

81ST PLENARY MEETING

**MUMBAI, INDIA**

2-5 December 2023

Cotton Value Chain:  
"Local Innovations for Global Prosperity"



## **Working Paper 2**

### **Proposed Topics for the 2024 Technical Seminar**

COTTON VALUE CHAIN:  
LOCAL INNOVATIONS FOR GLOBAL PROSPERITY

2 – 5 December 2023



---

Working Paper 2  
**Proposed Topics for the 2024 Technical Seminar**

Recommendation from the Secretariat of the  
**International Cotton Advisory Committee**

December 2023

The following topics are proposed for the 2024 Technical Seminar of the ICAC Plenary Meeting:

**1. Blueprint for Carbon-Neutral Cotton Cultivation:**

Carbon-neutral farming is an ambitious endeavour that seeks to balance the carbon emissions produced by agricultural practices with the carbon dioxide absorbed or mitigated on the farm. This approach involves adopting sustainable farming techniques, optimizing resource use, and implementing carbon offset measures. By striving for a net-zero carbon footprint, carbon-neutral farming plays a vital role in mitigating climate change and promoting environmental stewardship within the cotton sector. Experts will present blueprint outlines on comprehensive strategies for cotton cultivation that not only reduces carbon emissions but aims for complete carbon neutrality.

**2. Cotton Farming in the Digital Era: A Paradigm Shift**

The digital revolution is fundamentally changing cotton farming, marked by a shift towards data-driven precision agriculture. Artificial intelligence (AI) and digital tools are pivotal in this transformation, poised to revolutionize cotton farming by offering real-time, data-driven insights. These technologies optimize planting, irrigation, pest management, and disease prediction, allowing farmers to make precise decisions, reduce resource usage, and enhance sustainability. Embracing these digital innovations promises a future for cotton farming that is more efficient, sustainable, and data-centric, ensuring improved crop yields and environmentally friendly practices. Speakers will showcase the latest and most relevant advancements in AI and digital technologies with the potential to bring about breakthroughs in cotton farming.

**3. Unveiling the Potential: Gene Editing in Cotton Farming**

Gene editing is revolutionizing farming by enabling precise modification of the cotton plant's genetic code. Techniques like CRISPR-Cas9 empower scientists to introduce beneficial traits and eliminate undesirable ones. Gene editing in cotton farming offers transformative benefits including enhanced pest resistance, improved fibre quality, disease resistance, and environmental sustainability through reduced pesticide use and resource efficiency. While gene editing promises increased yields and profitability for farmers, ethical, regulatory, and social considerations are essential for responsible and equitable implementation in cotton farming. Speakers will provide insights into how gene editing can be harnessed to develop cotton varieties with enhanced traits, such as improved pest resistance and increased fibre



---

quality. Additionally, the experts will discuss the ethical and regulatory considerations on the cutting-edge advancements that have the potential to shape the future of cotton cultivation.

#### **4. Advancing Sustainability with Nanofertilizers and Nano Pesticides**

Nano-technologies, specifically nano-fertilizers and nano-pesticides, hold great potential for transforming cotton farming and the entire cotton value chain. These innovations utilize nanomaterials to enhance nutrient delivery and pest control, improving crop yield and reducing environmental impact. Nano-fertilizers, with their minuscule particles, enable efficient nutrient absorption by plants, reducing waste and boosting productivity. Nano-pesticides offer precise and controlled pesticide release, reducing environmental harm and chemical usage. Furthermore, nanotechnologies enhance soil health, reduce water consumption, and improve resistance to environmental stressors, addressing production challenges by optimizing resource utilization and minimizing ecological harm. The session will showcase the progress in nano-technologies, highlighting their vital role in sustainable and efficient cotton farming, ensuring a dependable and environmentally friendly supply chain.