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Towards sustainable cotton farming in India: Validating the impact of Better Cotton on cotton farmers in India

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Executive Summary

Better Cotton seeks to create and sustain a thriving cotton sector by developing the capacity of cotton farmers to care for the environment, protect and restore nature and improving their climate resilience, while respecting human rights and improving livelihoods. To achieve this, it works primarily with Programme Partners (PPs) at farm level to enable farmers to adopt more sustainable practices, for example better managing pesticides and fertilisers. In India, there is a particular need to empower smallholder farmers to handle these chemicals more safely, learn precision approaches to efficient application and use more sustainable alternatives.

This study, 'Towards sustainable cotton farming in India', completed by Wageningen University and Research from 2019 to 2022, explores how implementing the practices advocated by Better Cotton leads to reduced costs and improved profitability for cotton farmers in three locations in the Indian regions of Maharashtra (Jalna and Nagpur) and Telangana (Adilabad). The researchers sought to cover 1,360 farmers supported or set to be supported by Better Cotton Programme Partners Deshpande Foundation, World Wide Fund for Nature (WWF-India) and Ambuja Cement Foundation. The majority of farmers involved were middle-aged, literate male smallholders, who use most of their land for agriculture, with around 80% used for cotton farming.

To measure results, the researchers compared the evolution of farming practices, costs and profits of Better Cotton farmers with control group farmers (i.e. farmers in the same area and with similar socio-economic characteristics but not yet receiving support from Better Cotton). In particular, the study captures a snapshot in time of the 2018-19 season (baseline), monitors for any differences against this benchmark the following season (2019-20, midline) and then in 2021-22 (endline).

Progress towards improved profitability

At the time of midline data collection (in 2020 during the Covid-19 pandemic), the farmers did not recall attending many in-person training sessions in their first season with Better Cotton (2019-20). Market and weather conditions were broadly similar, though 17% of farmers also experienced long periods of rain and 18% experienced pest attacks, which led to a less profitable season, compared to the previous season (2018-19, baseline). In the third season with Better Cotton (2021-22, endline), it became clear that farmers following Better Cotton practices achieved improved seasonal profitability by US$ 82 per acre compared to their control group counterparts, as explained below.

• Reduced input use and costs

In the 2021-22 season, more than 75% of farmers participated in the majority of Better Cotton capacity-building activities. According to the Programme Partners, face-to-face interaction improved farmers' trust in the partners and their recommendations. Higher levels of engagement with the programme also enabled participating cotton farmers to learn and implement better farming and decent work practices, particularly in Nagpur. Here, Better Cotton farmers improved their record-keeping practices. As of the 2021-22 season, the proportion of farmers keeping records of inputs used increased from 43% to 97% for Better Cotton and from 39% to 64% for control group farmers in Nagpur. Better Cotton farmers decreased their costs of synthetic insecticide by almost 75%, a more significant decrease compared to control group farmers, who reduced their costs of synthetic insecticides by 47%.

On average, Better Cotton farmers in Adilabad and Nagpur saved US$ 44 on synthetic insecticides and herbicides expenses during the season, significantly reducing their costs. Compared to the baseline findings, 47% of Better Cotton farmers in Nagpur began using bio-insecticides. Additionally, 10% of Better Cotton farmers in Adilabad started using bio-herbicides (significantly higher than 1% of control group farmers), implying less use of synthetic pesticides and less frequent spraying. Better Cotton's Programme Partners promoted high density planting systems and encouraged intercropping to promote soil health and better fibre quality.

• Achieving better cotton prices

Importantly, Better Cotton farmers believe that participating in Better Cotton activities helped them to achieve better prices for their cotton, improved working conditions and higher cotton yields.

Thanks to Better Cotton support, Better Cotton farmers in Nagpur received around US$ 0.135/kg, equivalent to a 13% higher price than the price control group farmers received in the 2021-22 season (and 20% higher than their baseline prices). As communicated by Programme Partners, Better Cotton farmers' fibre quality was perceived to be superior by ginners in the area. Overall, Better Cotton contributed to an increase in farmers' seasonal profitability of US$ 82 per acre, equivalent to about US$ 500 income for an average cotton farmer in Nagpur. These results are vital to improving cotton farmers' livelihoods.

Challenge to resolve: maintaining high yields

Despite the cost savings and improvements in profitability, it must also be noted that yields decreased by an average of 14% compared to 2018-19. This decrease in yields of 87 kg per acre (215 kg per hectare) was greater among Better Cotton farmers than control group farmers in Nagpur. More Better Cotton farmers who reported a decrease in yields had planted cotton late as there was not enough rain. This could explain the greater decrease in yields among Better Cotton cohort farmers compared to control farmers. The Programme Partners also highlighted that more Better Cotton farmers planted cotton together with other crops (intercropping), and suggested that this might cause lower cotton yields among farmers growing intercrop.

Looking ahead

Further study would be needed to explore the reasons behind the low yields experienced by Better Cotton farmers in Nagpur. The researchers are also keen to build on this study to understand the approach leading to better prices in certain areas, and how the same approach could be scaled up within India and beyond. Additionally, they recommend that remote learning should be improved, to better serve farming communities. Finally, they suggest building a full picture of farmers' backgrounds ahead of any evaluation, highlighting any differences in characteristics, and optimising the monitoring of the programme, so that the positive effects of Better Cotton can be better understood.

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