

WOMEN IN COTTON:

EXPERIENCES FROM WOMEN MITIGATING THE EFFECTS OF CLIMATE CHANGE



Photo by Ahmed Emad

EXECUTIVE SUMMARY

CottonConnect has been implementing the women in cotton for over a decade, fostering entrepreneurship, climate action, and leadership within cotton farming communities. Women play a crucial but often overlooked role in agriculture. Despite contributing significantly to cotton farming, they face multiple barriers, including limited access to training, land ownership, decision-making power, and financial resources. The Women in Cotton Programme works to bridge this gap by fostering leadership, promoting climate-smart agricultural practices, and enhancing economic opportunities for women farmers.

Through a series of focus group discussions and a stakeholder roundtable, we explored how the Women in Cotton initiatives have supported women in adopting climate-smart agricultural practices, overcoming barriers to resources and training, and strengthening their roles in leadership and decision-making.

KEY FINDINGS

◆ Women are benefitting from climate training programmes

The Women's Climate Ambassador Programme has helped empower women farmers with a clear understanding of climate change, which has given them a stronger sense of control over their land and decisions. Participation has also fostered confidence and social recognition, and farmers now engage in more decision-making within their households and communities.

◆ Targeted agricultural practices can support climate change mitigation

Women farmers are adopting sustainable practices such as intercropping, agroforestry, biopesticide use, and water conservation techniques reducing environmental impact while enhancing farm yields.

◆ Climate-friendly practices can positively affect public health

Climate-friendly practices implemented on farms also help to protect people's health. By adopting natural pest control methods, bio-fertilisers, and bio-pesticides, farmers reduced exposure to harmful chemical pesticides and fertilisers, minimising health risks associated with chemical exposure. Tree planting and agroforestry also help to lower local temperatures and provide shade, mitigating heat stress for farmers and their families, especially in areas prone to extreme heat.

◆ Community and systemic change

Cultural norms and societal barriers continue to hinder women's full participation in agriculture. However, the programme helped shift perceptions among families and community leaders to better recognise and support women's roles as farmers and climate stewards.

Recommendations for ensuring long-term sustainability and broader reach of programmes

Engage communities

Engaging men, elders, and youth is key to breaking cultural barriers and ensuring women's empowerment. Inclusive participation fosters respect for women's roles and helps build long-term climate resilience.

Celebrating success and creating champions

Recognizing women farmers' successes can boost confidence, inspire others, and shift societal perceptions, fostering greater support for their role in agriculture.

Increase access to technology, financial literacy, health, and markets

Access to resources, technology, and markets strengthens women's role in agriculture, enhances sustainability, and promotes economic independence. Strengthening links with government schemes and supporting women-led cooperatives can further amplify their impact.

This report underscores the critical role of women in addressing climate challenges and highlights the importance of targeted interventions that equip them with the knowledge and resources to lead change. Brands, retailers, and stakeholders must continue investing in training and systemic improvements that enhance women's access to resources and markets, ensuring a more resilient and equitable future for cotton farming communities.

INTRODUCTION

CottonConnect's Women in Cotton programme has been at the forefront of empowering women farmers for the past ten years. What began as a small initiative, an extension to one of our agronomic farm programmes, has evolved into an area of key focus for us fostering entrepreneurship, climate action, and leadership among women in cotton farming communities.

Over the years, the Women in Cotton initiatives have grown in scale and diversified in themes, placing women firmly at the heart of climate action. This stems from our recognition of the vital role women play, both on and off the field, in agricultural systems. Their significant contributions often go unseen, yet their work is integral to driving sustainability and resilience within cotton farming communities.

As part of our commitment to understanding the impact of our work, we engaged with programme women farmers in India, Pakistan, Egypt and Bangladesh through a series of focus group discussions (FGDs) and a stakeholder roundtable. Our goal was to assess how the Women in Cotton initiatives have supported their journey toward greater climate resilience and to highlight key areas for continued progress. Through this process, we gathered valuable insights into how our initiatives have helped women take meaningful steps toward climate action, ensuring their voices and contributions are heard and valued in the fight against climate change. Additionally, this exercise provided us with important recommendations for both our programme and the wider industry.

CONTEXT

Role of women in cotton farming and the challenges they face

Traditionally, women have been perceived as farm support and help or as the farmer's wife, with men viewed as the primary farmers. However, field insights and interactions reveal that women are actively engaged in and often lead all critical stages of cotton cultivation, from land preparation and planting to harvesting and post-harvest management. In India, our farmers shared that the migration of men to cities for better livelihoods has led to the "feminisation" of agriculture, positioning women as lead farmers. Despite their role, they are under-recognised and often overlooked as the primary target group for training, awareness, and resources crucial for building climate resilience in their communities.¹

Despite their potential as leaders in climate mitigation, women farmers face evolving challenges that limit their full participation. Among the key issues highlighted during our discussions are extreme weather events, which disrupt yields, increase workloads, and impact livestock productivity—an essential income source for many women. Cultural norms often deny women land ownership and decision-making power, even when land is registered in their names, limiting their ability to adopt innovative practices and improve resilience. Balancing farm responsibilities with household duties creates time poverty, restricting opportunities for training and skill development. Furthermore, women often lack access to resources and training, as programmes and financial support tend to prioritise men, with women facing additional barriers such as mobility restrictions, cultural norms, and limited credit access.



Photo by Kirit Parekh

¹ Women In Cotton: Addressing the Impact of Climate Change through Climate-friendly Practices



Importance of placing women at the forefront of climate mitigation

An estimated four out of five people displaced by the impacts of climate change are women and girls. Given their position on the frontlines of the climate crisis, women are uniquely situated to be agents of change — to help find ways to mitigate the causes of global warming and adapt to its impacts on the ground.² Across all geographies, women expressed a strong connection and responsibility to land and community, which gives them unique insights into climate change and how to mitigate it. Their roles as household managers involve securing food, water, and firewood for cooking and family use, often adopting strategies of conscious resource use that align with climate-resilient practices. Additionally, as custodians of indigenous knowledge, they preserve sustainable farming methods and biodiversity while adapting to evolving environmental challenges.² With their traditional expertise and knowledge, women play a pivotal role in advancing sustainable agriculture and building climate-resilient systems, underscoring the critical importance of their involvement in effective climate mitigation strategies.

"When we talk about farmers, the image that comes to mind is often that of a man. Women are often seen as helpers, not leaders or farmers. This lack of recognition excludes them from crucial decision-making processes, training programmes, and financial support, further reinforcing their marginalisation in agriculture."

-Kasturi Roy Chaudary,
COO of Jupiter International Ltd and a member of CottonConnect Gender Advisory Panel

"For years, we viewed climate change as a divine punishment rather than a scientifically explainable phenomenon, unaware that we were contributing to the changes around us. Through programmes such as the Climate Change Ambassador Programme, we've gained valuable awareness of climate change, its causes, and how we can actively contribute to its mitigation."

-Woman cotton farmer,
Gujarat, India

KEY FINDINGS

- ✦ Women are benefitting from climate training programmes
- ✦ Targeted agricultural practices can support climate change mitigation
- ✦ Climate-friendly practices can positively affect public health

Women are benefitting from climate training programmes

Increased understanding of climate change and mitigation practices

Climate training programmes, such as the Women's Climate Ambassador Programme, have empowered women with a clear understanding of climate change. This shift in perspective enables them to approach climate issues rationally and take proactive measures to mitigate its impacts.

These trainings have equipped women with practical skills like intercropping, cover cropping, and agroforestry, which improve soil health, conserve biodiversity, and boost farm productivity. Women shared that armed with awareness and knowledge of sustainable practices, they feel a stronger sense of control over their land and farming decisions. These programmes build on farmers' existing knowledge, helping them understand the cause-and-effect relationship between their actions on the farm and the surrounding environment.

²Why women are key to climate action

"I'm now more curious than ever about sustainable practices. I browse the internet, watch videos, and learn how to grow vegetables at home, even in small pots. It's empowering to know that can make a difference right in my own space."

-Woman cotton farmer,
Samul, Egypt



Increased income and resilience

CottonConnect has found that when women receive specialist training, it helps them develop their role as farmers, especially with regard to income generation and decision-making.³ Involving women is crucial to building climate resilience in communities. The UN reports that communities are more successful in resilience and capacity-building strategies when women are part of the planning process.⁴ Women interviewed shared they have experienced benefits across multiple dimensions—knowledge, awareness, economic stability, and social recognition.

Women reported increased income through improved farming practices and resource management, which helped their families achieve economic stability. Knowing the impact of their actions, they can better manage limited resources, adapt to climate variability, and maintain farm productivity.

Increased confidence and decision-making

Beyond financial benefits, the women farmers reported that the training had increased their confidence, enabling them to engage effectively with peers, community leaders, and decision-makers. Many women feel a newfound recognition as skilled farmers rather than just as farm helps, strengthening their role in family and community decision-making.



Photo by Deepthi Ann Joseph

"As a woman farmer, I've seen our contributions to farming and climate action being recognised more by our families and communities. Although change is slow, we're taking on more decision-making. Men are beginning to respect our roles, and we're gaining visibility as leaders. While many of us still handle domestic tasks, we're starting to be seen as farmers. We're also getting more chances to share our experiences and knowledge within the community."

-Kaumudiben Satishbhai Tadavi,
Regenerative farmer and climate change ambassador, Gujarat, India



"We first implemented the Women Climate Ambassador Programme in 2021. Initially, it was difficult to get women involved, but now families have gradually embraced the programme, with women now participating more freely. The communities now welcome the training programmes, and much of this is due to the growing acceptance from families. We now see families actively encourage women to join these programmes, recognising the valuable benefits of their increased knowledge and skills."

-Hargovanbhai Patel, Director,
Director, Vasundhara Foundation

³ Women in Cotton: Listening to Women's Voices on the Effects of Climate Change

⁴ Five Reasons Why Climate Action Needs Women

TARGETED AGRICULTURAL PRACTICES CAN SUPPORT CLIMATE CHANGE MITIGATION

- ✦ Intercropping and crop diversification
- ✦ Improved water management
- ✦ Tree plantation and agroforestry
- ✦ Biopesticides and natural pest control
- ✦ Soil health and fertility management

Intercropping and crop diversification

Farmers in all four countries shared that they now practice crop diversification through techniques like intercropping, trap crops, and border cropping, which help them reduce risks, improve soil health, control pests, and increase profits.

“Implementing intercropping with crops like soybeans, pigeon peas (Tuver), green gram, and fruit plantations helps diversify income and improve soil health. This practice has been an age-old one but was followed without knowing the reason and the impact it has on land and crops. Now we know better; we know what to plant with cotton.”

**-Regenerative woman cotton farmer,
Gujarat, India**

“We plant cover crops like cluster beans and border crops such as maize to protect our soil from erosion, improve its fertility, and manage weeds naturally. We also use marigold as a trap crop to attract and trap pests, which reduces our reliance on chemical pesticides and helps promote healthier crops.”

-Woman cotton farmer,

Improved water management

Farmers have embraced water management techniques such as drip and furrow irrigation as well as the use of laser levellers. These practices enable efficient water management, resulting in a reduction in the amount of water used for farming.



Photo by Kabeer Lal

A farmer using a laser leveller shared, "using the laser leveller has made a significant difference in our irrigation. It ensures even water distribution, reduces water wastage, and helps our crops thrive, even during times of limited canal water availability. It's a real game-changer for efficient water use."

-Woman cotton farmer,
Punjab, Pakistan

These insights underscore the importance of these methods, particularly in regions facing water scarcity or erratic rainfall due to climate change. By optimising water usage, these techniques not only conserve vital water resources but also reduce the energy required for irrigation, contributing to a lower carbon footprint.



Tree plantation and agroforestry

Women across all geographies shared that they have adopted agroforestry and actively promote tree plantations as key strategies for land management, recognising their numerous benefits. They have planted timber and fruit trees both within and around their farms, with the practice serving multiple purposes. Agroforestry, which combines the cultivation of trees with crops and/or livestock, creates a multifunctional land-use system that delivers a wide range of environmental, social, and economic benefits.

In our discussions with farmers in Egypt, farmers shared that they view tree planting as an important practice for providing shade, which helps mitigate heat stress. In Bangladesh, tree plantations are regarded as a vital contribution to enhancing climate resilience, supporting both environmental sustainability and farmers' long-term productivity.⁵



"The trees we planted not only protect us from the sun's harsh rays but also help cool the surrounding area, making working in the fields a little easier during the heat."

-Woman cotton farmer,
Khulna, Bangladesh

Photo by Kabeer Lal

⁵ Carbon Sequestration in Agroforestry : Unlocking Sustainability

Biopesticides and natural pest control

The shift to biopesticides and natural pest control has proven effective in reducing chemical use. Many farmers now make their own biopesticides using products from around the farm. It's safer for their health, and helps crops thrive without the need for harmful chemicals.

In India, farmers shared that using trap crops and biopesticides has significantly improved pest control and soil health. "By planting marigold as a trap crop, we not only reduced pests but also saved money on pesticides," said a farmer from the region.

"This year, we harvested three crops: maize as a border crop, pigeon peas as an intercrop, and cotton. We sold surplus maize and pigeon peas. Previously, we would plant pigeon peas between cotton, but I never knew the benefits. Pigeon peas helped in enhancing soil fertility; maize kept the bollworms away. It's also more food for the family."

**-Woman cotton farmer,
Gujarat, India**



Soil health management

The introduction and adoption of regenerative practices such as the use of biochar and farmyard manure, have greatly improved soil health in countries such as India and Pakistan.

"A woman cotton farmer in Punjab, Pakistan explained, "The biochar we apply helps retain moisture and improve soil structure, making our land more resilient to drought"



These practices reduce dependence on chemical fertilisers, supporting long-term soil fertility and contributing to climate change mitigation by enhancing carbon storage in the soil.



Photos by Kabeer Lal

CLIMATE-FRIENDLY PRACTICES CAN POSITIVELY AFFECT PUBLIC HEALTH

- ◆ Reduced exposure to chemicals minimises health risks
- ◆ Agroforestry helps improve air quality, lower local temperatures and provide shade
- ◆ Crop diversity offers nutritious food

Reduced exposure to chemicals minimises health risks

Climate-friendly farming practices benefit not only agricultural productivity and livelihoods but also help protect people's health.

By adopting natural pest control methods, biofertilisers, and biopesticides, farmers reduce exposure to harmful chemical pesticides and fertilisers, minimising health risks associated with chemical exposure. Women farmers have highlighted that these practices protect their children's health by preventing exposure to dangerous chemicals.



Photo by Ahmed Emad

Agroforestry helps improve air quality, lower local temperatures and provide shade

Tree planting and agroforestry help lower local temperatures and provide shade, mitigating heat stress for farmers and their families, especially in areas prone to extreme heat.

Additionally, practices like agroforestry and reduced chemical usage also help improve air quality and prevent water contamination, reducing respiratory and waterborne illnesses.



Photo by Kabeer Lal

Crop diversity offers nutritious food

Intercropping and cover cropping improve soil health and crop diversity, ensuring better yields and a variety of nutritious food options for families. Practices like these, which involve crop diversification, reduce crop losses due to unpredictable weather, alleviate stress and improve farmers' mental well-being by providing a sense of security and stability.



Photo by Ravi Ukabhai Gevariya



Photo by Kabeer Lal

Recommendations for ensuring long-term sustainability and broader reach of programmes

During discussions with women farmers, several key strategies were highlighted as essential for maximising the program's impact and ensuring that it benefits a more significant number of women farmers in the future.

Engage families and communities

A key takeaway from discussions was the importance of engaging families and communities, particularly the youth and male family members, in agricultural and climate-related initiatives. Cultural barriers and family responsibilities often limit women's full participation. The Gender Advisory Panel (GAP) emphasised the necessity of inclusivity—actively involving men, elders, and community leaders to challenge patriarchal norms. Their support is crucial in fostering an environment where women's roles in agriculture are respected and valued. Additionally, involving youth in creating future change agents who will advocate for women's empowerment and support climate resilience ensures that the benefits of these interventions are passed on to future generations.



"For long-term success, providing rigorous training to women, coupled with active support from everyone in the community, is essential to breaking down the societal and cultural barriers that hold women back."

-Kinjal Jani,
Project Coordinator, Rudi Multi Trading Company Ltd
unit of Self Employed Women's Association (SEWA)

"It is all about changing attitudes. When everyone—men, women, and community leaders—understands the importance of women's empowerment in agriculture, we can begin to create real, lasting change."

-Jigna Dave,
Secretary, Yoganjali Kelvani Mandal and member of CottonConnect's Gender Advisory Panel

Celebrating success and creating champions

Celebrating the successes of women farmers can have a profound impact in recognising their achievements and creating champions and role models for others. This recognition not only boosts self-esteem but also inspires other women to follow similar paths. The Gender Advisory Panel suggested that public acknowledgement of contributions can help shift societal perceptions, emphasising the vital role women play in agriculture and encouraging broader support for their continued involvement in the sector.

Increase access to technology, financial literacy, health, and markets





Photo by Shubham Gandhi

"Climate change disproportionately affects women and it's essential to bring the latest knowledge to farming communities, empowering the most vulnerable with the tools needed to mitigate climate shocks. While our innovations have proven effective, the true measure of success lies in listening to and amplifying the voices of those on the frontlines."

-Alison Ward,
CEO CottonConnect



Empowering women with access to resources—whether through technology to improve farming practices, financial literacy programmes, or health support services—helps them participate more fully in agriculture. By enhancing mobility and digital literacy, women gain better access to markets, training, and information, amplifying their impact.

Stronger links between sustainable cotton programmes and relevant government schemes are needed. This ensures that women farmers receive additional support, funding, and resources, helping them gain access to all available opportunities and enhancing the long-term sustainability of their efforts.

Access to agricultural tools, inputs, and financial services was a key concern. Women farmers expressed that improving access to these resources would reduce their dependency on middlemen and enable them to run more efficient, sustainable farms. Establishing women-led cooperatives and marketplaces would also facilitate fairer market access, boosting their economic independence.



Photo by Shubham Gandhi

"The markets and other resource sources are still male-dominated. Creating women-led cooperatives and markets would help us market our products fairly and build trust among ourselves. We would have more control over our livelihoods and be able to uplift each other."

-Nitaben Vijaybhai Tadvi,
Regenerative farmer and climate change ambassador,
Gujarat, India



CONCLUSION

The women in cotton programme is more than an initiative – it has been an effort to bring about systemic change in cotton farming communities. By equipping women with the skills and agency to adapt to and mitigate climate change, it ensures that farming households are more resilient to environmental shocks. Through tailored trainings designed to support women with mitigating the effects of climate change, CottonConnect has actively listened to the women in the programmes to address the challenges they face.

Women are benefitting from climate training programmes, such as CottonConnect's Women Climate Change Ambassadors programme. Enhanced skills and knowledge about climate change mitigation have not only led to increased income and resilience but has also built confidence, strengthened their role in family and community decision-making.

The targeted agricultural practices promoted in the programme support climate change mitigation. The techniques have short-term benefits including improved water management, pest control, and diversified income from alternative crops, while ensuring longer-term benefits such as protecting biodiversity, improved soil health, and carbon storage in the soil.

Additionally, climate-friendly practices have had positive affect on community health and well being, with reduced exposure to chemicals, improved air quality, and access to more nutritious food.

Beyond agronomic training, supporting and empowering women to build allies with other community influencers and leaders, developing skills to speak and voice their opinions in local council meetings can significantly amplify the impact and sustainability of the initiatives. This approach also ensures that women are better represented and visible in public forums enhancing their influence on decision-making, advocacy, and leadership. This visibility guarantees that their needs are addressed, amplifies their impact on sustainable initiatives, and promotes gender equality within the community.

From our experience, we know that brands and retailers can play a critical role in strengthening climate resilience in cotton farming. By investing in targeted climate mitigation training for women and supporting broader systemic changes that improve women's access to resources and markets, they can contribute to lasting, transformative change.

A holistic approach that integrates climate education, agronomic training and community leadership can help women cotton farmers both respond to the effects of climate change now, and choose farming techniques that protect the environment and climate in the longer-term.



Photo by Kabeer Lal

"Through the Women in Cotton programmes, we've seen how right knowledge transforms women into leaders of change, driving sustainability and livelihoods. Our interactions with women from different countries during the development of this report further reinforced this transformation. Witnessing their growing confidence—from understanding environmental shifts to taking charge of their farming practices—has been truly inspiring. Their enthusiasm in sharing achievements, whether speaking up in community meetings or leading discussions, highlights the power of empowerment. When women thrive, entire communities grow stronger and more resilient."

-Deepti Ann Joseph,
Manager - Communications, CottonConnect

METHODOLOGY

In 2024, CottonConnect conducted a series of focus group discussions (FGDs) and a roundtable across the countries where it implements its Women in Cotton programmes.



The FGDs were held in Bangladesh and Egypt (one each) and two in Pakistan, and ten to fifteen women participated in each FGD. These included both current and past participants of Women in Cotton programmes. The discussions sought to explore women's perspectives on climate action, the barriers to accessing resources, knowledge, and training, as well as the programme's impact on gender roles, leadership, and decision-making and identify further support needed for their active engagement in sustainable agricultural practices.

The roundtable, organised in India, brought together different stakeholders involved in the programme, including members of the CottonConnect's Gender Advisory Panel, local implementation partners, CottonConnect's senior leadership team members, and most importantly, women cotton farmers. While seeking to explore the same objectives as the FGD, the roundtable also became a platform for farmers and partners to openly voice challenges and highlight gaps they had to overcome to participate in and implement the programme.

Our exercise heard from 70 women, and whilst this sample cannot be considered as an academic study, it gives an indication of the findings that could be explored in a larger research exercise.

Further research recommendations

This exercise could act as a pilot for future study with a larger representation of Women in Cotton programmes. Social change is a long-term process, therefore future research could assess the changes in gender norms and climate resilience over time. Specific findings, such as women becoming more involved in decision-making, can be further explored to understand what type of decisions they are making. Collecting more data and analysis from Women in Cotton programmes could feed into global frameworks promoting women's empowerment.

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CottonConnect is a company with a social purpose to re-imagine the cotton supply chains and help textile producers and farmers enjoy better livelihoods.

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