WOMEN IN COTTON: USE OF TECHNOLOGY
This report explores how greater access to mobile technology can benefit women in cotton farming communities. It uses research and analysis by CottonConnect into the current use of technology by women cotton farmers in India, and results from technology pilot projects in India, China and Peru.

CottonConnect intentionally focuses on women in cotton farming. The report ‘Planting the Seed: A journey to gender equality in the cotton sector’ gave an insight into the gender issues faced by the cotton industry and provided a compelling argument for expanding gender equality programmes within farming communities in India and beyond. The subsequent report, ‘Women in Cotton: Findings from a gendered value chain mapping’, showed how crucial women are to cotton production, and how challenges and opportunities vary across India and China.

This latest report explores how technology can be used to create access to training, increase knowledge, enable decision making and empower women cotton farmers.
1. THE RISK OF A TECHNOLOGY GENDER GAP

Around the world, technology is increasingly being used to advance agricultural practices. In particular, mobile phones are used to provide farmers with agricultural and market information.

Technology can be a force for good, improving knowledge and creating greater connectivity. However, organisations using technology need to consider the uncertain impact on gender equality.

While women benefit from technology in many ways, the World Economic Forum has pointed out trends in technology could harm women’s work prospects globally, as roles that are currently female-dominated become automated, while high-paying roles go to fields currently dominated by men. To avoid a technology gender gap, women must have equitable access to, and use of, technology, as well as influence over how it evolves.

2. HOW WOMEN IN COTTON FARMING CAN BENEFIT FROM TECHNOLOGY

In many growing communities, women play key roles in the planting and harvesting that determines the quantity, quality, and sustainability of cotton farming.

When women increase their knowledge about farming practices and access to markets, this leads to improvements in the quality and value of the cotton crop.

However, women generally report having little or no training in agricultural best practice. CottonConnect has found that without specific outreach efforts just four percent of women join any form of training programme that can assist them in their roles as farmers and champions within their communities.

Technology can enable women to gain greater access to such training, by being able to receive training at a time convenient to them. CottonConnect’s latest research shows that women are willing to receive training through mobile phones, which would fit in with their lifestyle.

“Connecting through technology can be also empowering. It allows women to share ideas, to learn from their peers and build up a social network of support. Women are often not involved in decisions relating to cotton selling. Being considered, by themselves and their families, as cultivators or farmers, they are more likely to contribute to key conversations that focus on safe, sustainable and profitable agriculture,” said Alison Ward, CEO, CottonConnect.
3. UNDERSTANDING THE USE OF MOBILE TECHNOLOGY AMONG WOMEN COTTON FARMERS

Following a pilot programme in India using WhatsApp to communicate with cotton farmers, CottonConnect conducted research in April 2018 to assess opportunities for the use of technology.

Focus groups were created at two village locations, one in Gujarat and one in Maharashtra. A total of 75 farmers participated in the research by completing a questionnaire and participating in a focus group in their local language.

**LIMITED TECHNOLOGY USE BY WOMEN**

- 56% of farmers used smartphones but only 10% of these were women farmers.
- 24% of participating women knew how to use the internet on mobile phones.

Very few women used mobile phones and when they did, it was limited to calling relatives occasionally or during a festival.

**WOMEN ARE INTERESTED IN USING TECHNOLOGY FOR COTTON FARMING**

- Although women’s use of smartphones was very limited, their awareness of the importance of technology in agriculture was high.
- 100% of women farmers said they knew of the importance of technology in agriculture compared with 87% of total farmers.
- 100% of women said they would like to use mobile technology in the future to receive information related to cotton farming. Women were keen to learn how to operate smartphones. 95% of women said they would want to be a part of a mobile technology program by CottonConnect.

**TECHNOLOGY USE IS HIGHER AMONG YOUNG FARMERS**

- Out of all the farmers using smartphones, the majority were young farmers.
- 90% of young farmers used WhatsApp.
- 56% used some mobile payment gateway.
- 100% of young farmers wanted to use mobile technology in the future for cotton farming information.

Many young girls reported having access to smartphones at home.

“**The digital gender gap in rural India is perhaps as a result of deep-seated cultural barriers. Women do use mobile phones but it is limited to communication such as calling relatives on a social occasion. In agriculture, women play a vital role but they face challenges. For example, if a farmer is unaware of market trends, it makes her weaker when it comes to cotton selling negotiations. Her knowledge can be enhanced if she has access to mobile technology. We need to empower women, helping them to understand the power of mobile technology and how they can emerge as farm leaders,**” said Rudrani Oza, CottonConnect’s Farm Innovations Manager in India.

“**Using technology as a tool to encourage two way communication is a powerful way of supporting farmers. Providing a space for people to share knowledge and ideas, to ask one another questions, and to learn from each other’s challenges and successes can be incredibly empowering. Expert advice is important, but so too is input from peers; we are all more likely to try something new if we know other people like us who have tried and succeeded too. Social support is particularly important for women in cotton growing communities given the specific challenges they face.**” said Carly Griggs, Partner, Carnstone Partners Ltd.

Footnote: 1. In each location, there were four groups: 1. A group for people who took part in the WhatsApp programme. 2. A group for people who did not take part in the WhatsApp programme. 3. A group for women. 4. A group for young farmers.
4. TECHNOLOGY PILOTS AMONG COTTON FARMERS

Since 2014, CottonConnect has been trialling the use of mobile technology with male and female cotton farmers taking part in its programmes in India, China and Peru. Each pilot has provided valuable understanding into how best to use technology in rural cotton communities.

INDIA – ASSESSING MOBILE PHONE USE

When deciding how to use technology to benefit cotton farmers in India, CottonConnect first needed to assess farmers’ use of mobile phones. A survey conducted among 2,297 organic cotton farmers in 2016 identified that 88% of the farmers had mobile phones, with 71% using SMS. 42% of farmers were using smartphones and therefore had access to WhatsApp.

In 2016-17, CottonConnect introduced a pilot with three WhatsApp groups of 750 farmers offering a direct information service with tips and advice on sustainable agricultural practices (as per the phase in the crop cycle), available government subsidies, seeds, fertilizers and manures, irrigation systems, plus information about agriculture loans and crop insurance.

The feedback in Gujarat was 100% positive with everyone receiving the messages, using the information and sharing it with other farmers in the village.

In later focus group discussions, farmers said they sometimes felt the messages were too technical to understand and suggested trying to communicate messages through advertisements, jingles and movies. None of the farmers had replied to the messages or asked a question because they thought it was a one-way channel of communication.

The pilot was successful in identifying the benefits of using WhatsApp for farmers with smartphones, and also the additional training and content that was needed to make it more useful. While young farmers are more likely to use WhatsApp, the majority of farmers use basic mobile phones, so a combined approach using SMS would reach more farmers directly.

PERU – THE IMPORTANCE OF TIMELY CONTENT

CottonConnect conducted a pilot project with 1,000 farmers taking part in the REEL Cotton training programme in Piura, Peru in 2015-16. The goal was to support and assist isolated farmers who did not have internet access by providing them with timely agricultural tips to help increase their yield. CottonConnect partnered with Wefarm to provide a platform to receive and send weekly SMS.

The messages were carefully selected to be appropriate for each season. Tips related to El Niño phenomenon in the area took particular importance and generated the highest level of subsequent farmer interaction, as this was not only associated with climate change in the region and its impact in agriculture, but included the release of official cotton dates from the government allowing cotton farmers to start the season.

During the sowing season in January and February, tips on sowing, farming operation, pest management and use of personal protective equipment were sent. From March to June, tips covered pest and water management and other sustainable farming practices. During the harvest season in July to August, tips were sent about the price of cotton.

While extra training was required due to a lack of basic knowledge in using mobile phones, especially among older farmers, the survey results revealed the benefits of joining the SMS programme. Farmers reported receiving timely advice which helped them with their crops, for example how to manage and control pests. They felt supported with expert advice and enjoyed connecting and sharing information with other farmers. 100% of farmers wanted to continue receiving the tips, with 91% interested in receiving tips about other crops.
The farms of smallholder cotton farmers in Xinjiang are usually located far away from the villages. During the cotton growth season (April to August), the farmers need to work on their farms which makes collective training very difficult. However, as more than 90% of farmers use mobile phones, CottonConnect introduced a project, which over the course of four years, utilized SMS and WeChat according to the needs of farmers.

In 2014, a pilot project with 400 farmers began by sending SMS messages about training, weather, pest and disease alerts. These were well received by the farmers, with 90% reading and understanding the messages and 80% taking action based on the content. However, due to the word limit of each message, it was not possible to provide the detailed information and photos that farmers requested.

Around half of the farmers were able to use WeChat to send messages, photos and even short videos to their friends, so in 2016 WeChat was added to the project. During the growth season, more than 20 articles were published with pictures and text about more sustainable cotton projects, cotton planting technology, sand storm warnings, and videos on scientific pest control. An early following of 30 farmers liked the WeChat articles and videos, and shared them with their friends.

By continuing to publish useful articles and videos during the growth season, the followers of the WeChat account increased to 100 in 2017 and 256 in 2018. As more and more farmers used WeChat, CottonConnect started to utilise WeChat group chat. Notification messages were sent from a CottonConnect group chat to Field Executives who then cascaded the messages through their group chat with project farmers. This is such a convenient and low cost method that individual SMS messages are no longer sent.

"It's exciting to launch the new technology pilots for project farmers, providing a much more convenient way to access timely, important information. It's especially rewarding to see how they benefit women farmers. We have found women farmers are eager to learn more to support the health and wellbeing of the family," said Tina Wen, CottonConnect’s Farm Manager in China.
5. **LEARNINGS AND RECOMMENDATIONS**

CottonConnect’s research and technology pilots have identified specific lessons in how technology can be useful in supporting rural cotton farmers, while highlighting the measures needed to ensure women can benefit from such programmes.

The results of the technology pilot projects in India, China and Peru demonstrate the importance of understanding how farmers use mobile phones, and the need to provide training for all farmers to be able to use them. Developing timely and useful content in the right format and language is important, as well as adapting to the most appropriate technology channel in response to farmers’ usage.

CottonConnect recommends organisations especially focus on women when designing programmes to increase the use of technology. By closing the gender gap in the use of technology, women gain more information and knowledge to help with decision making and contributing to cotton production. This requires including men in any gender phased programmes, to challenge social norms and to encourage men to see the benefits of giving women access to technology.

Women farmers have limited access to mobile phones and generally only use them for calls or SMS. Because of limited funds, women may not have the opportunity to buy smart phones or access the internet on a regular basis. Therefore, other options need to be pursued to reach women farmers through mobile technology.

One route could be via the younger members of the family who have mobile phones. Many of the young girls report having access to smartphones. There could be an opportunity to reach the women farmers via the girls in the family, and at the same time encourage the girls to take an interest in farming.

Many existing technological solutions to support farmers focus on one-way communication, for example sharing market prices or the latest news on government related schemes for cotton farmers and subsidies. While this information is important, two-way, interactive communication is also crucial in empowering people to change their actions and behaviours.

Investing in programmes which help women farmers gain access to technology will also help organisations demonstrate their commitment to SDG 5: Gender Equality, Target 5.B “Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women”.

Find out more at [www.cottonconnect.org](http://www.cottonconnect.org).
COTTONCONNECT IS AN ENTERPRISE WITH A SOCIAL MISSION PIONEERING A TRANSPARENT AND SUSTAINABLE COTTON SUPPLY CHAIN FROM RETAILERS TO FARMERS TO BUILD A SUSTAINABLE FUTURE FOR THE COTTON INDUSTRY.

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