

RESEARCH NOTE

Problems and Prospects of Production and Export of Indian Cotton

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Indian Cotton

Cotton sustains in the textile world despite serious inroads by synthetic fibres. The economy of nearly 82 countries is influenced by cotton and India is no exception. Cotton crop is very important commercially in India. It occupies almost 12.3 m ha accounting for only 8.0 % of the cultivated area of the country but its contribution to Indian economy is significant as large number of people is dependent on its production, processing and trade. It is also the first crop in India, where genetically engineered technology (GE) or commonly referred as biotech crop has been commercialized in the form of insect-resistant Bt cotton. In the last decade cotton production scenario has undergone dramatic changes and Indian cotton has not only dominated the International production but attracted the attention of all global players in the commodity for its persistent growth. In 2015, India has emerged as the world's largest producer of cotton outpacing the mighty China. With 4000 and odd ginning and pressing (G & P) factories, Indian textile sector has scope to expand. Technology Mission on Cotton introduced in 2002 has further boosted the cotton production, quality marketing and ginning. The cotton progress in India is dotted with technology support whenever the yield has remained stagnant. The situation became worrisome when the cotton yields remained at 280-300 kg lint per ha for nearly 20 years and the textile industry had to depend on imports. With introduction of Bt cotton the scenario changed after 2002 when the technology was permitted for commercial use in India. Within 5 years the cotton cultivation saw a sea change as farmers adopted the new technology wholeheartedly, area increased, yields doubled, pesticide use reduced and country became a net exporter of cotton.

Despite substantial gains in production over the last 16 years, the average yield got stagnant (around 500-600 kg lint per ha.) since 2012-13, a typical Indian cotton yield syndrome. This has almost become characteristic for the Indian cotton, if one looks back to the history of productivity stagnation periods after independence. In 2013-14, India's best national average yield was 565.72 kg lint

per ha. Compare this to the world's average yield of 940 kg per ha. The yield in few select advanced countries even ranged between 1500 to 2600 kg lint per ha which is more than 3 times of Indian yield. In five of the total cotton cultivating countries, the national average yield has been more than 1500 kg lint per ha. They are Australia (2619 kg/ha), Brazil (1601 kg/ha), Turkey, Mexico and China all between 1500-1600 kg/ha. Can the yield barrier of 500-600 kg lint per ha be broken now? Yes, it is possible if a few technical suggestions are followed.

Productivity Improvement Steps

New seed technology : Up gradation of seed technology is the first priority. Several new molecular tools are available for creating resistance to pests and diseases including white flies, pink bollworm, sucking pests and nematodes. The extensively permitted GM cotton called HT-Bt (Herbicide Tolerant Bt) cotton is yet to be given a go ahead in spite of the fact that large number of farmers are growing it unofficially. Such seed technologies will save the routine losses to the tune of 20-25% due to obnoxious weeds. In USA the technology of gossypol-free cotton for commercial use has been approved and the scientists have added drought and salinity tolerant traits in cotton. If such technologies are permitted in India, seed alone shall be able to enhance productivity. Unfortunately the planners are not yet clear on the utility of using the new biotechnological tools to improve the cotton crop through seed. Such novel technologies within the biotechnology and beyond for breaking the current yield stagnation of cotton in India are possible but for the reservations imposed by planners on the use of GM technology in India.

High Density Planting System (HDPS) : Studies in India have indicated that HDPS could be another system of planting that could give higher productivity. What is of course required is development of short duration (130-140 days) hybrids and varieties that have compact canopy which could fit well in the new system of planting. HDPS with compact cultivars shall also allow the use

of mechanical pickers and avoid the current constraint of labour for hand picking.

Drip Irrigation : Recently it has been clearly demonstrated in the farmer's field in Maharashtra that use of drip irrigation with fertigation increases the yield of cotton by 75% in rain fed farming of the state. Thus irrigation through drip is one of the classical inputs to enhance the cotton yield.

Community Approach : Plethora of hybrid seeds in market has created a huge problem to farmers for selection of right material. Efforts to use one cultivar one village can give boost to improve not only yield but also the quality of cotton required for export and mill consumption. Such approach facilitates the use of drone technologies for management of pests, diseases and weeds and also helps implementation of precision farming.

Export Improvement Steps

For achieving the special status for Indian cotton in International arena and ensure production of assured quality bales, steps need to be taken at both production and processing ends. Cotton in India is referred as WHITE GOLD. Unfortunately it is sold as iron, as no precise care is taken from field to ginning, at ginning, baling, packing uniformity, labelling, and even removing the trash and contaminants. Along with ginning the method of storage of cotton is equally important. There are no adequate storages and warehousing facilities and often open spaces storing attracts maximum contamination. The system of raw cotton sale needs lot of improvement. In fact by this time traceability should have been improved to a large extent if the Indian cotton has to compete in the world market. It has come to such a state of affairs that Indian cotton sometimes fetches less price than even African cotton.

Three factors that need attention in production system is, growing cultivars only of short duration particularly in rain fed areas, better harvest index and high ginning out turn. It is essential to group the cultivars on the basis of quality and then regulate their growing all over the states. Once leader in extra long staple (ELS) cotton, being grown in Tamil Nadu, parts of Karnataka and Andhra Pradesh, today these areas are choked with only medium to long staple cultivars resulting in the import of ELS cotton. Serious efforts to restrict the choice of cultivars based on agro-ecological

zones are needed to improve the yields as well as the quality supply.

To develop Brand India in cotton uniformity of bales, identification marks, minimum trash and contaminants, and all such issues that will introduce traceability can establish the brand. Two categories of cotton varieties can make a difference in the rain fed areas which is around 60% in India. One type of short fibre varieties that is suitable for absorbent cotton, surgical, denims, mattresses, technical textile, etc. whose demand is growing worldwide. The other is spin-able fibre types with a wide range which can be grown in different regions. Some of the new *Desi* cotton varieties (*G. arboretum* and *G. herbaceum*) have potential to be Brand India cotton as they possess special qualities. Since they can be grown with low inputs, they stand chance to be BRAND ORGANIC COTTON of India. Realizing the need for such a special status for Indian cotton recent efforts by Government of India through Cotton Corporation of India (CCI) are laudable. Recently CCI has launched its best quality cotton under brand name HIRA (High in Recognition Attributes) in the *Hirsutum* cottons. This will fulfil the long felt need of branding Indian cotton assuring the customer of reliable quality of spinning and value addition. Better quality assurance in terms of strength (29g/tex), less moisture (<8%), low trash content (<1.7%), better grade (Rd 78+), and optimal micronaire (3.8-4.2) of HIRA will certainly attract the international players and improve our export benefiting the farmers and the nation.

Indian cotton has potential to regain the edge and the status that it had globally. Some simple steps would lead to double the production and export with doubling of the farmer's income. The Government must treat this as a true commercial crop and regulate the entire inputs, zoning of cultivars, better picking practises and transport to market yards. Total freedom of cultivar and cultivation practices may not be suitable, if the country's production has to double. Proper care in processing particularly at ginning, packing, labelling, bringing uniformity, traceability etc. can make a sea change in the dominance of Indian cotton in International market. What is needed is a will and passion to do it by integrating the entire chain of cotton production, processing, marketing and trade. Beyond marketing bales with traceability with all identification marks for global market, the textile industry can develop India-specific brands through innovation and continuous R&D. Hope the 'HIRA' will bring back the glory of Indian cotton in future.

Cotton Facts: Yield (ICAC, 2003)

- Biomass is the total dry matter weight produced by the cotton plant. It includes root, stem, leaves, branches, all forms of fruiting parts and seedcotton. Biological yield is the dry matter weight of all above-ground parts of the cotton plant. Biomass less the dry matter weight of root is equal to biological yield.
- Economic yield in any crop/plant is the ultimate product for which a crop is grown. In the case of cotton, it is primarily lint. Genetic potential is an arithmetic calculation of yield based on the genes present in the genotype. The genetic potential of cotton varieties is not known.