CIRCOT news

Newsletter of the Central Institute for Research on Cotton Technology, Mumbai

Volume 4 | April to September 2001 | Number 1

Editorial

It is recognised that in the production of high quality export worthy yarn, about 60% to 70% of the cost comes from the raw material. Equally well known is the fact that raw material quality plays a vital role in the processing efficiency and ultimate yarn quality As a result selection of cotton of appropriate quality assumes paramount importance. Evaluation of cotton quality although helps all those involved in the cotton chain such as the grower, the ginner, the trader and the textile mill, the maximum benefit goes to the spinner in a textile mill. As a result parameters that help in hassle-free processing are given maximum importance while evaluating cotton quality Although trash and contaminants play a decisive role in deciding the commercial grade of cotton, processing efficiency depends to a large extent on parameters like length, length uniformity, fineness, strength and maturity Of course attributes like short fibre content and elongation apart from colour contribute to yarn quality

Accurate, reliable and high speed testing of each cotton is crucial for manufacturing of quality yarns in a cost-effective manner as this helps in the segregation of cotton bales based on their properties. Measurement of fibre properties of large number of samples in the shortest possible time is possible only by using the High Volume Testing Instrument system that has become so popular among quality conscious mills and trading bodies.

Fibre Testing equipments like the HVI need to be calibrated using "Standard Reference Materials" (SRMS) called "calibration cottons" so that results are not only accurate but also are consistently reproducible when tested in different laboratories. Till July 1998, the United States Department of Agriculture (USDA) was the only authorised agency to supply standard calibration cotton. But USDA has stopped supply of this reference material for HVI instruments to be operated in the ICC mode, one of the familiar modes among Indian users, since 1998.

Realising the necessity for having an indigenous reference material, CIRCOT has been producing on a commercial scale calibration cottons both for HVI and stand alone instruments like the "Fibrograph". CIRCOT's calibration cottons are produced in a scientific manner by following established procedures. The standard values of fibre length, micronaire and tenacity for those cottons are also assigned by employing internationally accepted procedures such as "Round Robbin tests" and "Proficiency Tests".

As is well known import of calibration cotton is time consuming and involves precious foreign exchange. Therefore CIRCOT calibration cottons have become very popular among Indian users. It is heartening to note that the demand for Standard Cottons is on the rise even among International Cotton Community

As part of CIRCOT's efforts to interact with Indian users and to popularise this reference material among quality conscious mills, an Users Meet was organised at Mumbai during August, 2001. Emboldened by the positive response received, CIRCOT intends to organise similar meets for the first time in both northern and southern parts of the country within the next six months to familiarise these standards among prospective users. Such proactive measures, we believe, will not only make CIRCOT Calibration Cottons popular among users but also create quality awareness among textile mills and trading bodies which is the need of the hour.

S. Sreenivasan
Director

Seminars

CALIBRATION COTTON USERS' MEET

In India all textile testing laboratories including those of textile mills and R & D establishments are using imported USDA Calibration Cotton standards for calibrating fibre testing instruments such as Fibrograph, Micronaire, Stelometer and HVI system. The import of calibration cotton is time consuming, expensive and involves valuable foreign exchange in procurement.

Since 1998, CIRCOT has taken up the responsibility of producing and marketing on a commercial scale indigenously prepared calibration cotton standards having quality characteristics, similar to those of USDA calibration cottons. CIRCOT is offering for sale two sets of calibration cotton standards, one for the conventional instruments and the other for HVI system for the benefit of the textile mills.

To appraise the industry of the salient features of CIRCOT Calibration Cottons and to obtain feed back from customers, a "Calibration Cotton Users' Meet" was organised on Saturday, August 11, 2001 at 2.30 p.m. in CIRCOT.

A section of the audience at the CIRCOT Calibration Cotton Users' Meet held on August 11, 2001

Dr. S. Sreenivasan, Director, CIRCOT delivered the inaugural address in which he explained at length the salient features of CIRCOT Calibration Cottons and urged the representatives from mills to avail of the facility offered by CIRCOT. He also highlighted the urgent need to improve the quality of finished products in the light of post GATT era. There were two presentation on "Importance of Reference Material in Testing", by Dr. R.P. Nachane and the other "Assigning Values to Calibration Cottons" by Dr. (Mrs.) P. Bhama Iyer, Principal Scientists of CIRCOT. Presentation dealt at length with the definition of testing, need for testing and the role of ambient conditions in testing. It was also emphasided that in the testing of textile materials, relative humidity, temperature, sampling and personal skill play vital roles and the certified reference materials (CRM) are needed to apply corrections for any deviation on account of ambient conditions and error due to personal judgement.

The second paper mainly dwelt upon the role of tolerance limits in the measurement of cotton fibre characteristics such as 2.5% span length, uniformity ratio, micronaire and tenacity and the useful role of Proficiency Testing, Round Robin Testing, Replicate Testing, and Deriving Standard Value by using reference materials in assigning value for cotton. While describing the methodology adopted at CIRCOT for assigning values to calibration standards, it was mentioned that calibration cotton supplied by CIRCOT has the approval from Zellweger Uster Inc, the supplier of most of the HVIs currently used in India. In the absence of direct, one to one relationship between the parameters like length, uniformity of length, tenacity and elongation measured in HVI and ICC testing

modes, the participants were warned that the practice of conversion of assigned HVI values to ICC mode values for ready use should be discontinued as it will lead to erroneous results.

A lively interactive session followed among the 50 delegates representing various textile organisations.

Presentations by Dr. R. P. Nachane, Principal Scientist, CIRCOT and Dr. (Mrs.) P. Shama Iyer, Principal Scientist and Head, (QEID), CIRCOT at the Calibration Cotton Users Meet

CIRCOT TEST HOUSE

CIRCOT Test House was established in 1937. The main objective of the Test House is to carry out tests on samples of textile materials by standard methods / specifications prescribed by the party and to issue authoritative reports. The facility of CIRCOT Test House is at present widely utilised by both Government and private organisations. Efforts are made from time to time to keep the Institute equipped with modern instruments. The CIRCOT Test House which accepts cotton samples for tests on payment of scheduled test fees has the following distinctions.

- *The Institute has over 75 years' experience in textile testing.*
- *Testing machines kept in top condition.*
- *Fibre tests carried out by well qualified Scientists and Technical Officers.*
- *Quick testing service — HVI and AFIS test results are available in one or two days.*
- *Test reports sent by Fax or E-mail.*
- *Accuracy of test results guaranteed for arbitration purposes.*
- *CIRCOT's quality system — accreditation by NABL.*

Any organisation is welcome to refer cotton to CIRCOT for tests. The samples may be delivered at the Institute through courier or by post from anywhere in the country or abroad. Special concessional test fee package will be offered to mills intending to practice bale management.

Schedule of Fees for Tests can be sent on request.

For further information contact :
The Director,
CENTRAL INSTITUTE FOR RESEARCH ON COTTON TECHNOLOGY
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Tel. : 4127273176, 4157238/39 & 4184274/75 • Fax : 022-4130835
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Meetings

SRC MEETING

The hundred and first meeting of the Staff research Council of CIRCOT was held on May 2,3 and 5, 2001 at the Committee Room as per the schedule given below :

Session	Core Area	Date	Time
	Improvement of Ginning of Cotton	2-5-2001	10.30 a.m.
	Improvement and Quality Evaluation of Fibre, Yarn and Fabric	3-5-2001	10.30 a.m.
III	Finishing and Dyeing of Cotton with Natural and Environment Friendly Dyes	3-5-2001	2.00 p.m.
IV	Utilisation of Cotton Plant Residues for Production of Value Added Products	5-5-2001	10.00 a.m.
V	Development of Entrepreneurship for Utilisation of CIRCOT Technologies	5-5-2001	11.30 a.m.

Dr. S. Sreenivasan, Director, was in the chair and all HODs, Scientists and Technical Officers T-6 and above attended all the sessions. Two Subject Matter Specialists, namely Dr. G.P. Nair and Dr. K.R. Krishna Iyer attended relevant sessions. Discussions were held on the on-going projects as well as new research project proposals made for 2001-2002. Of the sixteen new project proposals submitted fifteen have been approved with certain modifications. Need for more accountability for scientists as per QRT observations, serious efforts for transfer of technology activities, necessity for reviving internal seminars, reorientation of research work on need based programmes, etc. figured prominently in the deliberations.

RAC MEETING

The seventh meeting of the Research Advisory Committee of CIRCOT was held at the Committee Room of CIRCOT on June21 and 22, 2001. Prof. E.H. Daruwalla was in the chair and 19 members and invitees attended the sessions. Dr. S. Sreenivasan, Director, CIRCOT welcomed the members and requested all to observe two minutes silence as a mark of respect to the departed soul of Dr. T. Radhakrishnan, the Chairman of the earlier RAC of CIRCOT who expired recently. He then requested Prof. Daruwalla to take the chair. After a brief introduction of members of the newly constituted RAC by the Director, the agenda items were taken up for consideration.

Prof. Daruwalla in his opening remarks mentioned that cotton is a key commodity and will reign supreme holding its own place in the textile world despite competition from synthetic fibres.

Dr. R.P. Kachru, ADG(PE), representing ICAR appreciated the previous RACs work and acknowledged their contribution in shaping the

future of CIRCOT since last one decade. He pointed out that one of the important points being emphasised by the Council is follow up of the recommendations of the QRT by RAC by thoroughly scrutinising them and to see that whether they are put to action through project proposals and Institute building activities, etc. He desired that scientists of various disciplines must work in tandem and isolation in research has no place. They should also try to establish backward and forward linkages through a multi-disciplinary approach. He suggested that researches in certain grey areas like human and ergonomic aspects, safety of workers, pollution aspects, technical textiles, geo textiles, flame retardant finishes, protective textiles, research on allied fibres like ramie, jute, etc. , non conventional textiles, anti-crease and shrink recovery properties, fashion technology, eco-labelling of textiles, seamless welding of cloth in place of stitching, etc. should be taken up by CIRCOT during the X Plan.

Shri Suresh Kotak expressed his appreciation of the work being carried out at CIRCOT, especially in the area of cotton byproduct utilisation and suggested that future research by CIRCOT should encompass areas like biotechnology and environment-friendly processesing of cotton. He suggested that a National Cotton Council as in USA comprising representatives from different facets of cotton production and manufacture may be established for promoting cotton in a unified manner to face global competition effectively.

Dr Padwal Desai was of the opinion that environmental aspects should be given priority and research on utilisation of cotton and its byproducts must be further promoted.

Shri P.L. Ande requested CIRCOT to undertake research on those aspects of cotton that will be beneficial to the rural community. He said that a lot of cotton waste is generated and research should be oriented to utilise this waste profitably for the development of rural population.

Dr. V.N. Shroff suggested that programmes may be undertaken to develop appropriate finishes to *herbaceum* and *arboreum* cottons so that they can be as good as *hirsutum* and *barbadense* varieties. He suggested that ultimate result of the research must go to the farmer with proper co-ordination of different specialists. He also suggested work on organic cotton and soil water management.

Dr. K.R. Krishna lyer informed that CIRCOT has prepared a Perspective Plan that enlists items of research to be carried out by the institute for the next 25 years. He requested the members to consider the information available in the Perspective Plan while making suggestions for future activities.

Prof. Daruwalla summed up the introductory remarks by members and put forward the following points for consideration :

Quality requirements should be the primary concern while developing technical textiles/ industrial fabrics/high performance fabrics

+ Durable fire retardant finishes need be developed and economics worked out

❖ Clothing protective against ultra violet rays should be developed

+ Eco-labelling must be made compulsory for indigenous products as well apart from items for export

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DEGUMMING OF RAMIE AND BLENDING WITH COTTON ON COTTON SPINNING SYSTEM

Degumming of ramie fibres was done at NIRJAFT by treating the decorticated fibres with hot alkaline solution. This removed the incrusting gummy materials. Ramie fibres with different gum contents were prepared with varying parameters of chemical treatments. The removal of gum from ramie fibre decreases the interfibre cohesion resulting in decrease in bundle tenacity, simultaneously causing fibres to become finer.

Degummed ramie fibres were cut into 40 mm staple length with a staple cutter. Flock blending of ramie and cotton fibres was carried out and the blended samples were spun adopting CIRCOT improved Microspinning Technique. After a few initial trials, a blend ratio of (65:35) for Cotton : Ramie was found to give adequate CSP for 40s ring yarn. Further, ramie sample produced blended yarn with optimum quality in terms of CSP, tenacity, breaking elongation and unevenness. Hence, for all practical purposes, degumming of ramie fibre with an initial treatment of 1.5% NaOH followed by an additional treatment with 15% NaOH can be taken as optimum.

TENSILE BEHAVIOUR OF COTTON YARNS SUBJECTED TO SWELLING AND STRETCHING IN WATER

Swelling of cotton ring spun yarn in water accompanied by stretch followed by drying in taut conditions brings about profound and durable changes in tensile characteristics of the yarn. The treatment enhances tenacity, moduli and immediate as well as total recovery values quite considerably. Yarn becomes more "elastic" after the treatment. Wetting in water augments the tenacity and decreases the immediate elastic recovery of raw yarn. No such changes occur on wetting of treated yarn in water.

MICRONAIRE VALUE FOR MATURITY GRADATION

It is known that for a given variety there exists a linear relationship between the degree of thickening, which indicates the level of maturity, and the micronaire value. However, recent study at CIRCOT highlights that it is possible to establish such a relation by pooling varieties lying within specified ranges of cross-sectional perimeter. For each perimeter range micronaire values, which classifies cottons into three grades of maturity viz., low, normal and high, have been arrived at.

ECO-TESTING LABORATORY

CIRCOT has set up an Eco-Testing laboratory for issuing certificate of compliance to textile exporters. Established with partial financial assistance from Ministry of Textiles, Govt. of India, this laboratory is fully equipped with sophisticated instruments like High Performance Liquid Chromatograph, High Performance Thin Layer Chromatograph with Electron Capture, Flame Ionisation, NPD and Mass Detector Systems, UV-VIS Recording Spectrometer and Total Organic Carbon Analyser, besides a well furnished laboratory for carrying out wet chemical analysis.

The Eco-testing laboratory at CIRCOT is equipped to carry out testing on textile materials for all the prescribed eco-parameters such as the detection and estimation of the banned aromatic amines, pentachlorophenol (PCP), banned pesticides, toxic metals, free formaldehyde and halogenic carriers.

Extension Activities

TRAINING

- Under the ***Quality Evaluation of Textile Fibres for Breeders, Traders and Textile Industry Personnel*** programme sixty four trainees were trained in 8 batches
- In 17 batches 230 trainees from various ginning factories in ginning operation were trained under the ***Training in Ginning and Bale Press for Fitters, Operators and Managers*** at GTC, Nagpur.
- Specialised Training Programme in HVI was conducted for 15 people in three batches.

TESTING

About 6,500 samples of fibre, yarn and fabric were tested on payment basis at CIRCOT Headquarters and about 6,483 samples of fibre has been tested at GTC Nagpur and other outstations of CIRCOT on HVI and about 100 samples have been tested for ginning. Apart from this large number of samples were tested under the AICCIP Programme.

CONSULTANCY

Scientific consultancy in research and development, design and development of machines was extended to following Industries and entrepreneurs.

1. Bajaj Steel Industries Ltd., Nagpur for design and development of ginning machine, Autofeeder, precleaners, post cleaners, seed cotton, Conveying system.
2. M/s Reliance Industries, Mumbai for isolation and identification of the microorganisms including SEM studies from recron fibre fill incubated at different temperature and humidity.
3. M/s Themis Medicare Mumbai for evaluation of pharmaceutical products for antimicrobial activity including SEM studies.
4. M/s Nicholas Piramal India Ltd. For evaluation of pharmaceutical formulations by SEM study.
5. M/s Dharmsi Morarjee, Mumbai for evaluation of Chemical additives (catalysts) during alkaline pulping of agro based raw materials for paper making.
6. M/s Grasim Industries Ltd., Mumbai for study of CSP of yarns at different moisture levels.
7. M/s Net Business Solutions India Ltd., Mumbai for the Evaluation of Cotton Samples for variation in Colour.

   M/s Sourav Chemicals, Mumbai for Evaluation of Knit Oil.

GINNING SURVEY

A consultancy project on Ginning Survey has been sponsored by CCI under Technology Mission on Cotton. A survey work of nearly 700 ginning and pressing factories has to be taken up by CIRCOT and report to be submitted to the Textile Committee, the nodal organisation for the said survey.

MEETINGS *(contd.)*

- Mechanical finishing should be resorted to in place of chemical finishing as far as possible
- Research in biotechnology should be encouraged

After the introductory remarks by all the members and invitees, Dr. Sreenivasan requested Prof. Daruwalla to release the CIRCOT leaflet entitled **CIRCOT-TRYTEX Miniature Spinning System.** Dr. Kachru released the second issue of the **CIRCOT Ginning Bulletin** followed by the release of **Annual Cotton Quality Update 2001** by Shri Suresh Kotak.

Dr. Sreenivasan then gave a presentation on the activities and achievements of CIRCOT. His presentation comprised the achievements of CIRCOT for the past five years and a brief account of the progress of research on the ongoing projects, including those under NATP, AP Cess Fund, Revolving Fund, etc.

Lecture by Shri Suresh Kotak as part of the RAC Meeting

Shri Suresh Kotak wished that scientists from CIRCOT be allowed to participate as a representative of Indian Government in international conferences, seminars, etc. on cotton, as currently participation from India is almost nil. Being a pioneer institution, CIRCOT scientists should form a part of the delegation

RAC in

A view of the digniaries who attended the lecture by Shri Suresh Kotak

attending these seminars. He also suggested that a survey should be carried out on contamination and trash level in Indian cottons with active participation by both CIRCOT and EICA.

The committee then considered the new project proposals which were earlier deliberated at length by the SRC in May 2001. The observations of the RAC on those proposals were also recorded.

The HODs presented to the RAC the areas of research work proposed to be taken up by them in the X Plan Period.

As a part of the RAC programme, Shri Suresh Kotak delivered a Talk on **Cotton in the Years to Come** on 23-6-2001 at the Jubilee Hall. The lecture was well received as judged from the lively discussion that ensued.

LECTURES

Indian Fibre Society in collaboration with CIRCOT conducted the following two lectures on September 13, 2001 in the Jubilee Hall at CIRCOT Mumbai.

Mean Fibre Length and Floating Fibres in Cotton

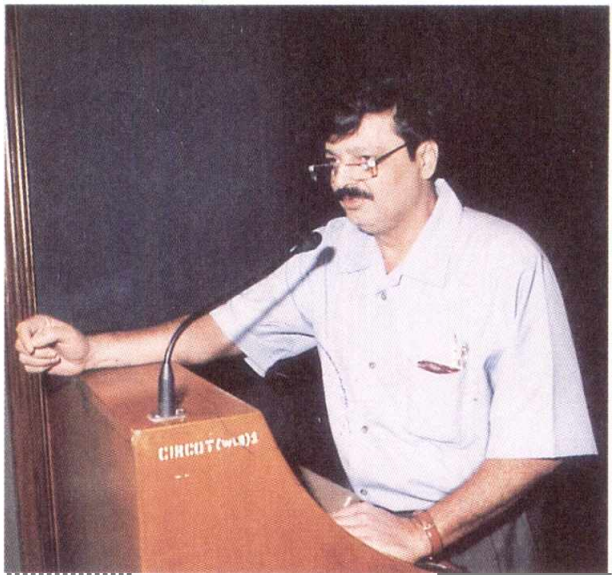
The above lecture was delivered by Dr. R.P. Nachane, Principal Scientist, CIRCOT. In his

ion

lecture Dr. R.P. Nachane proposed a theoretical relationship to determine the number of floating fibres between two parallel planes perpendicular to the sliver axis. He further added that the same theory can be extended to estimate the number of fibres in a Bear sorter pattern. The mean length of a Bear sorter pattern depends on the length of the sliver used in the preparation of the pattern.

ISO 9000 in Personal Quality

Shri V. Hariharan Iyer who gave the above lecture explained in detail how to improve personal quality and how ISO 9000 Quality System provided models for evolving systems for controlling variations in materials, equipment, tools and personal. He informed that ISO has recently published the revised standards where the existing 20 elements are regrouped into four key areas namely Management Responsibility, Resource Management, Process Management and Measurement, Analysis and Improvement. He was of the opinion that ISO 9000 quality system is built with the objective of achieving consistency in quality of the final product or services reaching the customer.



Lecture by Dr. R. P Nachane, Principal Scientist, CIRCOT

Lecture by Shri V Hariharan Iyer, The Century Textiles and Industries Ltd., Mumbai

TECHNOLOGIES AVAILABLE AT CIRCOT FOR TRANSFER

PRODUCTS

- Kisan Gin, CLOY Gin and Lilliput Gin
- Ginning Percentage Balance
- Kapas Extractor
- Inclined type Pre-Cleaner
- Halo Length Disc
- Boll Hardness Tester
- Variable Speed Gin

PROCESSES

- Pulp and paper, Particle Board and Corrugated Boxes from Cotton Plant Stalk
- Biogas from Textile Mill Waste
- Mushroom Crop on Agro-Wastes
- Dyeing of Cotton Fabrics with Natural Dyes

Personnel

APPOINTMENT

Names	Post	Effective Date
Shri N. Vigneshwaran	Scientist	10-09-2001
Shri Ashok Kumar Bharimalla	Scientist	14-09-2001
Shri John Selvakumar L.	Scientist	19-09-2001

PROMOTION

SCIENTIFIC STAFF

Names	Post	Effective Date
Dr. K.M. Paralikar	Principal Scientist	27-07-1998
Dr. (Smt.) Vatsala Iyer	Principal Scientist	27-07-1998
Dr. (Smt.) P. Bhama Iyer	Principal Scientist	27-07-1998
Dr. G.F.S. Hussain	Principal Scientist	27-07-1998
Dr. (Kum.) C.R. Raje	Principal Scientist	27-07-1998
Smt. J.K. Iyer	Principal Scientist	27-07-1998
Dr. (Smt.) S.P. Bhatawdekar	Principal Scientist	27-07-1998
Dr. P.V. Varadarajan	Principal Scientist	27-07-1998
Dr. A.J. Shaikh	Principal Scientist	27-07-1998
Dr. R.P. Nachane	Principal Scientist	27-07-1998
Dr. S.G. Gayal	Principal Scientist	27-07-1998
Shri Muntazir Ahmed	Principal Scientist	27-07-1998
Dr. N. C. Vizia	Principal Scientist	27-07-1998
Shri R.M. Gurjar	Principal Scientist	27-07-1998

TECHNICAL STAFF

Shri I.H. Hunsikatti	Technical Officer T-6	01-07-2000
Shri S. Vancheswaran	Technical Officer T-6	01-01-2001
Shri C.M. More	Technical Officer T-5	29-04-2000
Shri P.N. Sahane	Technical Officer T-5	26-02-2000
Shri K. Narayanan	Technical Officer T-5	17-05-2000
Shri B.R. Pawar	Technical Officer T-5	10-07-2000
Shri M.B. Patel	Technical officer T-5	01-10-2001
Shri R.R. Mahangade	Sr. Technical Asstt. T-4	17-08-2000
Smt. P.S. Nirali	Sr. Technical Asstt. T-4	20-11-2000
Shri D.V. Kambli	Sr. Technical Asstt. T-4	01-01-2001
Shri M.G. Ambare	Technician T-2	01-08-2000
Shri J.B. Dhodia	Technician T-2	23-11-2000
Shri M.R. Nevrekar	Technician T-2	23-11-2000
Shri T.S. Mhaske	Technician T-2	23-11-2000
Shri B.K. Sawant	Technician T-2	16-12-2000
Shri M.Y. Chandanshive	Technician T-2	17-12-2000
Shri S.M. Sawant	Technician T-2	17-12-2000
Shri N.D. Kambli	Technician T-2	28-12-2000

ADMINISTRATIVE STAFF

Smt. J.J. Karanjavkar	Assistant	02-04-2001
Shri S.D. Ambolkar	Upper Division Clerk	02-04-2001

TRANSFER

Names	*Post*	*Effective Date*
Shri Nehrulal Meena, Sr. Technical Asstt. T-4	CIRCOT HQ to CSWRI, North Temperate Regional Station, Garsa (Kullu), H.P.	22-09-2001
Smt. V.V. Janaskar, UDC	On deputation to the Department of Income Tax, Mumbai to CIRCOT, H.Q.	07-09-2001(FN)
Shri R.D. Shambarkar, Stenographer Grill	On deputation to the Patent Information System, Nagpur to CIRCOT HQ	17-07-2001 (FN)

RETIREMENT

Names	*Post*	*Effective Date*
Shri M.T. Danoli	Technical officer T-5 Retired Voluntarily	16-04-2001
Shri K.V. Nair	Technician T-I-3	30-06-2001
Shri H.K. Pawar	Technician T-I-3	31-07-2001
Smt. J.K. Iyer	Principal Scientist Retired Voluntarily	01-08-2001

RESIGNATION

Names	*Post*	*Effective Date*
Dr. R. Murugesan	Scientist	30-07-2001

TRAINING PROGRAMMES ATTENDED BY STAFF

Training Programme	*Period and Place*	*Participant(s)*
Calibration and Maintenance of Micromat Fibre Fineness & Maturity Tester	April 23-28, 2001, Stockport, United Kingdom	Shri N.V. Bansode
Training Programme on Visual Basic	July 16-28, 2001, IASRI, New Delhi	Shri N. Shanmugam, Shri M.V. Vivekanandan
Training Programme on Establishment Rules	July 23-25, 2001, ITSR, New Delhi	Smt. S.D. Ambre, Smt. S.R. Shirsat
Technical Workshop on Pay Fixation under the Fundamental Rules	July 25-27, 2001 CTSR, New Delhi	Shri D.G. Kulkarni, Shri S.D. Ambolkar

Training Programme	*Period and Place*	*Participant(s)*
Training on Introduction to PLC	July 30 to August 8, 2001 Advanced Training Institute, Mumbai	Shri A.K. Chapekar
First Aid Training Programme	August 5,12 & 19, 2001 First Aid training Centre, Thane	Shri R.S. Darade
Training Programme on Cash and Accounts	August 8-10, 2001 ISERA, New Delhi	Shri J.I. Parmar
Evaluation & Expression of Uncertanity in Measurement	August 20-22, 2001 NPL, New Delhi	Shri P.K. Mandhyan
Technical Workshop on Establishment Rules	August 27-29, 2001, ISERA, New Delhi	Shri J.R. Mangle, Shri S.S. Angane
Training Course under Revolving Fund Scheme	August 28 to September 1, 2001 IASRI, New Delhi	Shri D.R. Murthy
Technical Workshop on Purchase Policy & Procedure of Govt. Dept.	August 29-31, 2001 Centre for Training & Social Research, New Delhi	Shri B.D. Sawant, Shri R.K. Pallewad, Shri A.B. Dalvi
Introduction to Pneumatics & its Industrial Application	September 3-14, 2001 Advanced Training Institute, Mumbai	Shri A.P. Modak
Training Programme in Computer	August 2001 CMC, Ahmedabad	Shri Y. Subrahmanyam Shri M.C. Bhalod Shri G.G. Mistry Shri M.B. Patel Shri J.I. Parmar
Reorientation Programme for SC/ST/OBC	September 8-9, 2001 NIPA, Bangalore	Shri K.H. Sawakhande, Shri D.U. Kamble
Development of Internet & Intranet Using Linux Operating System	September 10-15, 2001, CIRG, Mathura	Shri D.R. Murthy
Accreditation of Laboratories	September 11-12, 2001 NITSQM, New Delhi	Smt. N.D. Nachane
Computer Training Course on SPSS	September 24-29, 2001 IASRI, New Delhi	Shri Y. Subrahmanyam
Workshop on Implementation of Govt. Rules for SC/ST/ OBC in PSU and Govt Services	September 28, 2001 to October 1, 2001. Trivandrum	Shri P.D. Sonawane

Publications

ARTICLES PUBLISHED

Author(s)	*Title*	*Journal*
Sreenivasan, S.	*Indian Cottons : Implications of* WTO *Current Quality Scenario and Measures for Improvement*	National Journal of Plant Improvement, Vol. 3, 2001
Shanmugam, N., Chattopadhyay, S.K., Muntazir Ahmed, Sreenivasamurthy, H.V.	*Shirtings Woven from Rotor Spun Microfibre Fine Yarn*	Indian Textile Journal, Vol. 111, April 2001
Chattopadhyay, S.K., Chapekar, A.K., Muntazir Ahmed, Gupta, N.P.	*Utilisation of Angora Rabbit Hair in Blends with Cotton for Value-added Fabrics*	Asian Textile Journal, Vol 10(3), 2001
Chattopadhyay, S.K., Bhaskar, P., Chapekar, A.K., Muntazir Ahmed, Gupta, N.P., Pokharna, A.K.	*Spinning of Cotton/Wool Blends on Short Staple Spinning Systems*	Journal of Textile Assocoaiton, Vol. 61, 2001
Chattopadhyay, S.K., Samanta, S.K., Sreenivasan, S.	*A Feasibility Study on Development of Coir-Cotton Composite Yarns through Friction Spinning for Industrial End Uses*	Asian Textile Journal, Vol 10, May-June 2001
Muntazir Ahmed	*History of Knitting (in Hindi)*	Fashion and Beyond, July 2001
Raje, C.R., Gurjar, R.M., Kawlekar, S.R.	*Finishing of Cotton Fabrics with Cellulase Enzyme*	Indian Textile Journal, Vol 111 No.6, 2001
Singh, R.P., Singh, V.P., Singh, ***M.,*** Lal, C.B., Makwana, D.N.	*Selection of Punjab American Cotton* (G. *hirsutum) Genotypes for High Fibre Elongation with Better Fibre Quality*	Journal of Indian Society for Cotton Improvement, Vol. 26, April 2001
Singh, R.P., Singh, V.P., Singh, M., Lal, C.B., Iyer, K.R.K Makwana, D.N.	*Breeding for Improvement in Yield and Quality of Punjab American Cotton* (G. *hirsutum)*	Journal of Indian Society for Cotton Improvement, Vol. 26, August 2001

Author(s)	Title	Journal
Nachane, R.P., Pai, S.D., Bhaskar, P., Mandhyan, P.K.	*Dimensional Stability of Woven Fabrics at Different Temperatures*	The Indian Textile Journal, Vol. 111, No.5, Feb. 2001
Balasubramanya, R.H.	*Advances in Scientific Processing of Cottonseed*	AICOSCA Newsletter, September 2001

OTHER PUBLICATIONS

- Annual Cotton Quality Update 2001
- CIRCOT Ginning Bulletin Oct. 2000 to Mar. 2001
- CIRCOT Leaflet No. 17 - *Semi-Continuous Biotreatment Plant for Pulp and Paper from Crop Residues*
- CIRCOT Leaflet No. 18 - *CIRCOT – TRYTEX Miniature Spinning System*
- CIRCOT Leaflet No. 19 - *Respirable Cotton Dust: A Health Hazard*
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PAPER PRESENTED AT SEMINARS / CONFERENCES

Author(s)	Title	Seminar/Conference
Bhama Iyer, P., Ananthakrishnan, K.V., Sreenivasan, S.	*Fibre Quality Traits of Hand Separated Vs Ginned Cotton*	Seminar on **Cotton Research Strategies in New Millenuium,** April 2001, Hissar
Balasubramanya, R.H., Gangar, H.U.	*Production of Compost from Willow Dust*	National Workshop on **Energy and Environment Management for Sustainable Development of Agriculture and Agro-Industrial Sector** July 8-9, 2001, Bhopal
Sreenivasan, S.	*Quality Status of Indian Cottons with Special Reference to Andhra Pradesh and Future Requirements*	Group Discussion on **Cotton in Andhra Pradesh — Present Status and Future Prospects,** 17-18 August, 2001, Hyderabad
Sreenivasan, S.	*Improving Income through By-Product Utilisation*	Seminar on **Agricultural Waste Based Industry : Opportunities in South Gujarat,** 25 August, 2001, Surat

Author(s)	*Title*	*Seminar/Conference*
Shaikh, A. J., Gurjar, R. M., Balasubramanya, R. H.	*Potential of Cotton Plant Stalks : Paper and Composite Boards*	Seminar on **Agricultural Waste Based Industry : Opportunities in South Gujarat,** 25 August, 2001, Surat
Sreenivasan, S., Muntazir Ahmed	*Current Scenario and Issues Pertaining to Quality of Indian Cottons (in Hindi)*	**Sustainable Cotton Production Technology and Future Strategies,** September 10-11, 2001, Nagpur
Muntazir Ahmed, Upadhye, D.L., Talekar, S.	*Production of Fabric and Garments from Naturally Coloured Cottons (in Hindi)*	**Sustainable Cotton Production Technology and Future Strategies,** September 10-11, 2001, Nagpur
Deepali Joshi, Muntazir Ahmed, Patwardhan, B.	*Importance of Fibre Fineness and Maturity in Construction of Single Knits (in Hindi)*	**Sustainable Cotton Production Technology and Future Strategies,** September 10-11, 2001, Nagpur
Sukhi, S.V., Muntazir Ahmed	*Characteristics of Naturally Coloured Cottons (in Hindi)*	**Sustainable Cotton Production Technology and Future Strategies,** September 10-11, 2001, Nagpur
Makwana, D.N.	*Kapas Utpadan mein Gunavatta ka Mahatva*	**Sustainable Cotton Production Technology and Future Strategies,** September 10-11, 2001, Nagpur
Balasubramanya, R.H., Gangar, H.U.	*Solid Waste management of Textile Mill Waste*	**International Waste Management and Landfill Symposium,** October 1-5, 2001, Cagliari, Italy
Shaikh, A.J., Gurjar, R.M., Balasubramanya, R.H.	*Value Added Products from Crop Residues*	Summer Course on **Recent Advances on the Role of Microorganisms in Sustainable Agriculture** September 3-12, 2001, Dharwad

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