenty students from Agricultural College, Vaghai, Navsari Agricultural University, Gujrat visited Regional unit of ICAR-CIRCOT at Surat. Mr. G. G. Mistry, Unit In-charge briefed them about HVI Testing for cotton fibre properties and various research activities of CIRCOT.

Other Visits

- Dr. P. K. Mandhayan, Senior Scientist & Head I/C, QEID and Dr. G. Krishna Prasad, Scientist, MPD visited Satod village of Jalgaon district on September 26, 2017. They visited banana fibre extraction units installed by farmers in that region and gave suggestions to the farmer for improving the banana fibre quality.

On the same day they had a meeting with Honorable Shri Haribhau Madhav Jawale, Member of the Maharashtra Legislative Assembly and explained him about the different procedure for developing value added products from Banana fiber.



Dr. P. K. Mandhayan and Dr. G. Krishna Prasad meeting with Honorable Shri Haribhau Madhav Jawale, Member of the Maharashtra Legislative Assembly, Jalgaon

Meetings

ERP Implementation

A meeting was held on September 8, 2017 in the presence of Shri Devendra Kumar, Director (Finance), ICAR, New Delhi to review the progress of ERP implementation and other financial issues of CIRCOT and CIFE, Mumbai. Shri Rahul Kumar, Fin. & A/cs Officer, CIFE, Mumbai was also present for the meeting. Matter regarding PFMS, ERP System, GEM, E-Procurement and other financial issues were discussed and as per instructions of the Chairman it was decided to take major steps for implementation.



Shri Devendra Kumar, Director (Finance), ICAR at ERP Implementation meeting, CIRCOT, Mumbai

BIS External Audit for Accreditation of Institute as per ISO 9001:2015

Bureau of Indian Standards (BIS) has conducted external audit for renewal of our Quality Management System (QMS) license under IS/ ISO 9001: 2015 during September 7-8, 2017 in the institute. During the opening meeting on September 7, 2017, Dr. P. G. Patil, Director informed that the accreditation of QMS through BIS has been helpful for overall development of the institute and the institute has made all requisite changes for accreditation as per new standard IS/ISO 9001:2015. Three auditors, Mr. M. Chilakward, Mr. N. P. Kawale and Mr. S. S. Meena have done audit in all the Divisions and Sections under scope of the audit. During the closing meeting on September 8, 2017, auditors recommended for renewal of Institute QMS license as per IS/ISO 9001:2015. Dr. A. S. M. Raja and Mr. A. Arputharaj have made necessary arrangement for smooth conduct of audit in the institute.



The external auditors (BIS) recommending ISO 9001:2015 to the institute at closing meeting

Meeting on Technology for Currency Grade Pulp

The second meeting on “Technology for Currency Grade Pulp” was held under the chairmanship of Dr. T. Mohapatra, Secretary DARE & DG, ICAR, at Krishi Bhawan, New Delhi on September 21, 2017. The purpose of meeting was to discuss the progress of testing trials conducted at SPM, Hoshangabad and way forward to speed up the adoption of the technology. Officials from SPM, Hoshangabad, SPMCIL, New Delhi, Department of Economic Affairs, New Delhi, ICAR, New Delhi and ICAR-CIRCOT, Mumbai were present in the meeting. Dr. Virendra Prasad, Senior Scientist, ICAR-CIRCOT, Mumbai gave presentation on quality parameters of the currency grade pulp & paper prepared using ICAR-CIRCOT technology and tested in the lab of SPM. All the stakeholders accepted that the quality of ICAR-CIRCOT paper is better than currently used currency paper. The further course of actions were decided in the meeting to transfer the technology.

Participation in Conferences/ Lectures

- The following scientists attended the 7th ACRDN Meet at Nagpur held during September 15-17, 2017 and participated in various technical sessions and poster presentation.
- Scientists and technical officers (above T3) attended a lecture on “Global Scenario of Cotton” by Mr. Manish Daga, M. D., Cotton Guru organized by Indian Fiber Society at Jubilee Hall, ICAR-CIRCOT, Mumbai on September 25, 2017.

Participation in Technical Sessions:

Participant	Topic
Dr. N. Vigneswaran (Sr. Scientist)	Application in nanotechnology in cotton
Er. A. K. Bharimalla (Sr. Scientist)	Application of nanocellulose in pulp & paper and composites
Dr. R. Guruprasad (Scientist)	Electrospun Nanomaterials: Basics and Applications
Mr. A. Arputhraj (Scientist)	Development of functional cotton textiles using nano-ZnO
Er. V. G. Arude (Scientist)	Integrated single locking cotton feeder cum cleaner for double roller gin
Dr. S. V. Ghadge (Sr. Scientist)	Design and development of cotton lint opener for preparation of samples in fibre quality testing
Dr. S. K. Shukla (Sr. Scientist)	Effect of various ginning technologies on fibre properties of machine harvested cotton
Dr. Sundarmoorthy (Sr. Scientist)	Contamination status of India cottons
Dr. P. K. Madhyan (Sr. Scientist)	Industrial quality requirement of cotton vis-a-vis its availability-Indian scenario
Dr. Mageswaran (Scientist)	Recent advances in fermentation technology for value-addition to cotton stalks and cottonseed
Er. Varsha Satankar (Scientist)	Force variation on beater shaft of double roller gin under different working conditions

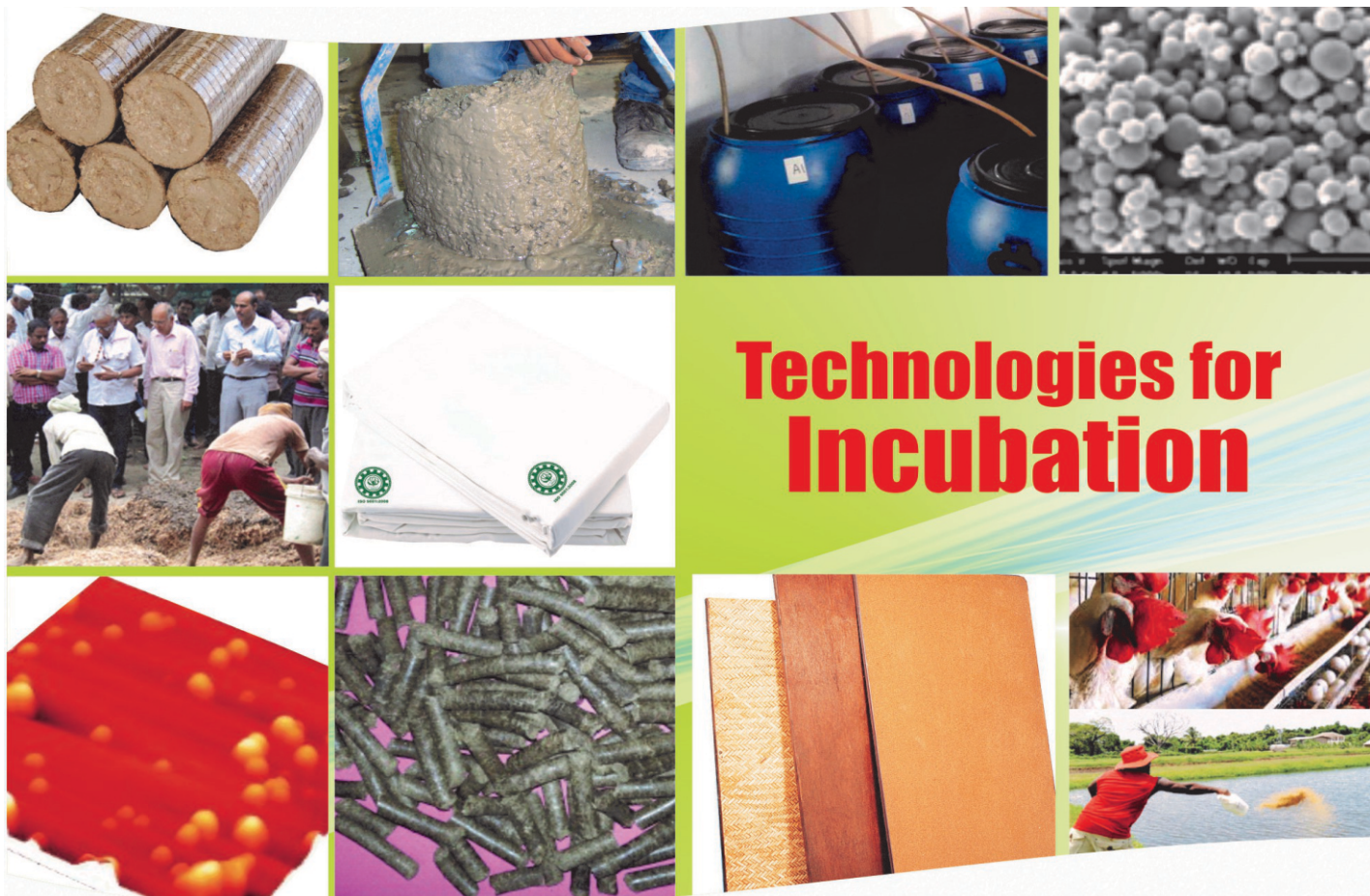
Participation in Poster Presentation:

Participant	Topic
Dr. D. M. Kadam (Principal Scientist)	Synthesis and physico-morphological characterization of bio-cellulose extracted from selected Agricultural residues
Dr. N. Vigneswaran (Sr. Scientist)	Nanocellulose from Cotton Linters
Er. A. K. Bharimalla (Sr. Scientist)	Agri-business Incubation Centre of ICAR-CIRCOT: A Platform for startups in cotton sector
Dr. P. S. Deshmukh (Sr. Scientist)	ICAR-CIRCOT training on quality evaluation of fibre: An analysis for 2014-2017
Er. Archana Mahapatra (Scientist)	Effect of textile softeners on BTCA treated cotton fabric
Dr. Sharmila Patil (Scientist)	Effect of different mercerization techniques on tactile comfort of cotton fabric
Dr. Manoj Kumar (Scientist)	Bio polishing of cellulosic fibers

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	Spinning of Technical Yarn	05-07 Oct., 2017	10,000
2	Basic & advanced Statistical Techniques for Research	15-17 Nov., 2017	8,000
3	Characterization of Materials Using X-Ray Diffractometer (XRD)	19-21 Dec., 2017	30,000
4	Basic and Advanced Techniques for Evaluation of Textile Materials	04-06 Jan., 2018	10,000
5	Advances in Microscopy	16-18 Jan., 2018	15,000
6	Electrospinning Technologies & their Applications	23-25 Jan., 2018	10,000
7	Fibre Reinforced Composite	07-09 Feb., 2018	10,000
8	Quality Evaluation of Cotton	23-28 Oct., 2017 20-24 Nov., 2017 29 Jan.- 2 Feb, 2018 19-23 Feb., 2018	10,000
9	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	09-14 Oct., 2017 13-18 Nov., 2017 18-23 Dec., 2017 15-20 Jan., 2018 12-17 Feb., 2018	10,000
10	Customized training programme for students & academia*	Two days (Dates can be finalized as per the requirement)	2,000
11	Customized training programme for students & academia*	One day (Dates can be finalized as per the requirement)	1,000

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