ICAR-CIRCOT Portable Laboratory Model Gins

Solution for Quick Ginning for Fibre Quality Assessment for Traders & Researchers and for Preparation of Seed for Sowing to Famers

Developed by

ICAR-Central Institute for Research on Cotton Technology
Mumbai 400019.

ISO 9001:2015

PREAMBLE

Cotton is a principal source of income for a large number of farmers and other stake holders in India. Fibre quality is a key factor determining cotton price and quality of cotton textile products. Fibre quality is mainly characterized by fibre length, strength and micronaire, and the textile industry has a preference for long and strong fibres of moderate micronaire for producing high-quality yarns. Hence, cotton researchers strive to improve the inherent cotton fibre quality as per market requirement by different breeding methods and appropriate agronomic practices. The researchers require the first hand information of fibre quality parameters of a large number of samples while selecting a new strain for cross breeding. The quality of cotton was mostly assessed by visual inspection resulting in improper grading of cotton, which lowers the overall bale value. Average prices were offered to farmers irrespective of cotton quality. In addition, cotton traders, graders and ginners, etc. forecast the monetary return from cotton business by objectively assessing the fibre quality and ginning percentage of cotton before procurement.

The quality of cotton samples can only be assessed after ginning i.e. separation of fibres from cottonseed. Cotton used to be ginned in India on commercial size Double Roller (DR) and Saw Gins, which were infeasible for ginning of small cotton samples needed for assessing fibre quality attributes. A portable, standalone, small size ginning machine was needed for quick ginning of small quantity of a large number of samples for meeting the requirement of cotton breeders, traders, ginners, and farmers for preparation of seed for sowing. In absence of such a kind of machine in India, stakeholders either relied on Charkha type manually operated device for ginning of small quantity of samples or manual separation of fibres from raw cotton. Such a practice was time consuming and fibre

quality results were also not representative of commercially ginned samples. There were some instances of import of small ginning machines from UK at very high cost. Therefore CIRCOT intended to develop portable ginning machines as a primary tool to assist researcher for evaluating the quality of new strains of cotton and in objective grading of the raw cotton based on its quality parameters in market yards/ginneries in order to ensure fair price to farmers. Farmers can themselves gin their seed cotton of straight varieties picked from their cotton field and the seeds for next sowing. It would further assist the ginner in proper grading and heaping of cotton so that quality bales are produced from Indian ginneries. Spinners will also get the desired and assured quality bales as per their end use.

ICAR-CIRCOT'S TECHNOLOGY

ICAR-CIRCOT developed a lab size gin, named as CLOY (CIRCOT Laghu Otai Yantra) in late 90's for ginning of about 5-6 kg seed cotton/hour. The CLOY consisted of a 300 mm long chrome leather roller, moving and fixed knife assembly and ginned seed storage chamber. The machine was connected with a single phase electric motor of 0.75 kW power so that it can be operated in rural areas where 3 phase electric power is not available. The technology was licensed to M/s. Precision Tooling Engineers, Nagpur for commercial production. The machine received tremendous success in the market within a few years of it launch. Based on customer feedback and market requirement, CIRCOT scientists in association with its licensee, brought out different variants of CLOY gin namely Lilliput, modified CLOY, HIPRO-High Production gin, SR 600-Single Roller 600 mm length gin, etc. in the market The ginning capacity of these portable gins varies from 5 - 25 kg seed cotton/hour. Realizing the importance of the CIRCOT lab

model gin in commercial ginning plants, Technology Mission of Cotton (TMC) made this gin as an essential machinery for establishment of a modern ginnery in in India. Over 500 pieces of different variants of lab model gins are now in use in different ginneries, seed industries, research organizations, market yards, etc. In addition, a number of pieces of this machine were also exported to USA, Afghanistan and several African cotton growing nations.

IMPACT OF THE TECHNOLOGY

This technology helped Shri K. G. Bhatt, Proprietor, M/s. Precision Tooling Engineers, Nagpur in shaping and expanding his business many folds that provided him wide exposure and accolades in areas of textile and agricultural industries in India and abroad. He has received 2 awards from Govt. of Maharashtra, one award from Govt. of Karnataka and one award ICAR, New Delhi, especially for manufacturing high quality CIRCOT lab model gins. This machine was also awarded 2nd Best Agricultural Machinery by Govt. of Karnataka in 2006. Quality based evaluation of raw cotton helped the farmers to realize better prices to their produce and ginners and spinners were also assured of desired quality of the cotton for their end use.

Export of Lilliput gin to USA

CONCLUSION

ICAR- CIRCOT's portable laboratory model cotton gins are widely adopted by cotton traders, farmers and researchers. These machines aids in objective assessment of cotton fibre quality leading to fair pricing to farmers and improvement in bale value. These machines are the import substitution and hence, saves a lot of foreign exchange.

Lilliput gin in operation

Contact:

The Director

ICAR-Central Institute for Research on Cotton Technology,
Adenwala Road, Matunga, Mumbai 400019.
Tel: 022-24127273/76, 24184274/75; Fax: 022-24130835/24157239
Email: director.circot@icar.gov.in
URL: www.circot.res.in