Enabling Outcomes

PRIMARK®

COTTON CONNECT
REIMAGINING THE FUTURE FOR SUPPLY CHAINS

SEWA
SELF EMPLOYED WOMEN'S ASSOCIATION

The Primark Cotton Project

Reflections and Learning Over Ten Years

Researched and authored by Tina Koshy and Caren Holzman
Enabling Outcomes Ltd.

Commissioned by Primark

Table of Contents

Introduction

In 2013, Primark held a strong conviction that it could address transparency, traceability, and sustainability in its sourcing of cotton, and launched a pilot programme working with women cotton farmers in India to make its supply chain more resilient.

Primark wanted to not only forge greater connections, transparency, and traceability, but also to provide these women with the knowledge and resources to grow their cotton more sustainably and to improve their quality of life.

We visited five villages from the Primark Cotton Project* in Surendranagar district of Gujarat, India in August 2023 with SEWA and a Primark representative and conducted seven focus group discussions with 74 women.

These women, now mostly aged 40-60, provided rich oral insights that are contained in this report. As there are no written records held by the women from ten years ago, we relied on their recall, stories, and visits to the cotton fields. We also gained insights from their daughters-in-law who tend to the fields and are using the techniques that they learnt from these heritage farmers.[1]

This open-ended participatory approach to the study provides indicative evidence as to how and why the Primark Cotton Project has contributed to improved resilience, livelihoods, and the longevity of impacts for these women farmers.

Self-Employed Women's Association (SEWA), Primark's local partner, provided logistical support and coordination for these visits with its members. Representatives from SEWA were present during discussions and translated into and from Gujarati. They also provided context and clarifications as needed.

Despite our desire to have spoken with more women for longer, we needed to respect their lives, culture, and traditions.

- 74 Women
- 5 Villages
- Age: 40-60
- Land: 7-8 Acres
- Gujarat, India

Women have little disposable time in their day—they spend their days cultivating cotton and other crops, milking the cows at designated times, cleaning their homes, cooking for their families, and taking care of others—their extended families, neighbours, and friends.

In these small villages, community is paramount. At the time of our visit there were two funerals of villagers. It was also Purushottama Adhika Masa—a particularly auspicious month—which is an important time for older women to take part in religious rituals.

Each village has unique characteristics–i.e. soil composition, proximity to and accessibility of water sources, varying levels of economic prosperity, and cultural dynamics.

The amount of land each farmer has varies as well, but on average is around 7 to 8 acres. Although we present our findings in aggregate, the reality is that the adoption of more sustainable cotton growing is nuanced depending on the village as well as the size of the landholding.

* The Primark Sustainable Cotton Programme was renamed to the Primark Cotton Project in 2024 to align with the latest regulations and guidance on environmental claims. However, nothing about the programme itself has changed. We continue to train and support cotton farmers in agricultural methods which aim to increase the amount of cotton grown, reduce their input costs and therefore boost farmers profits.

[1] Daughters are married and live with their respective in-laws.

Background

Cotton in this region is grown by farmers in rural communities on landholdings that are near to their homes. These farmers are likely to have limited knowledge of environmentally-friendly farming methods and there is low or no access to support or formal training.

In India, cotton has been cultivated for centuries: as a cash crop, it is of great appeal to farmers in cotton growing belts. However, with spiralling costs and extreme climate variations, production has become increasingly unsustainable.

Cotton is highly vulnerable to pests and diseases and long-term chemical usage and consequent soil degradation threaten the livelihoods of farmers. Chemicals stored at home and their improper use can endanger the health of farming families.

By training farmers on better techniques, there is hope of reducing the negative impacts and supporting positive outcomes to make cotton cultivation more sustainable.

The farms provide little more than bare subsistence; given market disruptions and weather variations, farm failure among small land holders is quite high and they often also work for larger landholders to supplement their earnings.[iii]

Land titles are usually in the name of the male head of households; but on family farms, women do most of the labour-intensive manual work in the fields.

As the primary labour in the fields, the assumption is that with the right training and technological support women can be motivated to address the challenges before them for the betterment of themselves, their families, and the environment.

There is also the dynamic of "sisterhood" in rural India, and in particular in Gujarat—where women collaborate, learn from and with each other, and support each other.

Gujarat is the largest producer of cotton in India, and within the state, Surendranagar is the largest cotton district[i], producing quality cotton and serving as a hub of cotton and ginning activities. About **37%** of the land is owned by small farmers in rural communities with an average land holding of around **1.22 hectares (3 acres)[ii].**

[i] Kateshiya, Gopal B. "Cotton sowing goes past 26 lakh hectare mark in Gujarat, highest in 9 years." The Indian Express. August 5, 2023.
[ii] National Bank for Agriculture and Rural Development. PLP 2016 17 Surendranagar District 1 Executive Summary.
[iii] Brittanica. "India: Agriculture, Forestry and Fishing". Accessed Nov 29, 2023.

The Primark Cotton Project Pilot

Partners

The pilot which has evolved into the Primark Cotton Project[2] is the collective work of Primark and its partners CottonConnect and SEWA[3].

CottonConnect's role was to provide strategic programme management plus technical and agriculture knowledge. It served as a technical expert to develop an appropriate sustainable cotton training that would aim to address issues such as soil health, water usage, use of pesticides and herbicides, and other good agricultural techniques, as well as the agri-economics of cotton farming.

Whilst CottonConnect was deemed the right technical partner, Primark selected SEWA as the local delivery partner, as it had the trust and established relationships with women farmers in the region. SEWA, founded in 1972 is a women worker's trade union with membership of 2.5 million women across India. It provides services that include upgrading skills, marketing, access to credit and support that enables better incomes. SEWA's largest membership is in the agricultural sector.

The pilot was designed to deliver practical training on more sustainable cotton cultivation to women farmers in a group setting over a 3-year period. From 2013-2016, with the support of CottonConnect's technical guidance and training, SEWA interacted with these women farmers, guiding them through every stage of cotton production.

SEWA has continued to maintain their relationship with the women farmers even after they graduated from the programme, providing guidance and support when needed. This has benefitted both the women farmers and SEWA: farmers have access to the broad range of services provided by SEWA beyond the Primark programme, and in turn the success of this programme has helped SEWA connect with and deliver more value for women farmers in the region.

Approach

Primark's objective in setting up the programme was to understand and reduce the environmental impact of its cotton, support the livelihoods of cotton farmers and explore how it could change the way it sourced cotton.

Within that, the pilot programme's goal was to introduce 1,251 women to more sustainable and modern farming techniques to increase the quality and quantity of yield and realise better margins.

The programme was designed and delivered through a Train the Trainer methodology. CottonConnect technical experts played the role of Master Trainers who in turn trained the SEWA field executives to deliver the content. CottonConnect remained heavily involved throughout the three years to provide SEWA and the women farmers with technical support that they needed as well as monitoring and evaluation.

SEWA has found through its history that when women take the lead, their approach is collaborative, and their solutions are often unconventional. Primark wanted to promote a collaborative approach that would support women's empowerment. It was important to provide a safe space for discussion and to ensure that women—who are the ones tending to the fields—make informed decisions about how to cultivate the land and optimise their crop.

SEWA met with the women in their office–away from the village. That was intentional so that women had a safe space to learn, share and express their questions and doubts without the interference of men. As their confidence increased, more trainings were delivered in the villages, and the use of training plots helped not only the women, but also convinced men of the value of sustainable production.

The training was designed with women in mind and to be culturally relevant as well as technically sound. One of the key dimensions of the training was the introduction of a chant. Chanting and songs are used in India as a story-telling method. It is a way to help retain information and has the advantage of being shared—so there is a viral nature.

The chant that was designed for the training was a monthly account of activities to cultivate cotton. Murals were also painted in the communities to provide visual cues to reinforce sustainable cotton production.

2. The Primark Cotton Project has continued to be delivered in India and in 2018 and 2019 the programme expanded to Pakistan and Bangladesh respectively with other local NGOs as implementation partners in those countries.
3. SEWA-RUDI (SEWA's Rural Distribution Network and RUDI Multi Trading Company) is the official partner of the Primark Cotton Project.

Key Curriculum Components

The curriculum followed CottonConnect's REEL Cotton Code of Conduct Version 1.0. Key components of more sustainable cotton farming that were imparted to the women farmers through the training included:

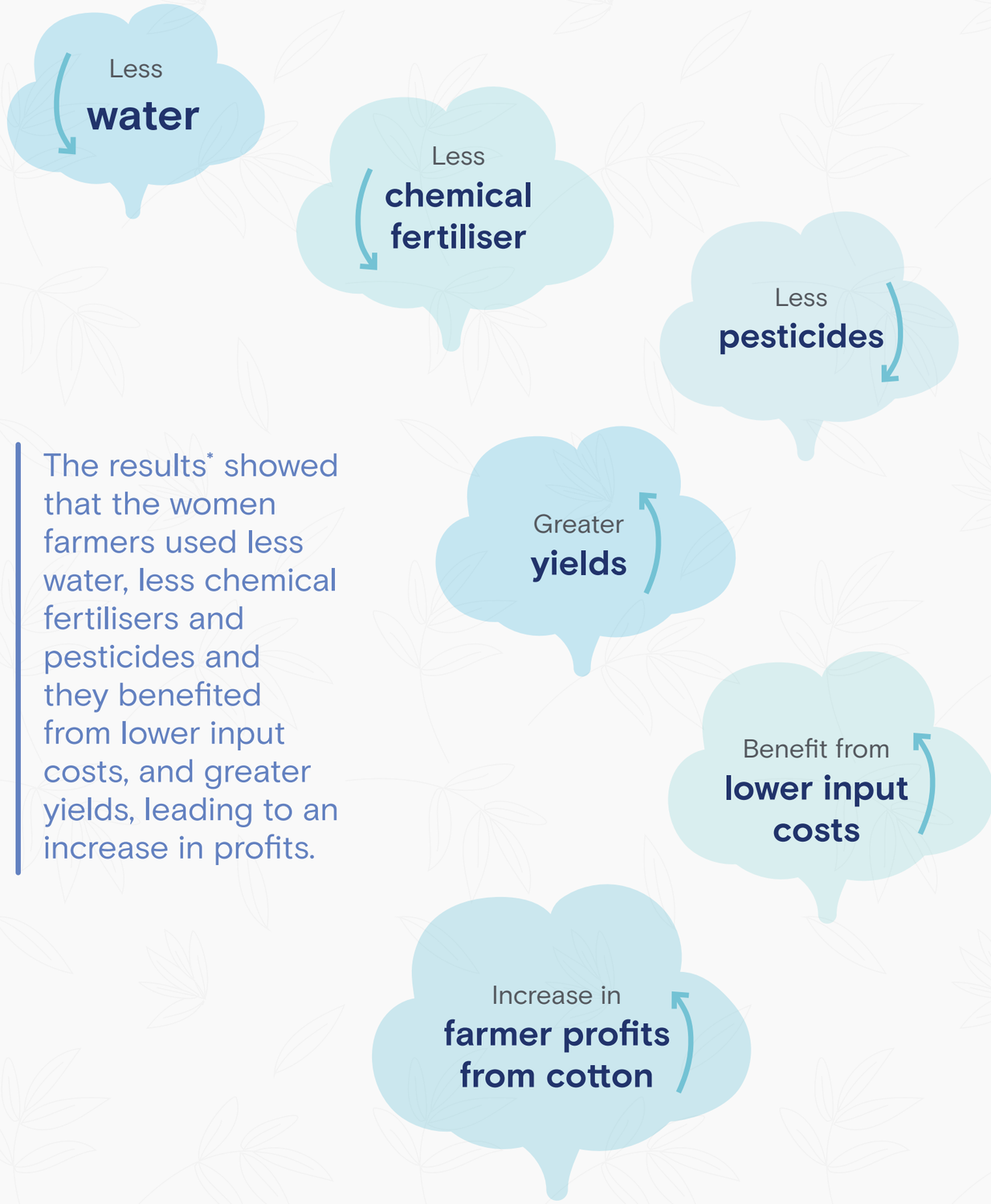
- crop management,
- integrated water management,
- integrated pest management,
- integrated nutrient management,
- decent work,
- health and safety,
- and environmental protection.

This included content addressing pre-harvesting, harvesting, post-harvest handling and storage.

Women farmers were taught about types and biology of pests, diseases, weeds, and natural enemies. They learnt about a variety of home methods to make biological pesticides as well as alternative products that could serve as substitutes for conventional pesticides.

Techniques on weeding, mulching, tillage, ploughing, and crop rotation were shared. They learnt about natural habitats and cultural measures to control pests. Information on rain patterns and irrigation, water conservation and waste management were also imparted. They were shown how to safely store chemicals, use protective equipment, and store their cotton. Fair labour practices were also discussed.

SEWA, in all of its interactions with its members, addresses issues such as agency, empowerment and decision-making, financial literacy, and financial health. It also has advice and financial services it can offer.



The results* showed that the women farmers used less water, less chemical fertilisers and pesticides and they benefited from lower input costs, and greater yields, leading to an increase in profits.

* Results collected in 2016 by CottonConnect based on evidence collected from a sample of pilot participants and using a comparative control group of women farmers.

Ten Year Reflections: The Primark Cotton Project

Growing & Harvesting More Sustainable Cotton

This section summarises what the Enabling Outcomes' team heard from the women when we visited the field.

It reflects the changes that the women have made in their cotton growing and knowledge that they have retained and continue to apply.

Themes include using better seeds, irrigating their fields using water available from the local canal, making their own compost manure, making their own biorational[6] pesticides, reduced dependency on chemicals, improved farming methods, and intercropping.

Seeds and Planting

The women discussed that, due in part to the training, they had switched to truthfully labelled BT seeds[7].

Some mentioned that before the programme they used desi (traditional) seeds, and they would save some of the seeds and use them in the next season. Desi seeds were hardy, but took longer to grow, and the yield was much less as was the price they would get for the cotton.

Others had previously bought seeds, but the quality was not reliable and often the germination rate was erratic if not poor. Women farmers were trained to identify the right type of seed, with guarantee of germination. They were also trained to insist on receipts that would enable them to return seeds that perform below expectation during sample trials.

Now, with BT seeds (and using water from the canal as opposed to depending only on rainwater), the growing period is shorter, the yield is higher, and they obtain a better price.

Women farmers are now deciding on the right seed for their soil type and rainfall pattern, determining the planting distances for optimal yield, and following updates and instructions on the sowing schedule for the seed.

Soil Quality and Composting

The women learnt how to prepare the soil (using manure, compost and vermicompost) to improve the soil quality.

They had been composting prior to the training, but not correctly. They now know how to use their farmyard manure to make a compost over a five-to-six-month period. The nutrient-rich composted farmyard manure is now added to rejuvenate the soil and reduce the dependence on chemical fertilisers.

The women continue to assess the condition of the soil, checking its firmness for moisture content and even adding new soil from dams or rivers to improve the consistency. Every two to three years they have the soil tested. They also learnt the importance of weed management.

6. Biorationals are low-impact substances (relatively non-toxic to people with few environmental side effects) or products that are typically biologically derived.

7. Truthful Label seed is the category of seed produced by cultivators and/or private seed companies and is sold under Truthful Labels, that follow standards prescribed by the Department of Seed Certification in India. Under the Seed Act, the seed producer and seed seller are responsible for the quality of the seed. Truthful labelling is compulsory for notified varieties and tested for physical purity and germination. BT Cotton seeds (bacillus thuringiensis hybrid cotton technology for long staple cotton which also combats bollworm pest attacks) are included in the notified varieties.

Irrigation

The women were traditionally dependent primarily on rainwater; however, four out of the five villages now have access to the Narmada Irrigation canal system.

They now irrigate using the canals or borewells that are 500-800 feet deep. In villages where the canals are active, a few more prosperous farmers have invested in expensive pipelines to their land from the canals. Those who can't afford this option access water from these pipelines in exchange for one-fourth of their crop yield.

Micro-irrigation systems such as drip irrigation and sprinklers are encouraged for efficient water usage. Three participants in the focus groups mentioned that they have invested in drip irrigation for cotton. Women farmers also discussed how they optimise the use of water by irrigating alternate rows and expressed how they know how to use the **"right amount of water at the right times."**

Biorational Pesticides and Reduced Chemical Use

Through the course of the training, the women learnt to make biorational pesticides at home, and were able to explain the importance of using only safe pesticides and getting ahead before pests can get a hold.

After significant rains, the women apply these safe pesticides[8] as sprays. The women are not only preparing green fertilisers and homemade pesticides for their own use, but they also sell them to SEWA's local agri-input centres, set up to enable farmers to gain easy access to natural products.

Some women have stopped using chemical pesticides entirely on their farms, while others claim that 50% of the chemical pesticides have been replaced by homemade natural remedies. While spraying, safety measures like cloth masks, shoes and coats/overshirts are used.

Chemical fertilisers like Urea and DAP are also used in moderation.

Usage has reduced from five bags of chemical fertilisers (150 kg of Urea and 100 kg DAP) to two bags of chemicals (50 kg of Urea and 50 kg of DAP) and three bags of farmyard manure (1500-2000 kg) for one bigha[9] of land.

Whereas chemicals used to be the only solution to address pests, sustainable practices such as pheromone traps, yellow sticky traps and bird perches are now used. Birds sit on the perches and eat pest larvae.

After the rains, pheromone traps and yellow sticky paper are used to trap insects and flies. Women farmers also monitor pest occurrences in the vicinity to take precautionary measures against any infestations.

8. Natural pesticides include dusparni, arkneem ark and aakada, which are botanical products derived from leaves and herbs.
9. Bigha is a traditional unit of land measurement in many states of India. Bigha is not a standard size across the country but varies depending on the region. In Gujarat, 2.5 bighas is considered equivalent to an acre.

Intercropping

Women farmers learnt intercropping. Plants such as sunflower, marigold and maize are planted as a trap crop to manage pests and diseases, and castor is used as a rotation crop to rejuvenate the soil.

Some women farmers noted that they do not follow any specific crop rotation but grow food crops such as mung (green gram) and math (Turkish gram) in between the rows of cotton to enrich the soil.

After the cotton crop, they grow jeera (cumin) and variyali (fennel). They are also planting trees around the perimeter to improve biodiversity. The choice of the right mix of intercrops and border crops is all intended to minimise pest attacks, improve productivity, promote food security, and boost nutrients in the soil.

SEWA is encouraging space optimisation and density planting, which can boost the number of plants grown on one bigha of land, thereby increasing the yield.

Whilst there is interest in more intercropping and potentially growing crops for sale, there is the risk that these crops will attract wild animals that could both damage the crops as well as trample on the cotton plants. Even with electrified fencing, wild animals infringing on the fields is a genuine threat and as a result intercropping is limited.

Harvesting Techniques

To improve production, women farmers de-top to prevent vegetative growth, pinch off small bolls of cotton allowing larger bolls to develop, and wait for bolls to mature before picking.

Mature bolls weigh 2.5 grams on average and one plant can produce 50-55 bolls, based on soil condition and inputs. The number of plants in a bigha can vary from 3,000-3,680 depending on the density of planting.

It is possible to complete the cotton season by December using seeds with a shorter time span and if there is a favourable monsoon in September and October. There can be up to 4 pickings in a season, but 70-80% of the crop comes from the first two pickings, so many women choose to remove the cotton plants after two pickings and grow a winter crop, based on availability of water.

Also, pink bollworm is considered a winter pest, so uprooting the plants after two pickings can neutralise the intensity of a pest attack.

As cotton price is determined by contamination, colour, quality, and moisture content, farmers have switched from plastic bags to cotton bags. They pick the boll from bottom to top to prevent cotton getting soiled, and separately store cotton from each picking. After the cotton is picked, the old crop is chopped and tilled back into the soil using a rotavator.

Outcomes of the Primark Cotton Project

The following are some of the benefits that the women credit the training with delivering.

There were visible differences in the crop health from the more sustainable techniques that were being applied, that inspired the women to keep going and to scale the ideas. Others in the village took notice as well.

> *Initially we tried out SEWA's suggestions in two rows of cotton. When we saw the difference, we started doing this on 5 bighas (2 acres) of land.*
>
> *Then we converted our entire land of 20 bighas (8 acres) to this method. Now the entire village is using natural fertilisers."*

Yields and Profits

The women reported there has been around a four-fold increase in yields over the 10-year period.

To put this into context, the ideal yield for conventional farming in the Surendranagar district after the 2021-22 season was around 850-900 kg/acre depending on favourable climatic and farming conditions, according to CottonConnect. Farmers in the Primark Cotton Project demonstrated an edge over conventional cotton farming with a yield of 800-1000 kg/acre in 2021-22.

	2021-2022
Ideal yield for conventional farming according to CottonConnect	**850-900** kg/acre
Primark Cotton Project *According to interviews with participants	an average yield of **800-1000** kg/acre

> *In one bigha [2.5 acres] of land, we used to get 4 mann [200 kgs/acre] cotton yield; when we switched to farmyard manure and natural fertiliser, the plants grew better, and the yield became 10 mann (500 kgs/acre). Now it is 20 mann [1000 kgs/acre].*

Earnings

Earnings from better yields, lower input costs and higher prices are often used to reinvest in production. This includes the purchase of farm implements, tractors, accessories, topsoil, threshers, and electric fencing.

Earnings have also been invested in the education of children.

Children's education is of great importance to these women, many of whom did not have the benefit of schooling. Part of the increased income from cotton is earmarked for educating children, preferably in private schools, as the farmers believed that a private school education might yield greater opportunities for further education and better job prospects. Farmers speak with great pride of youngsters having completed professional degrees and working in cities even though high schools are not yet a reality in some villages. One of the farmers has 10 girls, all of whom have been educated in private schools in the village where they reside.

Earnings have also been invested in home improvements.

Houses have been renovated; earlier they were small kutcha houses, and now they build more spacious pucca houses[10]. There are also investments in gold jewellery and covering family wedding expenses.

Two wheeled and four wheeled vehicles are also being purchased.

These purchases were happening even 10 years ago, but far less and mostly through loans. Now more of the money to purchase vehicles comes from accrued savings and less through loans.

Despite being in a better financial situation compared to 10 years ago, farmers seek out crop loans, like those offered by SEWA set out in the appendix, as they have many demands on their finances, which not only include sowing cotton, but also other crops (e.g.—wheat and spices), educational needs, and family functions.

Loans for cotton allow the farmers to take care of the sowing and allocate the cash in hand for other needs. Loans also become important to create a credit history, and farmers with loans can be eligible for an interest waiver in the event the government declares a crop loss due to climatic conditions.

When loans are sanctioned after scrutiny of land documents and held as collateral by banks, they become proof and validation of ownership, and hence the farmers' land is safer from land grabbers.

Intercrops and rotation crops have the potential to boost farmers' income. However, as of now, most farmers choose to retain the yield from intercrops such as wheat, pulses and vegetables and consume their harvest in the home, especially when they are grown without chemical inputs.

Many of the women maintain cows for manure and to gain additional income from milk. Women are increasing the number of cows they have to provide sufficient farmyard manure and have milk to use at home as well as to have a surplus to sell for added income.

Key investments from earnings

- production
- education
- home improvements
- vehicle purchase
- access to finance

[10] Kutcha houses are usually made with natural resources such as mud, wood, or thatch as examples. Pucca homes are more solid buildings often constructed with metal, bricks or cement as examples and better withstand the elements and are more durable.

Empowerment & Decision-Making

SEWA as an organisation is known for empowering women and creating community. It does this by reinforcing positive messages, instilling confidence, providing safe spaces for women to speak, working in a community spirit, sharing with trusted advisors, and creating a peer network.

As a result of interacting with SEWA women felt that they gained confidence and more respect from their families after the training. This respect transcends both personal relationships and economic decisions. These changes are exemplified in the following statements.

A respondent expressed the change by stating that 10 years ago they walked around with their faces covered. She pulled the sari scarf over her face and looked down to demonstrate. She then demonstrated that they know have confidence by pulling the sari scarf over her head, looking straight ahead with her face fully visible.

> *We used to be diffident, now we are able to move about confidently, able to talk confidently."*

> *Now the family tends to make decisions together about the type and brand of seeds to purchase, how to manage the crops, hiring of labour, etc."*

> *Earlier we would talk very little at home. Now both husband and wife work together."* The husband who joined this portion of the interview agreed: *"Now, the wife teaches the husband."*

Intergenerational Training & Empowerment and Community Sharing

At least three women that were in the original training sent their daughters-in-law to our discussion groups. These women said:

"We have taught them [our daughters-in-law] everything that we learnt. Now they are doing the work in the fields, so they can share the details on our behalf."

Another farmer accompanied her daughter-in-law to one of the discussions. The daughter-in-law sat in the centre of the group, taking an active part in the discussions, while the mother-in-law sat to one side. The group laughingly acknowledged,

"Ten years ago a mother-in-law and daughter-in-law would not attend a programme together, nor a daughter-in-law speak before elders. Now our daughters-in-law are at the forefront, and they do not require any permission from us to speak."

Through the interviews, we were able to ascertain that at least three people benefit from every person trained. These include learnings shared with daughters-in-law, daughters, the in-laws' families, and neighbours.

Farmers not part of the programme are curious and enquire what we are doing and why. After learning from us, those farmers are also using the techniques introduced by SEWA.

- Whilst we were able to document some of the changes through successful adoption of the various practices shared through the programme, it is difficult to ascertain whether all the 1,251 women farmers have achieved the same level of success as those interviewed[11].
- SEWA estimates that 60-70% of the women farmers made significant changes, as a result of the pilot, have been able to sustain the momentum, and continue to follow the practices they learnt to this day.
- They estimate around 10-15% may have been affected due to unfavourable climatic variations in their area leading to lower yields or crop damage.
- Other farmers may have or had constraints preventing them from implementing the practices or may have chosen to implement only some of the advocated practices during or after the pilot.

[11] There may have been selection bias on the part of SEWA and/or by the women that chose to participate in the interviews.

Challenges Women Farmers Face

The following reflects present-day challenges that the women farmers mentioned for which they are seeking solutions.

Climate

Despite receiving regular advice via SEWA and relying on the good practices that they learnt in the training, climate continues to be a major challenge. The variability and intensity of rainfall has made sowing and harvesting unpredictable. Heavy rains (which arrived in late July in 2023) led to young cotton plants being washed away from large sections of fields in the villages. In one or two villages, it was too late to replant cotton.

> *"Only if we can get 400 kg cotton from 1 bigha of land will there be a real profit. Right now, we get 300 kg of cotton from 1 bigha of land due to climate changes. Any more climate variations can reduce our yield further."*

In low lying areas where the soil has a high ratio of clay, farmers spoke of cotton plants standing in water about two weeks after the heavy rains.

> *"The rich can afford to put in huge quantities of topsoil and more manure. We mix in a small quantity of sand to balance the clay, but as we are close to the Rann [the Little Rann of Kutch—a salt marsh] high salinity is an issue."*

Rains just before picking time create havoc. Even with weather updates, picking all the cotton from 4 to 5 acres (often overnight before the rain starts) is practically impossible. When cotton is ready for harvesting in the entire area, finding and organising sufficient labour overnight or in short order is also a challenge.

Even if the women are successful in harvesting cotton before the rains, they receive lower prices due to the higher moisture levels. Unseasonal rains can also lead to the cotton bolls turning from white to yellow due to excess moisture, affecting the price.

Usually, farmers store cotton in their houses and sleep in the open courtyard. But if there is a family function, they move the cotton outdoors. Facilities for safe storage of cotton protected from rain, moisture, and contamination at an affordable cost is a pressing need.

After the rains, pests tend to proliferate. Pink bollworm and sucking pests cause most harm. The first round of picking is around Navratri (late October in 2023), and if farmers notice pink bollworm infestation, they will pull out the entire crop. Though they can get up to three rounds of picking, many respondents shared they could get only two, sometimes just one.

> *"Last year we stored cotton at home hoping for the prices to stabilise. But some sort of tiny insect invisible to the eye got into the cotton and then all of us at home were under attack, itching like crazy, small blisters forming on the skin. Eventually, we had to sell the cotton at a lower price. We need solutions to prevent and counter such pest attacks[12]."*

COTTON CONNECT
REIMAGINING THE FUTURE FOR SUPPLY CHAINS

According to CottonConnect, when market prices fluctuate, farmers tend to hold on to their cotton stocks in the hope of prices increasing. Cotton quality deteriorates with longer storage and dust mites tend to infiltrate cotton. Insufficient water is also an issue. The farmers report that their yields reduced by 40% when there was not enough water in the canal. They are in a difficult position when relying on the canal water. One woman commented:

> *"We don't have borewells; we depend on water from the canal, and that is not always reliable. We know we should move towards drip irrigation, but we need at least two years to finish existing loans and access fresh loans."*

12. CottonConnect explained that last season, farmers stored cotton at their home for a longer duration I as they were expecting a higher price. During this period, an acaridae mite infestation was observed (a pest commonly found in stored cotton). Due to this mite, farmers who stored cotton in their houses for long experienced itching and blisters on the skin.

Competing Crops

An emerging potential threat is pomegranate cultivation. Private companies have targeted men, offering training, loans for cultivation, and subsidy for drip irrigation.

Since last year, some farmers in one village are growing cotton and pomegranate in alternate rows. This could be a threat to cotton cultivation. Pomegranate cultivation depends heavily on chemical pesticides. It will be important to monitor how such horticultural crops in the region affect cotton production.

Wild Animals

Indian wild asses, an endangered species, and wild pigs are a reality in this part of Gujarat. They forage and roam the fields, destroying crops.

All five villages also reported the menace of wild pig intrusions.

The reasons for intrusion by wild animals are a lack of fencing around farms, the sturdiness of fencing, and food crops grown alongside cotton as intercrops. The high cost of quality fencing is a challenge. There are some attempts by the government to promote group fencing, but they are not deemed very effective.

> *"Our land is close to the Rann. Asses from the Little Rann of Kutch come foraging for food and trample on cotton crops in their attempt to eat the wheat, cumin, fennel and vegetables growing alongside the cotton.*
>
> *We installed an electric fence, but they continue to force their way through in search of food and destroy all vegetation. So, we have stopped growing food crops alongside or after the cotton cycle."*

Labour Costs

Labour costs are increasing, so if women need help, it cuts into their profits.

Current labour rates vary and can fluctuate depending on the hours, urgency, and availability of workers. Normally, labour is hired for picking.

Because of the good rates labourers can secure, some of the women work on other farms to supplement their income. A 65-year-old respondent stated that she picks 100 kgs each day during season[14].

[13.] One Rs (Indian Rupee) is equivalent to approximately .01 GBP (British Pound Sterling).
[14.] According to CottonConnect, 50-60 kgs is the average quantity of cotton picked in a person day.

Needs

First and foremost, the women have asked for training and support to build resilience to combat climate change. This includes training on emerging and improved techniques in farming and safe and affordable storage for cotton.

- **The women are also interested in access to sustainable technologies,** including renewable energy equipment such as biogas, sprinklers, and micro-irrigation systems such as drip irrigation.
- **They need solutions to counter pest attacks, mites,** yellowing of cotton, animal intrusion and competing crops that threaten their sustainable cotton.
- **They also seek longer-term economic and market-based solutions** so that they can take advantage of upswings in the prices. In 2022, the market price was Rs.1900 for a 20 kg bag of cotton at the beginning of the season. When there was a steady supply later in the season, the price fell to Rs. 1500 and further to Rs.1300. Farmers who could afford to held on to their stock until the next season, but those with loans had to liquidate their stock.

"If you give us new things to learn, we will do it."

Takeaways

The women are asking for continued training and support and expressed a hunger to learn. They want to be trained in the field and want inputs and ways to combat climate change.

"We have learnt the basics. Now please give us better (more advanced) things to learn."

Conclusion

Our independent assessment is that this programme has transformed these women in the way that they tend to their cotton fields, apply more sustainable farming practices, and harvest, store and sell their cotton. It has also transformed their ways of interacting in their communities: the women farmers are more communicative, empowered, and proud.

They have benefited from the changes—increased knowledge, improved yields, and greater profits that they have reinvested in their production, their families, and their communities. They are hungry for more information to continue to learn, practice sustainable cotton farming, and to adapt to and mitigate the effects of climate change.

Annex A: SEWA Services

SEWA in addition to the Primark Cotton Project offers a number of services to its members. These services can add value to their cotton cultivation and sales.

SEWA Bank & Access to Finance and Insurance

SEWA developed a bank in 1974 so that women could access capital needed to run and invest in their businesses, save, and access loans without exploitative terms or without having assets in their names.

Although not a formal offer affiliated with the Primark Cotton Project, the farmers we interviewed have accessed SEWA's financial services to invest in their production, in their homes, and in cattle. They have been able to obtain loans through SEWA Bank and in some cases, SEWA has helped facilitate accessing other microfinance institutions where government subsidies are available.

Women had taken loans – for cattle sheds, dairy, to set up fertiliser / pesticide systems, threshers, and tractors with full sets of implements. As most women do not have land ownership documents in their names, SEWA Bank processes loans against Aadhar [identity] cards, so that women with or without land can access credit for their livelihoods.

SEWA Bank links farmers to banks offering the government subsidy for drip irrigation, which reduces water consumption by 50%, fertiliser use by around 60% (1 bag of nitrogen and 3 bags of green fertiliser in lieu of 10 bags of chemical fertilisers) and eliminates the need for weeding. According to SEWA sources, there are at least 15-20 farmers each in two villages (Ravaliyavadar and Ranmalpur) who have so far invested in drip irrigation.

SEWA also facilitates access to insurance by sharing information about the insurance options available to them including government schemes, private schemes, and SEWA's own schemes. SEWA's bank also offers other financial products such as savings accounts, health insurance, and micro-pensions.

Agricultural Tools and Equipment Library

Run by village farmer development groups, these libraries stock modern tools and implements for farmers' use. There are five libraries in Surendranagar district, placed strategically between villages so more farmers can access them, of which two are in Ravaliyavadar and Enjar. Owned and managed by the women farmers, they started with one piece of each product and have been investing in more equipment by reinvesting their earnings.

Members book in advance the dates they wish to rent the equipment from the libraries. Rents are priced 25% lower than prevailing market rates. Tractors, rotavators, trollies, and threshers are in high demand. Access to such equipment has helped farmers increase productivity and created additional employment opportunities for those operating and maintaining these machines. It also helps farmers change their view of themselves, as entrepreneurs engaged in agri-business - both "maalik aur manager" (owner and manager).

Agro Input Centres

There are five active Agri Input Centres. One of them is operational in Ravaliyavadar village. These centres stock eco-friendly fertilisers and pesticides, pheromone traps, yellow sticky paper, and other products used by farmers. In addition, the farmers can sell their homegrown fertilisers and pesticides through these centres.

Integrated Energy Initiative – Hariyali (Greenery)

SEWA is developing a way to facilitate affordable access to clean, green energy solutions like biogas and slurry for the fields. This is a relatively new initiative.

SEWA is setting up two biogas units each in 15 villages of Gujarat, and there is now a waiting list for another 25 units. There are three biogas units operational at Mayapur and two at Ravaliyavadar.

Market Access

A WhatsApp group facilitated by SEWA gives information about prevailing auction rates of cotton at the closest APMC (Agricultural Produce Market Committee) Yard so that farmers can choose to take their cotton for auction to the APMC yard organising their own transport.

When there is more stock, farmers supply to a ginner who has many factories in the district. The ginner's agents, usually residing in the same villages, determine the price based on the moisture content, size, colour, and quality of the cotton. The ginner organises transport to the factories, so farmers with large loads prefer to supply to the ginner.

Advice & Call Centre

SEWA offers a voice/SMS Agro Advisory System which provides recorded information three times a day with weather forecasts, the right time to use fertilisers and pesticides on each crop, the cost of these inputs, and other useful information from preparing soil for sowing to harvesting phase.

In addition, there's a WhatsApp group to share information as well as short demos on various aspects of cultivation. Farmers also have access to a Call Centre connecting them to local agricultural experts for advice and problem solving.

RUDI – Rural Distribution Network

SEWA has a for-profit agri-business company fully owned and operated by women farmers – connecting farmers to consumers. All food crops grown by farmers are accepted.

The company has its own procurement channels, processing centres, packaging units and a distribution network. Farmers sell their produce to RUDI, which is then graded, processed, and packaged into affordable small packages and then redistributed in the villages by SEWA's salesforce - called 'Rudibens' or Rudi Sisters.

This network brings nutrition and food security to over a million households today. In this process, the farmers get fair returns, and the landless labourers get employment. Today, approximately 15,000 small and marginal farmers sell their produce to RUDI, at their doorsteps for rates 20-30% higher than those offered by traders.

Addendum: Methodology

Inputs & Interviews

- Scan of documentation on cotton cultivation in India
- Review of available reports and documents related to Primark Cotton Project
- Discussions with Primark
- Field visit by an Enabling Outcomes team member and Primark team member to SEWA office in Dhrangadhra and five villages in Surendrangar district
- Interviews anddDiscussions with some of the SEWA personnel connected with Primark Cotton Project:
    - Heenaben Dave, Programme Director for Primark Cotton Project
    - Kinjalben Jani, Programme Coordinator for Primark Cotton Project
    - Nainaben Sailesh Parekh, Surendranagar District Coordinator
    - Gambhirbahi, Agronomist
    - Sushilaben, Ushaben, Jaysreeben, Trainers
    - Lalithaben, Field Executive
- Seven Focus group discussions with 74 heritage group of farmers across fiv villages
- Direct interviews with three farmers in two of the villages
- Discussion with Dr. Pinal Dana of the Primary Health Centre (PHC) at Tikar
- Discussion with a healthcare worker who used to visit the villages (now retired)
- Discussion with CottonConnect

Limitations

- The meetings with respondents for both focus group discussions and direct interviews were facilitated by SEWA. Of the 136 respondents shortlisted, only 76 could participate. Deaths in two villages and the month being particularly auspicious (Purushottama Adhika Masa) for older women to take part in religious rituals made it difficult for many of the women to be on site.
- A short window of time – between 2 to 4.30 pm was available for discussions – as women were juggling home and farming duties. By 4.30pm, they had to get back to milk cows and other chores awaiting them. Hence, after one attempt, holding 2 focus groups in each village was modified in favour of just one in each village.
- The farmers were most comfortable in their regional language, Gujarati, so discussions were translated by SEWA to and from Gujarati. Though the translation was seamless, there is a chance of some of the explanations, expressions and nuances being missed in translation.
- There was no access to records or field books maintained by farmers. Hence, the evaluation relied solely on respondents' mental recall of their situation from 10 years ago (2013) and the changes till now.

Enabling Outcomes

Company Registration Number 08100162 | Registered Address: 104 Icemaid Court, 15 Rookwood Way, London, E3 2XG, UK.

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