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### FROM THE DIRECTOR'S DESK



Human resource development is very important to provide skilled man power to the ginning and textile industry and impart knowledge to stakeholders so as to improve their remuneration through value addition to cotton and cotton by-products. During this months, a series of such skill developments programmes were conducted by the institute.

This cotton year showed very uncertain picture in both cost and production wise. Prices of cotton in the international market jumped to over 80 cents / lb in this month from average of 70 cents / lb for the rest of season. The main reasons for the situation are lower cotton production in the five largest producing countries viz. India, China, USA, Pakistan, Brazil and higher than expected demand from industry.

India's cotton production in the year 2015-16 is expected to decline to 338 lakh bales from 386 bales, a fall of more than 12 per cent. The area under cotton has dipped to 119 lakh hectares against 128 lakh hectares last year. Projection of decline in crop acreage, lower sowing acreage in Gujarat coupled with tight supplies in the market has led to a sharp increase in the prices of cotton. This was evidenced by the sharp rise in the price reaching Rs. 50, 000/candy. The high prices have put the industry in a risky situation, as the spinning mills are not able to absorb the sudden spurt in the prices of cotton as they are operating under surplus capacity due to the stagnant demand in the yarn market. There is a lower capacity utilization especially in case of the small and medium scale spinning mills.

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(P. G. Patil)

### Special News

#### **ICAR Award for Outstanding Interdisciplinary Team**

ICAR award for Outstanding Interdisciplinary Team Research in Agricultural and Allied Sciences for the year 2013-14 under the category of NRM and Agricultural Engineering was conferred for the Development of Flexi Check Dam Technology for watersheds. The Consortium Partners involved in the development of the Flexi Check Dam include ICAR-DWM, Bhubneshwar; ICAR-CIRCOT, Mumbai; IRMARA, Thane. The award was given on the occasion of 88<sup>th</sup> ICAR Foundation Day and Award Ceremony at Vigyan Bhavan, New Delhi on 16<sup>th</sup> July 2016.



Hon'ble Union Ministers of State, Shri Parshottam Rupala and Shri Sudharsan Bhagat, conferring ICAR award for outstanding interdisciplinary team research

## Hon'ble Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh Visits ICAR-CIRCOT

Hon'ble Union Minister of Agriculture and Farmers Welfare, Shri Radha Mohan Singh visited the Institute on 3<sup>rd</sup> July 2016. While addressing the staff members of the Institute, he applauded the establishment of Nanocellulose Pilot Plant, first of its kind in India and fifth in the World. The Minister stressed upon the skill development programmes and the research output of the Institute to be beneficial for farmers and emphasized that awareness about such activities should reach the stakeholders on real-time basis. He visited various research facilities, nanocellulose pilot plant and the exhibition hall and also released 14 leaflets on the Skill Development programmes. Shri Chhabilendra Roul, Additional Secretary DARE and Secretary, ICAR in his address, expressed that the institute should focus on developing frontier technologies and give prominence to technology commercialization. Dr. P. G. Patil, Director, ICAR-CIRCOT, briefed about the achievements of the Institute. Dr. S. N. Jha, ADG (PE) and officials of ICAR Institutes were present on the occasion.



Hon'ble Union Minister of Agriculture and Farmers Welfare, Shri. Radha Mohan Singh while addressing ICAR-CIRCOT staff



Hon'ble Union Minister of Agriculture and Farmers Welfare, Shri. Radha Mohan Singh in nanocellulose pilot plant

## Union Minister Shri Radha Mohan Singh reviewed Research and Education activities

On 4<sup>th</sup> July, 2016, Hon'ble Union Minister of Agriculture and Farmers Welfare Shri Radha Mohan Singh reviewed the performance of ICAR Research Institutes and the State Agricultural Universities located in Maharashtra at ICAR-CIFE, Mumbai. Shri Vijay Deshmukh, State Minister for Fisheries, Maharashtra, Shri Ram Shinde, State Minister of Agriculture and Horticulture, Maharashtra, Shri Chhabilendra Roul, Additional Secretary DARE and Secretary ICAR, Shri Bijay Kumar, Principal Secretary (Fisheries), Government of Maharashtra, Shri Bhagwan Sahay, Additional Chief Secretary (Agriculture), Government of Maharashtra were present on the occasion.



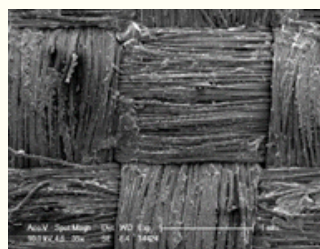
Hon'ble Union Minister of Agriculture and Farmers Welfare Shri Radha Mohan Singh while addressing the gathering

Hon'ble Union Minister for Agriculture dwelt at length on the role of extension and transfer of technology from lab to land. He also stressed on the field extension and emphasized the need for bringing together the state departments and the research institutes / State Agricultural Universities located in the same state. He felt that these institutions should meet at least twice in a year as this would enable transfer of technology directly to the first line department of extension. All the ICAR Institutes and SAUs in the region participated.

## Technology Insight

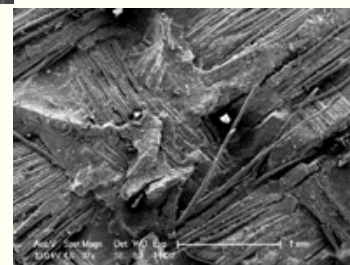
### Technology to improve surface adhesion of nylon fabric with rubber for composite preparation

A technology was developed to enhance the interfacial bonding between nylon fabric and rubber in order to develop light weight strong nylon-rubber composites. The surface of nylon 6, 6 fabric was treated with formic acid to increase the roughness in order to improve the interfacial bonding with rubber. Box-Behnken three factorial design was used to optimize treatment parameters. The fabric treated under optimized condition exhibited 150 % and 124 % higher peel strength along the warp and weft directions as compared to control fabric. The treatment causes the hydrolysis of polyamide surface which led to increase in hydrogen bonding and surface roughness and ultimately facilitate the mechanical interlocking to improve the strength of composite material.



Surface of control fabric after peel strength test

Surface of treated fabric after peel strength test (with rubber deposition)



# Training

## Specialized Training on Electrospinning Techniques

A special training programme on “*Electrospinning Techniques & Their Applications*” was conducted at ICAR-CIRCOT, Mumbai during 11-13 July, 2016. The main objective of the programme was to acquaint the trainees with the basics of electrospinning techniques and their applications in various fields. Twelve participants with diverse backgrounds from various Research Institutions and Industry attended this programme. First hand information cum training in operation of electrospinning equipment is imparted in electrospinning lab of the institute.



Group photo: Trainees who attended training programme on “Electrospinning techniques & their applications” held at CIRCOT Mumbai.

## Training on Double Roller Ginning Technology and Cotton Quality Evaluation

A one-week training program on *Double Roller Ginning Technology and Cotton Quality Evaluation* was conducted at Ginning Training Centre, Nagpur during 11-16 July, 2016. The program dealt with fibre quality assessment, cotton grading and marketing, DR ginning technology, cotton export and cotton by-products utilization. The practical aspects of repairs and maintenance of ginning and pressing machinery, assessment of gin outturn, stapling of cotton fibres and validation of results with instruments, etc were covered. The trainees were demonstrated the functioning of ginning and pressing plant, particle board plant and scientific cottonseed processing unit. Participants were taken for the industrial visits to M/s. Bajaj steel Industry, M/s. Sri Bhagirath Textiles Ltd. and M/s. Balaji Bio-coal Briquetting Plant.



Group photo of trainees who attended training programme on “Double Roller Ginning Technology and Cotton Quality Evaluation” held at GTC, Nagpur.

## Training on Quality Evaluation of Cotton

Five days training programme on Quality Evaluation of Cotton was conducted during July 18-22, 2016 at ICAR-CIRCOT, Mumbai. Eight participants from cotton trade and industry participated in this training. This programme covered the basics of cotton grading, quality evaluation & its importance in trading, fibre attributes & their impact on yarn quality, contamination in cotton, marketing & commercial aspects of cotton, ginning & mechanical processing and its effect on cotton economics. Practical knowledge and skill were imparted about length, fineness, maturity, tenacity, cotton grades, spinning and yarn testing.



Group photo: Trainees who attended training programme on “Quality evaluation of cotton” held at CIRCOT Mumbai

# Mera Goan Mera Guarav Activities

GTC Scientists and Technical Officers presented live demonstrations to a gathering of large number of farmers of Ghorad village on preparation of bio-enriched compost and production of oyster mushroom using cotton stalks and other agro-wastes.



Dr. V. Mageshwaran detailing the technologies to farmers of Palasgaon village



Er. Varsha Satankar explaining utilization of cotton stalks to farmers of Satoda village

## Kisan Ghosti:

Ginning Training Centre, Nagpur organized a one day kisan goshti cum technology demonstration programme on July 29, 2016 for farmers of *Rehaki and Antargaon* villages in Taluka Selu, District Wardha. The program was aimed to identify the current problems faced by farmers in cotton cultivation, increasing farm income through adoption of best management practices and latest farmer friendly technologies.

The programme began with interaction of farmers and experts from CIRCOT led by Dr. S. K. Shukla, Officer In-charge, GTC Nagpur, Dr. M.S. Kairon, former Director, CICR, Nagpur and Shri G. H. Wairale, Agro-plus Foundation, Nagpur.

Methods for achieving substantial increase in cotton productivity, reducing the production cost, optimum cotton plant population, timing and doses of fertilizers and micronutrients, soil health, etc. were explained to the farmers. Farmers were also informed about the importance of cotton quality parameters, safe cotton storage practices, impact of moisture during picking and storage. Team of experts also visited farmers' fields and demonstrated the effective method of fertilization application. Dr. V. Mageshwaran, Scientist, GTC illustrated the rhizobium seed treatment for improved nitrogen fixation.



Er. Varsha Satankar explaining utilization of cotton stalks to farmers of Satoda village

## Farmers visit

### Visit of members of Kisaan Club, Sirsa

A delegation of Kisaan Club, Sirsa led by its Secretary Shri Rajaram, visited ICAR-CIRCOT, Sirsa regional unit on 19<sup>th</sup> July, 2016.

## Events

Shruti Sammwaad Sahitya Kala Academy in collaboration with ICAR-CIRCOT organized a function on 26<sup>th</sup> July, 2016 in Jubilee Hall of the Institute to release the 16<sup>th</sup> edition of Hindi PATRAKARITA KOSH edited by Mr. Aftab Aalam. On this occasion, Mrs. K. R. Joshi, Hindi Officer of CIRCOT, who is superannuating in August, was felicitated for her work and achievements in the field of Hindi language. Dr. P.G. Patil, Director CIRCOT, presided over the function and other dignitaries present on the dais were Kundan Vyas (Editor, Janamabhoomi Group), Sanjay Singh (Acting Editor, Zee News), Raghvendra Dwivedi (Acting Editor, Hamara Mahanagar), Abhijeet Rane (Group Editor, Mumbai Mitra / Vrutt Mitra), Dr. M. H. Ansari (Editor, Qaumi Paigham) and Sarfaraj Arju (Editor, Roznama Hindustan). Dr. P.G. Patil in his remarks, appreciated the Kala Academy and wished for more such collaborations in future for promotion of Hindi language.



Dignitaries on the dais along with Dr. P. G. Patil, Director

## Awareness Programme

One day awareness cum Demonstration programme was organized at Ginning Training Centre (GTC), Nagpur on 5<sup>th</sup> July, 2016, under the aegis of *Mukhyamantri Khet Tirth Yojana of M.P. Government*. Seven farmers of Dist. Hoshangabad, M.P. participated in the programme. Senior Scientist & Officer In-charge, Nagpur, briefed them about CIRCOT technologies and demonstration facilities. The methods for preparation of bio-enriched compost from cotton stalks and other agro-residues and methods for collection and utilization of Cotton stalks and other Agro residues to increase the farm income were explained to the farmers. Farmers were also shown live demonstration of fibre testing, particle board preparation, pelleting and ginning and pressing operations.



Farmers along with Dr. S. K. Shukla and Dr. V. Mageshwaran at CIRCOT-GTC, Nagpur

## Mera Goan Mera Guarav Activities

### Technology Demonstration Programme at Wardha

A one day program was organized on July 28, 2016 in *Palasgaon and Satoda* villages, to identify major problems related to cotton production and processing and to demonstrate CIRCOT technologies to farmers to increase their farm income. About thirty farmers from each village attended the program. Cotton, soybean and red gram are the major crops grown in the village. Dr. V. Mageshwaran illustrated the preparation of bio-enriched compost and production of oyster mushroom using cotton stalks and other agro-wastes. He insisted use of bio-fertilizers for improving soil fertility and increasing crop productivity. Er. Varsha Satankar explained about the utilization of cotton stalks for energy generation for rural and industrial applications.

## Farmers visit

Dr. Hamid Hasan, Officer In-charge made presentation on general outlook of various activities of the Institute and deliberated in detail about preparation of bio-enriched compost from cotton plant residues and clean cotton picking technology. They were made aware of menace of trash and contamination in cotton and how it can be easily reduced at farm level simply by adopting clean cotton picking practices



Dr. Hamid Hasan in discussion with members of Kisaan Club

## Swatchh Bharat Abhiyan

The staff of the institute formed a human chain and removed old scrap, unserviceable items damaged papers from Technology Transfer Division on 29<sup>th</sup> July 2016.



ICAR-CIRCOT staff at cleaning activities on 29<sup>th</sup> July 2016.

## Awards/ Honor

Mrs. K. R. Joshi, Hindi Officer of CIRCOT, was awarded for her work and achievements in the field of Hindi language by Shruti Sammwaad Sahitya Kala Academy in a function organized at ICAR-CIRCOT on 26<sup>th</sup> July, 2016.



Mrs. K. R. Joshi, Hindi Officer of the Institute while receiving award

## Best Poster Award

First prize was awarded to the poster presentation titled “**Nanocellulose reinforced starch film for application in food packaging**” authored by A. Waghmode, N.D. Kamblı, V. Prasad, A.K. Bharımalla, P.G. Patil, A. Arputharaj and N. Vigneshwaran, at the **National Seminar on Futuristic Scope in Biotechnological Advancement and Allied Instrumentation** held during July 28-29, 2016 at Amity University, Chhattisgarh, Raipur, India.

## Meetings

- Dr. P.G. Patil, Director, ICAR-CIRCOT visited M.P.K.V., Rahuri to attend the meeting chaired by Shri Radha Mohan Singh, Hon'ble Union Minister of Agriculture & Farmers Welfare on 11<sup>th</sup> July, 2016. This meeting was conducted to review the performance of Agriculture, Fisheries, Animal Husbandry, Dairy, and Horticulture activities of ICAR/SAUs/KVKs at Rahuri.
- Dr. Sujata Saxena, Head I/c, CBPD, ICAR-CIRCOT attended the 3<sup>rd</sup> Cotton Advisory Board (CAB) Meeting for the Cotton Season 2015-16 on 13<sup>th</sup> July, 2016 organized by Textile Commissioner of India, Ministry of Textiles, Mumbai.
- Dr. P.G. Patil, Director, ICAR-CIRCOT attended road show on “Global Rajasthan Agritech Meet” (GRAM) on 25<sup>th</sup> July, 2016 at Taj Santacruz, Mumbai.

## Training and Workshop Attended

- Dr. N. Vigneshwaran and Dr. Virendra Prasad, attended a 5 days CEP training programme on Finite Element Methods & Applications in Civil Engineering from July 4-8, 2016 organized by IIT, Bombay.
- Dr. V. Mageshwaran participated in one day workshop on “Scientific co-operation framework for food safety” organized by Food Safety and Standards Authority of India (FSSAI) at India Habitat Centre, New Delhi on July 12, 2016. He presented a proposal on “Development of a laccase based paper biosensor for rapid detection of gossypol content in cottonseed products”.

## Patent Granted

Patent has been granted to ICAR-CIRCOT for “New enzymatic process for the preparation of absorbent cotton from non-spinnable Short Staple Cotton” on 13<sup>th</sup> July, 2016 (Patent No. 273512). The inventors of the patent are Dr. S. G. Gayal (Retd. Principal Scientist) and Dr. R.D. Nagarkar (A. C.T.O)

## Publications

- V. Mageshwaran and N. Parvez (2016), “Gossypol Detoxification and Lysine Enrichment in Cottonseed Cake by Solid State Fermentation” *Journal of Pure and Applied Microbiology*, June 2016. Vol. 10(2), p. 1333-1339 (NASS Rating 6)
- Krishna Prasad, G., Periyasamy, S., Chattopadhyay, S.K., Raja, A.S.M., Rajkumar, K. and Santosh Jagadale (2016). “Surface Modification of Nylon Fabric and its Optimization for Improved Adhesion in Rubber Composites” *Journal of the Textile Institute* (Accepted for publication) (NASS Rating 6.72)

## Transfer / Resignation

- Shri K. Thiagarajan, Assistant Chief Technical Officer was transferred from Quality Evaluation Unit of CIRCOT Coimbatore to Quality Evaluation Unit of CIRCOT Guntur w.e.f. 19<sup>th</sup> July, 2016.
- Shri Vijay Kumar Suthar, Technician, Quality Evaluation Unit of CIRCOT Guntur has resigned from Service w.e.f. 21<sup>st</sup> July, 2016. He joined as Chageman at Ordnance Parachute Factory, Kanpur.





# Obituary

Mrs. Thongbom Premiladevi, the former ICAR-CIRCOT Scientist who worked in CBPD from 26<sup>th</sup> July, 1997 to 30<sup>th</sup> August, 2000 later on transferred to ICAR- Research Complex North East Hill Region, Barapani, Shillong was passed away on 28<sup>th</sup> July, 2016 due to illness. All CIRCOT fraternity pray for peace to the departed soul.

## Technology Available for Incubation at the ABI Centre of ICAR-CIRCOT

- ➔ *Synthesis of Nano-Zinc Oxide Particle by Novel Chemical route*
- ➔ *Energy Efficient Nanocellulose Production Technology*
- ➔ *CIRCOT's Accelerated Processing of Cotton Stalk for manufacture of Compost*
- ➔ *Gossypol reduction and nutritive quality improvement in cottonseed cake for its use in non-ruminants feed*
- ➔ *Design and development of Textile through Computerized Sampling Facility with CAD*
- ➔ *Process for preparation of Absorbent Cotton*
- ➔ *Briquetting and Pelleting of Cotton Stalk*

## Upcoming Events

### Calendar of training cum-skill development programmes for the year 2016-17

S.No.	Title of Training	Period	Fees (Rs) (excluding Service tax)
1	Value addition to Cottonseed	Aug 29- 1 Sep, 2016	12,000
2	Quality Evaluation & Spinning performance of Indian Cottons using Advanced Techniques	Sep 20-22, 2016	10,000
3	Fibre and Yarn Quality Management in Spinning	Oct 5-7, 2016	10,000
4	Basic Statistical Techniques for Textile Research	Nov 15-17, 2016	6,000
5	Training on Absorbent Cotton Technology	Nov 21-23, 2016	10,000
6	Characterization of Materials Using X-Ray Diffractometer (XRD)	Dec 19-21, 2016	30,000
7	Advances in Microscopy	Jan 16-18, 2017	15,000
8	Advances in Applications of Nanotechnology	Feb 6-10, 2017	25,000
9	Spectroscopic and Chromatographic Techniques for Material Characterization	Feb 21-24, 2017	15,000
10	Instrumental Evaluation of Clothing Comfort	Mar 6-10, 2017	50,000
11	Quality Evaluation of Cotton	Aug 8-12, 2016 Aug 22-26, 2016 Sep 19-23, 2016 Nov 7-11, 2016 Jan 9-13, 2017 Feb 20-24, 2017	10,000
12	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	Aug 22-27, 2016 Sep 19-24, 2016 Oct 17-22, 2016 Nov 21-26, 2016 Dec 19-24, 2016 Jan 16-21, 2017 Feb 20-25, 2017	10,000
13	<b>ICAR Short course</b> on Synthesis and Characterization of Nanomaterials for Agricultural Applications	Sep 19-28, 2016	ICAR sponsored short course





Dr. V. Sundaram, Former Director, ICAR-CIRCOT performing bhoomi puja ceremony for construction of M. S. building of ICAR-CIRCOT in the year 1978-79.



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