



Regenerative Cotton in China: Key Takeaways from Stakeholder Roundtable

As a global leader in cotton production, China is exploring regenerative farming practices to address challenges like soil degradation and water scarcity, aiming to improve sustainability in its cotton industry.

China is the largest cotton producer and exporter globally, playing a pivotal role in the global cotton supply chain. However, the cotton industry faces significant challenges related to soil degradation, water scarcity, and the overuse of synthetic fertilisers and pesticides. Regenerative agriculture, which enhances soil health, biodiversity, and reduces carbon emissions, offers a viable solution.

This paper highlights key insights from a CottonConnect roundtable in China (January 2025), and from the implementation of the REEL Regenerative Cotton pilot programme in Gansu, China, during 2024-25. While the roundtable—featuring government representatives, brands, and industry experts—explored challenges and opportunities in regenerative agriculture, the pilot provided on-the-ground learning.

Key challenges identified included country's diverse geography, with the humid east supporting biodiversity while the arid west struggles with water management. The major challenges include the aging farmer population, high opportunity costs, and lack of knowledge-sharing platforms, over-reliance on GMO seeds and chemicals.

WHY CHINA IS A KEY MARKET?

- **Largest cotton producer (6.16M MT in 2024)¹**
- **Leading cotton importer: Imports hit 3.3 MMT¹ in 2024, a decade-high¹**
- **World's top textile and apparel exporter (\$301.1 billion in 2024)²**

¹ China: Cotton and Products Update, Foreign

² Agricultural Service, USDA China's Textile and Apparel Exports in 2024

Key Challenges Identified at the China Roundtable

1. GEOGRAPHIC VARIABILITY

China's vast geographic expanse presents both opportunities and challenges for regenerative agriculture. In the humid, rainfall-rich east, practices like increasing biodiversity and carbon sequestration through cover crops are more feasible. However, excessive rainfall can sometimes pose problems, potentially impacting soil structure or crop growth. In contrast, the dry, cold west, which heavily relies on irrigation for cotton production, faces water scarcity, though animal husbandry practices offer some support for composting with organic manure.

"China has a vast area producing cotton from the east with rich rainfall to the west with almost no rainfall all year round. The climate is humid in the east. It is easy to increase biodiversity, and carbon credit through cover crops. While it is dry and cold in the west in the winter and cotton production totally depends on irrigation. No irrigation, no agriculture in the west." Dr. Zhanbiao Wang, section chief at the Cotton Research Institute under the Chinese Academy of Agricultural Sciences.

2. AGING FARMER POPULATION

Many farmers in China belong to an older generation, many of whom are reluctant to adopt new farming practices. Their deep-rooted methods and concerns about the potential risks of change make it difficult for them to embrace regenerative agriculture. While the younger generation of farmers tend to be more open to innovation, the cost of transitioning to new practices, combined with limited support, makes them hesitant to take the leap.



3. OPPORTUNITY COST CONCERNS

The high opportunity cost of shifting from traditional methods to regenerative agriculture is a significant barrier. Farmers are reluctant to invest time, resources, and effort into adopting practices without immediate or guaranteed returns. The perceived financial risks and uncertainty surrounding the long-term benefits of regenerative methods make many farmers cautious.

4. KNOWLEDGE GAPS

Regenerative agriculture is not yet widely recognised or practiced in many parts of China. The lack of established platforms for knowledge – sharing among farmers means that knowledge remains fragmented. Furthermore, research and innovation in this field are still emerging, leaving farmers with limited resources to understand and adopt regenerative practices effectively.

5. CHEMICAL DEPENDENCY

Despite the growing awareness of sustainable farming practices, the widespread use of genetically modified seeds and chemical fertilisers remains a major barrier in adoption of regenerative agriculture. These conventional methods contradict the principles of reducing chemical use and restoring soil health.

"China's cotton production has traditionally relied heavily on chemical fertilisers, pesticides, herbicides, and plastic film. Over time, limited use of organic matter, like manure, has impacted soil health. To ensure long-term productivity and sustainability, efforts to enhance soil regeneration and promote healthier farming practices are essential. Adopting regenerative practices presents an opportunity to reduce reliance on these inputs and improve soil health." Wenxiang Liu, Country Representative, China, CottonConnect



Solutions to Address Challenges in Scaling Regenerative Cotton Farming in China

- **Supportive policy:** China can accelerate the adoption of regenerative cotton farming by expanding existing initiatives like on soil restoration, the Zero-Growth Action Plan for fertilisers and pesticides, and water-saving measures. Targeted policies, such as subsidies, tax incentives, and low-interest loans, can reduce financial barriers during the transition phase. Supporting agroecological practices, renewable energy, and integrating ecological restoration into rural development will drive long-term sustainability and the widespread adoption of regenerative practices.
- **Innovation and certification:** Support research on sustainable technologies, such as climate-resilient cotton varieties and efficient irrigation systems. Additionally, develop certification and traceability systems to ensure the authenticity and quality of regenerative cotton, improving market access for farmers.
- **Integration into national and regional policies:** Encourage the prioritisation of regenerative farming within China's broader sustainable development strategies, especially in cotton-producing regions. This could involve creating specific policies to support regenerative practices related to soil restoration, water conservation, and climate resilience.
- **Promotion of land circulation:** Facilitate the consolidation of farmland, allowing smallholder farmers to scale up operations and increase efficiency. Larger, more sustainable operations will help reduce reliance on chemical inputs and provide better financial outcomes through economies of scale.
- **Financial and technical support for smallholders:** Offer government-backed loans, grants, or subsidies to support farmers transitioning to regenerative practices. Providing technical assistance, such as soil health assessments and regenerative farming training, through agricultural extension services will ease the transition for smallholder farmers.



PRIVATE SECTOR ENGAGEMENT

- **Strengthening public – private partnerships for knowledge sharing:** Encourage collaboration between the public and private sectors to exchange knowledge, resources, and best practices. These partnerships can drive innovation and practical solutions to scale regenerative farming, supporting farmers and advancing sustainable practices.
- **Sustainable supply chains:** Engaging cotton suppliers, retailers, and brands to develop sustainable supply chains that prioritise regenerative cotton. This approach can help create demand for sustainably sourced products and improve market access for farmers, driving positive environmental and economic outcomes.
- **Consumer awareness and storytelling:** Promote regenerative cotton farming to consumers by partnering with fashion brands to co-create compelling narratives that highlight its environmental, social, and economic benefits. Through effective branding and storytelling, increase consumer awareness and understanding of the broader impact of their purchases. This can drive demand for sustainably produced goods, enabling farmers to potentially earn a premium for their regenerative cotton.
- **Building farmer confidence and knowledge sharing:** Encourage farmers to share best practices and innovative approaches to regenerative farming within their communities. Platforms such as workshops and field demonstrations can enhance learning, build confidence, and foster collaboration among farmers.

“Regenerative agriculture practices are crucial to mitigate greenhouse gas emissions, which constitute about 30% of total emissions, and China, as the largest cotton producer and exporter, has the potential to meet sustainability claims and legislative requirements.”
Arif Makhdam, Regenerative Agriculture Expert

- **Measuring impact (LCA and carbon credits):** Use Life Cycle Assessments (LCA) and carbon credit calculations to provide concrete data on the environmental benefits of regenerative farming. Brands can use this data to demonstrate the reduction in carbon footprints, water use, and pesticide reliance, which is compelling for consumers looking to make informed, sustainable purchasing decisions.



FARMER EMPOWERMENT

- **Building farmer cooperatives:** Smallholder farmers benefit from forming cooperatives, which provide opportunities for resource pooling, knowledge sharing, and better access to inputs and markets. Such networks also create platforms for collective problem-solving and peer learning.
- **Farmer education and knowledge exchange:** Promote training programmes focused on regenerative practices such as soil health management, biodiversity enhancement, and water conservation. In addition, facilitate peer-to-peer learning through workshops, field demonstrations, and farmer-led field schools. These platforms enable farmers to share best practices, access low-cost technologies like soil testing kits and precision farming tools, and foster a community of innovation and support, ultimately increasing the adoption of regenerative cotton farming.
- **Improve access to resources and tools:** Provide farmers with the tools, equipment, and resources needed to implement regenerative practices, including access to bio-pesticides, organic fertilisers, and precision farming technologies. Low-cost technologies and micro-loans can help bridge the financial gap.
- **Market access and fair pricing:** Establish connections between farmers and sustainable markets, ensuring that they have access to fair prices for their regenerative cotton. Farmer cooperatives can be a valuable tool for pooling resources and negotiating better deals for inputs and market access.

Conclusion

China has a significant opportunity to lead the global transition towards more sustainable cotton production. With a strong alignment between the country's national agricultural policies and the objectives of regenerative farming, there is increasing recognition of the need to improve soil health, biodiversity, and climate resilience.

A multi-stakeholder approach, involving farmers, brands, government entities, and industry leaders, is essential to overcoming the challenges of scaling regenerative practices. The path forward requires fostering collaboration, developing tailored capacity-building programs, improving access to resources and technology, and strengthening market linkages. As China continues to invest in sustainable agricultural practices, regenerative cotton farming has the potential to transform the industry and contribute meaningfully to global sustainability goals, establishing a greener, more resilient cotton supply chain.

For further information on how CottonConnect is supporting the transition to regenerative cotton farming in China, please contact us at:

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FARMER STORY

Sun Wanping, a 45-year-old cotton farmer from Guazhou County, Gansu Province, has 23 years of experience in cotton production. Despite his years of experience Wanping continued to face various challenges such as uneven seed germination due to highly saline-alkali soil, weed control, and pest management. He also believed that more fertiliser meant higher yields. However, in 2023, poor soil health and a red mite outbreak reduced his yield to 1480 kg/acre.

After joining the regenerative pilot programme, Wanping learned to improve soil health, manage saline-alkali soil, and adopt better pest control practices. With expert guidance, his soil remained stable, preventing saline buildup and crust formation. He also adjusted his pest management strategy, applying pesticides only when the pests reached the economic threshold, cutting costs from 500 CNY/acre to 404 CNY/acre. Thanks to favourable weather, adoption of regenerative practices and regular technical support, his yield in 2024 exceeded 2100 kg/acre.

COTTONCONNECT'S REEL REGENERATIVE PILOT PROGRAMME

CottonConnect has been working on a REEL Regenerative Cotton pilot programme in China with 30 farmers in Gansu Province. The programme demonstrates the transformations that regenerative practices can bring into the agroecosystem. In Chinese context it focuses largely on enabling and supporting agricultural practices to improve soil health, increase biodiversity and reduce overuse of water resources in irrigation.

