



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



January 2018, Vol.4. No. 10

Director's Desk...

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ICAR-CIRCOT is engaged in carrying out basic and strategic research in processing of cotton & its agro-residues, development of value added products and quality assessment of cotton. CIRCOT is an ISO 9001:2015 certified institute and is an accredited laboratory under NABL (ISO 17025:2005), functioning as Referral Laboratory for cotton textile. The Institute has a vibrant Agri-Business Incubation

Centre, promoting sustainable start-ups based on post-harvest processing technologies developed in the institute.

CIRCOT plays a vital role in human capacity building in the cotton sector through its skill development initiatives by offering need based expert training programmes. During the current year the institute has organised over 27 training programmes in the areas of cotton quality evaluation, scientific processing of cottonseed, nanotechnology, electrospinning, absorbent cotton production, value addition to cotton by-produce, knitting, etc for the benefit of diverse stakeholders comprising farmers, industry personnel, budding entrepreneurs, students, researchers and academicians. The institute has also gained international repute in organising skill development programme through implementation of Cotton Technical Assistance Programme (TAP) to strengthen the cotton value chain and capacity building in selected African Countries under India Africa Forum Summit II. The multifarious development partnership between India and Africa has entered the next phase through IAFS-III, and has pivoted on capacity building, training, and nurturing of the human capital. Human resource development is one of the pillars of strong India-Africa cooperation.

ICAR-CIRCOT is organising a Short Term Training Programme (STTP-2018) on 'Post Harvest Management of Cotton and Value Addition to Crop Residues' under IAFS III during February 18 to March 3, 2018 funded by MEA and coordinated by DARE, Ministry of Agriculture and Farmers Welfare, for capacity building in the cotton sector of the African Countries.

(P. G. Patil)
Director

ICAR-CIRCOT, MUMBAI

Technology Insight

Home textiles with eco-friendly mosquito repellent finishing

ICAR-CIRCOT has developed a technology to produce mosquito repellent home textiles using microencapsulated citronella oil using complex coacervation technique with gum arabic as wall material. Average size of microcapsules was found to be in the range of 300-600 nm. Citronella based microcapsules along with binder were applied on cotton blanket using pad-dry-cure technique. The uniform distribution of capsules on the fabric was verified through SEM analysis. The cotton blankets showed 100% mosquito repellence properties with finish durability of up to 5 washes.

Trainings

Knitting and Knit Garments

A three-day training programme on “Knitting & Knit Garments” was organized during January 10-12, 2018. The programme was attended by academicians, textiles committee members and group of students from Apparel Design and Training Centre, Mumbai. The training covered various aspects of basic and advances in knitting technology & garment production.

Er. Muntazir Ahmad and other experts were invited to deliver guest lectures during the training programme. Besides, a visit was arranged to knitting laboratories such as SASMIRA, Mumbai and National Institute of



Group Photo- Training Programme on “Knitting & Knit Garments” during January 10-12, 2018

Fashion Technology (NIFT), Mumbai. The programme ended with the valedictory session on January 12, 2018 which was chaired by Dr. Sujata Saxena, Head In-charge, CBPD and certificates were distributed to the participants.

Advances in Microscopy

A three-day training programme on “Advances in Microscopy” was conducted during January 17-19, 2018. This self-sponsored course was aimed at providing hands-on experience to the researchers across various academic and research organizations. Participants were exposed to the latest developments in optical, atomic force and scanning electron microscopy. Principal Scientist & Course Coordinator Dr. N. Vigneshwaran, during his inaugural address, highlighted the state-of-the-art facilities and expertise available at the Institute for microscopy. In addition to the lectures & practical by in-house faculties, Dr. K. M. Parallikar, Retd. Principal Scientist & Head of Technology Transfer Division shared his experiences in the field of Scanning Electron Microscopy and Transmission Electron Microscopy. During the valedictory function, Dr. P. G. Patil, Director, ICAR-CIRCOT, stressed on the need for collaboration for sharing the research facilities and expertise among the researchers from various organizations for mutual benefit and for improving the research output. Ten participants representing ICAR, ICMR, CSIR and Central University participated in this training programme.



Group Photo – Training Programme on “Advances in Microscopy” during January 17-19, 2018

Electrospinning for Nanofibre Production & Its Applications

A three-day training programme on “Electrospinning for Nanofibre Production & Its Applications” was organized during January 23-25, 2018 at ICAR-CIRCOT, Mumbai. Participants representing researchers, academicians and students from diverse backgrounds attended the training programme. The programme included lectures and practical sessions on basics and advances in electrospinning, invited guest lectures from eminent people and visits to other research laboratories. The use of electrospun nanofibers in filtration applications, drug delivery, medical applications, food packaging and pest management were discussed in the training. Director Dr. P. G. Patil distributed certificates to the participants during the valedictory function.



Group Photo – Training Programme on “Electrospinning for Nanofibre Production & Its Applications” during January 23-25, 2018

Events

Academia-Industry Interaction Meet

ICAR-CIRCOT, Mumbai and ICAR-CIAE, Bhopal jointly organised an Academia-Industry Interaction Meet at Ginning Training Centre, Nagpur on January 11, 2018 under Consortia Research Platform on Farm Mechanization and Precision Farming (CRP on FM & PF) to provide a common platform for one-one interaction between researchers, industries, policy makers and other stake holders. Dr. S. K.

Shukla, Officer In-charge, GTC coordinated the programme.

A large number of machinery manufacturers' representatives, researchers and policy makers from state and central govt. organizations participated in this meet. At the outset, Dr. P. G. Patil, Director, ICAR-CIRCOT, Mumbai delivered the welcome address and emphasized the vital role of manufacturers in country's mechanization goal.



Dr. P. G. Patil, Director, ICAR-CIRCOT addressing the gathering

Dr. K. K. Singh, Director, ICAR-CIAE, Bhopal urged the manufacturers to join hands with CIAE, Bhopal in disseminating the developed technologies to end users. He also requested manufacturers to provide their valuable feedback so that, need based research programmes can be initiated and test protocols can be developed. Dr. S. K. Singh, Director, ICAR-NBSS&LUP, Nagpur, Dr. M. S. Ladaniya, Director, ICAR-CCRI, Nagpur and Dr. V. N. Waghmare, Director (Acting), ICAR-CICR, Nagpur also graced the occasion. Industry representatives participating in the programme included M/s Bajaj Steel Industries, Nagpur; M/s Ankur Seeds, Nagpur; M/s Vidarbha Sales, Nagpur; M/s Swastik renewable energy solution Pvt. Ltd., Nagpur; M/s Tirth Agro Technology, Nagpur; M/s Shaktiman Rajkot, Mr. Deepak Kalbhor, M/s John Deere India Pvt. Ltd., Pune; Mahindra & Mahindra (M &M), Mumbai and M/s VST tillers.

The representatives from research

organization, machine manufacturers, industries and financial institutions shared their views on farm mechanization and precision farming in improving crop productivity and uplifting farmers' income. The meet ended with vote of thanks proposed by Dr. K. N. Agrawal, ICAR-CIAE, Bhopal.



Smt. Maithali Kowe, District Manager, NABARD, Nagpur addressing the stakeholders

Swachh Bharat Abhiyan

As a part of the implementation of the Swachh Bharat Mission, a cleanliness drive was arranged in the Institute premises on January 9, 2018 in which scrap articles kept near the pump house for condemnation/disposal were segregated into plastics, metals, machineries parts etc. and stored for further auction. The work was done by forming a human chain where all the staff members enthusiastically participated in the cleaning programme.



Segregating scrap for auction as part of the cleanliness drive

Hindi Competition

To promote use of official language, ICAR-CIRCOT Mumbai in collaboration with Town Official Language Implementation Committee conducted a competition "Story writing in Hindi on shown picture" on January 24, 2018. Twenty six participants from member offices participated in this event.



Hindi Story writing competition on shown picture

Visits

Director's Visits

- Director, ICAR-CIRCOT visited Anand, Gujarat during January 7-9, 2018 and participated in the 52nd Annual Convention of Indian Society of Agricultural Engineers (ISAE) and National Symposium on "Doubling Farmers' Income through Technological Interventions" at Anand Agricultural University. He attended the inaugural function and plenary sessions held on January 8, 2018 and co-chaired the technical session on "Energy in Agriculture".
- Director, ICAR-CIRCOT visited Nagpur on January 11 & 12, 2018 for "Academia-Industry Interaction Meet on Agricultural Mechanization" organized jointly by ICAR-CIAE, Bhopal & ICAR-CIRCOT, Mumbai at Ginning Training Centre, Nagpur on January 11, 2018 and to review the research, training and extension activities of the Ginning Training Centre.

Scientists' Visits

- A team of scientists of ICAR-CIRCOT, Mumbai and GTC, Nagpur consisting of Dr. Dattatreya M. Kadam, Dr Sujata Saxena, Dr. Jagajanantha, Dr. V. Mageshwaran, and Er. Varsha Satankar visited M/s. Gima Tex's scientific cottonseed processing unit situated at Hinganghat, Dist. Wardha on January 30, 2018. The plant contains seed cleaner, delinter, lint cleaner, lint press, decorticator, flaking machine, dryer, oil extraction unit, refinery unit and de-gossypolization unit. About 0.5% gossypol from de-oiled meal is extracted using methanol. The by-products of refinery units like gum and soap produced during the refinery process extend new opportunities for its utilization. It is also learnt that the value addition of various by-products like linters, hulls and meals would make the industries more viable and economical.



ICAR- CIRCOT Scientists Visit to Gima Tex, Hinganghat, Wardha (Maharashtra)

- A team of scientists of ICAR-CIRCOT, Mumbai and GTC, Nagpur consisting of Dr. Dattatreya M. Kadam, Dr Sujata Saxena, Dr. Jagajanantha, Dr. V. Mageshwaran, and Er. Varsha Satankar visited a briquetting plant owned by Mr. Gopal Chandak, situated in Village Anji, Dist. Wardha, Maharashtra on January 31, 2018. The briquetting unit capacity is about 10 tons/day using soybean, red gram stalks and other farm residues as raw material. Cotton stalks

being high in calorific value, is a promising alternative to soybean/red gram stalks for briquetting.



Briquetting Unit at Anji, Wardha

Farmers' Visits

- Fifty farmers from Farmers Training Centre, Patan (Gujarat) visited ICAR-CIRCOT on January 11, 2018 under Agricultural Technology Management Agency (ATMA). They were briefed about cotton scenario in the country and history of the Institute. A visit to MPD was arranged to demonstrate the spinning process sequence.



Group photo of farmers from Farmers Training Centre, Patan (Gujarat)

- Thirty five farmers from Farmer Training Centre, Dept. of Agriculture, Mehsana, North Gujarat visited ICAR-CIRCOT, Mumbai on January 23, 2018. They were briefed about the history and mandate of the Institute. To understand the importance of clean cotton picking practices, a visit to Mechanical Processing Division was arranged. A visit to blowroom, carding section and live demonstration of spinning machines was given to them.



Group photo of farmers from Farmers Training Centre, Mehsana (Gujarat)

Meetings

Review Meeting of CRP on Natural fibres

ICAR-CIRCOT, the lead centre of CRP on Natural Fibres, organized an internal review workshop at Mumbai on January 5 & 6, 2018 to discuss the progress of individual projects running at lead centre and cooperating centers namely ICAR-NIRJAFT, Kolkata; ICAR-CICR, Nagpur; Assam Agricultural University, Jorhat and Tamilnadu Agricultural University, Coimbatore. The meeting was inaugurated and chaired by Dr. P. G. Patil, Director, ICAR-CIRCOT and Consortia PI of the project. Dr. S. Sreenivasan and Dr. A. J. Shaikh, former Directors of the Institute attended the meeting as expert members. The meeting started with a brief presentation about CRP on Natural Fibres by Dr. A. S. M. Raja, Principal Scientist & Project Coordinator. Dr. P. G. Patil during his address emphasized the need to

fast track the progress of the projects to achieve tangible results. He informed the house that new proposals would be screened based on their national importance and ability to address the problems of masses. Dr. A. N. Roy, Director (Actg), ICAR-NIRJAFT also participated in the meeting and deliberated about the various issues of the project. Principal Investigators (PIs) of all projects or their representatives presented the progress of their research. The experts urged all PIs to work hard to produce the desirable outcome so that attempts can be made for further extension of the project beyond 2020. All scientists of ICAR-CIRCOT participated in the meeting.



Internal review meeting of CRP on Natural Fibres at ICAR-CIRCOT

Radio Talk

Scientist Dr. Sharmila Patil delivered a Radio Talk

Scientist Dr. Sharmila Patil delivered a radio talk on the topic **“Annual fruit crops of Konkan region and their processing”** on All India Radio (Akashvani), Asmita Vahini, Mumbai. The talk covered importance and need of fruit processing, unit operations involved and machineries used in fruit processing, site selection for processing plant, role of processing and value addition in doubling farmers' income etc. The programme was conducted by Dr. Santosh Jadhav, Programme Executive, All India Radio and broadcast on January 15, 2018.



Scientist Dr. Sharmila Patil at All India Radio (Akashvani), Mumbai

Awareness Programmes

An awareness-cum-demonstration programme on “Preparation of Bio-enriched Compost from Cotton Plant Residue” was organized by QE unit, Sirsa at Shahpur Begu village of Sirsa district on January 28, 2018. The programme aimed at popularization and adoption of composting technology among the progressive farmers. Dr. Hamid Hasan, In-charge of Sirsa unit briefed farmers about preparation of compost, its nutritional aspects, field applications and possible impact on soil health improvement. The farmers were given a hands-on demonstration of compost preparation on a heap of 5 tons. The programme was attended by 20 progressive farmers.



Farmers being demonstrated on “Preparation of bioenriched compost from cotton plant residue” at Shahpur Begu, Haryana

MGMG Programme

A one day awareness-cum-demonstration programme on “Cotton Processing and By-products Utilization” was organized at Pavnoor village, Wardha District, Maharashtra on January 31, 2018 under Mera Gaon Mera Gaurav Programme. The expert team consisted of Dr. Sujata Saxena and Dr. Dattatreya M. Kadam, Principal Scientists from ICAR-CIRCOT, Mumbai and Dr. V. Mageshwaran and Er. Varsha Satankar, Scientists from GTC, Nagpur. Around 40 famers participated in the programme.



MGMG Programme at Pavnoor village, Wardha

Dr. Sujata Saxena explained about various research activities of ICAR-CIRCOT. Dr. Dattatreya M. Kadam detailed about various processing technologies by which a farmer can get additional income and encouraged farmers for valorization of agro-produce. Dr. V. Mageshwaran briefed about the use of biological inputs in cotton cultivation for sustainable agriculture and elaborated the technique of compost preparation from cotton stalks. The expert team advised the farmers to adopt various strategies such as early maturing varieties, composting of cotton stalks, deep ploughing, use of pheromone trap, plastic mulching, balanced use of pesticides and fertilizers, crop rotation etc. to overcome problems of pest infestation.

Participation in Conference

Scientists Er. V. G. Arude, Er. Varsha Satankar and Dr. V. Mageshwaran participated in the 52nd Annual Convention of Indian Society of Agricultural Engineers and National Symposium on Doubling the Farmers' Income through Technological Interventions during January 8-10, 2017 at Anand Agricultural University, Anand, Gujarat and gave presentation on the following topics-

1. Er. V. G. Arude – Development and optimization of spike cylinder cotton feeder to enhance ginning efficiency of double roller gin by using Response Surface Methodology
2. Er. Varsha Satankar – Value addition to cotton stalks: Additional income for farmers' livelihood
3. Dr. V. Mageshwaran – A bio-refinery approach for increased value-addition to cotton stalks

Participation in Sports

Institute sports contingent participated in the ICAR Sports Tournament (West Zone)–2017 held at ICAR-CAZRI, Jodhpur from January 16-20, 2018. A team of 51 participants consisting of 43 men and 8 women players participated in various events- Volley ball, Table Tennis, Badminton, Carrom, Chess, Kabaddi, Basket Ball and Athletic events such as High jump, Long jump, Shot put, Javelin throw, Discus throw, races (100 mtr, 200 mtr, 400 mtr, 800 mtr, 1500 mtr) and Relay race. ICAR-CIRCOT stood 5th amongst total 16 participating institutes with 4 gold and 9 silver medals. Director congratulate all Medal winners of the ICAR Sports Tournament (West Zone)–2017.



Medal Winners of ICAR Sports Tournament (West Zone) – 2017

Personnel

Promotion

Dr. S. K. Shukla has been promoted to Principal Scientist (Agricultural Process Engineering) through CAS with effect from July 25, 2016.

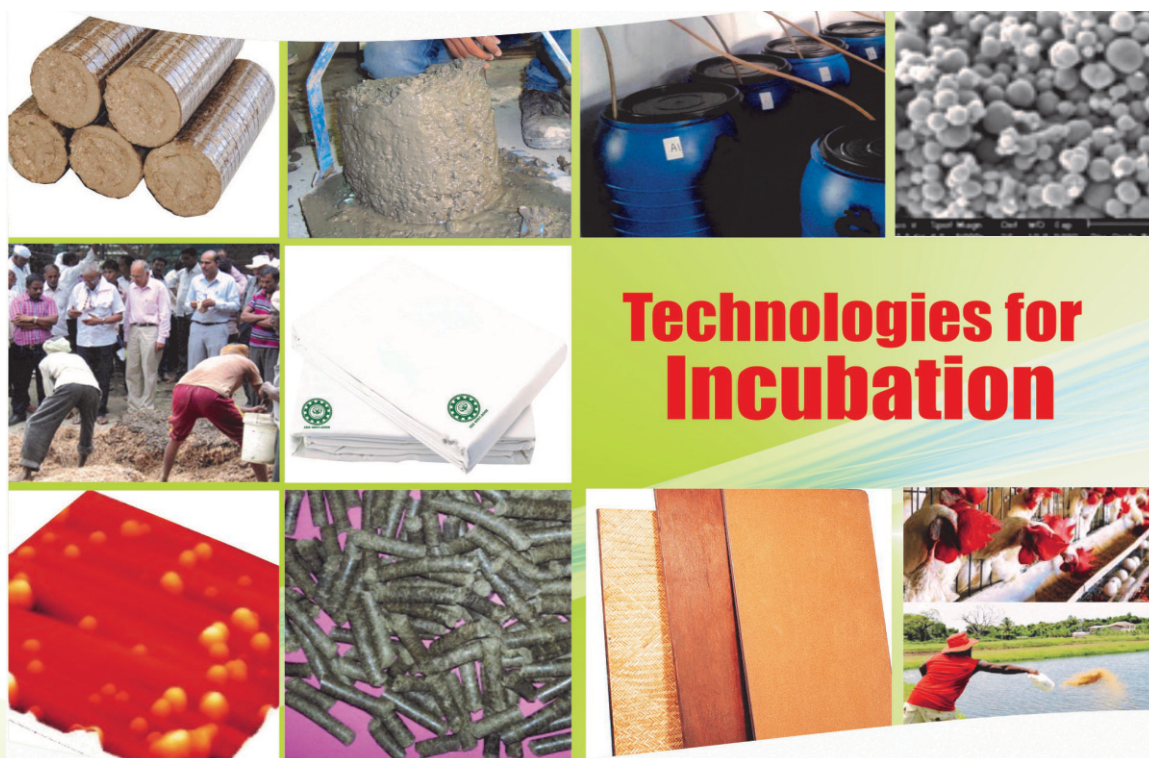
Superannuation

Dr. S. K. Dey, Senior Scientist, Quality Evaluation and Improvement Division superannuated on January 31, 2018.

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	Fibre Reinforced Composites	07-09 Feb., 2018	10,000
2	Quality Evaluation of Cotton	19-23 Feb., 2018	10,000
3	Double Roller Ginning Technology & Basics of Cotton Grading, GTC, Nagpur	12-17 Feb.,2018	10,000
4	Customized training programme for students & academia	Two days (Dates can be finalized as per the requirement)	2,000
5	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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