



2016 study : Available on request

A pilot project with women was undertaken by Micro Credit Innovations Department (MCID), HO, Mumbai and Under The Mango Tree (UTMT)¹ in two of the most backward districts in India, Dhule (Maharashtra) and Dangs (Gujarat).

Impact: A series of baseline and endline surveys were conducted to measure the impact of this project. Quantitative data was also collected during agricultural surveys. Some key findings are highlighted below.

Qualitative Impact:

- The project has succeeded in demonstrating at the field level **the role of bees in pollination**. More than 65% of beneficiaries in both districts now believe that increased crop yields is one of the key benefits of beekeeping.
- The project has **broken gender stereotypes associated with the activity**. Women's perception that beekeeping is for men, has shifted dramatically in the project areas. Initially 80% of beneficiaries in Dhule and Dang felt that beekeeping 'was a man's job'. Today close to 60% of these women feel that both men and women can do beekeeping equally well due to the constant hand holding, training, awareness generation and the emergence of extremely competent local role models.
- **Skill building is a key outcome** as women have become proficient in a range of techniques related to beekeeping – from basic maintenance of beehives to highly technical skills like Natural Colony Transfers (where bee colonies are relocated from the wild into beehives) and division of bee boxes done by local women Master Trainers.
- **Reduced honey hunting** was reported due to awareness of the role of bees and beekeeping, with people choosing to put the bees into a beehive instead of destroying their combs for honey and killing them in the process. This contributes to an improvement in local pollinator density and better ecosystem services for entire villages.

Quantitative Impact: Quantitative impact on agriculture was tracked in the following ways:

- a) **Increase in Production of fruits and vegetables:** A significant increase in production of fruits and vegetables of beekeepers was seen in both the districts (Table 1). To illustrate, on an average in Dhule the production of mango increased by 92% among beekeepers, while it decreased by -52% in the control group (families in similar villages where there was no beekeeping).

Under The Mango Tree has pioneered a unique and innovative programme that takes beekeeping with indigenous bee as an agricultural input to small and marginal farmers in Gujarat, Maharashtra and Madhya Pradesh. More details can be found at www.utmt.in



Table 1: Impact on Fruits and Vegetables, Beekeepers and Non Beekeepers

District	Name of the fruit/ vegetable	Average change in production – Beekeepers, %	Average change in production - Control Group, %
Dhule	Mango	92%	-52%
	Brinjal	48%	-14%
	Chillies	55%	11%
Dangs	Mango	120%	8%
	Custard Apple	85%	13%
	Guava	81%	10%
	Cashew	84%	-8%

b) **Economic Value of yields before and after Beekeeping:** As reported sales were less, especially in Dangs, or some vegetables/fruits were kept for home consumption, the economic value was imputed in these cases. In Dangs, for 35 women from the sample, the economic value of mango output increased by an average of 65%, due to higher yields. 14 women with cashew saw an average increase of 75%. (Table 2)

Name of Crop	No. of Farmers	Total Pdn before bkpg (kgs)	Total Pdn after bkpg (kgs)	Price per kg	Imputed Economic Value before (Rs)	Imputed Economic Value after (Rs)	Difference (Rs)	Average change %
Mango	35	4016	6618	Rs 30	1,20,480	1,98,540	78,060	65%
Guava	14	233	427	Rs 20	4,660	8,540	3,880	83%
Custard Apple	20	488	768	Rs 25	12,200	19,200	7,000	57%
Cashew	14	167	293	Rs 100	16,700	29,300	12,600	75%

Table 2: Dangs: Economic Value of fruits harvested before and after Beekeeping

In the case of vegetables, an increase in yields was reported in brinjal, chillies, drumstick, fenugreek (methi), onion seed, tomato and flat beans (valpapdi) in Dhule, while in Dangs, increases in brinjal, flat beans (valpapdi), chillies and ladies finger were reported.

c) **Actual Sales:** Total sales proceeds of fruits for a group of women beekeepers in Dhule had increased to Rs.1,24,300 compared to before beekeeping total of Rs 26,600 – an increase of Rs. 97,700 (Table 3).

Name of the farmer	Village	Fruit	Amount sold before pollination	Amount sold after pollination	Sales proceeds before pollination (Rs)	Sales proceeds after pollination (Rs)
Avanathi Magan Mavchi	Kevlipada	Mango	150 kg	400 kg	2,000	8,000
		Lemon	1000	3000	1,000	7,500



Bhuya Hiraji Kuwar	Mauchipada	Guava	120 kg	200 kg	3,000	6,000
		Mango	No	300 kg	No	6000
Gajribai Bedyia Wadwi	Kevlipada	Mango	80 kg	100 kg	1,600	2,500
Gunthi Manjya Rajput	Borpada	Mango	No	15 kg	No	600
Lata Sudheer Mavchi	Kevlipada	Mango	20 kg	50 kg	500	1500
Latha Sakharam Kalge	Kevlipada	Guava	No	120 kg	No	2,400
Sayjabai Rawya Kuwar	Kevlipada	Mango	No	30 kg	No	1,200
Situbai Baburao Pawar	Baripada	Mango	NA	NA	1,000	9,000
		Guava	No	NA	NA	600
Situbai Sukrya Bilkule	Kevlipada	Mango	No	50 kg	NA	2,000
Vimal Dileep Wadvi	Mauchipada	Guava	7000 kg	11000 kg	17,500	77,000
TOTAL					26,600	1,24,300

Table 3: Sales Proceeds reported by Beekeepers, Dhule

The increase in income due to sale of vegetables in Dhule was Rs 46,800/-. While Dangs recorded comparatively lower sales, 4 beekeepers reported an increase of **Rs 8,780** from sales of mango, custard apple, guava, cashew.

- d) **Impact on Plot Neighbours:** As bees pollinate plants within a 2 km radius, field surveys of plot neighbours indicated the following:

Table 4: Plot Neighbour Yields vs Control Group

Crop	No. of neighbouring farmers growing the crop	Average change in yields in neighbouring plots (%)	No. of control farmers growing the crop	Average change in yields recorded in control group (%)
Dang-Mango	7	86%	11	6.3%
Dang-Brinjal	5	21%	9	-8%
Dhule -Mango	7	7%	5	-62%
Dhule-Brinjal	5	25%	1	-14%

- e) **New livelihoods in the value chain created:** Local SHG groups in Dangs and Dhule were trained in the production of inputs like swarm bags and bee veils. The Dhule SHG earned Rs. 17,000 and is taking the skill forward by diversifying into tailoring of caps and other items. The tailoring SHG in Dang earned Rs. 9,750 through making swarm bags and bee veils. Both groups are poised to increase their income further through more orders.