



भारतीय कृषि एवं खाद्य परिषद्
INDIAN CHAMBER OF FOOD AND AGRICULTURE

National Seminar on Cotton Productivity and Value Chain Transformation

"From Soil to Global Shelf : Unlocking the Full Potential of India's Cotton Value Chain"

Tuesday, 22nd July 2025 | India International Centre, New Delhi

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The Indian Chamber of Food and Agriculture (ICFA) serves as the apex national platform working at the convergence of industry, research, and government to advance India's food, agriculture, and rural development agenda. Acting as a policy think tank, facilitation body, and trade promotion forum, ICFA fosters strategic linkages among stakeholders to address key challenges, promote innovations, and enable inclusive growth in the agri-food sector. Through knowledge exchange, capacity building, and advocacy, ICFA strives to make Indian agriculture globally competitive and resilient.

In continuation of its efforts to strengthen India's cotton sector, ICFA convened the National Seminar on Cotton Productivity and Value Chain Transformation on 22nd July 2025 in New Delhi. The seminar brought together leading policymakers, scientists, industry stakeholders, and farmers to deliberate on the challenges, opportunities, and innovations shaping the future of cotton cultivation and value chains in India.



Inaugural Session :

Policy & Regulatory Support Framework for Accelerating Cotton Growth in India

The seminar, themed "From Soil to Global Shelf: Unlocking the Full Potential of India's Cotton Value Chain", was organized by the Indian Chamber of Food and Agriculture (ICFA) with the support of Shivji Kanji & Co., Bayer Crop Science, and Crystal Crop Protection Limited as Sponsors; FSII and CITI as Knowledge Partners; and NSAI and AARDO as Supporting Partners.

The event served as a collaborative platform, bringing together policymakers, government officials, industry leaders, researchers, scientists, traders, academicians, farmers, and grassroots innovators to deliberate on the challenges and opportunities across India's cotton value chain.

Dr. Tarun Shridhar, Director General of ICFA, welcomed participants and emphasized cotton's enduring importance in India's agriculture and economy, calling it "white gold" for its role in rural livelihoods and the textile industry. He highlighted challenges such as stagnant productivity, climate stress, pests, and value chain gaps, and stressed the need for integrated solutions involving seed



innovation, mechanization, sustainability, and institutional support. Urging collaborative action, he called for stronger links between research, policy, and industry to unlock cotton's full potential and build a resilient, high-performing cotton economy.

Shri Ashok Dalwai, Chairman of the Agriculture Price Commission and former Chair of the PM's Task Force on Doubling Farmers' Income, reflected on cotton's historical significance, from a symbol of pre-colonial prosperity to its decline under colonial rule.

He noted India's unique advantage in cultivating all four cotton species but highlighted low productivity despite expanded acreage. Stressing the need for productivity-led growth, he called for climate-



resilient hybrids, improved lint quality, and better research-to-field transfer.

He emphasized leveraging India's rich genetic resources, supported by ICAR and CICR, to breed globally demanded varieties, especially extra-long staple cotton. Concluding, he outlined a roadmap focused on improved agronomy, mechanization, water-use efficiency, and stronger value chain linkages to position India as a global leader in cotton quality, sustainability, and innovation.

Dr. Indra Mani, Hon'ble Vice Chancellor of Vasantrao Naik Marathwada Krishi Vidyapeeth (VNMKV), Parbhani, highlighted cotton's vital role in India's agricultural particularly in black soil regions like Marathwada. He introduced the drought-resistant cotton varieties NH 22037 BG II and NH 22038 BG II, developed by the university and stressed that productivity can improve through farmer education, high-density planting, and drip irrigation which is already yielding 20–60% productivity gains in the region. Citing the National Cotton Meeting chaired by Union Minister Shri Shivraj Singh Chouhan, he



noted the government's focus on strengthening the cotton sector.

He flagged systemic challenges such as low mechanization, limited credit access, labour shortages, and slow tech adoption. He shared the information a 500-acre pilot project with Japan based company Fast Retailing India Material Corpo. Pvt. Ltd. In this project demonstration is organized at VNМКV, Parbhani with High Density Planting System of cotton, seed to seed mechanization, canopy management, band placement of fertilizers, use of growth regulators, appropriate weed management and defoliation for machine harvesting for profitable and clean cotton production with minimum trash content. He aligned his message with initiatives like PM PRANAM Yojana, urging focus on soil health, sustainability, market linkages, and strong FPO and industry partnerships.

Smt. Chandrima Chatterjee, Secretary General of CITI, emphasized the need to align cotton farming with textile manufacturing, citing disconnects in pricing, quality, and procurement. With India targeting textile

exports of USD 100 billion by 2030, she stressed cotton's key role but raised concerns over contamination, high input costs, rising MSP, and increased imports due to quality gaps.

She called for integrated policies and institutional support, highlighting efforts like the Textile Advisory Group and CITI-CDRA's work in promoting sustainable practices and productivity. She noted growing global demand for regenerative, traceable cotton and praised the Kasturi Cotton initiative for quality assurance and QR-based traceability. Concluding, she emphasized that cotton's future must be market-driven, quality-centric, and sustainability-led through a unified value chain approach.

Smt. Sudha Kesari, Additional Development Commissioner, MSME, emphasized the cotton and textile sector's crucial role in employment generation and rural enterprise growth within India's MSME ecosystem. She highlighted initiatives by KVIC that support traditional cotton livelihoods, formalization, and market access.



She noted that schemes like the Self-Reliant India (SRI) Fund and Common Facility Centres (CFCs) are helping scale MSMEs in the textile value chain, though challenges like credit access and infrastructure persist. Stressing the importance of khadi and cotton clusters, she called for stronger policy convergence, technology support, and market linkages to sustain MSMEs' contribution to the cotton economy. She stated that ministry of MSME

caters for the development of MSMEs through its various schemes and initiatives, irrespective of the sectors.

Shri Purnesh Gururani (IRS), Director - Fibre, Ministry of Textiles, highlighted the critical role of cotton in sustaining rural livelihoods, noting that nearly 6 million Indian farmers are directly related to cotton cultivation. He emphasized the government's holistic vision under the Cotton Productivity Mission, which follows the integrated model of “Farm to Fibre, Fibre to Factory, Factory to Fashion”. The mission aims not only to double farmers' incomes but also to address gender inclusion, employment generation, and sustainability. He reiterated the Ministry's commitment to improving productivity and resilience in the cotton sector through targeted schemes and multi-stakeholder collaboration.



Shri Basant Garg, Administrative Secretary, Department of Agriculture, Government of Punjab, voiced concern over the sharp decline in cotton cultivation in the state due to recurring pest attacks and the lack of advanced seed options. He noted farmers' anticipation for the BG-3 variety, offering improved resistance and yields, but raised concerns about the sustainability of GMO cotton, the lack of indigenous GM seed development, and restrictive IPR regimes hindering domestic innovation.

He questioned why Indian companies haven't led GM cotton technology development and emphasized the need for targeted research, mechanization, and cost-effective solutions. He called for revitalizing the cotton value chain through better technology access, infrastructure, and farmer-centric innovation to restore Punjab's cotton competitiveness and sustainability.



Panel Discussion

Session 1 : Role of Technology in Improving Crop Productivity

Panelists:

1. **Mr. Raju Kapoor**, Director - Industry & Public Affairs, FMC India Pvt. Ltd. (Moderator)
2. **Dr. Alok B Mukherjee**, Director – Research, Analytics & Modelling, LeadsConnect (Speaker)
3. **Dr. Radhika Trikha**, Chief Executive Officer, IIT Ropar (Speaker)
4. **Dr. Kalyan Goswami**, Director General, Agro Chem Federation of India (Speaker)
5. **Dr. DK Yadava**, Deputy Director General - Crop Science, ICAR (Session Chair)



Mr. Raju Kapoor began by highlighting the fast-changing agricultural landscape, stating that “tomorrow will be very different from yesterday.” He emphasized the need for hyper-local solutions to improve nutrient and water use efficiency, calling for a shift toward soil health management, reduced water use, and precision technologies. He urged collaboration between corporates and startups to scale these efforts.

He noted declining production and acreage of cotton due to more profitable, easier-to-cultivate crops and poor pest management. However, he stressed cotton's potential to strengthen India's textile value chain if key issues—such as child labour, sustainability, water efficiency, and quality—are addressed. He concluded by advocating for precision

agriculture and a "One Health" approach to build resilient and sustainable cotton systems.

Dr. Alok B Mukherjee emphasized the critical role of technology in addressing the persistent decline in crop productivity, particularly in cotton. He pointed out that excessive reliance on fertilizers to counter low yields often leads to deterioration of soil health, creating a cycle of diminishing returns. Highlighting the need for a shift from isolated interventions to an ecosystem-based approach, he advocated for stronger inter-sectoral collaboration to advance sustainability. He underscored that only a holistic framework can ensure long-term agricultural resilience, and shared initiatives by LeadsConnect aimed at integrating analytics, agronomy, and field-level insights to support informed decision-making

and productivity improvement.

Dr. Radhika Trikha emphasized the growing importance of industry-academia collaboration in agricultural innovation, highlighting IIT Ropar's efforts through its AWaDH (Agriculture and Water Technology Development Hub) which works on AI-powered agri-tech solutions.

She mentioned the AI Centre of Excellence under the Ministry of Education, developing tools like AgriGPT, speech-to-text, and text-to-speech models. She also referenced Mission Mausam's deployment of weather stations and stressed the need for indigenous data to improve agri decision-making. She underscored the importance of exposing farmers to technologies such as soil monitoring and pollination tools, identifying key stakeholders, and building a skilled, tech-savvy rural workforce for sustainable agricultural transformation.

Dr. Kalyan Goswami outlined the critical role of the agrochemical industry in protecting cotton and other crops, noting its significant market presence and expanding turnover. He stressed the need for continued R&D, particularly in the development of new molecules, biostimulants, and the application of nanotechnology to improve crop protection

outcomes. However, he also pointed out key challenges, including the misuse of pesticides due to manual spraying, underscoring the urgent need to educate farmers on correct application practices. Additionally, he noted that Krishi Vigyan Kendras (KVKs), which are meant to serve as grassroots extension hubs, are often not functioning effectively, limiting the dissemination of critical knowledge to farmers. He has suggested the Agri Extension to be functional and active in giving training to the farmers.

Dr. DK Yadava reflected on the persistent inefficiencies in Indian agriculture, noting that while progress has been made, it remains a continuous and evolving process. He underscored the justified role of Krishi Vigyan Kendras (KVKs) in bridging research and field-level implementation. Emphasizing cotton's strategic importance, he spoke about Kasturi Cotton, the potential of long staple and desi cotton varieties, and how these contribute to quality improvement and sustainability. Dr. Yadava also pointed to the growing benefits that agri-tech adoption offers to farmers, and called for stronger linkages between research institutions, NGOs, FPOs, and the seed industry to drive innovation and impact at scale.



Panel Discussion

Session 2 : Marketing, Trade & Value Chain Development in Cotton

Panelists:

1. **Mr. Vivek Mathur**, Executive Director, Indian Chamber of Food and Agriculture (Moderator)
2. **Mr. Peush Narang**, Representative - India & Sri Lanka, US Cotton
3. **Mr. Kiran Ashok Bhadra**, Managing Partner, Shivji Kanji & Co.
4. **Mr. Rajat Srivastava**, General Manager - Regulatory Affairs & IPR, General Crop Science Pvt Ltd.
5. **Mr. Ashish Singh**, Partner, Dua Associates
6. **Smt. Chandrima Chatterjee**, Secretary General, Confederation of Indian Textile Industry



Mr. Vivek Mathur, while moderating the session, noted that the recent decline in cotton cultivation may be attributed to a shift towards other more profitable cash crops, despite India having the largest area under cotton cultivation globally. He pointed out that productivity remains low, hindered by persistent regulatory hurdles and yield stagnation. Referring to the Government of India's five-year Cotton Mission, he expressed optimism that with sustained efforts, India is on track to surpass China in cotton production by 2034, provided challenges are addressed through strategic policy and innovation.

Mr. Peush Narang in a discussion initiated by Mr. Vivek Mathur on the implications of domestic and

international trade restrictions on cotton provided a detailed perspective on the global cotton value chain, the US cotton industry, and the current state of Indian textiles and cotton trade. He outlined the impact of tariff structures, emphasizing how import duties, MSP policies, and quality control mechanisms influence market dynamics. Mr. Narang stressed the growing importance of sustainability and the global shift towards sustainable and traceable cotton, while noting that the real competition now lies with man-made fibres. He highlighted that the US remains the largest export destination for the Indian textile industry, making trade-related policy decisions even more critical.

Mr. Kiran Ashok Bhadra, responding to a question from the moderator on the key challenges in domestic and international cotton cargo operations discussed the importance of adopting standardized packaging solutions for cotton, noting that it is a highly sensitive cargo requiring specialized handling. He explained how innovations in packaging have contributed to cost reduction and operational efficiency, while also enhancing the quality and safety of cotton during transit. He also outlined his company's contribution in developing and delivering logistics (Customs Broking and Freight Forwarding) solutions tailored for the cotton and textile industry.

Mr. Rajat Srivastava, building on the moderator's remarks on logistics, discussed the regulatory framework of the cotton sector. He highlighted plant protection measures, and key regulations under the Insecticides Act, Seeds Act and National Biodiversity Act.

On post-harvest operations, he noted the role of institutions like the Ministry of Agriculture & Farmers Welfare, Cotton Corporation of India (CCI) in price support and APMCs in facilitating market access. He also mentioned the Government's five-year Cotton

Mission focused on productivity, innovation, and the various quality certifications across the value chain.

Mr. Ashish Singh responding to a question from the moderator on the inherent risks in trade, outlined the importance of risk mitigation strategies, particularly in the context of exports. He identified three major categories of risk—commercial, compliance, and legal—that stakeholders must navigate when engaging in cotton trade. Mr. Singh emphasized that many of these risks can be effectively managed through well-structured contractual agreements that clearly define roles, responsibilities, and remedies.

Smt. Chandrima Chatterjee as the session chair shared her views on various government schemes aimed at strengthening the cotton sector and emphasized the importance of value chain creation to enhance its long-term viability. She noted that since cotton serves as the primary feedstock for the textile industry, it must be thoroughly researched and strategically supported. Stressing the need to improve competitiveness, she called for focused efforts to increase cotton productivity, not only at the farm level but also in terms of the quality and value of the final textile product.



Panel Discussion

Session 3: Role of Seed, Nutrition and Crop Protection for Robust Cotton Harvest

Panelists :

1. **Mr. Anil Kakkar**, Vice President, Sumitomo Chemical India Limited (Moderator)
2. **Mr. Baljinder Singh Nandra**, Member, Federation of Seed Industry of India & Chief Government; Regulatory Affairs Officer, Seedworks international Ltd.
3. **Dr. Vipin Dagaonkar**, Associate Vice President R&D seeds, Crystal Crop Protection Ltd.
4. **Dr. Prakash Gowda**, General Manager, Mahadan Agritech Limited
5. **Dr. Vijay Kumar**, Principal Entomologist, Department of Entomology, Punjab Agriculture University
6. **Dr. Vijay Bhaskar Reddy**, Founder & Executive Director, ATGC Biotech Pvt. Ltd.



Mr. Anil Kakkar shared insights on key factors influencing cotton production, with a focus on seed quality, balanced nutrition, and crop protection practices. He noted the growing concern around insecticide residues and emphasized the need for responsible usage in line with safety standards. Mr. Kakkar also stressed the importance of adopting sound agronomic practices to enhance productivity and sustainability in cotton cultivation.

Mr. Baljinder Singh Nandra spoke on the critical role of seed innovation in improving cotton productivity and developing varieties/ hybrids which are resilient to biotic and abiotic stresses. He emphasized the need to develop seeds with enhanced disease

resistance and the ability to withstand pest-attack, which continue to affect crop performance during crop life cycle. Highlighting the diversity of cotton fibre types, he underscored the importance of targeted breeding techniques to support region-specific cultivation needs and ensure consistency in quality across the value chain to meet spinning industry requirements.

Dr. Vipin Dagaonkar stressed the need to boost cotton productivity through sustainable, knowledge- and technology-driven practices. Referencing the OECD report, he noted India could become the top cotton producer by 2034 if the right measures are adopted.

He identified key challenges: limited hybrid cotton availability, low mechanization, and the need for timely sowing with mechanical planters. He called for farmer education, regulatory support, and government intervention to promote high-density planting and better agronomy and highlighted the ongoing efforts by Indian companies to trial new technologies against pests like pink bollworm and emphasized the potential of molecular breeding, genome editing, weed control, and short-duration cotton varieties to overcome pest-related issues.

Dr. Prakash Gowda, highlighted productivity in cotton cultivation is closely linked to balanced and efficient crop nutrition, which directly supports both crop growth and plant resilience. Dr. Gowda emphasized that unlocking the genetic potential of cotton varieties requires precise nutrition strategies tailored to crop needs. He highlighted the critical role of high-efficiency NPK fertilizers and advancements in nutrient enrichment technologies in achieving this goal. Advocating for integrated nutritional practices, Dr. Gowda underscored the importance of combining organic methods with modern crop nutrition technologies.

Dr. Vijay Kumar remarked that pest infestation, particularly from pink bollworm, as one of the major

bottlenecks in cotton production. He emphasized the importance of managing whiteflies and ensuring overall plant health, which plays a critical role in helping crops withstand both biotic and abiotic stresses. Dr. Kumar explained that while pink bollworm is monophagous, targeting cotton specifically, whiteflies are polyphagous and affect a wide range of crops—making their management more complex.

Dr. Vijay Bhaskar Reddy in his concluding remarks stressed the need for advanced technologies to manage cotton pests, particularly the pink bollworm. He highlighted the importance of understanding and modifying insect behaviour as a sustainable approach to pest control, and referred to ATGC's proprietary product developed to address this challenge. Dr. Reddy pointed out the existing knowledge gap in the field and reiterated that while the technology exists, the focus must now shift to effective deployment, as India has both the capacity and capability to lead in this space.

In conclusion, safeguarding India's cotton productivity against pink bollworm will require strong, sustained collaboration between industry, research institutions, policymakers, and farmer communities.



Panel Discussion

Session 4: Opportunities & Challenges : Making India a Global Leader in Cotton

Panelists:

1. **Dr. RK Tripathi**, Director, National Seed Association of India (**Moderator**)
2. **Mr. Mahesh Sharda**, Past President, Indian Cotton Association Limited
3. **Mr. Jayesh Patel**, Vice President, Gujarat Spinners Association
4. **Mr. Raghavan Sampathkumar**, Executive Director, Federation of Seed Industry of India
5. **Mr. Ashish Dua**, Associate Partner, Valuecent Consultancy Pvt Ltd.
6. **Mrs. Neelkamal Darbari (Rtd. IAS)**, Former Secretary, Government of India



Dr. R.K. Tripathi opened the session by introducing the panelists and setting the context for positioning India as a global cotton leader. He highlighted key focus areas: seed innovation, productivity enhancement, sustainable practices, market access, and the need for strong policy and institutional support. Describing cotton as the economic backbone of Indian agriculture, he noted its importance as a major cash crop supporting millions of livelihoods.

Mr. Mahesh Sharda highlighted key challenges in cotton production, noting that despite technological advancements, issues persist in seed processing and mechanization. He pointed to the ongoing debate

between organic methods and advanced technologies and described cotton as a crop of compulsion for many farmers due to limited alternatives. He emphasized the need for government support in easing regulatory barriers and removing technology paralysis.

Mr. Jayesh Patel responding to a question by the moderator on the broader issues surrounding cotton productivity, observed that India's cotton yield has been consistently declining, especially in contrast to countries like Brazil and China. He emphasized that there is considerable untapped potential, and that focusing on increasing yield would offer more direct benefits to farmers than simply raising MSP. Mr. Patel

further pointed to systemic challenges such as logistics constraints, high labour costs, and rising electricity expenses, which impact competitiveness.

Mr. Raghavan Sampathkumar recalled that India was once a net exporter of cotton and stressed that with timely adoption of cutting-edge technology, the country had the potential to become a global powerhouse in cotton productivity. He warned that cumbersome policies and procedures hindering the "Ease of Doing Research" threaten to push India further behind international competitors. Emphasizing cotton's critical role as the backbone of the Indian economy—supporting nearly nine million farmers—Mr. Sampathkumar proposed declaring an "International Year of Cotton" to spotlight the sector on the world stage, catalyze collaborations, and attract major investments.

Mr. Ashish Dua remarked that India continues to lack strong marketing capabilities in the cotton sector, which limits its global impact. He stressed that to succeed in international markets, India must proactively position itself on the world stage, with a clear focus on competing globally and moving up the value chain. He emphasized that economic value creation is key, and that branding Indian cotton is essential to expanding its presence in export markets and securing long-term competitiveness.

Mrs. Neelkamal Darbari concluded by highlighting

that cotton will remain one of India's favoured cash-crops, but efforts must be made to bring back indigenous varieties that will bring sustainability and resilience back on centre stage.

As India remains the world's largest cotton producer, with strong domestic demand and a significant share in global trade, focus should be made on improving yields which are currently lower than the global average, and much of our export basket is still low-value raw cotton and yarn.

The way forward is to boost organically produced/ indigenous cotton, improve productivity through better seeds, climate-smart farming, and farmer training; shift towards value-added exports like fabrics, garments, and made-ups; and position India as a leader in sustainable, organic, and traceable cotton.

In his concluding remarks, **Dr. Tarun Shridhar** appreciated the depth of discussions and emphasized the need for a coordinated, multi-stakeholder approach to address the challenges in the cotton sector. He reiterated that enhancing productivity, sustainability, and value chain efficiency will be key to repositioning India as a global leader in cotton. Dr. Shridhar thanked all participants for their valuable insights and reaffirmed ICFA's commitment to advancing meaningful dialogue and collaborative action in the sector.



Recommendations

- ✓ In alignment with the Government of India's National Mission on Cotton, the speakers discussed and deliberated on various strategies and methodologies to enhance India's cotton production, drawing on successful models and practices from countries such as the USA and China.
- ✓ Facilitate the timely adoption of advanced technologies and genomic innovations to enhance cotton productivity and resilience.
- ✓ Strengthen integration across the cotton value chain to ensure quality, traceability, and alignment with textile industry needs.
- ✓ Enhance farmer awareness and capacity through training on improved agronomic practices such as high-density planting and drip irrigation.
- ✓ Promote research and development in seed innovation, pest management, and biostimulants through collaborative public-private efforts.
- ✓ Improve access to mechanisation and supporting infrastructure to reduce labour dependency and increase operational efficiency.
- ✓ Establish a national branding strategy to position Indian cotton competitively in international markets.
- ✓ Streamline policies and regulatory frameworks across agriculture, seed, and trade sectors to remove implementation hurdles.
- ✓ Encourage the adoption of sustainable practices, including soil health management, water-use efficiency, and responsible pesticide use.

Glimpses of Cotton Seminar





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