CIRCOT ginning bulletin

Volume 2 October 2001 to March 2002 Issue 2

EDITORIAL

The Technology Mission on Cotton (TMC), a Government of India programme aimed at improving the productivity and quality of cotton produced in the country is progressing well. The Mini Mission I run by the ICAR with the objective of cotton improvement through R&D and Mini Mission II executed and monitored by the Ministry of Agriculture dealing with transfer of farm-worthy technologies with a view to improve the productivity and cost reduction in cultivation have started showing tangible results. The progress made during the last two years in market yard improvement through Mini Mission III and enhancing processing facilities through modernisation of ginneries under Mini Mission IV ably managed by Ministry of Textiles is much more discernible. The tasks outlined for MM III and IV are well defined and highly targetted and the results could be quantified in terms of number of market yards/ginning factories taken up for improvement. The jobs accomplished under MM III and MM IV are quantifiable and hence the progress is highly demonstrable.

Indian cottons are branded by international bodies as one of the most contaminated ones in the world. Therefore it is absolutely essential that our processing facilities are improved with modern ginning machines and conveying systems with auto-tramping bale press so that human handling during ginning, if not totally avoided, at least made The bare minimum. But improvement of infrastructure alone cannot bring the desired results. CIRCOT is of the firm view that it is not the "machine" but "men behind the machine" who are responsible for the poor quality of ginned lint produced in the country. Therefore human resource development in ginning sector is absolutely crucial for production of contaminant-free clean cotton to meet the demands of domestic textile industry.

Under the ICDP-MMII programme of the Technology Mission on Cotton, CIRCOT has modernised the infra-structural facilities available at the Ginning Training Centre at Nagpur, the only centre in the country dedicated to the creation of trained manpower in ginning sector. As per the requirements for a modern ginning factory, apart from modern ginning machines, seed and lint conveying systems along with automatic bale press have been installed. The Ginning Training Centre is also equipped with double roller gins, a Saw gin and a most modern Rotary Knife Roller Gin having very high productivity. CIRCOT is also in the process of establishing most modern facilities for scientific processing of seed namely delinting, dehulling and seed crushing facilities for oil extraction. A comprehensive training to ginner on not only correct methods of ginning and baling but also scientific utilisation of cotton seed which comes as a by product of ginning, we believe, would go a long way in appropriate utilisation of this very valuable by-product.

I would like to make a sincere and whole hearted appeal to all the ginneries in the country who have already modernised their factories and also those who intend to seek this benefit from the government package to come forward and derive benefit from the training on modern lines offered by CIRCOT through its training centre at Nagpur. A modernised Ginning factory with well trained staff I am sure, will be able to do the job of producing contaminant : free clean cotton more effectively thereby serving the very purpose of the mission-mode programme of the government.

S. Sreenivasan
Editor

Highlights

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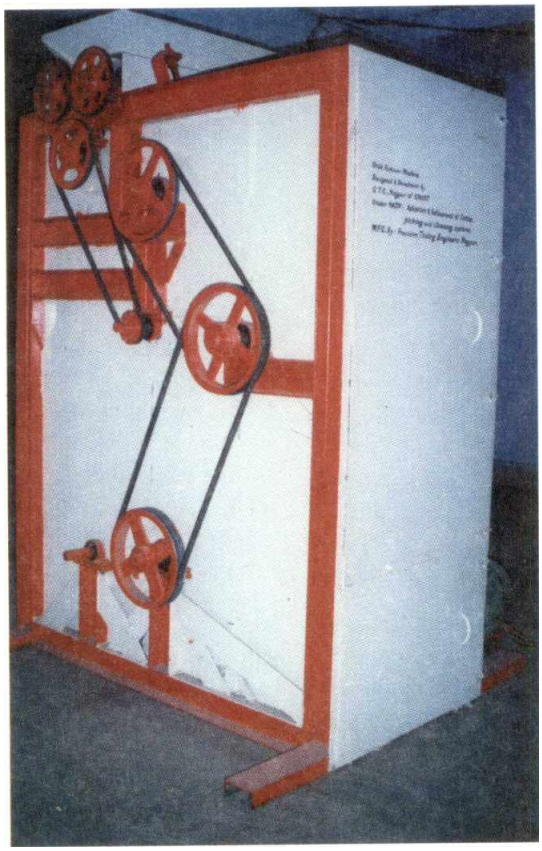
Dr. N.C. Vizia
Shri S.B. Jadhav
Shri P.G. Patil
Shri V.G. Arude
Shri TKM. Das
Shri V.B. Suryanarayanan

R&D GLEANINGS

CIRCOT Scientists have designed and developed a " Stick Removing Machine" (SRM) for efficient removal of heavy trash such as sticks, stems, cotton hulls and leaves from the seed cotton. The principle of cleaning is based on the popularly known 'Sling off Technique'. The laboratory model SRM has a processing capacity of 4 to 5 quintals of trashy cotton per hour and for cottons containing 15 to 20% of heavy trash, the cleaning efficiency is about 80 % per pass.

The SRM is gravity fed type and has three stages; first one accounting for the major cleaning operation, the remaining two, also called re-claimer stages, are meant for recovering the valuable cotton from the trash thrown out in the first stage.



Cotton Stick Removing Machine

Cotton Stick Removing Machine — An Internal View

The machine employs 3 specially built saw band cylinders with associated grid bars mounted concentric to the cylinders. The grid bars cover only a part of the surface of the saw cylinders and the trash is thrown out through the spaces between these bars. The machine has also been provided with two doffing brush cylinders to collect the cleaned cotton and deposit it out. This work has been carried out as part of the NATP Project "Adoption and Refinement of Cotton Picker and Cleaning System."

Ongoing Projects at CIRCOT

1. Ergonomic Evaluation of Ginning factories
2. Power Consumption Pattern in Double Roller Gin
3. Design and Development of Light Weight Gin

4. Development of a Package for Effective Management of a Modern Ginning Factory
5. Implementation of ICDP under MM II of Technology Mission On Cotton for improvement of Ginning, Pressing and Extension activities
6. Effect of Pre-cleaning, Ginning and Post-cleaning on Lint and Yarn Quality of Different Varieties of Cotton
7. Ginning Out-Turn of Roller Gins in Relation to Different Ratios for Cotton Feeding Time to Ginning Time (ICAR Funded Ad-hoc Project)
8. Adoption and Refinement of Cotton Picker and Cleaning System (World Bank Funded NATP Project)

RESEARCH ABSTRACTS

1. Modernization Of Indian Ginneries-The Yard Stick?

One of the aims of going for modernizing a ginning factory is to reduce the contamination in lint to below 15 per bale on an average. This should help the spinning mills to achieve high quality yarns. The latter is the ultimate objective of Technology Mission on Cotton (TMC), recently launched by the Government of India, which comprises four Mini-Missions being implemented jointly by the Ministries of Agriculture and Textiles. The impact of modernization on ginneries is discussed in the article and the assessment is mainly based on the norms set for production of trash free/ contamination free cottons. The set norms for the trash content values in lint are given in a table for qualifying for the GUI grant. Guideline values for assessing the extent of contamination in ginning lint are similarly shown.

Doraiswamy I, Chellamani K.P and Parthasarathy N., Production management, ***Asian Textile journal 2001 10/5-6(72)***

World Textile Abstracts - 6243
Volume -33, Issue-9, September-2001

2. Problem Of Removing Coarse Trash From Fibrous Material (in Russian)

Removal of trash in cotton or flax is routinely done by means of cylindrical pre-cleaners that employ cylindrical rollers having blades or spikes. While the material is fed in bulk the output rolls out in the form of a thin batt. The cleaners in general are multistage type and employ more than two rollers in which the material is opened and scrubbed resulting in thinning out of the fibre layers.

A mathematical analysis corroborates the above facts and shows that trash removal is facilitated not only by passing the fibres (cotton, flax) through blades, but also as the layers get thinned out. The rate of removal depends both on the initial trash content and the type of trash and the number of thinned zones, and also on the conditions to be satisfied for effective removal of the trash during thinning

Korabel'nikov R.V and Korabel'nikov A.R., Izvesitya Vysshikh Uchebnykh Zavedenii, ***Seriya Teknologiya Tekstil'noi Promyshlennosti, 200043(29-33)***

World Textile Abstracts - 5700
Volume 33, Issue-9, September-2001

3. Optimizing The Speed Of The Cleaning Cylinder On The Batt-Less Lint Cleaner

An experiment was run to determine the optimum speed of the cleaning cylinder on the Batt-less lint cleaners. The Batt-Less Lint Cleaner is an experimental machine that combines the roller-ginning and lint-cleaning functions into one unit. The ginning section of the machine is a standard roller gin stand, while the lint cleaning section consists of a saw type of cleaning cylinder. Because the ginned fibre is guided directly onto the cleaning cylinder without forming a batt, a feed-roll / feed bar assembly (which damages the fibre) is not needed. In a control experiment the cleaning cylinder of the Batt-Less Lint cleaner was bypassed and instead the fibre was cleaned with mill-type/air-jet lint cleaner. The speed of the cleaning cylinder was varied from 300 to 1500 rpm in steps of 150 rpm. Results show that as the speed of the Batt-Less lint cleaner increased, trash content in lint decreased, waste during opening and cleaning operations (prior to carding) decreased, loss of lint increased and cleaning efficiency improved. Lint turnout and bale value were not significantly altered due to the treatment. With the exception of the colour grade and very short fibres, all other fibre and yarn properties were not significantly different due to treatment and all were at acceptable levels. Based on the results of the experiment, the optimum speed of the cleaning cylinder was found to be between 750 and 900 rpm.

Gillum M.N, Armijo C.B and McAllister D.D., Transactions of the American Society of Agricultural Engineers, 2001, 44/3 (487-492)

World Textile Abstracts — 1505
Volume-34, Issue-3, March-2002

TECHNOLOGY MISSION ON COTTON

An Update on Mini Mission IV of Technology Mission on Cotton

Modernization of ginning factories under Mini Mission IV of the Technology Mission on Cotton (TMC) is going on with vigour. As of now about 70 factories have reported completion of their modernization projects, while the others will be ready by the onset of the next cotton season (October 2002). The target for the last 3 years of the IX Five-year plan was modernization of 150 factories. By the month of March 2002, all the 150 projects had been approved. The state-wise break-up of Ginning and Pressing Units approved by the TMC is as follows:

Sr No.	State	G&P Units **approved**
	Maharashtra	75
2.	Gujarat	42
3.	Madhya Pradesh	24
4	Karnataka	4
id	Andhra	3
6	Orissa	3
	Total	151

Modernization programme is to continue during the X Five-year plan period that started in April 2002. The target for the period is modernization of as many as 450

G&P factories at the rate of 90 units per annum. Already in the last 3 months, over 30 projects have been approved by TMC. If the current trend is maintained, the current year's target will be realized by December 2002.

The pattern of assistance in the X plan remains the same as in IX plan, namely 25% of the cost of machinery/ infrastructure subject to ceilings. Two new items have been added to the subsidy package. In the X plan, a factory being modernized will be entitled to an additional assistance of up to Rs.7.00 lakhs, over and above Rs. 20.00 lakhs for other machines as provided in the IX plan. Thus, if a factory proposes modernization that includes installation of a modern Bale press, it will receive a maximum assistance of Rs. 27.00 lakhs. A further assistance of up to Rs. 5.00 lakh is also available for ginneries setting up a High Volume Testing unit for fibre quality evaluation whereby bale-to-bale test data could be furnished to textile mills buying cotton.

A small but significant change in the level of modernization is also being affected during the X Five-year plan. The construction of Central Side Platform permitted in modernization earlier will not be allowed during X plan as these platforms necessitate excessive human handling of cotton leading to contamination.

Similarly, if a new Bale press is being purchased in X plan projects, it should have direct feeding facility. Cotton lint drawn pneumatically from the pala halls should be delivered into the Press box, such that there is no labour involvement. In the IX plan projects, it was permitted to throw cotton on the floor of the Press hall where the lint was later on lifted and filled into the box by labourers. This will not be permitted in the X plan projects.

Impact Assessment and Grading

The ginneries modernized with TMC assistance are being visited by expert teams for assessment of (1) the impact of modernization on cotton quality and (ii) the quality status of the ginnery. Methodologies for impact assessment and grading of ginneries have been worked out by TMC with the cooperation of ICMF, EICA, CIRCOT and TRAs. While impact Assessment would yield an index that will represent the potential of the factory to produce good quality cotton, the Grade assigned will be an indicator not only of the quality of infrastructure but also the efficiency with which the factory is run. Information on the grade (A+, A, B and C) of the ginning factory will be useful for mills while selecting ginneries for buying cotton. TMC has so far graded 30 ginnery factories. The process is of a continuing nature.

Courtesy: Dr. K.R. Krishna Iyer, Consultant, TMC (MM III & IV)

MEETINGS AND SEMINARS

A National Level meeting on 'Integration of developmental efforts on cotton through TMC' was organized by Directorate of Cotton Development (DOCD), Mumbai on 24th January, 2002 at CIRCOT, Mumbai under the Chairmanship of Shri J.N.L.Srivastava, Secretary (Agriculture and Cooperation),

DE An war *Alain, D.D.G. (Engg.) ICAR speaking at the inaugural session. Seated are : (from 1 to r) Dr. C.R. Hazra, Agriculture Commissioner, GOI, Shri J.N.L. Srivastava, Secretary A&C, GOI and Shri S.B. Mohapatra, Secretary Textiles, GOI*

GOI, Ministry of Agriculture, New Delhi.

In all about 63 participants representing trade, Industry, farmers' associations, agricultural university and government officials deliberated on several issues.

Dr.C.R.Hazra, Agriculture Commissioner, Ministry of Agriculture, in his welcome address, exhorted the participants to come forward and make valuable suggestions that would lead to refinement in the implementation of centrally sponsored scheme of Technology Mission on Cotton (TMC) and formulation of action plan for Xth Plan.

Dr.Anwar Alam, Dy.Director General (Engg.), ICAR representing the Council explained that the productivity of cotton in India is too low as compared to major cotton growing countries in the world owing to incidence of insect pests, diseases and lint quality is also poor due to lack of modernisation in the ginning and pressing industry. Further Dr. Alam stated that Central Institute for Cotton Research (CICR), Nagpur has evolved good hybrids/varieties and water management technologies to increase the productivity of cotton. Also CIRCOT has developed high productivity gins and efficient pre and post cleaners in cotton. Dr.Alam reiterated the need to bring down the contaminants and trash level in cotton to internationally acceptable levels and hoped that the Technology Mission on Cotton would strive vigorously to achieve this goal in the very near future.

During the technical session, Advisor (MM-III & IV) made presentation for Mini Mission — III & IV and informed that 51 market yards are being developed comprising of 15 under activation, 30 under improvement and 6 new under MM — III during the IXth plan. In MM-IV, 150 ginning and pressing (G&P) units are under modernization consisting of 112 existing and 38 new units. He also

A Section of the Audience

presented the plan proposal for MM-III & IV to be undertaken in Xth Plan. During Xth Plan, 150 markets are to be improved @ 30 markets per year and also 50 new markets are to be set-up @ 10 markets per year. As far as Mini Mission-IV is concerned, 250 G & P units of medium size will be modernized or set up @ 50 units per year and 100 G & P units of large size are to be modernized or set-up @ 20 units per year. He further mentioned that 100 modern bale processes will be installed in existing factories @ 20 per year. He gave a number of suggestions for refinement of TMC, such as separate cell in Krishi Bhavan, New Delhi to implement/ monitor TMC, setting up of a Implementation Committee (IC) for MM-I & II; mandatory seed certifications, private hybrids to be released only through ICAR & AICCIP channel etc.

Shri J.N.L.Srivastava, Secretary(A & C), in his remarks stated that the Technology Mission on Cotton (TMC) was launched for minimizing constraints in cotton production and improvement in fibre quality. He expressed concern that the productivity of cotton is not improving at the desired rate. There are major issues like seed and pest related problems, which are mainly responsible for lowering the production and fibre quality. As regards, multiplicity of varieties/hybrids, the Plant Varieties Protection Act 2002 is under consideration under which problems related to multiplicity of varieties may be tackled. Apart from this, Seed Act is also being amended.

Shri Srivastava also touched upon genetically modified cotton and latest reports appearing in news papers/media and informed that an expert committee is looking into the matter for some decision in this regard. For increasing production and productivity, there is need to educate the farmers on proper use of pesticides. Besides, farmers' association may play a major role in increasing production and improving fibre quality in association with ginning

industry. He concluded his remarks by mentioning that there is an urgent need for formulating a systematic approach during the Xth plan for increasing production, productivity and fibre quality in order to remain competitive in both the domestic and international market.

During the meeting "A round up on the contribution of ICDP under MM-II for HRD in ginning and allied sector" was released by Dr.C.R.Hazra, Agriculture commissioner, New Delhi.

Nodal Centre for Upgradation of Textile Education Pilot Programme on "Cotton- The Raw Material for Textiles" on Feb 4-5, 2002

In a two day programme under NCUTE a series of lectures on various aspects of cotton as raw material for textiles was organized by CIRCOT, Mumbai. The programme was conceived mainly to update the syllabi in the subjects taught in textile engineering colleges and fashion technology institutes especially on aspects related to cotton. Professor A.K Gupta of HT, New Delhi and Dr. (Mrs) P B. Iyer and Dr. GFS Hussain, Principal Scientists of CIRCOT were the coordinators of the programme. The delegates were from various textile departments and fashion technology institute.

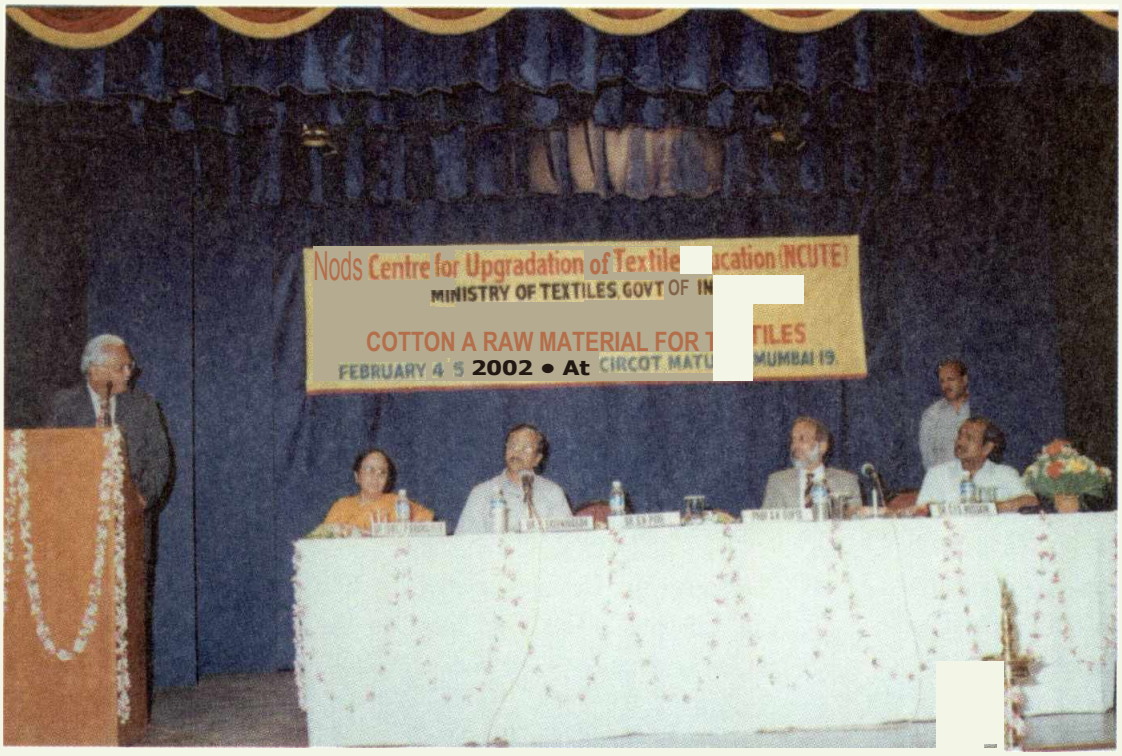
In his message on the occasion sent to CIRCOT, Dr. Anwar Alam, Deputy Director General (Engg.), ICAR, noted *"Cotton, one of the important commercial crops of our country, not only provides livelihood to several millions of farmers but also earns substantial foreign exchange. Although India is the third largest producer of cotton, the productivity is far below the global average. Another area of concern is that despite cotton, in India, is hand picked, by the time it reaches textile mills it carries large amounts of trash and contaminants due to inadequate and improper Post harvest management. Technology Mission on Cotton has launched several programmes that aim to resolve some of these challenging issues through close coordination between Ministry of Agriculture and Ministry of Textiles and other stake holders.*

Central Institute for Research on Cotton Technology (CIRCOT) is one of the premier organizations under Indian Council of Agricultural Research (ICAR) devoted to research on post harvest processing of cotton. ICAR, through its industry interface programmes and also through the activities of the Institutes like CIRCOT, maintains strong interaction with user industry so that its research agenda remains in tune with the industry needs.

I am glad to note that CIRCOT is organizing a two-day pilot programme for NCUTE (Nodal Centre for Upgradation of Textile Education) on "Cotton- The Raw Material for Textiles". I understand that NCUTE set up by the Ministry of Textiles aims at creating trained manpower in textiles in order to successfully face the challenges posed by global competition. The present programme being organized by CIRCOT is an excellent example of ICAR- User Ministry interaction and co-operation to promote the cause of cotton.

I compliment CIRCOT in this new endeavour and wish the programme all success."

At the inaugural session, Dr. S. Sreenivasan, Director, CIRCOT, welcomed the delegates. In his welcome address Dr. Sreenivasan brought to the fore some of the problems faced by the indigenous producers of cotton in the country especially from imports, low productivity, poor on-farm and off farm management in the ginning sector. He



Dr. S.N. Puri, Vice chancellor, M.P.K.V., Rahuri speaking at the launching of NCUTE programme

stressed the need to bring in cost competitiveness, in these difficult times, by setting up the necessary infrastructure for producing clean, contaminant free cotton and praised the foresight of the authorities in taking the right step of undertaking 'Training of Trainers' through Pilot and Extension Programmes to augment the human resource in textile sector.

The program was formally launched by Dr. S.N. Puri, Vice Chancellor, M.P.K.V, Rahuri. In his address to the delegates Dr. Puri touched upon the importance of cotton in the context of the economy of India and lauded the foresight of the Ministry of Textiles for recognizing the need to introduce cotton to the teaching community. Prof Gupta coordinator, NCUTE, dwelt at length on the conception of the programmes- Pilot and Extension- and the efforts put in to organize them. Dr. Gupta explained how the present programme of imparting training to the resource persons- textile teachers would go a long way in achieving the primary objective of effectively facing the future challenges. Dr. (Mrs.) P. Bhama Iyer and Dr. G.ES Hussain introduced to the delegates the subjects being covered by the lecturers. The inaugural session ended with a vote of thanks proposed by Dr. (Mrs.) Bhama Iyer.

A book " A Compendium of Lectures for the NCUTE Programme on Cotton- The Raw Material for Textiles" was released on the occasion.

There were eleven lectures in all spanning two days.

The first lecture " Global Scenario of Cotton" was delivered by Dr. S. Sreenivasan, Director of CIRCOT. He elaborated with the aid of statistics on the threats faced by the cotton industry from polyester and other man made fibres. He also brought to the notice of the audience about the declining share of cotton in the total fibre production. He

stressed the need to work out long-term strategies to retain cotton's prime position as a textile material.

There were two lectures covering the aspects pertaining to ginning and pressing.

The first was by Dr. G.R. Anap, International Ginning Consultant. In the lecture on " Global Cotton Ginning Scenario" he touched upon the ginning techniques adopted in various nations around the globe. The next lecture on Ginning was by Dr. N.C. Vizia, Principal Scientist of CIRCOT. Dr.Vizia covered the principles underlying the ginning machines and different ginning related technologies that included pre cleaning, drying, extractor cleaning, lint cleaning, etc.

Other speakers included Dr. S.S. Narayanan, Consultant, Nagarjuna Agricultural Research and Development, Secunderabad, Dr.B.M.Khadi,Sr scientist (Cotton) UAS, Dharwad, Dr. T.P Rajendran, Principal Scientist, CICR, Nagpur, Shri S.C. Grover Director (Marketing) of the CCI Ltd,Mumbai. Dr A. V. Moharir,Principal Scientist of IARI, New Delhi , Dr. (Mrs.) P.Bhama Iyer, Dr. G.F. S. Hussain and Dr. R.P. Nachane, Principal Scientists, CIRCOT, Mumbai.

National Symposium on Cotton Mechanization, Bhopal, March 23-24

Directorate of Cotton Development, Mumbai and Central Institute of Agricultural Engineering, Bhopal jointly organized a symposium on mechanization of Cotton at Bhopal during March, 23-24,2002. The symposium was inaugurated by the chief guest Dr. N.S.L. Srivastava, Assistant Director General(Engg), Indian Council of Agricultural Research. Dr. G. Singh, Director of CIAE was the Chairman. There were two technical sessions spanning two days in which 15 papers were presented. There was also an exhibition and demonstration of the Cotton Cultivation Machinery. A booklet "National Symposium on Cotton Mechanization" was released on the occasion.

Following papers were presented at the Seminar:

- "Status of Cotton Mechanization, An overview" by Sh. B.G. Yadav, Principal scientist & Principal Investigator, Cotton mechani-zation project CIAE, Bhopal
- "Design and Development of CICR Planter for Cotton Vertisols" by Sh. G. Majumdar, Scientist, CICR, Nagpur,
- "Design and Development of Pneumatic Planter for Cotton Planting" by Dr. V.V. Singh, Principal Scientist and Head AMD, CIAE, Bhopal,
- "Indigenous Machinery for Cotton Cultivation" by Sh. R.N. S. Yadav, Principal Scientist, CIAE, Bhopal,
- "Technology and Innovative Machinery for Cotton Harvesting" by Sh. J. Prasad, Principal Scientist, CIAE, Bhopal,
- "Progress of Implementation of ICDP under Mini Mission II of Technology Mission on Cotton" by Sh. R.P. Singh, Joint Director, DOCD, Mumbai,
- "Study of Pulling Force requirement and Uprooting of Cotton Stalks" by Prof. L.V. Gharte, HOD of FM&P, MPKV, Rahuri, and
- "Ginning Mechanization (an overview)" by Dr. N.C. Vizia, Principal Scientist, CIRCOT.

Dr. N.S.L. Srivastava, ADG, ICAR, New Delhi chaired the final session and the vote of thanks was proposed by Sh. R.P. Singh, Joint Director, DOCD, Mumbai.

GINNING MACHINERY

Cotton Conveying and Handling systems:

M/S Bajaj Steel Industries Limited, Nagpur introduced an airline system for cotton conveying. This system has an additional facility to feed the kapas to individual ginning machines through the mechanism of negative suction system. The same system is further modified for conveying lint to pala house.

The same company has developed an airline type seed conveyance system as a substitute for the presently employed screw conveyance system. This system is quite energy efficient as per their claim.

Special attachments to Gins:

M/S Bajaj Steel Industries Limited, have also announced a special attachment to the existing gins for ginning Desi Cottons. This attachment, they claim, would increase the production from the present 20 kg/hr to more than 40 kg.

Press Machinery:

Recently M/S Bajaj Steel Industries Limited, pioneers in Ginning Machinery, based in Nagpur, introduced into the market their Press Machine. It has the following features:

- High Capacity (35-40 bales/hr)
- Multi Density (430-650 kg/m)
- Single Stage
- Double Box
- Door-less
- Down packing
- Two Speeds

Auxiliaries include

- High capacity condenser feeder
- On-Line weighing arrangements
- Bale handling arrangement
- Safety devices
- High capacity power pack of German Design

M/S M. Govind & Sons, Guntur, have developed "MGS" Automatic press that has the following features:

- Automatic operation
- Up packing
- Double box revolving
- Door less
- 20 bales/hr capacity
- Bale weight 170 kg and size 18.9" x 18.9" x 48.8"
- Press capacity 500 tons
- Power requirement 75 hp
- Bale weight control
- Programmable logic control for controlling the weight of bale.

ATTENTION GINNERS

CIRCOT is Offering Ginning Consultancy for Modernisation under Technology Mission on Cotton to Aspiring Ginning Factories in different states.

For details of type of consultation, Fees, etc. contact :

Mr. P.G. Patil,
Ginning Training Centre of CIRCOT,
Nagpur

The Director,
CIRCOT, Adenwala Road,
Matunga, Mumbai-400 019.

GINNERS SPEAK

Shri Kamalakar Gopalkrishna Bhat is the chief of Precision Tooling Engineers, a budding company based in Nagpur. The company was inaugurated in the year 1981 and within a short span of time earned good name in and around Nagpur and specializes in the manufacture of Circular Looms, Cheese Winders and Slitting Units and other accessories commonly used in industry. Shri Bhatt is easily the most likable person unassuming and has a keen interest and understanding of the problems of machinery engineering. A casual chat with him on any topic concerning textile machinery or even any other modern machine will reveal his extensive and thorough knowledge of topics related to engineering. A B.E. in Mechanical Engineering, Shri Bhatt is instrumental in fabricating a host of machines, which include CIRCOT developed ones such as CLOY gin, Laboratory Model gin and Stick Machine for mechanically picked cottons and Ginning Percentage Balance. He is justly proud of his services to CIRCOT.

In his opinion, improvement of the quality of cotton is a must to combat the fierce competition expected from China and Korea apart from the USA. He is all praise to Technology Mission on Cotton for their correct assessment of the problem and coming up with remedial measures, such as modernisation of cotton ginning and pressing factories with inbuilt cleaning systems. He is glad to associate his firm with the humble but effective developmental efforts in fabricating different models of mini gins of CIRCOT design suited to the needs of farmers and quality assessors. In his words " We, at Precision, believe in innovation. We have understood that `Quality' is the catchword for all our products and our thrust is for attaining the best. Personal attention being paid to every minute aspect of manufacture is the reason behind the success stories we hear in engineering industry". Shri Bhat also reserves his special encomiums to CIRCOT and he says that " CIRCOT provides us time and again guidance in different aspects of machines as well as trade" and that " We are lucky to have Ginning Training Centre right here at Nagpur, where our factory is also situated".

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