

CIRCOT news

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

Volume 1

April to September 1998

Number 1

Editorial

The past three years have witnessed a gradual transformation of the research and extension outlook of ICAR Institutes in the wake of changes in economic order sweeping across the country. CIRCOT too reflects the changes in several ways.

Emphasis on applied research and effective transfer of technologies will be the hallmark of the new style of CIRCOT's functioning. The laboratories are being modernised with the addition of latest instruments for quality testing of fibre, yarn and fabric. An analytical laboratory for Eco-tests is being set up with instruments like GC-mass Spectrometer, Atomic Absorption Spectrometer and High Performance Liquid Chromatograph.

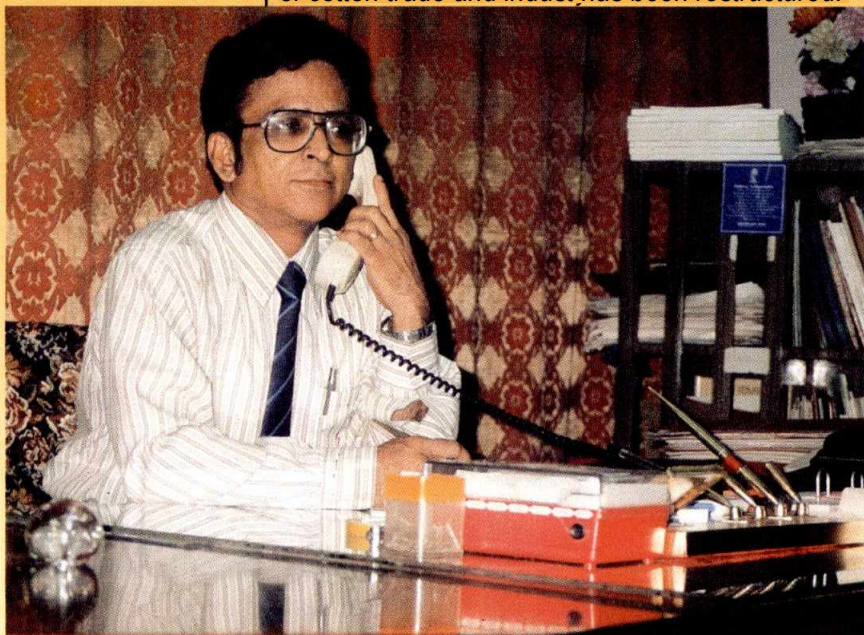
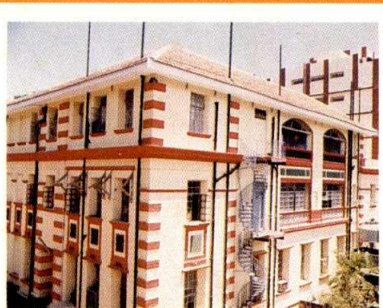
Training and commercial testing activities are being strengthened. The training in quality testing for the benefit of cotton trade and industry has been restructured.

Specialised training programme for users of HVI system for fibre quality assessment has been launched in collaboration with Zellweger Uster (India)Ltd., the suppliers of the equipment. Training programmes in ginning will now be organised by CIRCOT in different centres in the country instead of only at the Ginning Training Centre at Nagpur. Commercial testing activity has been given a boost by placing more men and machines on this job.

Information and publicity are also being accorded appropriate place in CIRCOT's activity agenda. Leaflets on technologies evolved at CIRCOT for exploitation, research findings, technical data on cotton for commercial uses, etc. are being published from time to time. General information about events and activities at the Institute requires dissemination in a fitting manner. It is for this purpose that a six monthly publication CIRCOT News is being launched.

As a matter of fact, CIRCOT News is not the first one of its kind to be brought out from this Institute. Some years ago, a biennial magazine entitled CTRL Newsletter was under publication. After a few issues, the project got abandoned for no known reason. CIRCOT NEWS now being launched is therefore, not entirely new. It can at best be regarded as an enriched version of the old periodical. The increased need and relevance of a news bulletin will, I believe, provide the impetus necessary for its sustenance.

K.R. Krishna Iyer
Editor



National Seminar on the Scenario of Cotton and Blended Textiles Beyond 2000 AD

A two-day National Seminar on The Scenario of Cotton and Blended Textiles beyond 2000 AD was organised by CIRCOT in collaboration with the Indian Fibre Society at the Centrum Hall, Centre I, World Trade Centre, Mumbai on April 24 and 25, 1998. The Seminar, organised as part of the Golden Jubilee celebration of India's Independence was inaugurated by Mr. B.C. Khatua, Textile Commissioner in the august presence of dignitaries including Dr. Anwar Alam, DDG (Engg.), ICAR, Mr. M.B. Lal, CMD of CCI, Mr. D.R. Mehta, CMD of NTC(MN), Mr. Suresh Kotak, President of EICA and Dr. R.P. Kachru, ADG (PE), ICAR. The Inaugural session was presided over by Dr. Anwar Alam, DDG (Engg.), ICAR.

The following publications were released during the inaugural session :

1. *Technological Research at CIRCOT since Independence*
2. *Cotton Quality Update - 1998*
3. *Book of Papers of the Seminar*
4. *Souvenir of the Seminar*
5. *CIRCOT Schedule of Test Fees*

Dr. K.R. Krishna Iyer, Director, CIRCOT in his welcome address stressed upon the need for good quality cotton and dealt with eco-friendly issues like the production of naturally coloured cotton and organic cotton. He enumerated the problems currently faced by spinning mills because of the backwardness of the ginning industry.

Presenting the inaugural address Mr. B.C. Khatua, Textile Commissioner, observed that the textile economy of our country is based heavily on cotton. While elaborating the various steps initiated by the Govt. of India to help the industry, Mr. Khatua touched upon the Cotton Technology Mission. The objectives of this mission



Mr. B.C. Khatua, Textile Commissioner lights the Inaugural Lamp

include crop improvement research issues, extension activity, improvement in ginning and marketing of cotton. Mr. Khatua exhorted the textile industry to take advantage of the crisis prevailing in South East Asia in textile sector to boost India's exports.

Mr. M.B. Lal, CMD of CCI in his key-note address traced the history of cotton production both in terms of quantity and quality since independence. While pointing out that India is the only country which grows both the longest and the shortest cottons. Mr. Lal recommended that Govt. should come forward to purchase cotton from growers paying the support price that should be in tune with international rate.

Mr. Mehta, CMD of NTC (MN) in his address dwelt upon the fact that the fortune of textile industry depends upon the quality of cotton fibre. He also emphasised the need for modernisation of the spinning, weaving and knitting industry in the country.

Stressing the importance of cotton quality in textile production, Mr. Suresh Kotak, President, EICA, observed that genetic engineers should find out methodologies to improve the fibre attributes so that durable and aesthetically high quality fabrics and apparel can be made from cotton.

Dr. R.P. Kachru, ADG (PE) of ICAR, dealt with environmental issues confronting the cotton industry and stressed upon the need for an integrated approach involving R & D organisations, cotton growers and trade and industry to find lasting solutions.

The Chairman of the inaugural session Dr. A. Alam, congratulated CIRCOT and the Indian Fibre Society for organising a Seminar focusing on a wide range of issues. Pointing out that self imposed restriction on the use of water is the need of the hour, Dr. Alam appreciated the emerging trends in substitute irrigation systems such as drip irrigation. Dr. Alam concluded his remarks by saying that CCI should play a major role in fixing the price of cotton, keeping in mind the interests of both the grower and the user.

The technical presentations that followed the inaugural session were covered in six sessions spread over two days, the details of which were as follows :

Technical Session I : Fibre Production and Quality

Chairman : Dr. A Alam, Deputy Director General (Engg.), ICAR, New Delhi

Co-chairman: Dr. V. Sundaram Former Director, CIRCOT, Mumbai

1. Breeding for Improvement of Fibre Quality in Cotton—
Dr.M.S. Kairon, Mr. PSingh and Ms. Vinita Gotmare, Central Institute for Cotton Research, Nagpur
2. Ginning - Scenario beyond 2000 AD— *Dr.N.C.Vizia and Dr. G.R. Anap, CIRCOT, Mumbai*
3. Cotton Quality for the Twenty-first Century—
Dr.K.R.Krishna Iyer,CIRCOT, Mumbai

Technical Session II : Fibre Production and Quality

Chairman : Dr. V.S. Jayaram, Technical Consultant, Mumbai

Co-chairman: Dr. N.B. Patil, Former Director, CIRCOT, Mumbai

1. Scenario of Polyester Production beyond 2000 AD—
Mr. S.R. Dole, JCT Fibres Ltd., Mumbai
2. Use of Natural Ligno-cellulosic Fibres and their Blends for Textile Application— *Dr. B.C. Mitra, Dr. S.K. Ghosh and Dr.B. Sarkar, NIRJAFT, Calcutta*

Technical Session III : Yarn Production and Quality

Chairman : Mr. M.G. Kulkarni, Textile Consultant, M.G. Kulkarni and Associates, Mumbai

Co-chairman : Mr. M. S. Parthasarathy, Former Principal Scientist, CIRCOT, Mumbai

- Challenges before the Existing Spinning Mills by 2000 AD— *Mr. C.R. Jamdar, The Deccan Co-operative Spinning Mills Ltd., Ichalkaranji*
2. Production of Fault-free Cotton Yarn Using High Speed Processing Technology— *Mr. A. Rajagopalan, Patodia Syntex Ltd., Mumbai*
 3. Trends in Instrumentation and Techniques for Yarn Quality Assessment— *Mr. Peter Feller, Zellweger Uster, Switzerland*
 4. Industrial Textiles Relevant to India - Past, Present and Future — *Mr. A. Subramaniam, Subramaniam & Co. Coimbatore*

Technical Session IV : Fabric and Garment -
Production and Quality

Chairman : Dr. T.V.K. Srivastava, Director,
MANTRA, Surat

Co-chairman: Mr. M.K. Talukdar, Kusumgar Corporation,
Mumbai

1. Future Trend in Knitted Fabric Manufacture and Quality Assessment— *Mr. R. Ramamurthy, SITRA, Coimbatore*
2. Future Trends in the Use of CAD for Production of Textile Fabric— *Mr. R.S. Chhajed and Ms. Vrunda Doctor, ATIRA, Ahmedabad*
3. New Approaches for Fabric Quality Assessment—
Ms. T.B.C. Amaravathi, Mr. S.S. Ramatal, Mr. S. Bala Arasu, Mr.H.L. Vijayakumar and Prof. V Subramaniam, Alagappa College of Technology, Anna University, Chennai
4. Production of World Class Garments and their Quality Assessment— *Mr. S.N. Kuchhal, Standard Industries Ltd., Mumbai*

Technical Session V : Chemical Processing

Chairman : Dr. R.S. Gandhi Adviser, MANTRA, Surat
Co-chairman: Mr. M.D. Dixit, Technical Advisor, Mumbai

1. Energy Saving, Cost Effective and Eco-friendly Textile Processing— *Dr. S.N. Pandey, Former Director CIRCOT and, Dr.(Mrs.) S. Tiwari, CIRCOT, Mumbai*
2. Eco-friendly Chemical Processing of Cotton Textiles—
Dr. G.P. Nair, Textile Consultant, Mumbai
3. Wrinkle-free Finishing of Cotton and Blended Textiles—

Dr.(Mrs.) N. Bhattacharyya, BTRA, Mumbai

4. Scenario of Eco-testing in India : Current Trends and Future Requirements— *Mr. S. Subramanian, Dr. G.S. Nadiger and Mr.Y.P. Singh, Textiles Committee, Mumbai*
5. Eco-friendly Textile Speciality Chemicals—
Mr. R.H. Mehra, Mr. Anil R. Mehra and Mr. Arun R. Mehra, Auxichem Ltd., Mumbai
6. Waste Water Management in Textile Industry—
Mr. PP Pathe and Dr. S.N. Kaul, NEERI, Nagpur

Technical Session VI : Marketing and Human
Resource Development

Chairman : Dr. Mruthyunjaya, Asstt. Director General
(AESM), ICAR, New Delhi

Co-chairman: Mr. K. Damodaran, Director, Indo-German
Chamber of Commerce, Mumbai

1. Quality Based Marketing of Cotton— *Mr. S.C. Grover, The Cotton Corporation of India Ltd., Mumbai*
2. Marketing of Fabric Fashions in India— *Mr. Rajeev Merchant, K.G. Garments, Coimbatore*
3. Textile Industry and Fashion : A Synergistic Approach—
Ms. Padma Kapoor and Ms. Sumali Nagarajan, NIFT, Mumbai
4. Human Resource and Machinery Management in Textile Industry— *Mr. V Ramachandran, The Century Textiles and Industries Ltd., Mumbai*

Several recommendations were made in various sessions, the details will be given in the next issue.



Address by Dr. R.P. Kacliru, ADG (PE), ICAR

Meetings

The forty-seventh meeting of CIRCOT Management Committee was held on 13-08-1998 from 11.00 am. in the Committee Room of the Institute.

The following members and invitees were present :

Dr. K.R. Krishna Iyer	Chairman
Dr. R.P. Kachru	Member
Prof. K.N. Sharma	Member
Prof. S.C. Jha	Member
Dr. S.A. Patil	Member
Dr. A.V. Ukidve	Member
Dr. (Mrs.) P. Bhama Iyer	Member
Dr. K.M. Paralikar	Member
S.K. Pathak	Member
Dr. R.H. Balasubramanya	Invitee
Dr. S. Sreenivasan	Invitee
V Mhadani	Invitee
N.N. Lotha	Member-Secretary

Dr. K.R. Krishna Iyer, Director, CIRCOT was in the chair. He welcomed all the members present and introduced them to Dr. R.P. Kachru, ADG (PE), ICAR.

The deliberations were mainly on Institute expenditure upto July 31, 1998 under Plan and Non-Plan, Progress of Works, Representations from IJC and Grievance Committee, Purchase of land for R&D at Navi Mumbai, Revision of Guest House Tariff, Purchase of some Equipments not included in the EFC Memorandum, Proposal for celebration of Platinum Jubilee of CIRCOT, Project Based Budgeting, Research Highlights, etc.



Management Committee in Session

The fourth meeting of the newly constituted Research Advisory Committee of CIRCOT was held at the Conference Hall of the Institute on July 9 and 10, 1998. Dr.T. Radhakrishnan was in the chair and the following members and invitees were present.

Prof. K.R. Salhotra	(Member)
Dr.S.S. Narayanan	(Member)
Shri. B.A. Patel	(Member)
Prof. V. Subramaniam	(Member)
Shri S.C. Grover	(Member)
Dr. R.P. Kachru	(Member)
Dr. K.R.K. Iyer	(Member)
Shri Karyanand Sharma	(Nominee of Agril. Minister)
Shri Sharat Chandra Jha	(Nominee of Agril. Minister)
Dr. M.S. Kairon	(Invitee)
Shri K. Ramachandran	(Invitee)
Dr. A.V. Ukidve	(Invitee)
Dr. S. Sreenivasan	(Head of Division)
Dr. R.H. Balasubramania	(Head of Division)
Shri Muntazir Ahmed	(Head of Division)
Dr. N.C. Vizia	(Head of Division)
Dr. (Smt.) Vatsala Iyer	(Invitee)
Shri T.K.M. Das	(Invitee)
Shri A.J. Shaikh	(Member-Secretary)

In his welcome address, Dr. K.R. Krishna Iyer, Director introduced the members of the new Committee constituted by the ICAR with experts from various disciplines of interest and relevance to CIRCOT and requested the Chairman to conduct the proceedings. The Chairman in his brief introduction greeted all the RAC members particularly the two members, Mr. Karyanand Sharma and Mr. Sharat Chandra Jha, who represented agricultural and rural interests and are nominees of the Agriculture Minister. He then requested Dr. R.P. Kachru, ADG (PE), ICAR to give a brief account of the ICAR view-point on the constitution of RAC .

Dr. Kachru gave a brief account of what the Council expects from the RAC in terms of the guidelines already formulated. Dr. Kachru reiterated that a frank and critical discussion is expected from the members on the various on-going and new researches being undertaken at CIRCOT and this alone will help CIRCOT to achieve the goals set forth in the Perspective Plan approved by the Council. Dr. K.R.K. Iyer highlighted the research and related activities of CIRCOT with the aid of transparencies.

The members then went round the various laboratories of the Institute and had discussions with concerned Scientists.



Research Advisory Committee Meeting

The post-lunch session was mainly devoted to discussion on Progress of Research work during 1997-98. The several comments/recommendations on the on-going projects were made on the basis of these deliberations.

One of the important recommendations made was regarding identification of certain Core Areas for research. The following core areas were suggested :

1. Improvement in ginning of cotton.
2. Improvement and quality evaluation of fibre, yarn and fabrics.
3. Finishing and dyeing of cotton with natural and environment friendly agents.
4. Utilisation of cotton plant residues for production of value-added products.
5. Development of entrepreneurship for utilisation of CIRCOT technologies.

Fourteen new project proposals for 1998.99 were approved by SRC.

Review Team for CIRCOT

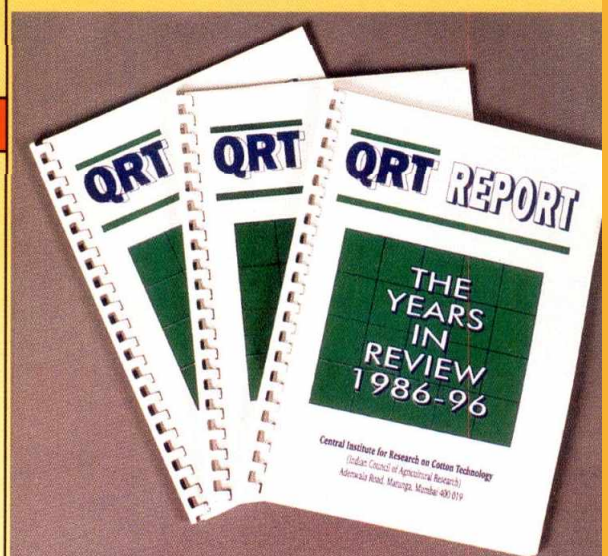
A Quinquennial Review Team (QRT) comprising the following members was appointed by ICAR to audit the research and allied activities of CIRCOT for an eleven year period from 1986 to 1996.

Dr. JaiPrakash	Chairman
Dr. S.R. Vengsarkar	Member
Dr. R.B. Patil	Member
Dr. N.E. Dweltz	Member
Dr. (Miss) Puspha Bajaj	Member
Dr. A.V. Ukidve	Member-Secretary

The task assigned to the QRT was to identify and examine the research achievements of the Institute vis-a-

vis inputs in terms of man power and financial allocations for the organisation. The Team had to critically review the impact of research on user groups and transfer of technology. The QRT was also expected to recommend / suggest changes, if any in the organisational set-up, programmes and budget so as to remove constraints if any, in achieving objectives.

The Team had four meetings to finalise the report. Based on in-depth deliberations during these meetings, a report incorporating several recommendations relating to scientific, organisational, financial and general matters was prepared. The printed report was formally presented on August 28, 1998 by the Chairman to Dr. A. Alam, DDG, ICAR in the presence of Dr. R.P. Kachru, ADG (PE), ICAR and Dr. K.R. Krishna Iyer, Director, CIRCOT.



Copies of QRT Report

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CIRCOT has designed a scale useful for measuring the staple length of cotton. The scale has graduations in inches and millimetres. It is a very handy tool for the cotton trader. Participants in CIRCOT training programmes are offered this scale at a nominal cost.



Staple Length Scale

For quick and accurate estimation of ginning percentage and for ginning small cotton samples for seed production, Scientists at the GTC of CIRCOT at Nagpur have designed the following portable type ginning machines for use by ginners, breeders, seed industry, farmers and traders.

Foot Operated Kisan Gin

CIRCOT Laghu Otai Yantra (CLOY Gin)

Licence has been issued to M/s Precision Tooling Engineers, Nagpur for fabrication of CLOY Gin and Kisan Gin .

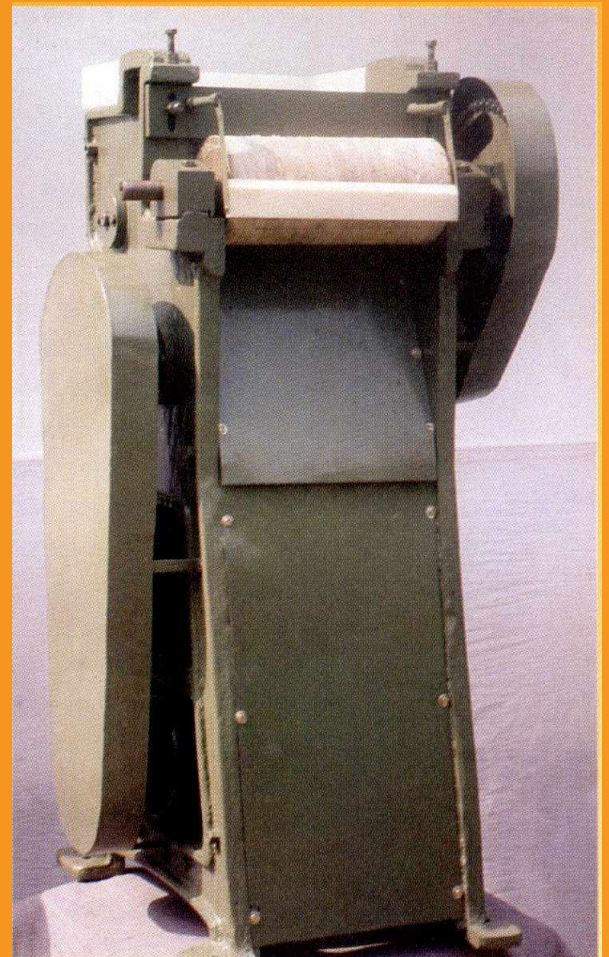
Occurrence Gram-negative Bacteria in Never-dried Cotton Bolls

Four isolates of Gram-negative bacteria, viz., *Beijerinckia indica*, *Enterobacter agglomerans*, *Klebsiella oxytoca* and *Xanthomonas* sp. have been recovered from developing healthy cotton bolls. The occurrence of these bacteria on the pollen grains has been attributed to contamination of the developing ovule and lint during boll

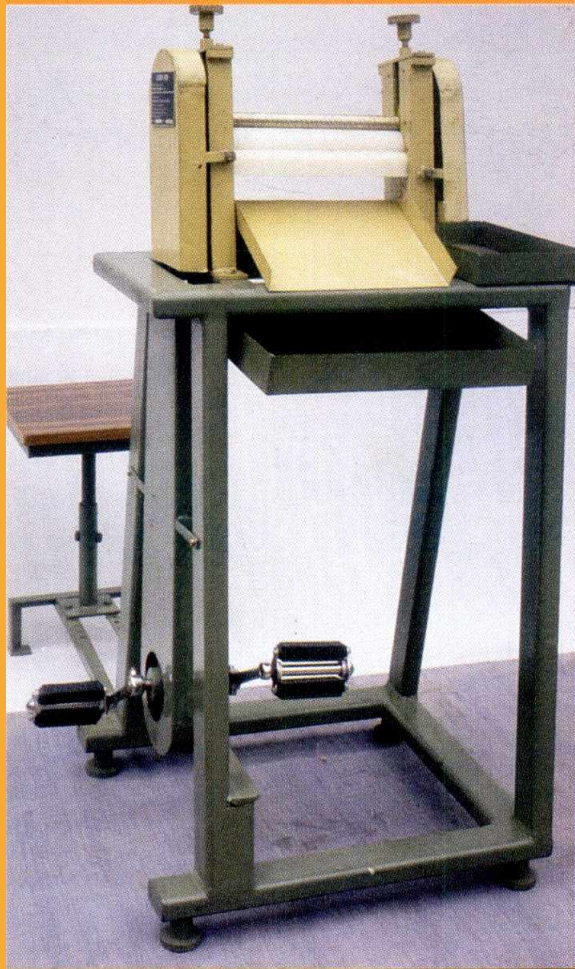
development. The population has been found to be maximum in the early stages with a significant reduction on dehydration. Gram-negative bacteria were recovered from all varieties in their never-dried state from all the species of cotton. The significance of these bacteria has been attributed to the mill-fever syndrome 'Byssinosis'.

At the instance of NHDC, Lucknow, trials were undertaken with the natural dye **Manjith**, which is obtained from the roots of *Rubia cordifolia*. Cotton yarn and fabrics were dyed with this dye in powder form after mordanting with either tannic acid and alum or *harda* and alum. Alum was the best metal mordant. When it was replaced by ferrous sulphate or a mixture of alum and ferrous sulphate, darker shades were obtained. The dyed fabrics had fair to good light fastness and good washing, rubbing and perspiration fastness.

Dyeing techniques have been developed at CIRCOT to dye viscose/cotton blended fabrics with natural Indigo.



CLOY Gin



Kisan Gin

Indigo is a vat dye, insoluble in water and in its reduced form is yellow in colour while in the oxidised form it is blue. The viscose/cotton fabric was dyed to 5% shade at room temperature using a multi-dip process. The fabric developed a greenish blue colour and it possessed good fastness properties. Various shades of green were obtained when the Indigo dyed fabric was re-dyed with Berberine. Post mordanting of the Indigo dyed fabric with iron gave a greenish black shade.

Biological

Ramie

The growing concern for preservation of the environment has led to renewed interest in research on biodegradable lignocellulosic fibres of plant origin. Among the natural fibres, ramie occupies a prime position due to its high strength, lustre, durability and resistance to microbial attack.

Even though the present production of ramie has been negligibly small, it is going to be one of the important fibres in coming years, in view of large scale cultivation

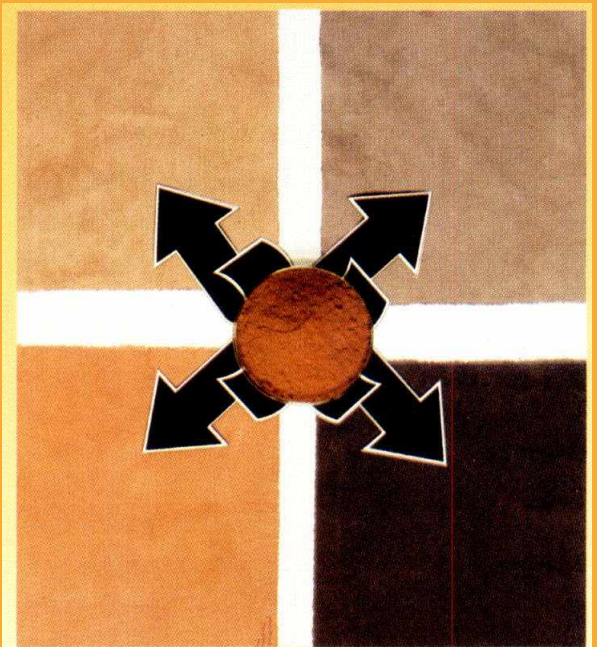
envisaged in parts other than the N.E. region which has been the traditional home for this fibre.

Ramie fibre is obtained from the plant *Boechmeria nivea grand* which is semi-perennial and grows to a height of about 2 metres in just 1 1/2 months and can be maintained for about 8 years without the need for replanting.

Decorticated ramie fibres contain about 12-30% of gum. For using them in textile applications, degumming is a pre-requisite. Conventional chemical degumming involves cooking at high temperatures for a prolonged time and hence is an energy intensive process.

Conventional enzymatic degumming demands treatment with a series of enzymes to effectively remove the gum at a specific pH and temperature, with the risk of losing fibre strength.

CIRCOT has standardized a method of degumming ramie fibres under anaerobic conditions at room temperature. The method involves the use of a mixed microbial consortium and there is no loss in fibre strength after degumming. The method is inexpensive and ecofriendly. The solution after anaerobic treatment containing gum and other organic matter can be utilised for the production of biogas. The effluents generated will not be toxic. The process has the potential for commercial exploitation.



Cotton fabrics dyed with Manjith

RC07

Pada9e j4 Ginnera

One of the principal mandates of CIRCOT is to serve the ginning industry in India. The Ginning Training Centre of CIRCOT at Nagpur established in 1984 has facilities for training of gin fitters, supervisors and managers. In the past many years, professionals from cotton trade and industry have received training at GTC.

In order to strengthen the interaction with ginning industry, CIRCOT has recently launched a Technical Consultancy scheme under which the Institute will offer a package of benefits against payment of an annual consultancy fee. The scheme was formally launched at a meeting held on 20th September at Dhrangadhra in Gujarat where about a hundred ginners had gathered to listen to Dr. K.R.K. Iyer, Director, narrating the role of CIRCOT in Cotton research and related activities particularly in the area of ginning. Dr. G.R. Anap, Senior Scientist presented details of the CIRCOT package that comprises the following benefits for the ginners.

(i) Technical advice on matters relating to productivity and efficiency of the unit.

(ii) Training of personnel in gin operation and maintenance.

(iii) Advice on modernisation.

(iv) Supply of information on ginning of cotton in India.

Shri P.G. Patil, Scientist In-charge of GTC Nagpur gave details of the training programme being offered by CIRCOT.

The distinguishing feature of the training component in CIRCOT package is that the Institute will conduct such programmes in towns where many ginners are located rather than at the GTC Nagpur. This would mean that CIRCOT will now go to the ginner instead of calling him to Nagpur for training.

Several ginners have enrolled themselves for the CIRCOT package. The first training programme under the new scheme is scheduled to be organised at Dhrangadhra from 9th to 14th November. Future programmes will be announced in due course.

Exten



A Section of the audience at the meeting held on September 20, 1998 at Dhrangadhra is which CIRCOT launched the new consultancy package for ginners



One batch of trainees at the Ginning Training Centre of CIRCOT, Nagpur

<p>Three ginning training courses were organised by the Ginning Training Centre of CIRCOT at Nagpur in the months of March, May and August 1998. The courses covered four major aspects of cotton technology, viz. Precleaning, Ginning & Pressing, Material Handling Systems & Structures, and Fibre Quality Evaluation & Marketing. The main objective of the training has been to give to the participants an exposure to the newly emerged and frontier technologies of cotton ginning and pressing techniques and to provide training in gin setting & gin maintenance. The Training course involved a series of lectures and hands-on practicals on various machines. Certificates were issued on successful completion of the training.</p>	<p><i>Training Programme on Cotton Quality Evaluation</i></p>
<p><i>Consultancy for CCI</i></p> <p>CIRCOT has taken up consultancy work for setting up of a modern ginning and pressing unit for the Cotton Corporation of India at Mohgaon in Chindwada District of M.P. The ginning factory will have 20 double roller gins and a bale press.</p>	<p>During the period June to September, 60 personnel deputed from various organisations were trained at CIRCOT in fibre quality evaluation. Altogether 8 courses each of two weeks' duration were conducted with participants from Cotton Corporation of India, and private trading companies.</p> <p>CIRCOT has entered into collaboration with the Zellweger Uster (India) Ltd. (ZUI) for organising special training programmes in the use of HVI and AFIS machines. At present there are about 110 HVI and 45 AFIS units being used in textile mills in different parts of the country. A Round Test organised by CIRCOT had brought out the need for specialised training programmes to ensure effective utilisation of the instrument both for quality evaluation and quality control in textile mills. The courses will be conducted from June to November every year.</p>

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Authors	Title	Journal
Nachane, R.P. Hussain, G.F.S.	<i>Inverse Creep in Some Textile Yarns</i>	Indian Journal of Fibre & Textile Research, Vol.23, p.81, June, 1998
Paralikar, K.M., Balasubramanya, R.H., Vizia, N.C., Krishna Iyer, K.R.	<i>Variation in the Size of Fibre Base in Diploid and Tetraploid Cotton Varieties in Relation to the Strength of Attachment and Seed Coat Removal</i>	Indian Journal of Fibre & Textile Research, Vol.23, p.67, June, 1998
Nachane, R.P., Mahindrakar, S.	<i>Upholstery Fabrics and Dust</i>	Indian Textile Journal, Vol.108, No.11, p.20, August, 1998
Krishna Iyer, K.R.	<i>Desi Cottons . Time for Revival ?</i>	Indian Textile Journal, Vol.108, No.12, p.48, September, 1998
Janaki, K. Iyer, Bhama Iyer, P., Rajagopal, K.R.	<i>Measurement of Cotton Fibre Length</i>	Indian Textile Journal, Vol.108, No.12, p.6, September, 1998
Bhatawdekar, S.P., Balasubramanya, R.H., Inamdar, A.N.	<i>Characterization of Cottonseed Protein Oil</i>	Journal of Indian Society for Cotton Improvement, Vol.23, No.2, p.201, September, 1998
Subrahmanyam, Y., Kumar, V., Gohel, M.D., Pai, S.D., Nagwekar, S.N., Ukidve, A.V.	<i>Cotton Fibre Development in Infra hirsutum Hybrids and their Parents</i>	Journal of Indian Society for Cotton Improvement, Vol.23, No.2, p.207, September, 1998
Deshmukh, L.D., Ansingkar, A.S., Itagi, S.V., Ukidve, A.V.	<i>Effect of Induced Mutations on Fibre Properties of Asiatic Cotton</i>	Journal of Indian Society for Cotton Improvement, Vol.23, No.2, p.213, September, 1998
<ol style="list-style-type: none"> 1. Annual Cotton Quality Update 1998 2. Schedule of Test Fees 3. Technological Report on Trade Varieties and Standard Cottons for 1996-97 Season 4. 50 Years of Technological Research at CIRCOT since Independence <p style="text-align: center;">Papers Presented at Seminars/Conferences</p>		
Authors	Title	Seminar/Conference
Vizia, N.C., Anap, G.R.	<i>Ginning Scenario beyond 2000 AD</i>	National Seminar on The Scenario of Cotton & Blended Textiles beyond 2000 AD , April 24-25, 1998, Mumbai
Krishna Iyer, K.R.	<i>Cotton Quality for Twenty First Century</i>	National Seminar on The Scenario of Cotton & Blended Textiles beyond 2000 AD , April 24-25, 1998, Mumbai
Pandey, S.N. (IFS), Sudha Tiwari (CIRCOT)	<i>Energy Saving Cost Effective and Eco-friendly Textile Processing</i>	National Seminar on The Scenario of Cotton & Blended Textiles beyond 2000 AD , April 24-25, 1998, Mumbai
Ganesan, S. (CIAE, Bhopal), Nema, B.P. (CIRCOT, Nagpur)	<i>Design and Development of a Fuel Effective Sigr.</i>	33rd Annual Convention of ISAE , September 21-23, 1998, CIAE, Bhopal

Personnel

Name	Post	Effective Date of Appointment/ Promotion
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Appointments

Shri V.G. Arude	Scientist	21-05-1998 at GTC., Nagpur
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Promotions

Smt. S.V. Nayar	Technical Officer T-5 to Technical Officer T-6	01-07-1996
Shri M.C. Bhalod	Technical Officer T-5 to Technical Officer T-6	01-07-1997
Shri V.B. Suryanarayanan	Technical Officer T-5 to Technical Officer T-6	01-07-1998
Shri M.V. Vivekanandan	Sr. Technical Assistant to Technical Officer T-5	01-07-1998
Shri R.D. Nagarkar	Sr. Technical Assistant to Technical Officer T-5	01-07-1998
Shri S.N. Hedau	Technical Assistant T-II-3 to Technical Assistant T-4	01-07-1997
Smt. S.R. Kaulekar	Technical Assistant T-II-3 to Technical Assistant T-4	01-07-1997
Shri D.U. Kamble	Technical Assistant T-II-3 to Technical Assistant T-4	01-07-1997
Shri R.G. Dhakate	Technical Assistant T-11-3 to Technical Assistant T-4	01-07-1998
Smt. Bindu Venugopal	Technical Assistant T-II-3 to Technical Assistant T-4	01-07-1998
Shri M.Y. Chandanshive	Technical Assistant T-1	17-12-1995
Shri S.M. Sawant	Technical Assistant T-1	17-12-1995
Shri V.M. Subramaniam	SS. Gr. III to SS. Gr. IV	13-05-1998
Shri R.S. Rane	SS. Gr. II to SS. Gr. III	30-06-1996
Shri M.K. Ghadge	SS. Gr. II to SS. Gr. III	13-05-1998
Shri G.N. Mayavanshi	SS. Gr. I to SS. Gr. III	30-06-1996
Shri H.B. Vesmiya	SS. Gr. I to SS. Gr. III	13-05-1998

Retirement

Shri S. N. Nagwekar	Technical Officer T-6	30-06-1998
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Training Programmes Attended 4 Staff

Training Programme	Period and Place	Organised by	Participant(s)
<i>89th Advance Course on Implementation of Reservation Directives for SC/ST/OBC in Services</i>	31-05-1998 to 04-06-1998 at Goa	Third World Development Centre, New Delhi	Shri K.H. Sawakhande, Scientist (Sr. Scale)
<i>An Advance Course in Colour Technology</i>	07-05-1998 to 09-05-1998 at Mumbai	Computer Spectra Colour Pvt. Ltd., Mumbai	Shri A.J. Shaikh, Sr. Scientist Dr. P.V. Varadarajan, Sr. Scientist